

INDIVIDUAL AND FAMILY DEVELOPMENT, HEALTH, AND WELL-BEING

DIANA LANG

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CONTENTS

About the Authors	xi
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Introduction

Introduction to Human Development and Family Studies	2
Lumen Learning	
Defining Human Development and Family Studies	3
Laura Overstreet; Margaret Clark-Plaskie; and Lumen Learning	
Family Influences in Human Development	10
Diana Lang	
Influences of Parenting on Individual and Family Development	13
Diana Lang and Marissa L. Diener	
Periods of Human Development	18
Laura Overstreet and Lumen Learning	
The Lifespan Perspective	29
Laura Overstreet; Margaret Clark-Plaskie; Lumen Learning; and Diana Lang	

Theories

Understanding Theories	44
Sonja Ann Miller; Lumen Learning; Laura Overstreet; and Diana Lang	
Family Systems Theory	51
Diana Lang	
Psychodynamic Theory: Freud	54
Jessica Traylor; Laura Overstreet; and Diana Lang	

Psychosocial Theory: Erikson	66
Sonja Ann Miller; OpenStax College; and Diana Lang	
Behavioral Perspective	72
Sonja Ann Miller; Laura Overstreet; and Diana Lang	
Social Learning Theory: Observational Learning	81
Sonja Ann Miller; Laura Overstreet; and Diana Lang	
Cognitive Theories	85
Psychology Notes Headquarters; Laura Overstreet; Lumen Learning; and Diana Lang	
Humanistic Theory	93
Sonja Ann Miller; Lumen Learning; and Diana Lang	
Contextual Perspectives	100
Sonja Ann Miller; Lumen Learning; Laura Overstreet; and Diana Lang	
Evolutionary and Behavior Genetics	108
Sonja Ann Miller; Lumen Learning; and Diana Lang	

Research

Researching Individuals and Families across the Lifespan	114
Laura Overstreet; Lumen Learning; and Diana Lang	
Research Methods	121
Laura Overstreet; Lumen Learning; and Diana Lang	
Correlational and Experimental Research	127
Lumen Learning; Laura Overstreet; Christie Napa Scollon; Noba Psychology; and Diana Lang	
Developmental Research Designs	136
Margaret Clark-Plaskie; Lumen Learning; Angela Lukowski; Helen Milojevich; and Diana Lang	

Families and Other Influences on Development

ACEs	150
Diana Lang	
Child Abuse, Neglect, and Foster Care	153
Diana Lang and Wikimedia contributors	

Heredity, Prenatal Development, and Birth

Heredity	159
Diana Lang; Martha Lally; Suzanne Valentine-French; Laura Overstreet; and Naomi H. Dan Karami	
Prenatal Development	173
Diana Lang; Martha Lally; Suzanne Valentine-French; Alisa Beyer; Julie Lazzara; and Naomi H. Dan Karami	
Birth	186
Diana Lang; Martha Lally; Suzanne Valentine-French; Laura Overstreet; Julie Lazzara; and Naomi H. Dan Karami	
Adoption	191
Diana Lang	

Infancy and Toddlerhood

Physical Development in Infancy and Toddlerhood	196
Diana Lang; Alisa Beyer; Julie Lazzara; Suzanne Valentine-French; Martha Lally; and Naomi H. Dan Karami	
Nutrition in Infancy and Toddlerhood	208
Naomi H. Dan Karami; Diana Lang; Martha Lally; and Suzanne Valentine-French	
Cognitive Development in Infancy and Toddlerhood	218
Diana Lang; Martha Lally; Suzanne Valentine-French; Laura Overstreet; Lumen Learning; Tera Jones; and Naomi H. Dan Karami	

Social and Emotional Development in Infancy and Toddlerhood	232
Diana Lang; Martha Lally; Suzanne Valentine-French; and Naomi H. Dan Karami	

Early Childhood

Physical Development in Early Childhood	248
Diana Lang; Nick Cone; Laura Overstreet; Stephanie Loalada; Suzanne Valentine-French; Martha Lally; Julie Lazzara; and Jamie Skow	
Cognitive Development in Early Childhood	259
Diana Lang; Nick Cone; Laura Overstreet; Stephanie Loalada; Julie Lazzara; Jessica Traylor; and Jamie Skow	
Psychosocial Development in Early Childhood	276
Diana Lang; Nick Cone; Stephanie Loalada; Laura Overstreet; Lumen Learning; Ross Thompson; Joel A Muraco; Wendy Ruiz; Rebecca Laff; and Jamie Skow	
Education and Media in Early Childhood	297
Diana Lang; Nick Cone; Stephanie Loalada; Laura Overstreet; Martha Lally; Suzanne Valentine-French; and Jamie Skow	

Middle to Late Childhood

Physical Development in Middle to Late Childhood	302
Suzanne Valentine-French; Martha Lally; Stephanie Loalada; Laura Overstreet; Julie Lazzara; Alisa Beyer; Diana Lang; and Naomi H. Dan Karami	
Cognitive Development in Middle to Late Childhood	310
Suzanne Valentine-French; Martha Lally; Laura Overstreet; Julie Lazzara; Alisa Beyer; Diana Lang; and Naomi H. Dan Karami	
Psychosocial Development in Middle to Late Childhood	323
Martha Lally; Suzanne Valentine-French; Julie Lazzara; Laura Overstreet; Alisa Beyer; Diana Lang; and Naomi H. Dan Karami	

Adolescence

Adolescence: Physical, Cognitive, Social, and Emotional Changes	333
Diana Lang; Nick Cone; Tera Jones; and Lumen Learning	
Physical Development in Adolescence	337
Diana Lang; Nick Cone; Tera Jones; Lumen Learning; OpenStax College; Martha Lally; and Suzanne Valentine-French	
Cognitive Development in Adolescence	350
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Tera Jones; and Lumen Learning	
Social and Emotional Development in Adolescence	356
Diana Lang; Nick Cone; Alisa Beyer; Julie Lazzara; Martha Lally; Suzanne Valentine-French; and OpenStax College	
Health in Adolescence	366
Diana Lang and Nick Cone	

Early Adulthood

Introduction to Early Adulthood	375
Alisa Beyer; Julie Lazzara; Diana Lang; Nick Cone; Margaret Clark-Plaskie; Lumen Learning; Martha Lally; and Suzanne Valentine-French	
Physical Development in Early Adulthood	387
Diana Lang; Nick Cone; Margaret Clark-Plaskie; Laura Overstreet; Martha Lally; Suzanne Valentine-French; and Wikimedia Contributors	
Cognitive Development in Early Adulthood	399
Diana Lang; Nick Cone; Margaret Clark-Plaskie; and Laura Overstreet	
Psychosocial Development in Early Adulthood	405
Diana Lang; Nick Cone; Margaret Clark-Plaskie; Laura Overstreet; Martha Lally; and Suzanne Valentine-French	

Relationships in Early Adulthood	416
Diana Lang; Nick Cone; Margaret Clark-Plaskie; Martha Lally; Suzanne Valentine-French; Laura Overstreet; Lumen Learning; Wikimedia Contributors; Sarah Hoiland; and Julie Lazzara	
Education and Work in Early Adulthood	433
Diana Lang; Nick Cone; Margaret Clark-Plaskie; Laura Overstreet; Martha Lally; and Suzanne Valentine-French	
Putting It Together: Early Adulthood	437
Diana Lang; Nick Cone; Julie Lazzara; and Tera Jones	

Middle Adulthood

Physical Development in Middle Adulthood	440
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Ronnie Mather	
Cognitive Development in Middle Adulthood	471
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Ronnie Mather	
Psychosocial Development in Middle Adulthood	485
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Ronnie Mather	
Relationships in Middle Adulthood	505
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Ronnie Mather; and Stephanie Loalada	

Late Adulthood

Introduction to Late Adulthood	532
Diana Lang; Nick Cone; and Sonja Ann Miller	
Physical Development in Late Adulthood	534
Diana Lang; Nick Cone; Sonja Ann Miller; Daniel Dickman; Urtano Annele; K. Jyvakorpi Satu; and E. Strandberg Timo	

The “Graying” Population and Life Expectancy	545
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Sonja Ann Miller	
Health in Late Adulthood: Primary Aging	552
Diana Lang; Nick Cone; Laura Overstreet; Martha Lally; and Suzanne Valentine-French	
Health in Late Adulthood: Secondary Aging	565
Diana Lang; Nick Cone; Sonja Ann Miller; Martha Lally; and Suzanne Valentine-French	
Cognitive Development in Late Adulthood	576
Diana Lang; Nick Cone; Sonja Ann Miller; Martha Lally; and Suzanne Valentine-French	
Psychosocial Development in Late Adulthood	594
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Laura Overstreet; and Sonja Ann Miller	
Putting It Together: Late Adulthood	624
Diana Lang and Nick Cone	

Death, Dying, and Mourning

Why It Matters: Death and Dying	628
Diana Lang; Nick Cone; Sarah Carter; and Laura Overstreet	
Understanding Death	631
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Sarah Carter	
Emotions and Attitudes Related to Death	645
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Sarah Carter; and Margaret Clark-Plaskie	
Grief, Bereavement, and Mourning	655
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Sarah Carter; and Sarah Hoiland	

Facing Death	672
Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Sarah Carter	
Putting It Together: Death and Dying	685
Diana Lang; Nick Cone; and Sarah Carter	

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If you plan to reuse or adapt this text, please notify Dr. Lang by contacting her at baltimore.diana@gmail.com.

Nicholas Cone

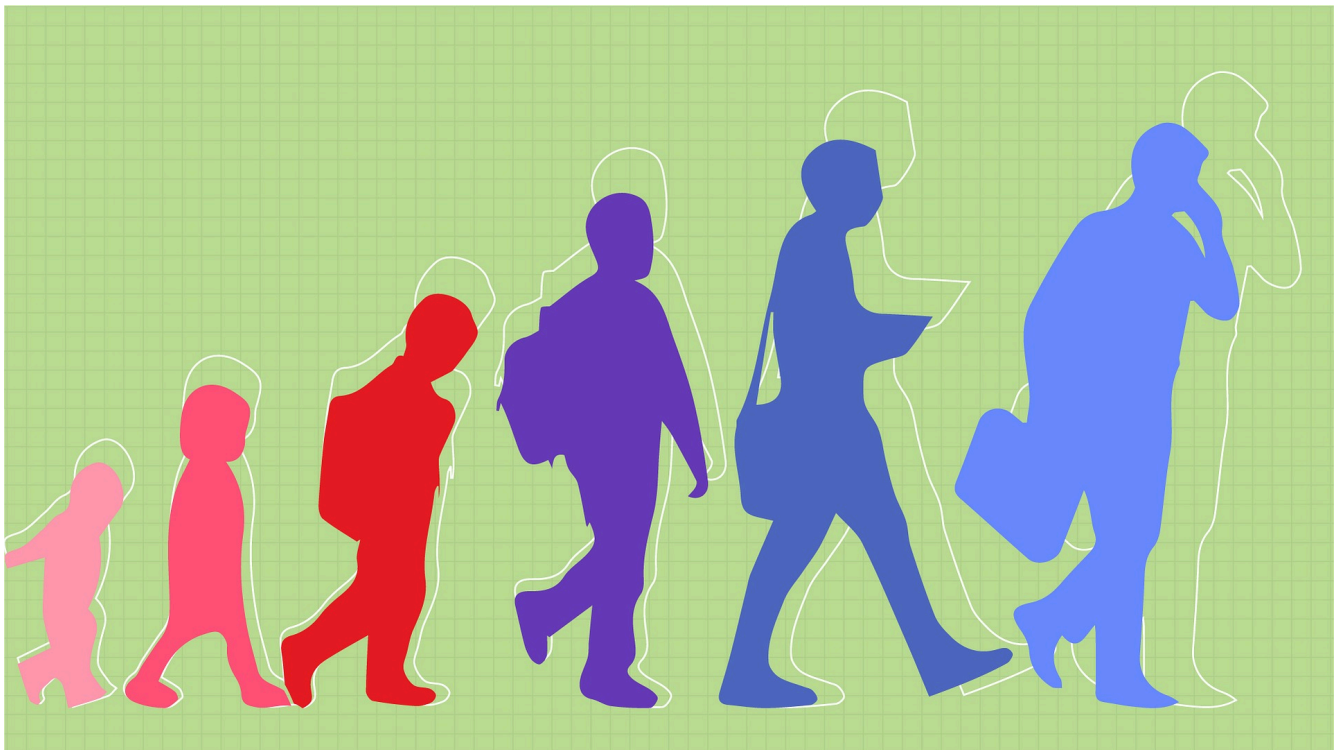
Nick Cone, a graduate student assistant for the course, contributed to the production of the latter half of this textbook, providing support with the curation, copyediting, and design of the content.

INTRODUCTION

INTRODUCTION TO HUMAN DEVELOPMENT AND FAMILY STUDIES

Lumen Learning

In this course, you will learn how to define human development and family studies, identify the stages of human development, examine lifespan developmental tasks (physical, cognitive, language, social, and emotional) from individual and family life theoretical perspectives, and apply contemporary research and course content to individuals and families.



What aspects of ourselves change and develop as we journey through life? We move through significant physical, cognitive, and psychosocial changes throughout our lives—do these changes happen in a systematic way, and to everyone? How much is due to genetics and how much is due to environmental influences and experiences (both within our personal control and beyond)? Is there just one course of development or are there many different courses of development? In this module, we'll examine these questions and learn about the major stages of development and what kind of developmental tasks and transitions we might expect along the way.

DEFINING HUMAN DEVELOPMENT AND FAMILY STUDIES

Laura Overstreet; Margaret Clark-Plaskie; and Lumen Learning

Learning Objectives

- Describe human development and its three domains: physical, cognitive, and psychosocial development
- Explain key human development issues about the nature of change: continuous/discontinuous, one course/multiple courses, and nature/nurture

Domains in Human Development

Human development refers to the physical, cognitive, and psychosocial development of humans throughout the lifespan (Figure 1). What types of development are involved in each of these three domains, or areas, of life? Physical development involves growth and changes in the body and brain, the senses, motor skills, and health and wellness. Cognitive development involves learning, attention, memory, language, thinking, reasoning, and creativity. Psychosocial development involves emotions, personality, and social relationships.



Figure 1. Human development encompasses the physical, cognitive, and psychosocial changes that occur throughout a lifetime.

Physical Domain

Many of us are familiar with the height and weight charts that pediatricians consult to estimate if babies, children, and teens are growing within normative ranges of physical development. We may also be aware of changes in children's fine and gross motor skills, as well as their increasing coordination, particularly in terms of playing sports. But we may not realize that physical development also involves brain development, which not only enables childhood motor coordination but also greater coordination between emotions and planning in adulthood, as our brains are not done developing in infancy or childhood. Physical development also includes puberty, sexual health, fertility, menopause, changes in our senses, and primary versus secondary aging. Healthy habits with nutrition and exercise are also important at every age and stage across the lifespan.

Cognitive Domain

If we watch and listen to infants and toddlers, we can't help but wonder how they learn so much so fast, particularly when it comes to language development. Then as we compare young children to those in middle childhood, there appear to be huge differences in their ability to think logically about the concrete world around them. Cognitive development includes mental processes, thinking, learning, and understanding, and it doesn't stop in childhood. Adolescents develop the ability to think logically about the abstract world (and may like to debate matters with adults as they exercise their new cognitive skills!). Moral reasoning develops further, as does practical intelligence—wisdom may develop with experience over time. Memory abilities and different forms of intelligence tend to change with age. Brain development and the brain's ability to change and compensate for losses is significant to cognitive functions across the lifespan, too.

Psychosocial Domain

Development in this domain involves what's going on both psychologically and socially. Early on, the focus is on infants and caregivers, as temperament and attachment are significant. As the social world expands and the child grows psychologically, different types of play and interactions with other children and teachers become important. Psychosocial development involves emotions, personality, self-esteem, and relationships. Peers become more important for adolescents, who are exploring new roles and forming their own identities. Dating, romance, cohabitation, marriage, having children, and finding work or a career are all parts of the transition into adulthood. Psychosocial development continues across adulthood with

similar (and some different) developmental issues of family, friends, parenting, romance, divorce, remarriage, blended families, caregiving for elders, becoming grandparents and great grandparents, retirement, new careers, coping with losses, and death and dying.

As you may have already noticed, physical, cognitive, and psychosocial development are often interrelated, as with the example of brain development. We will be examining human development in these three domains in detail throughout the modules in this course, as we learn about infancy/toddlerhood, early childhood, middle childhood, adolescence, young adulthood, middle adulthood, and late adulthood development, as well as death and dying.

Who Studies Human Development and Why?

Many academic disciplines contribute to the study of development and this type of course is offered in some schools as psychology (particularly as developmental psychology); in other schools, it is taught under sociology, human development, or family studies. This multidisciplinary course is made up of contributions from researchers in the areas of health care, anthropology, nutrition, child development, biology, gerontology, psychology, and sociology, among others. Consequently, the stories provided are rich and well-rounded and the theories and findings can be part of a collaborative effort to understand human lives.

The main goals of those involved in studying human development are to describe and explain changes. Throughout this course, we will describe observations during development, then examine how theories provide explanations for why these changes occur. For example, you may observe two-year-old children to be particularly temperamental, and researchers offer theories to explain why that is. We'll learn a lot more about theories, especially developmental theories, in the next module.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=26#h5p-30>

Key Issues in Human Development

There are many different theoretical approaches regarding human development. As we

evaluate them in this course, recall that human development focuses on how people change, and the approaches address the nature of change in different ways:

- Is the change smooth or uneven (continuous versus discontinuous)?
- Is this pattern of change the same for everyone, or are there different patterns of change (one course of development versus many courses)?
- How do genetics and environment interact to influence development (nature versus nurture)?

Is Development Continuous or Discontinuous?

Continuous development theorists view development as a cumulative process, gradually improving on existing skills (Figure 2). With this type of development, there is a gradual change. Consider, for example, a child's physical growth: adding inches to their height year by year. In contrast, theorists who view development as **discontinuous** believe that development takes place in unique stages and that it occurs at specific times or ages. With this type of development, the change is more sudden, such as an infant's ability to demonstrate awareness of object permanence (which is a cognitive skill that develops toward the end of infancy, according to Piaget's cognitive theory—more on that theory in the next module).

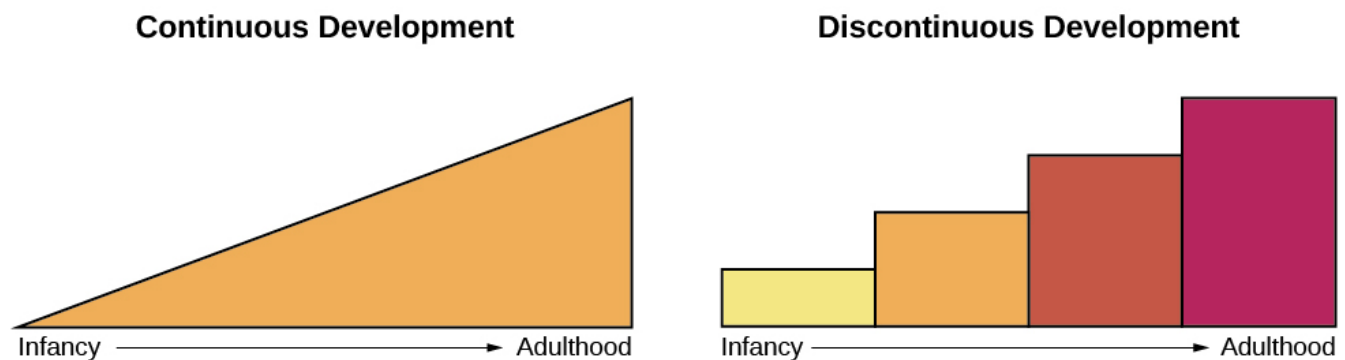


Figure 2. The concept of continuous development can be visualized as a smooth slope of progression, whereas discontinuous development sees growth in more discrete stages. (Image Source: OpenStax Psychology, CC BY 4.0)

Is There One Course of Development or Many?

Is development essentially the same, or universal, for all children (i.e., there is one course of development) or does development follow a different course for each child, depending on the child's specific genetics and environment (i.e., there are many courses of development)? Do

people across the world share more similarities or more differences in their development? How much do culture and genetics influence a child's behavior?

Stage theories hold that the sequence of development is universal (Figure 3). For example, in cross-cultural studies of language development, children from around the world reach language milestones in a similar sequence.¹ Infants in all cultures coo before they babble. They begin babbling at about the same age and utter their first word around 12 months old. Yet we live in diverse contexts that have a unique effect on each of us. For example, researchers once believed that motor development followed one course for all children regardless of culture. However, childcare practices vary by culture, and different practices have been found to accelerate or inhibit the achievement of developmental milestones such as sitting, crawling, and walking.²

For instance, let's look at the Aché society in Paraguay. They spend a significant amount of time foraging in forests. While foraging, Aché mothers carry their young children, rarely putting them down in order to protect them from getting hurt in the forest. Consequently, their children walk much later: They walk around 23–25 months old, in comparison to infants in Western cultures who begin to walk around 12 months old. However, as Aché children become older, they are allowed more freedom to move about, and by about age 9, their motor skills surpass those of U.S. children of the same age: Aché children are able to climb trees up to 25 feet tall and use machetes to chop their way through the forest.³ As you can see, our development is influenced by multiple contexts, so the timing of basic motor functions may vary across cultures. However, the functions are present in all societies.

-
1. Gleitman, L. R., & Newport, E. L. (1995). The invention of language by children: Environmental and biological influences on the acquisition of language. In L. R. Gleitman & M. Liberman (Eds.), *An invitation to cognitive science, Vol. 1: Language*. (2nd ed.) (pp. 1–24). MIT Press.
 2. Karasik, L. B., Adolph, K. E., Tamis-LeMonda, C. S., & Bornstein, M. H. (2010). WEIRD Walking: Cross-cultural research on motor development. *Behavioral & Brain Sciences*, 33(2-3), 95–96.
 3. Kaplan, H., & Dove, H. (1987). Infant development among the Aché of Eastern Paraguay. *Developmental Psychology*, 23, 190–198.



(a)



(b)

Figure 3. All children across the world love to play. Whether in (a) Florida or (b) South Africa, children enjoy exploring sand, sunshine, and the sea. (Image a: modification of work by “Visit St. Pete/Clearwater”/Flickr; Image b: modification of work by “stringer_bel”/Flickr; CC-BY-2.0)

How Do Nature and Nurture Influence Development?

Are we who we are because of **nature** (biology and genetics), or are we who we are because of **nurture** (our environment and culture)? This longstanding question is known in psychology as the nature versus nurture debate. It seeks to understand how our personalities and traits are the product of our genetic makeup and biological factors, and how they are shaped by our environment, including our parents, peers, and culture. For instance, why do biological children sometimes act like their parents—is it because of genetics or because of early childhood environment and what the child has learned from their parents? What about children who are adopted—are they more like their biological families or more like their adoptive families? And how can siblings from the same family be so different?

We are all born with specific genetic traits inherited from our parents, such as eye color, height, and certain personality traits. Beyond our basic genotype, however, there is a deep interaction between our genes and our environment. Our unique experiences in our environment influence whether and how particular traits are expressed, and at the same time, our genes influence how we interact with our environment.⁴⁵ There is a reciprocal interaction between nature and nurture as they both shape who we become, but the debate continues as to the relative contributions of each.

4. Diamond, A. (2009). The interplay of biology and the environment broadly defined. *Developmental Psychology*, 45(1), 1–8.

5. Lobo, I. (2008) Environmental influences on gene expression. *Nature Education* 1(1), 39.

Why Do Scientists Study Family Development?

In the next section, we will examine family studies—the influences of families on human development.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=26#h5p-3>

Key Terms

- **continuous development:** the idea that development is a progressive and cumulative process, gradually improving on existing skills
- **discontinuous development:** idea that development takes place in unique stages and occurs at specific times or ages
- **nature:** the influences of biology and genetics on behavior
- **nurture:** environmental, social, and cultural influences on behavior

FAMILY INFLUENCES IN HUMAN DEVELOPMENT

Diana Lang

Learning Objectives

- Define, describe, and understand family studies and family science
- Understand, examine, and explain the interconnected of families and human development

Why Do Scientists Study Family Development?

In the next section, we will examine family studies—the influences of families on human development.

The family is central in most individuals' and children's lives because it is through experiences with their families that people learn about themselves and the world around them. Hence the development of family science (sometimes referred to as family studies) as a discipline. **Family science**¹ is the scientific study of families and close interpersonal relationships. These scientists perform research, develop theory, work with people, teach, and apply findings to make practical implications for individuals and families. The terms “family member” and “family” are used within this book to define the people who are primarily responsible for rearing and parenting, including parents, extended family members, guardians, and foster families.

Family structures, processes, and functions must be assessed in order to understand the role family members have in individual development.²

1. National Council on Family Relations. (2022). *What Is Family Science?* <https://www.ncfr.org/about/what-family-science>

2. Hammond, R., Cheney, P., & Pearsey, R. (2015). *Sociology of the Family*. Rocky Ridge Press. http://freesociologybooks.com/Sociology_Of_The_Family/01_Changes_and_Definitions.php

Family Structures



Figure 1. A family with two parents and two children. (Photo Credit: Emma Bauso, Pexels License)

“Family structures” delineate household members who are related by blood or legal ties; this concept typically assumes there is at least one child younger than 18 years of age residing in the household. Specific structures include two-parent, one-parent, and “living with neither parent” (e.g., grandparents or other relatives rearing a child, families providing foster care, and children living in institutionalized settings), blended families, single-parent plus partner families (cohabiting couples, for example), multigenerational families, binuclear families, and adoptive families.

The U.S. Census Bureau utilizes these definitions of “family structures”:

- **Nuclear family:** a child lives with two married biologically-related parents and with only full siblings, if siblings are present.
- **Cohabiting families:** a child’s parent lives with at least one opposite-sex, non-related adult. This additional adult may or may not be the biological parent of the child.
- **Same-sex cohabiting/married families:** a child’s parent lives with at least one same-sex, non-related adult. The additional adult may or may not be the biological parent of the child.
- **Stepfamilies and blended families (terms used interchangeably):** children who live in a household formed through remarriage resulting in children living with one or no biologically-related parents. The presence of a stepparent, stepsibling, or half-sibling designates a family as blended.³

Family Processes

“Family processes” are the ways in which families internally function to navigate cognitive,

3. United States Census Bureau. (2019). *Historical living arrangements of children*. <https://www.census.gov/data/tables/time-series/demo/families/children.html>

social, and emotional events. Examples include how families adapt, communicate, cope, problem solve, parent, rear children, make decisions, plan, and lead.⁴

Family Functions

Many “family functions” are similar to parenting tasks, goals, and responsibilities. However, it is important to understand how “family functions” and parenting tasks impact each other. The following is a list of somewhat universal family functions (e.g., almost all families in all countries worldwide have some of these in common):

- **Economic support:** providing basic needs, such as food, shelter, clothing, etc.
- **Emotional support:** providing love, comfort, intimacy, companionship, nurturing, belongingness, etc.
- **Socialization of children:** rearing children, parenting, helping children function to the best of their abilities within their society.
- **Control of sexuality:** defining and managing when and with whom (e.g., marriage) sexuality occurs.
- **Procreation:** contributing to the continuation of society and offspring.
- **Ascribed status:** providing a social identity (e.g., social class, race, ethnicity, kinship, religion, etc.)⁵



Figure 2. This infant getting immunization shots is being provided for in ways that not all families can afford. (Photo Credit: Maria Immaculata Hospital, CC BY-SA 4.0)

4. Pasley, K., & Petren, R. E. (2015). Family structure. In *Encyclopedia of Family Studies*, C. L. Shehan (Ed.) John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119085621.wbefs016>

5. Hammond, R., Cheney, P., & Pearsey, R. (2015). *Sociology of the Family in Introduction to Sociology Textbook*. Rocky Ridge Press. http://freesociologybooks.com/Sociology_Of_The_Family/01_Changes_and_Definitions.php

INFLUENCES OF PARENTING ON INDIVIDUAL AND FAMILY DEVELOPMENT

Diana Lang and Marissa L. Diener

Parenting is a complex process in which parents and children both impact one another. There are many reasons that parents behave the way they do. The multiple influences on parenting are still being explored. Proposed influences on parental behavior include:

1. parent characteristics,
2. child characteristics, and
3. contextual and sociocultural characteristics.^{1 2}

Parent Characteristics

Parents bring unique traits and qualities to the parenting relationship that affect their decisions as parents. These characteristics include a parent's age, gender identity, personality, developmental history, beliefs, knowledge about parenting and child development, and mental and physical health. Parents' personalities also affect parenting behaviors. Parents who are more agreeable, conscientious, and outgoing are warmer and provide more structure to their children. Parents who are more agreeable, less anxious, and less negative also support their children's autonomy more than parents who are anxious and less agreeable.³ Parents who have these personality traits appear to be better able to respond to their children positively and provide a more consistent, structured environment for their children.

Parents' developmental histories, or their experiences as children, can also affect their parenting strategies. Parents may learn parenting practices from their own parents. Fathers

-
1. Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, 55(1), 83-96.
 2. Demick, J. (1999). Parental development: Problem, theory, method, and practice. In Mosher, R. L., Youngman D. J., & Day J. M. (Eds.), *Human development across the life span: Educational and psychological applications* (pp. 177-199). Praeger.
 3. Prinzie, P., Stams, G. J., Dekovic, M., Reijntjes, A. H., & Belsky, J. (2009). The relations between parents' Big Five personality factors and parenting: A meta-review. *Journal of Personality and Social Psychology*, 97(1), 351-362.

whose own parents provided monitoring, consistent and age-appropriate discipline, and warmth are more likely to provide this constructive parenting to their own children.⁴ Patterns of negative parenting and ineffective discipline also appear from one generation to the next. However, parents who are dissatisfied with their primary caregivers' approach may be more likely to change their parenting methods when they have children.

Child Characteristics

Parenting is bidirectional. Not only do parents and caregivers affect their children, but children influence their parents/primary caregivers as well.⁵ Child characteristics, such as gender identity, birth order, temperament, and health status, can affect child-rearing behaviors and roles. For example, an infant with an easy temperament may enable caregivers to feel more effective, as they are easily able to soothe the child and elicit smiling and cooing. On the other hand, a cranky or fussy infant can elicit fewer positive reactions from caregivers and may result in parents feeling less effective in the role.⁶ Over time, parents of more difficult children may become more punitive and less patient with their children.⁷⁸ Many parents who have a fussy, difficult child have been found to be less satisfied with their relationships and have greater



Figure 1. A child with a difficult temperament can have a significant impact on a parent.

(Photo Credit: Harald Groven, CC BY-SA 2.0)

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4. Kerr, D. C. R., Capaldi, D. M., Pears, K. C., & Owen, L. D. (2009). A prospective three generational study of fathers' constructive parenting: Influences from family of origin, adolescent adjustment, and offspring temperament. *Developmental Psychology*, 45(1), 1257-1275.
 5. Child Characteristics is adapted from "The Developing Parent" by Marisa Diener, licensed CC BY NC SA.
 6. Eisenberg, N., Hofer, C., Spinrad, T., Gershoff, E., Valiente, C., Losoya, S. L., Zhou, Q., Cumberland, A., Liew, J., Reiser, M., & Maxon, E. (2008). Understanding parent-adolescent conflict discussions: Concurrent and across-time prediction from youths' dispositions and parenting. *Monographs of the Society for Research in Child Development*, 73(2), 1-160.
 7. Clark, L. A., Kochanska, G., & Ready, R. (2000). Mothers' personality and its interaction with child temperament as predictors of parenting behavior. *Journal of Personality and Social Psychology*, 79, 274-285.
 8. Kiff, C. J., Lengua, L. J., & Zalewski, M. (2011). Nature and nurturing: Parenting in the context of child temperament. *Clinical Child and Family Psychology Review*, 14(1), 251-301. <https://doi.org/10.1007/s10567011-0093-4>

challenges in balancing work and family roles.⁹ Thus, child temperament is one of the child characteristics that influences how caregivers behave with their children.

Another child characteristic is the child's gender identity. Some parents assign different household chores to their children based on their child's gender identity. For example, older research has shown girls are more often responsible for caring for younger siblings and household chores, whereas boys are more likely to be asked to perform chores outside the home, such as mowing the lawn.¹⁰ Research has also demonstrated that some parents talk differently with their children based on their child's gender identity, such as providing more scientific explanations to their sons and using more emotion words with their daughters.¹¹

Contextual Factors and Sociocultural Characteristics

The parent-child relationship does not occur in isolation. Sociocultural characteristics, including economic hardship, religion, politics, neighborhoods, schools, and social support, can also influence parenting. Parents who experience economic hardship tend to be more easily frustrated, depressed, and sad, and these emotional characteristics can affect their parenting skills.¹² Culture can also impact parenting behaviors in fundamental ways. Although promoting the development of skills necessary to function effectively in one's community, to the best of one's abilities, is a universal goal of parenting, the specific skills necessary vary widely from culture to culture. Thus, parents have different goals for their children that partially depend on their culture.¹³ For example, parents vary in how much they emphasize goals for independence and individual achievements and goals involving maintaining harmonious relationships and being embedded in a strong network of social relationships.

9. Hyde, J. S., Else-Quest, N. M., & Goldsmith, H. H. (2004). Children's temperament and behavior problems predict their employed mothers' work functioning. *Child Development*, 75, 580–594.

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13. Tamis-LeMonda, C. S., Way, N., Hughes, D., Yoshikawa, H., Kalman, R. K., & Niwa, E. Y. (2007). Parents' goals for children: The dynamic coexistence of individualism and collectivism in cultures and individuals. *Social Development*, 17(1), 183–209. <https://doi.org/10.1111/j.1467-9507.2007.00419.x>

Video Example

Watch Dr. Dan Siegel describe how caregivers can impact brain development.

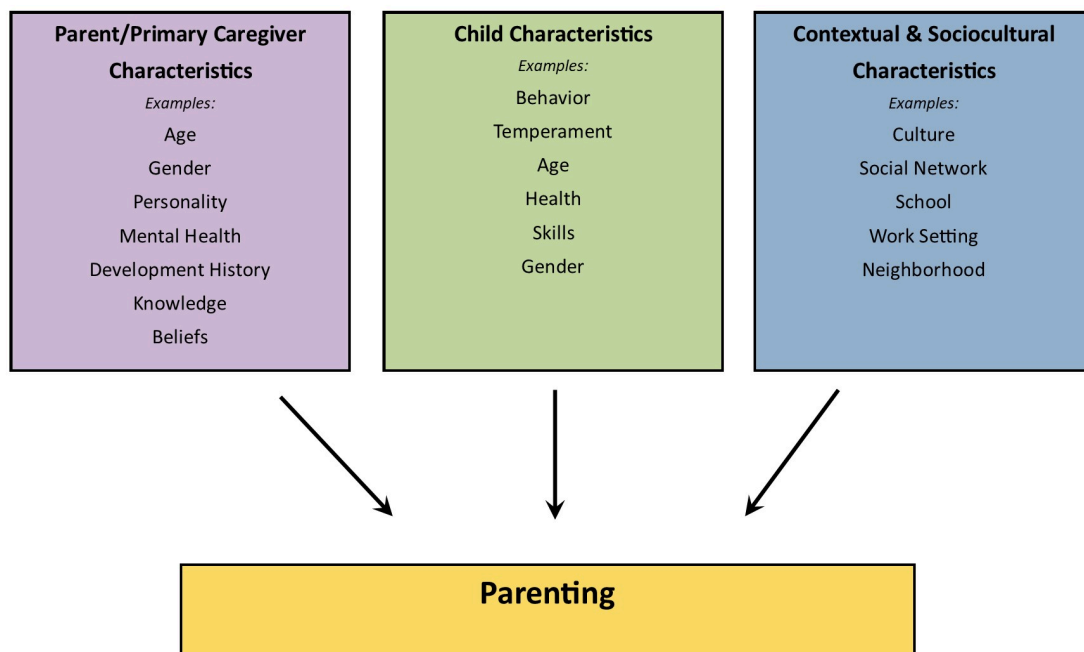


Figure 2. Influences on parenting can stem from internal factors such as the parent or child's characteristics or external, sociocultural characteristics. (Image Source: Marissa L. Diener, The Developing Parent, CC BY NC SA 4.0)

These differences in parental goals can also be influenced by culture and immigration status. Other important contextual characteristics, such as the neighborhood, school, and social networks, can affect parenting, even though these settings do not always include both the child and the parent.¹⁴ For example, Latina mothers who perceived their neighborhood as

14. Bronfenbrenner, U. (1989). Ecological systems theory. *Annals of Child Development*, 6(1), 187-249.

more dangerous showed less warmth with their children, perhaps because of the greater stress associated with living in a threatening environment.¹⁵

Summary: Many Factors Can Influence Parenting and Child Outcomes

Parenting factors include characteristics of the primary caregiver, such as gender identity and personality, as well as characteristics of the child, such as age and temperament. Parenting styles provide reliable indicators of parenting functioning that predicts child well-being across a wide spectrum of environments and diverse communities. Caregivers who consistently engage in high responsiveness and appropriate demandingness with children are linked to more “quality” outcomes for youth.

The interaction among all these factors creates many different patterns of parenting behaviors. For instance, parenting influences a child’s development as well as the development of the parent or primary caregiver. And, as parents face new challenges, they change their parenting strategies and construct new aspects of their identities. Furthermore, the goals and tasks of parents may change over time as their children develop.¹⁶¹⁷ However, the next page outlines *typical* parenting tasks, roles, goals, and responsibilities that extend across cultures and time.

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15. Gonzalez-Backen, M. A., Updegraff, K. A., & Umaña-Taylor, A. J. (2011). Mexican-origin adolescent mothers’ stressors and psychosocial functioning: Examining ethnic identity affirmation and familism as moderators. *Journal of Youth and Adolescence*, 40(2), 140-157. <https://doi.org/10.1007/s10964-010-9511-z>
 16. Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence*, 11, 56-95. [10.1177/0272431691111004](https://doi.org/10.1177/0272431691111004)
 17. Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development*, 67, 3296-3319. [doi:10.2307/1131780](https://doi.org/10.2307/1131780)

PERIODS OF HUMAN DEVELOPMENT

Laura Overstreet and Lumen Learning

Learning Objectives

- Describe the basic periods of human development

Think about the lifespan and make a list of what you would consider the basic periods of development. How many periods or stages are on your list? Perhaps you have three: childhood, adulthood, and old age. Or maybe four: infancy, childhood, adolescence, and adulthood. Developmentalists often break the lifespan into eight stages:

1. Prenatal Development
2. Infancy and Toddlerhood
3. Early Childhood
4. Middle Childhood
5. Adolescence
6. Early Adulthood
7. Middle Adulthood
8. Late Adulthood

In addition, the topic of “Death and Dying” is usually addressed after late adulthood since overall, the likelihood of dying increases in later life (though individual and group variations exist). Death and dying will be the topic of our last module, though it is not necessarily a stage of development that occurs at a particular age.

The list of the periods of development reflects unique aspects of the various stages of childhood and adulthood that will be explored in this book, including physical, cognitive, and psychosocial changes. So while both an 8-month-old and an 8-year-old are considered children, they have very different motor abilities, cognitive skills, and social relationships. Their nutritional needs are different, and their primary psychological concerns are also

distinctive. The same is true of an 18-year-old and an 80-year-old, both considered adults. We will discover the distinctions between being 28 or 48 as well. But first, here is a brief overview of the stages.

Prenatal Development



Figure 1. An embryo at 8 weeks of development. (Image Source: Jacopo Werther, CC BY 2.0)

Conception occurs and development begins. There are three stages of prenatal development: germinal, embryonic, and fetal periods. All of the major structures of the body are forming (Figure 1) and the health of the mother is of primary concern. There are various approaches to labor, delivery, and childbirth, with potential complications of pregnancy and delivery, as well as risks and complications with newborns, but also advances in tests, technology, and medicine. The influences of nature (e.g., genetics) and nurture (e.g., nutrition and teratogens, which are environmental factors during pregnancy that can lead to birth defects) are evident. Evolutionary psychology, along with studies of twins and adoptions, help us understand the interplay of factors and the relative influences of nature and nurture on human development.

Infancy and Toddlerhood



Figure 2. Major development happens during the first two years of life, as evidenced by this newborn baby and his toddler brother. (Image Source: Pixabay on Pexels, CC 0)

The first year and a half to two years of life are ones of dramatic growth and change. A newborn, with many involuntary reflexes and a keen sense of hearing but poor vision, is transformed into a walking, talking toddler within a relatively short period of time (Figure 2). Caregivers similarly transform their roles from those who manage feeding and sleep schedules to constantly moving guides and safety inspectors for mobile, energetic children. Brain development happens at a remarkable rate, as does physical growth and language development. Infants have their own temperaments and approaches to play. Interactions with primary caregivers (and others) undergo changes influenced by possible separation anxiety and the development of attachment styles. Social and cultural issues center around breastfeeding or formula-feeding, sleeping in cribs or in the bed with parents, toilet training, and whether or not to get vaccinations.

Early Childhood



Figure 3. Early childhood, or the preschool years, around ages 2-6, is filled with incredible amounts of growth and change. (Image Source: Pixabay, CC0)

Early childhood is also referred to as the preschool years, consisting of the years that follow toddlerhood and precede formal schooling, roughly from around ages 2 to 5 or 6 (Figure 3). As a preschooler, the child is busy learning language (with amazing growth in vocabulary), is gaining a sense of self and greater independence, and is beginning to learn the workings of the physical world. This knowledge does not come quickly, however, and preschoolers may initially have interesting conceptions of size, time, space and distance, such as demonstrating how long something will take by holding out their two index fingers several inches apart. A toddler's fierce determination to do something may give way to a four-year-old's sense of guilt for doing something that brings the disapproval of others.

Middle Childhood

The ages of 6-11 comprise middle childhood and much of what children experience at this age is connected to their involvement in the early grades of school (Figure 4). Now the world becomes one of learning and testing new academic skills and assessing one's abilities and accomplishments by making comparisons between self and others. Schools participate in this process by comparing students and making these comparisons public through team sports, test scores, and other forms of recognition. The brain reaches its adult size

around age seven, but it continues to develop. Growth rates slow down and children are able to refine their motor skills at this point in life. Children also begin to learn about social relationships beyond the family through interaction with friends and fellow students; same-sex friendships are particularly salient during this period.



Figure 4. Middle childhood spans most of what is traditionally primary school, or the ages between 6-11. (Image Source: Pxhere, CC0)

Adolescence



Figure 5. Adolescence, or the age roughly between 12-18, is marked by puberty and sexual maturation, accompanied by major socioemotional changes. (Image Source: Alexis Brown on Unsplash)

Adolescence is a period of dramatic physical change marked by an overall physical growth spurt and sexual maturation, known as puberty; timing may vary by gender, cohort, and culture. It is also a time of cognitive change as the adolescent begins to think of new possibilities and to consider abstract concepts such as love, fear, and freedom (Figure 5). Ironically, adolescents have a sense of invincibility that puts them at greater risk of dying from accidents or contracting sexually transmitted infections that can have lifelong consequences.

Research on brain development helps us understand teen risk-taking and impulsive behavior. A major developmental task during

adolescence involves establishing one's own identity. Teens typically struggle to become more independent from their parents. Peers become more important, as teens strive for a sense of belonging and acceptance; mixed-sex peer groups become more common. New roles and responsibilities are explored, which may involve dating, driving, taking on a part-time job, and planning for future academics.

Early Adulthood



Figure 6. Early adulthood, roughly ages 20-40, may be split into yet another category of “emerging adulthood,” as there are often profound differences between younger adults and those in their late 30s. (Image Source: WOCinTech, CC BY 4.0)

Late teens, twenties, and thirties are often thought of as early adulthood (students who are in their mid to late 30s may love to hear that they are young adults!). It is a time when we are at our physiological peak but are most at risk for involvement in violent crimes and substance abuse. It is a time of focusing on the future and putting a lot of energy into making choices that will help one earn the status of a full adult in the eyes of others (Figure 6). Love and work are the primary concerns at this stage of life. In recent decades, it has been noted (in

the U.S. and other developed countries) that young adults are taking longer to “grow up.” They are waiting longer to move out of their parents’ homes, finish their formal education, take on work/careers, get married, and have children. One psychologist, Jeffrey Arnett, has proposed that there is a new stage of development after adolescence and before early adulthood, called “emerging adulthood,” from 18 to 25 (or even 29) when individuals are still exploring their identities and don’t quite feel like adults yet. Cohort, culture, time in history, the economy, and socioeconomic status may be key factors in when youth take on adult roles.

Middle Adulthood



Figure 7. Middle adulthood spans the years between ages 40-65. (Image Source: Pxhere, CC0)

The late thirties (or age 40) through the mid-60s are referred to as middle adulthood. This is a period in which physiological aging that began earlier becomes more noticeable and a period at which many people are at their peak of productivity in love and work. It may be a period of gaining expertise in certain fields and being able to understand problems and find solutions with greater efficiency than before. It can also be a time of becoming more realistic about possibilities in life; of recognizing the difference between what is possible and what is likely

(Figure 7). Referred to as the sandwich generation, middle-aged adults may be in the middle of taking care of their children and also taking care of their aging parents. While caring about others and the future, middle-aged adults may also be questioning their own mortality, goals, and commitments, though not necessarily experiencing a “mid-life crisis.”

Watch It: The UP Series

In 1964, researchers and filmmakers began a fascinating and landmark documentary series known as the UP Series. The UK-based Granada’s World in Action team, inspired by the Jesuit maxim, “Give me the child until he is seven and I will give you the man,” interviewed a diverse group of seven-year-old children from all over England. In the first film, called “Seven Up!,” they asked seven-year-old children about their lives, dreams, and fears for the future. Michael Apted, a researcher for the original film, has returned to interview these individuals every seven years since then, at ages 14, 21, 28, 35, 42, 49, 56 and now at age 63.

Video Example

This video gives a nice overview of the series (through the lens of a film analysis of what makes it so successful and engaging). You can watch the Up Series on YouTube.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=28#oembed-1>

You can view the transcript for “Some Kind of Connection- the Up Series” here (opens in new window).

Late Adulthood



Figure 8. Late adulthood is generally viewed as age 65 and older, but there are incredible variations in health and lifestyle between the “young old” and the “oldest old,” who may be well into their 100s. (Image Source: PXhere, CC 0)

This period of the lifespan, late adulthood, has increased in the last 100 years, particularly in industrialized countries, as average life expectancy has increased. Late adulthood covers a wide age range with a lot of variation, so it is helpful to divide it into categories such as the “young-old” (65-74 years old), “old-old” (75-84 years old), and “oldest-old” (85+ years old; Figure 8). The young-old are similar to middle-aged adults; possibly still working, married, relatively healthy, and active. The old-old have some health problems and challenges with daily living activities; the oldest-old are often frail and in need of long term care. However,

many factors are involved and a better way to appreciate the diversity of older adults is to go beyond chronological age and examine whether a person is experiencing optimal aging (like the gentleman pictured in Figure 8 who is in very good health for his age and continues to have an active, stimulating life), normal aging (in which the changes are similar to most of those of the same age), or impaired aging (referring to someone who has more physical challenge and disease than others of the same age).

Death and Dying

The study of death and dying is seldom given the amount of coverage it deserves. Of course, there is a certain discomfort in thinking about death, but there is also a certain confidence and acceptance that can come from studying death and dying. Factors such as age, religion, and culture play important roles in attitudes and approaches to death and dying. There are different types of death: physiological, psychological, and social. The most common causes of death vary with age, gender, race, culture, and time in history. Dying and grieving are processes and may share certain stages of reactions to loss (Figure 9). There are interesting examples of cultural variations in death rituals, mourning, and grief. The concept of a “good death” is described as including personal choices and the involvement of loved ones throughout the process. Palliative care is an approach to maintain dying individuals’ comfort level, and hospice is a movement and practice that involves professional and volunteer care and loved ones. Controversy surrounds euthanasia (helping a person fulfill their wish to die)—active and passive types, as well as physician-assisted suicide, and legality varies within the United States.



Figure 9. How people think about, approach, and cope with death vary depending on many factors. Photo Courtesy Robert Paul Young

Try It

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Think it Over

Think about your own development. Which period or stage of development are you in right now? Are you dealing with similar issues and experiencing comparable physical, cognitive, and psychosocial development as described above? If not, why not? Are important aspects of development missing and if so, are they common for most of your cohort or unique to you?

THE LIFESPAN PERSPECTIVE

Laura Overstreet; Margaret Clark-Plaskie; Lumen Learning; and Diana Lang

Learning Objectives

- Describe Baltes' lifespan perspective with its key principles about development
- Explain what is meant by development being lifelong, multidimensional, and multidirectional
- Explain contextual influences on development

Lifespan development involves the exploration of biological, cognitive, and psychosocial changes and constancies that occur throughout the entire course of life. It has been presented as a theoretical perspective, proposing several fundamental, theoretical, and methodological principles about the nature of human development. An attempt by researchers has been made to examine whether research on the nature of development suggests a specific metatheoretical worldview. Several beliefs, taken together, form the “family of perspectives” that contribute to this particular view.

German psychologist Paul Baltes, a leading expert on lifespan development and aging, developed one of the approaches to studying development called the **lifespan perspective** (Figure 1). This approach is based on several key principles:

- Development occurs across one's entire life, or is *lifelong*.
- Development is *multidimensional*, meaning it involves the dynamic interaction of factors like physical, emotional, and psychosocial development
- Development is *multidirectional* and results in gains and losses throughout life
- Development is *plastic*, meaning that characteristics are malleable or changeable.
- Development is influenced by *contextual* and socio-cultural influences.
- Development is *multidisciplinary*.

Development is lifelong

Lifelong development means that development is not completed in infancy or childhood or at any specific age; it encompasses the entire lifespan, from conception to death. The study of development traditionally focused almost exclusively on the changes occurring from conception to adolescence and the gradual decline in old age; it was believed that the five or six decades after adolescence yielded little to no developmental change at all. The current view reflects the possibility that specific changes in development can occur later in life, without having been established at birth. The early events of one's childhood can be transformed by later events in one's life. This belief clearly emphasizes that all stages of the lifespan contribute to the regulation of the nature of human development.

Many diverse patterns of change, such as direction, timing, and order, can vary among individuals and affect the ways in which they develop. For example, the developmental timing of events can affect individuals in different ways because of their current level of maturity and understanding. As individuals move through life, they are faced with many challenges, opportunities, and situations that impact their development. Remembering that development is a lifelong process helps us gain a wider perspective on the meaning and impact of each event.

Development is multidimensional

By multidimensionality, Baltes is referring to the fact that a complex interplay of factors influence development across the lifespan, including biological, cognitive, and socioemotional changes. Baltes argues that a dynamic interaction of these factors is what influences an individual's development.

For example, in adolescence, puberty consists of physiological and physical changes with changes in hormone levels, the development of primary and secondary sex characteristics, alterations in height and weight, and several other bodily changes. But these are not the only types of changes taking place; there are also cognitive changes, including the development of advanced cognitive faculties such as the ability to think abstractly. There are also emotional and social changes involving regulating emotions, interacting with peers, and possibly dating. The fact that the term puberty encompasses such a broad range of domains illustrates the multidimensionality component of development (think back to the physical, cognitive, and psychosocial domains of human development we discussed earlier in this module).

Development is multidirectional

Baltes states that the development of a particular domain does not occur in a strictly linear fashion but that development of certain traits can be characterized as having the capacity for both an increase and decrease in efficacy over the course of an individual's life.

If we use the example of puberty again, we can see that certain domains may improve or decline in effectiveness during this time. For example, self-regulation is one domain of puberty which undergoes profound multidirectional changes during the adolescent period. During childhood, individuals have difficulty effectively regulating their actions and impulsive behaviors. Scholars have noted that this lack of effective regulation often results in children engaging in behaviors without fully considering the consequences of their actions. Over the course of puberty, neuronal changes modify this unregulated behavior by increasing the ability to regulate emotions and impulses. Inversely, the ability for adolescents to engage in spontaneous activity and creativity, both domains commonly associated with impulse behavior, decrease over the adolescent period in response to changes in cognition. Neuronal changes to the limbic system and prefrontal cortex of the brain, which begin in puberty lead to the development of self-regulation, and the ability to consider the consequences of one's actions (though recent brain research reveals that this connection will continue to develop into early adulthood).

Extending on the premise of multidirectionality, Baltes also argued that development is influenced by the “joint expression of features of growth (gain) and decline (loss)”¹ This relation between developmental gains and losses occurs in a direction to selectively optimize particular capacities. This requires the sacrificing of other functions, a process known as selective optimization with compensation. According to the process of selective optimization, individuals prioritize particular functions above others, reducing the adaptive capacity of particulars for specialization and improved efficacy of other modalities.

The acquisition of effective self-regulation in adolescents illustrates this gain/loss concept. As adolescents gain the ability to effectively regulate their actions, they may be forced to sacrifice other features to selectively optimize their reactions. For example, individuals may sacrifice their capacity to be spontaneous or creative if they are constantly required to make thoughtful decisions and regulate their emotions. Adolescents may also be forced to sacrifice their fast reaction times toward processing stimuli in favor of being able to fully consider the consequences of their actions.

1. Baltes, P. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology*, 23(5), 611-626.

Applications of The Lifespan Perspective

Baltes' ideas about development as a lifelong process is beneficial to society because it may help in the identification of qualities or problems that are distinctive in a particular age period. If these qualities or problems could be identified, specific programs could be established such as after-school interventions that enhance positive youth development (PYD).

Positive Youth Development holds the belief that all youths have the potential to become productive, contributing members of society. PYD emphasizes the strengths of youth, promoting their development physically, personally, socially, emotionally, intellectually, and spiritually. Interventions must be conducted with the needs and preferences of the participants kept in mind, but the individuals' choices, values, and cultures must always be considered.

Big Brothers/Big Sisters is a positive youth development program targeted in the community domain that demonstrates substantial behavioral outcomes for youth. This program sought to promote positive identity and competence by creating a strong bond with a healthy adult. These healthy adults, or mentors, committed a minimum of several hours, two to four times a month for a year, with a youth who was carefully assigned to them based on their background, preference, and geographic proximity. Youths in this program improved in "school attendance, parental relations, academic performance, and peer emotional support"² Substance use and problem behaviors were also reported as either prevented or reduced. Watch this video from Big Brothers Big Sisters of America to learn more about the power of mentoring.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=30#h5p-5>

2. Catalano, R., Berglund, L., Ryan, J., Lonczak, H., & Hawkins, D. (2002). Positive youth development in the united states: Research findings on evaluations of positive youth development programs. *Prevention & Treatment*, 5(15), 27-28.

Development is plastic

Plasticity denotes intrapersonal variability and focuses heavily on the potentials and limits of the nature of human development. The notion of plasticity emphasizes that there are many possible developmental outcomes and that the nature of human development is much more open and pluralistic than originally implied by traditional views; there is no single pathway that must be taken in an individual's development across the lifespan. Plasticity is imperative to current research because the potential for intervention is derived from the notion of plasticity in development. Undesired development or behaviors could potentially be prevented or changed.

As an example, recently researchers have been analyzing how other senses compensate for the loss of vision in blind individuals. Without visual input, blind humans have demonstrated that tactile and auditory functions still fully develop and they can use tactile and auditory cues to perceive the world around them. One experiment designed by Röder and colleagues³ compared the auditory localization skills of people who are blind with people who are sighted by having participants locate sounds presented either centrally or peripherally (lateral) to them. Both congenitally blind adults and sighted adults could locate a sound presented in front of them with precision but people who are blind were clearly superior in locating sounds presented laterally. Currently, brain-imaging studies have revealed that the sensory cortices in the brain are reorganized after visual deprivation. These findings suggest that when vision is absent in development, the auditory cortices in the brain recruit areas that are normally devoted to vision, thus becoming further refined.

Video Examples

Watch Seeing Behind the Visual Cortex, a video about research on blindsight conducted by Dr. Tony Ro to learn more about brain plasticity in blind individuals.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=30#oembed-1>

3. Röder, B., Teder-Salejari, W., Sterr, A., Rosler, F., Hillyard, S. A., & Neville, H. J. (1999). Improved auditory spatial tuning in blind humans. *Nature*, 400, 162–166.

A significant aspect of the aging process is cognitive decline. The dimensions of cognitive decline are partially reversible, however, because the brain retains the lifelong capacity for plasticity and reorganization of cortical tissue. Mahncke and colleagues developed a brain plasticity-based training program that induced learning in mature adults experiencing age-related decline. This training program focused intensively on aural language reception accuracy and cognitively demanding exercises that have been proven to partially reverse the age-related losses in memory. It included highly rewarding novel tasks that required attention control and became progressively more difficult to perform. In comparison to the control group, who received no training and showed no significant change in memory function, the experimental training group displayed a marked enhancement in memory that was sustained at the 3-month follow-up period. These findings suggest that cognitive function, particularly memory, can be significantly improved in mature adults with age-related cognitive decline by using brain plasticity-based training methods.

Development is contextual

In Baltes' theory, the paradigm of contextualism refers to the idea that three systems of biological and environmental influences work together to influence development. Development occurs in context and varies from person to person, depending on factors such as a person's biology, family, school, church, profession, nationality, and ethnicity. Baltes identified three types of influences that operate throughout the life course: normative age-graded influences, normative history-graded influences, and nonnormative influences. Baltes wrote that these three influences operate throughout the life course, their effects accumulate with time, and, as a dynamic package, they are responsible for how lives develop.

Normative age-graded influences are those biological and environmental factors that have a strong correlation with chronological age, such as puberty or menopause, or age-based social practices such as beginning school or entering retirement. **Normative history-graded influences** are associated with a specific time period that defines the broader environmental and cultural context in which an individual develops. For example, development and identity are influenced by historical events of the people who experience them, such as the Great Depression, WWII, Vietnam, the Cold War, the War on Terror, or advances in technology.

This has been exemplified in numerous studies, including Nesselroade and Baltes', showing that the level and direction of change in adolescent personality development was influenced as strongly by the socio-cultural settings at the time (in this case, the Vietnam War) as age-related factors. The study involved individuals of four different adolescent age groups who all showed significant personality development in the same direction (a tendency to occupy themselves with ethical, moral, and political issues rather than cognitive achievement). Similarly, Elder

showed that the Great Depression was a setting that significantly affected the development of adolescents and their corresponding adult personalities, by showing a similar common personality development across age groups. Baltes' theory also states that the historical socio-cultural setting had an effect on the development of an individual's intelligence. The areas of influence that Baltes thought most important to the development of intelligence were health, education, and work. The first two areas, health and education, significantly affect adolescent development because healthy children who are educated effectively will tend to develop a higher level of intelligence. The environmental factors, health and education, have been suggested by Neiss and Rowe to have as much effect on intelligence as inherited intelligence.

Nonnormative influences are unpredictable and not tied to a certain developmental time in a person's development or to a historical period. They are the unique experiences of an individual, whether biological or environmental, that shape the development process. These could include milestones like earning a master's degree or getting a certain job offer or other events like going through a divorce or coping with the death of a child.

The most important aspect of contextualism as a paradigm is that the three systems of influence work together to affect development. Concerning adolescent development, the age-graded influences would help to explain the similarities within a cohort, the history-graded influences would help to explain the differences between cohorts, and the nonnormative influences would explain the idiosyncrasies of each adolescent's individual development. When all influences are considered together, it provides a broader explanation of an adolescent's development.

Other Contextual Influences on Development

What is meant by the word "context"? It means that we are influenced by when and where we live. Our actions, beliefs, and values are a response to the circumstances surrounding us. Sternberg describes contextual intelligence as the ability to understand what is called for in a situation.⁴ The key here is to understand that behaviors, motivations, emotions, and choices are all part of a bigger picture. Our concerns are such because of who we are socially, where we live, and when we live; they are part of a social climate and set of realities that surround us. Important social factors include cohort, social class, gender, race, ethnicity, and age. Let's begin by exploring two of these: cohort and social class.

4. Sternberg, R. J. (1996). *Successful intelligence*. New York: Simon and Shuster.

Cohorts

A **cohort** is a group of people who are born at roughly the same time period in a particular society. Cohorts share histories and contexts for living. Members of a cohort have experienced the same historical events and cultural climates which have an impact on the values, priorities, and goals that may guide their lives.

Cohorts



Figure 1. Boys collecting old tires for rubber during WWII.

Consider a young boy's concerns if he grew up in the United States during World War II—let's call him Henry. What Henry's family buys is limited by their small budget and by a governmental program set up to ration food and other materials that are in short supply because of the war. He is eager rather than resentful about being thrifty and sees his actions as meaningful contributions to the good of others.

As Henry grows up and has a family of his own, he is motivated by images of success tied to his past experience: he views a successful man as one who can provide for his family financially, who has a wife who stays at home and cares for the children, and children who are respectful but

enjoy the luxury of days filled with school and play without having to consider the burdens of society's struggles. He marries soon after completing high school, has four children, works hard to support his family and is able to do so during the prosperous postwar economics of the 1950s in America. But economic conditions change in the mid-1960s and through the 1970s. Henry's wife, Patricia, begins to work to help the family financially and to overcome her boredom with being a stay-at-home mother. The children are teenagers in a very different social climate: one of social unrest, liberation, and challenging the status quo. They are not sheltered from the concerns of society; they see television broadcasts in their own living room of the war in Vietnam and they fear the draft—they are part of a middle-class youth culture that is very visible and vocal. Henry's employment as an engineer eventually becomes difficult as a result of downsizing in the defense industry. His marriage of 25 years ends in divorce.

This is not a unique personal history, rather it is a story shared by many members of Henry's cohort. Historic contexts shape our life choices and motivations as well as our eventual assessments of success or failure during the course of our existence. Henry shares many normative age-graded influences with his peers, such as entering the workforce at the same time, or having kids around the same age, but also normative history-graded experiences such as living through the Vietnam War and the Cold War. Henry's unique life experiences such as having four kids, getting a divorce, or losing his job, are the non-normative influences that also affect his development.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=30#h5p-6>

Video Examples

This video describes the normative history-graded influences that shaped the development of seven generations over the past 125 years of United States history. Can you identify your generation? Does the description seem accurate?

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=30#oembed-2>

You can view the transcript for “Generations Throughout History” here (opens in new window).

Socioeconomic Status

Another context that influences our lives is our social standing, socioeconomic status, or social class. Socioeconomic status is a way to identify families and households based on their shared levels of education, income, and occupation. While there is certainly individual variation, members of a social class tend to share similar lifestyles, patterns of consumption, parenting styles, stressors, religious preferences, and other aspects of daily life.

How might socioeconomic status affect language development?

The achievement gap refers to the persistent difference in grades, test scores, and graduation rates that exist among students of different ethnicities, races, and—in certain subjects—sexes.⁵ Research suggests that these achievement gaps are strongly influenced by differences in socioeconomic factors that exist among the families of these children. While the researchers acknowledge that programs aimed at reducing such socioeconomic discrepancies would likely aid in equalizing the aptitude and performance of children from different backgrounds, they recognize that such large-scale interventions would be difficult to achieve. Therefore, it is recommended that programs aimed at fostering aptitude and achievement among disadvantaged children may be the best option for dealing with issues related to academic achievement gaps.⁶

Low-income children tend to perform significantly more poorly than their middle- and high-income peers on a number of educational variables. They tend to have significantly lower standardized test scores, graduation rates, and college entrance rates, and they tend to have much higher school dropout rates. There have been attempts to correct the achievement gap through state and federal legislation, but what if the problems start before the children even enter school?

Psychologists Betty Hart and Todd Risley⁷ spent their careers looking at early language ability and progression of children in various income levels. In one longitudinal study, they found that although all the parents in the study engaged and interacted with their children, middle- and high-income parents interacted with their children differently than low-income parents. After analyzing 1,300 hours of parent-child interactions, the researchers found that middle- and high-income parents talk to their children significantly more, starting when the children are infants. By 3 years old, high-income children knew almost double the number of words known by their low-income counterparts, and they had heard an estimated total of 30 million more words than the low-income counterparts.⁸ And the gaps only become more pronounced. Before entering kindergarten, high-income children score 60% higher on achievement tests than their low-income peers.⁹

There are solutions to this problem. At the University of Chicago, experts are working with low-income families, visiting them at their homes, and encouraging them to speak more to their children on a daily and hourly basis. Other experts are designing preschools in which students from diverse economic backgrounds are placed in the same classroom. In this

research, low-income children made significant gains in their language development, likely as a result of attending the specialized preschool.¹⁰ What other methods or interventions could be used to decrease the achievement gap? What types of activities could be implemented to help the children of your community or a neighboring community?

Culture

Culture is often referred to as a blueprint or guideline shared by a group of people that specifies how to live. It includes ideas about what is right and wrong, what to strive for, what to eat, how to speak, what is valued, as well as what kinds of emotions are called for in certain situations. Culture teaches us how to live in a society and allows us to advance because each new generation can benefit from the solutions found and passed down from previous generations.

Culture is learned from parents, schools, churches, media, friends, and others throughout a lifetime. The kinds of traditions and values that evolve in a particular culture serve to help members function in their own society and to value their own society. We tend to believe that our own culture's practices and expectations are the right ones. This belief that our own culture is superior is called ethnocentrism. It can become a roadblock, however, when it inhibits understanding of cultural practices from other societies. On the other hand, cultural relativity is an appreciation for cultural differences and the understanding that cultural practices are best understood from the standpoint of that particular culture.

Culture is an extremely important context for human development and understanding development requires being able to identify which features of development are culturally based. This understanding is somewhat new and still being explored. So much of what

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5. Winerman, L. (2011). Closing the achievement gap. *Monitor of Psychology*, 42(8), 36.
 6. Duncan, G. J., & Magnuson, K. A. (2005). Can family socioeconomic resources account for racial and ethnic test score gaps? *The Future of Children*, 15(1), 35–54.
 7. Risley, T. R., & Hart, B. (2006). Promoting early language development. In N. F. Watt, C. Ayoub, R. H. Bradley, J. E. Puma, & W. A. LeBoeuf (Eds.), *The crisis in youth mental health: Early intervention programs and policies* (Vol. 4, pp. 83–88). Praeger.
 8. Hart, B., & Risley, T. R. (2003). The early catastrophe: The 30 million word gap. *American Educator*, 27(1), 4–9.
 9. Lee, V. E., & Burkam, D. T. (2002). Inequality at the starting gate: Social background differences in achievement as children begin school. Economic Policy Institute.
 10. Schechter, C., & Byeb, B. (2007). Preliminary evidence for the impact of mixed-income preschools on low-income children's language growth. *Early Childhood Research Quarterly*, 22, 137–146.

developmental theorists have described in the past has been culturally bound and difficult to apply to various cultural contexts. For example, Erikson's theory that teenagers struggle with identity assumes that all teenagers live in a society in which they have many options and must make an individual choice about their future. In many parts of the world, one's identity is determined by family status or society's dictates. In other words, there is no choice to make.

Even the most biological events can be viewed in cultural contexts that are extremely varied. Consider two very different cultural responses to menstruation in young girls. In the United States, many girls in public school often receive information on menstruation around 5th grade, get a kit containing feminine hygiene products, and receive some sort of education about sexual health. Contrast this with some developing countries where menstruation is not publicly addressed, or where girls who are menstruating are forced to miss school due to limited access to feminine products or unjust attitudes about menstruation.

Development is Multidisciplinary

Any single discipline's account of development across the lifespan would not be able to express all aspects of this theoretical framework. That is why it is suggested explicitly by lifespan researchers that a combination of disciplines is necessary to understand development. Psychologists, sociologists, neuroscientists, anthropologists, educators, economists, historians, medical researchers, and others may all be interested and involved in research related to the normative age-graded, normative history-graded, and nonnormative influences that help shape development. Many disciplines are able to contribute important concepts that integrate knowledge, which may ultimately result in the formation of a new and enriched understanding of development across the lifespan.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=30#h5p-7>

Think it Over

- Consider your cohort. Can you identify it? Does it have a name and if so, what does the name imply? To what extent does your cohort shape your values, thoughts, and aspirations? (Some cohort labels popularized in the media for generations in the United States include Baby Boomers, Generation X, Millennials, and Generation Z.)
- Think of other ways culture may have affected your development. How might cultural differences influence interactions between teachers and students, nurses and patients, or other relationships?

Key Terms

- **cohort:** a group of people who are born at roughly the same period in a particular society. Cohorts share histories and contexts for living
- **culture:** blueprint or guideline shared by a group of people that specifies how to live; passed down from generation to generation; learned from parents and others
- **lifespan perspective:** an approach to studying development that emphasizes that development is lifelong, multidimensional, multidirectional, plastic, contextual, and multidisciplinary
- **nonnormative influences:** unpredictable influences not tied to a certain developmental time, personally or historical period
- **normative age-graded influences:** biological and environmental factors that have a strong correlation with chronological age
- **normative history-graded influences:** influences associated with a specific time period that define the broader bio-cultural context in which an individual develops

THEORIES

UNDERSTANDING THEORIES

Sonja Ann Miller; Lumen Learning; Laura Overstreet; and Diana Lang

Learning Objectives

- Describe theories as they relate to lifespan development
- Describe the historical foundations leading to the development of theories about lifespan development

As we have learned, human development refers to the physical, cognitive, and psychosocial changes and constancies in humans over time. There are various theories pertaining to each domain of development, and often theorists and researchers focus their attention on specific periods of development (with most traditionally focusing on infancy and childhood; some on adolescence). But, development during one period can affect development in other periods and humans can grow and change across the lifespan. Therefore, we will learn about: (a) individual and family development through the lifespan perspective, which emphasizes the multidimensional, interconnected, and ever-changing influences on development in conjunction with (b) the Family Systems Theory, and (c) many other theories.¹

A theory guides and helps us interpret research findings as well. It provides the researcher with a blueprint or model to be used to help piece together various studies. Theories are guidelines; think of them much like instructions that come with an appliance or other object that requires assembly. The instructions can help someone piece together smaller parts more easily than if trial and error are used.

Theories can be developed using induction in which a number of single cases are observed and after patterns or similarities are noted, the theorist develops ideas based on these

1. This chapter was adapted from Lumen Learning's *Lifespan Development* created in part by Sonja Ann Miller for Lumen Learning, available under a Creative Commons Attribution-ShareAlike license. Portions of the Lumen text were adapted from Laura Overstreet's *Lifespan Psychology*, Wikipedia, New World Encyclopedia, and Lumen Learning.

examples. Established theories are then tested through research; however, not all theories are equally suited to scientific investigation. Some theories are difficult to test but are still useful in stimulating debate or providing concepts that have practical application. Keep in mind that theories are not facts; they are guidelines for investigation and practice, and they gain credibility through research that fails to disprove them.

What is a theory?

In lifespan development, we need to rely on a systematic approach to understanding behavior, based on observable events and the scientific method. There are so many different observations about childhood, adulthood, and development in general that we use theories to help organize all of the different observable events or variables. A theory is a simplified explanation of the world that attempts to explain how variables interact with each other. It can take complex, interconnected issues and narrow it down to the essentials. This enables developmental theorists and researchers to analyze the problem in greater depth.

Two key concepts in the scientific approach are theory and hypothesis (Figure 1). A **theory** is a well-developed set of ideas that propose an explanation for observed phenomena that can be used to make predictions about future observations. A **hypothesis** is a testable prediction that is arrived at logically from a theory. It is often worded as an if-then statement (e.g., if I study all night, I will get a passing grade on the test). The hypothesis is extremely important because it bridges the gap between the realm of ideas and the real world. As specific hypotheses are tested, theories are modified and refined to reflect and incorporate the result of these tests. In essence, lifespan theories explain observable events in a meaningful way. They are not as specific as hypotheses, which are so specific that we use them to make predictions in research. Theories offer more general explanations about behavior and events.

Theories can be developed using induction, in which a number of single cases are observed and after patterns or similarities are noted, the theorist develops ideas based on these examples. Established theories are then tested through research; however, not all theories are equally suited to scientific investigation. Some theories are difficult to test but are still useful

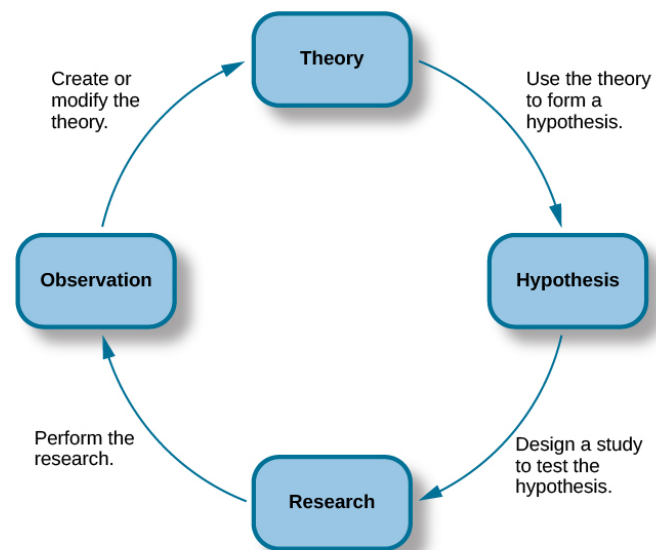


Figure 1. Theories are often revisited and tested through experiments and research.

in stimulating debate or providing concepts that have practical application. Keep in mind that theories are not facts; they are guidelines for investigation and practice, and they gain credibility through research that fails to disprove them.

People who study lifespan development approach it from different perspectives. Each perspective encompasses one or more theories—the broad, organized explanations and predictions concerning phenomena of interest. Theories of development provide a framework for thinking about human growth, development, and learning. If you have ever wondered about what motivates human thought and behavior, understanding these theories can provide useful insight into individuals and society.

Throughout psychological history and still in present day, three key issues remain among which developmental theorists often disagree. Particularly oft-disputed is the role of early experiences on later development in opposition to current behavior reflecting present experiences—namely the *passive versus active issue*. Likewise, whether or not development is best viewed as occurring in stages or rather as a gradual and cumulative process of change has traditionally been up for debate – a question of *continuity versus discontinuity*. Further, the role of heredity and the environment in shaping human development is a much-contested topic of discussion – also referred to as the *nature/nurture debate*. We'll examine each of these issues in more detail throughout the course.

History of Developmental Psychology

The scientific study of children began in the late nineteenth century and blossomed in the early twentieth century as pioneering psychologists sought to uncover the secrets of human behavior by studying its development. Developmental psychology made an early appearance in a more literary form, however. William Shakespeare had his melancholy character, “Jacques” (in *As You Like It*), articulate the “seven ages of man,” which included three stages of childhood and four of adulthood.

Three early scholars, John Locke, Jean-Jacques Rousseau, and Charles Darwin proposed theories of human behavior that are the “direct ancestors of the three major theoretical traditions” of developmental psychology today.² Locke, a British empiricist, adhered to a strict

environmentalist position, that the mind of the newborn as a *tabula rasa* (“blank slate”) on which knowledge is written through experience and learning. Rousseau, a Swiss philosopher who spent much of his life in France, proposed a nativistic model in his famous novel *Emile*, in which development occurs according to innate processes progressing through three stages: *Infans* (infancy), *puer* (childhood), and adolescence. Rousseau detailed some of the necessary progression through these stages in order to develop into an ideal citizen. Although some aspects of his text were controversial, Rousseau’s ideas were strongly influential on educators at the time. Finally, the work of Darwin, the British biologist famous for his theory of evolution, led others to suggest that development proceeds through evolutionary recapitulation, with many human behaviors having their origins in successful adaptations in the past as “ontogeny recapitulates phylogeny.”



Figure 2. Some major players in the early development of psychology. Front row: Sigmund Freud, G. Stanley Hall, Carl Jung. Back row: Abraham A. Brill, Ernest Jones, Sándor Ferenczi, at Clark University in Worcester, Massachusetts. Date: September 1909.

G. Stanley Hall

Darwin’s theories greatly influenced G. Stanley Hall, who believed that children developed over

2. Vasta, R., etc., Haith, M., & Miller, S. (1998). *Child psychology: The modern science* (3rd ed.). John Wiley and Sons (WIE).

their lifetime much in the same way that a species evolved throughout time. His interests focused on childhood development, adolescence, and evolutionary theory. His major contributions to the field are that he taught the first courses in child development, several of his students becoming leading researchers in the field, and he established scientific journals for the publication of child development research. He was also the first president of the American Psychological Association.

James Mark Baldwin

Another early contributor to the study of development was James Mark Baldwin (1861-1934), a Princeton educated American philosopher and psychologist who did quantitative and experimental research on infant development. He made important contributions to early psychology, psychiatry, and to the theory of evolution. Baldwin wrote essays such as “Mental Development in the Child and the Race: Methods and Processes”, which made a vivid impression on Jean Piaget (who later developed the most popular theory of cognitive development) and Lawrence Kohlberg (who developed a theory about moral judgment and development).

John B. Watson

The 20th century marked the formation of qualitative distinctions between children and adults. When John Watson wrote the book *Psychological Care of Infant and Child* in 1928, he sought to add clarification surrounding behaviorists’ views on child care and development. Watson was the founder of the field of behaviorism, which emphasized the role of nurture, or the environment, in human development. He believed, based on Locke’s environmentalist position, that human behavior can be understood in terms of experiences and learning. He believed that all behaviors are learned, or conditioned, as evidenced by his famous “Little Albert” study, in which he conditioned an infant to fear a white rat. In Watson’s book on the care of the infant and child, Watson explained that children should be treated as a young adult—with respect, but also without emotional attachment. In the book, he warned against the inevitable dangers of a mother providing too much love and affection. Watson explained that love, along with everything else as the behaviorist saw the world, is conditioned. Watson supported his warnings by mentioning invalidism, saying that society does not overly comfort children as they become young adults in the real world, so parents should not set up these unrealistic expectations. His book (obviously) became highly criticized but was still influential in promoting more research into early childhood behavior and development.

Sigmund Freud

Another name you are probably familiar with who was influential in the study of human development is Sigmund Freud. Sigmund Freud's model of "psychosexual development" grew out of his psychoanalytic approach to human personality and psychopathology. In sharp contrast to the objective approach espoused by Watson, Freud based his model of child development on his own and his patients' recollections of their childhood. He developed a stage model of development in which the libido, or sexual energy, of the child focuses on different "zones" or areas of the body as the child grows to adulthood. Freud's model is an "interactionist" one since he believed that although the sequence and timing of these stages are biologically determined, successful personality development depends on the experiences the child has during each stage. Although the details of Freud's developmental theory have been widely criticized, his emphasis on the importance of early childhood experiences, prior to five years of age, has had a lasting impact.

Arnold Gesell

Arnold Gesell, a student of G. Stanley Hall, carried out the first large-scale detailed study of children's behavior, authoring several books on the topic in the 1920s, 30s, and 40s. His research revealed consistent patterns of development, supporting his view that human development depends on biological "maturation," with the environment providing only minor variations in the age at which a skill might emerge but never affecting the sequence or pattern. Gesell's research produced norms, such as the order and the normal age range in which a variety of early behaviors such as sitting, crawling, and walking emerge. In conducting his studies, Gesell developed sophisticated observational techniques, including one-way viewing screens and recording methods that did not disturb the child.

Jean Piaget

Jean Piaget (1896-1980) is considered one of the most influential psychologists of the twentieth century, and his stage theory of cognitive development revolutionized our view of children's thinking and learning. His work inspired more research than any other theorist, and many of his concepts are still foundational to developmental psychology. His interest lay in children's knowledge, their thinking, and the qualitative differences in their thinking as it develops. Although he called his field "genetic epistemology," stressing the role of biological determinism, he also assigned great importance to experience. In his view, children "construct" their knowledge through processes of "assimilation," in which they evaluate and try to

understand new information, based on their existing knowledge of the world, and “accommodation,” in which they expand and modify their cognitive structures based on new experiences.

Modern developmental psychology generally focuses on how and why certain modifications throughout an individual’s life-cycle (cognitive, social, intellectual, personality) and human growth change over time. There are many theorists that have made, and continue to make, a profound contribution to this area of psychology, amongst whom is Erik Erikson who developed a model of eight stages of psychological development. He believed that humans developed in stages throughout their lifetimes and this would affect their behaviors. In this module, we’ll examine some of these major theories and contributions made by prominent psychologists.

Key Terms

- **hypothesis:** a testable prediction
- **theory:** a well-developed set of ideas that propose an explanation for observed phenomena that can be used to make predictions about future observations

FAMILY SYSTEMS THEORY

Diana Lang

Learning Objectives

- Describe Family Systems Theory and its key principles
- Explain contextual examples

The **Family Systems Theory** assumes that a family is understood best by examining the family as one whole system. This one system is a complex, deeply-connected changing collection of parts, subsystems, and family members, where each member has a known purpose or function.¹

Other key concepts within the Family Systems Theory include:

- **boundaries** (e.g., who is a member of the system),
- **equilibrium** (e.g., during stressors or crises, the system attempts to return to its original state wherein members are functional and comfortable), and
- **bidirectional** (e.g., a change with one member will impact at least one other member, and hence impact the whole system).

Based on this theory, individuals experiencing a crisis or problem are best-served by assessments that include other members of the system as opposed to examining only one family member (Figure 1).²

This theory also assumes that families can examine their own processes and set deliberate goals. Change can occur when a family system acknowledges that a particular family pattern

1. Hammond, R., Cheney, P., & Pearsey, R. (2015). *Sociology of the Family Textbook*. Rocky Ridge Press.
<http://freesociologybooks.com/>.

2. Bowen, M. (1978). *Family therapy in clinical practice*. Jason Aronson.

is dysfunctional and identifies new processes that support the family's goals. Resettlement is one example of a large change that a family system may choose or be forced to make.



Figure 1. Doctors ask patients medical questions during a visit to a family practice clinic in Vietnam. (Image Source: U.S. Air Force photo/Capt. Timothy Lundberg)

In order to assess patterns of adjustment in families that have resettled into a new country, we must examine the **structure** of the family unit and the **processes** that occur within that family system.

For example, one study collected data from parents and their children who immigrated to the United States from Vietnam and Cambodia to assess the role of family processes in disagreements over cultural values. The researchers found that cultural clashes were linked to parent-child conflict, which in turn was linked to reduced parent-child bonding, both of which increase adolescent behavioral problems.³

This demonstrates one family pattern related to resettlement that is best understood at the family system level.⁴

3. Choi, Y., He, M., & Harachi, T. W. (2008). Intergenerational cultural dissonance, family conflict, parent-child bonding, and youth antisocial behaviors among Vietnamese and Cambodian immigrant families. *Journal of Youth and Adolescence*, 37(1), 85-96.

4. This text is taken from *Family Theories: A New Direction for Research with Resettled Populations* by Jaime Ballard, Elizabeth Wieling, Lekie Dwanyen, and Catherine Solheim, used under a CC BY NC 4.0 license.

Key Terms

- **Family Systems Theory:** This suggests that it is best to understand the family as a whole system.
 - **Boundaries:** Family members in the system.
 - **Equilibrium:** The family system attempts to return to its original state after a stressor or crisis.
 - **Bidirectional:** A change in one member can impact another.

Key Takeaways

- A family is a whole, complex, single system; each member's behaviors can impact another member.
- Key concepts—boundaries, equilibrium, bidirectional, patterns, roles, and functions.

PSYCHODYNAMIC THEORY: FREUD

Jessica Traylor; Laura Overstreet; and Diana Lang

Learning Objectives

- Describe Freud's theory of psychosexual development

Freud and Psychoanalysis

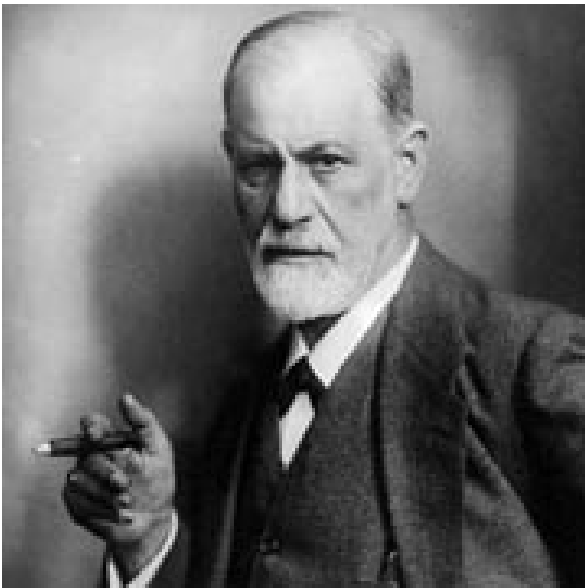


Figure 1. Sigmund Freud.

We begin with Sigmund Freud, one of the most well-known pioneers and early founders of psychology who has been a very influential figure in the area of development. His **psychodynamic perspective** of development and psychopathology dominated the field of psychiatry until the growth of behaviorism in the 1930s and beyond. His assumptions that personality forms during the first few years of life and that the ways in which parents or other caregivers interact with children have a long-lasting impact on children's emotional states have guided parents, educators, clinicians, and policy-makers for many years. We have only recently begun to recognize that early childhood experiences do not always result in certain

personality traits or emotional states. There is a growing body of literature addressing resiliency in children who come from harsh backgrounds and yet develop without damaging

emotional scars.¹ Freud stimulated an enormous amount of research and generated many ideas. Agreeing with Freud's theory in its entirety is hardly necessary for appreciating the contribution he has made to the field of development.²

Background

Sigmund Freud (1856-1939) was a Viennese doctor who was trained in neurology and asked to work with patients suffering from hysteria, a condition marked by uncontrollable emotional outbursts, fears, and anxiety that had puzzled physicians for centuries. He was also asked to work with women who suffered from physical symptoms and forms of paralysis which had no organic causes. During that time, many people believed that certain individuals were genetically inferior and thus more susceptible to mental illness. Women were thought to be genetically inferior and thus prone to illnesses such as hysteria, which had previously been attributed to a detached womb traveling around in the body (the word “hyster” means “uterus” in Greek).

However, after World War I, many soldiers came home with problems similar to hysteria. This called into questions the idea of genetic inferiority as a cause of mental illness. Freud began working with hysterical patients and discovered that when they began to talk about some of their life experiences, particularly those that took place in early childhood, their symptoms disappeared. This led him to suggest the first purely psychological explanation for physical problems and mental illness. What he proposed was that unconscious motives, desires, fears, and anxieties drive our actions. When upsetting memories or thoughts begin to find their way into our consciousness, we develop defenses to shield us from these painful realities, called defense mechanisms. Freud believed that many mental illnesses are a result of a person's inability to accept reality.

Freud emphasized the importance of early childhood experiences in shaping our personality and behavior. In our natural state, we are biological beings. We are driven primarily by instincts. During childhood, however, we begin to become social beings as we learn how to manage our instincts and transform them into socially acceptable behaviors. The type of parenting the child receives has a very powerful impact on the child's personality development. We will explore this idea further in our discussion of psychosexual development,

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1. O'Grady, D., & Metz, J. R. (1987). Resilience in children at high risk for psychological disorder. *Journal of Pediatric Psychology*, 12(1), 3-23. <https://doi.org/10.1093/jpepsy/12.1.3>
 2. This chapter was adapted from Lumen Learning's *Lifespan Development*, created in part by Jessica Traylor for Lumen Learning, available under a Creative Commons Attribution-ShareAlike license. Portions of the Lumen text were adapted from Laura Overstreet's *Lifespan Psychology*, Wikipedia, New World Encyclopedia, and Lumen Learning.

but first, we must identify the parts of the “self” in Freud’s model, or in other words, what constitutes a person’s personality and makes us who we are.

Theory of Personality/Self

As adults, our personality or self consists of three main parts: the **id**, the **ego**, and the **superego** (Figure 2). The id, the basic, primal part of the personality, is the part of the self with which we are born. It consists of the biologically-driven self and includes our instincts and drives. It is the part of us that wants immediate gratification. Later in life, it comes to house our deepest, often unacceptable desires, such as sex and aggression. It operates under the pleasure principle which means that the criteria for determining whether something is good or bad is whether it feels good or bad. An infant is all id.

Next, the ego begins to develop during the first three years of a child’s life. The last component of personality to develop, the superego, starts to emerge around the age of five when a child interacts more and more with others, learning the social rules for right and wrong. The superego acts as our conscience; it is our moral compass that tells us how we should behave. It strives for perfection and judges our behavior, leading to feelings of pride or—when we fall short of the ideal—feelings of guilt.

In contrast to the instinctual id and the rule-based superego, the ego is the rational part of our personality. It’s what Freud considered to be the self, and it is the part of our personality that is seen by others. Its job is to balance the demands of the id and superego in the context of reality; thus, it operates on what Freud called the “reality principle.” The ego helps the id satisfy its desires in a realistic way.

The id and superego are in constant conflict because the id wants instant gratification regardless of the consequences, but the superego tells us that we must behave in socially acceptable ways. Thus, the ego’s job is to find the middle ground. It helps satisfy the id’s desires in a rational way that will not lead us to feelings of guilt. According to Freud, a person who has a strong ego, which can balance the demands of the id and the superego, has a healthy personality. Freud maintained that imbalances in the system can lead to **neurosis** (a tendency

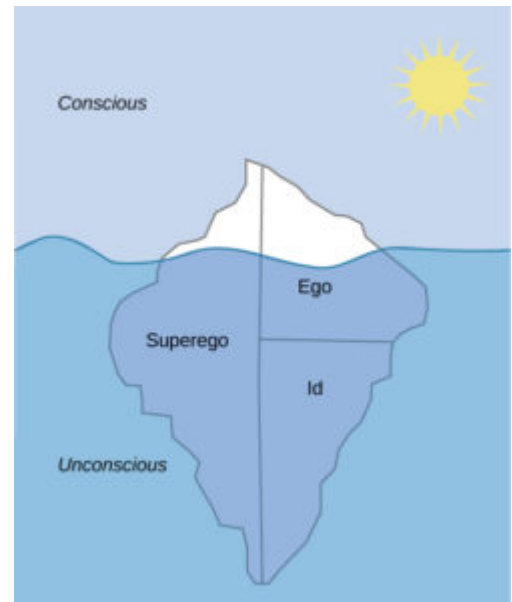


Figure 2. According to Freud’s model of the psyche, the id is the primitive and instinctual part of the mind that contains sexual and aggressive drives and hidden memories, the superego operates as a moral conscience, and the ego is the realistic part that mediates between the desires of the id and the superego. (Image Source, OpenStax Psychology, CC BY 4.0)

to experience negative emotions), anxiety disorders, or unhealthy behaviors. For example, a person who is dominated by their id might be narcissistic and impulsive. A person with a dominant superego might be controlled by feelings of guilt and deny themselves even socially acceptable pleasures; conversely, if the superego is weak or absent, a person might become a psychopath. An overly dominant superego might be seen in an over-controlled individual whose rational grasp on reality is so strong that they are unaware of their emotional needs, or, in a neurotic who is overly defensive (overusing ego defense mechanisms).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=70#h5p-8>

Theory of Psychosexual Development

Freud believed that personality develops during early childhood and that childhood experiences shape our personalities as well as our behavior as adults. He asserted that we develop via a series of stages during childhood. Each of us must pass through these childhood stages, and if we do not have the proper nurturing and parenting during a stage, we will be stuck, or fixated, in that stage even as adults.

In each **psychosexual stage** of development, the child's pleasure-seeking urges, coming from the id, are focused on a different area of the body, called an erogenous zone. The stages are oral, anal, phallic, latency, and genital (Table 1).

Table 1. Freud's Stages of Psychosexual Development

Stage	Age (years)	Erogenous Zone	Major Conflict	Adult Fixation Example
Oral	0–1	Mouth	Weaning off breast or bottle	Smoking, overeating
Anal	1–3	Anus	Toilet training	Neatness, messiness
Phallic	3–6	Genitals	Oedipus/Electra complex	Vanity, overambition
Latency	6–12	None	None	None
Genital	12+	Genitals	None	None

For about the first year of life, the infant is in the **oral stage** of psychosexual development. The infant meets needs primarily through oral gratification. A baby wishes to suck or chew on any object that comes close to the mouth. Babies explore the world through the mouth and find comfort and stimulation as well. Psychologically, the infant is all id. The infant seeks immediate gratification of needs such as comfort, warmth, food, and stimulation. If the caregiver meets oral needs consistently, the child will move away from this stage and progress further. However, if the caregiver is inconsistent or neglectful, the person may stay stuck in the oral stage. As an adult, the person might not feel good unless involved in some oral activity such as eating, drinking, smoking, nail-biting, or compulsive talking. These actions bring comfort and security when the person feels insecure, afraid, or bored.

During the **anal stage**, which coincides with toddlerhood and potty-training, the child is taught that some urges must be contained and some actions postponed. There are rules about certain functions and when and where they are to be carried out. The child is learning a sense of self-control. The ego is being developed. If the caregiver is extremely controlling about potty training (stands over the child waiting for the smallest indication that the child might need to go to the potty and immediately scoops the child up and places him on the potty chair, for example), the child may grow up fearing losing control. He may become fixated in this stage or “anally retentive”—fearful of letting go. Such a person might be extremely neat and clean, organized, reliable, and controlling of others. If the caregiver neglects to teach the child to control urges, he may grow up to be “anal expulsive” or an adult who is messy, irresponsible, and disorganized.

The **phallic stage** occurs during the preschool years (ages 3-5) when the child has a new biological challenge to face. The child will experience the Oedipus complex which refers to a child’s unconscious sexual desire for the opposite-sex parent and hatred for the same-sex parent. For example, boys experiencing the Oedipus complex will unconsciously want to replace their father as a companion to their mother but then realize that the father is much more powerful. For a while, the boy fears that if he pursues his mother, his father may castrate him (castration anxiety). So rather than risk losing his penis, he gives up his affections for his mother and instead learns to become more like his father, imitating his actions and mannerisms, thereby learning the role of males in his society. From this experience, the boy learns a sense of masculinity. He also learns what society thinks he should do and experiences guilt if he does not comply. In this way, the superego develops. If he does not resolve this successfully, he may become a “phallic male” or a man who constantly tries to prove his masculinity (about which he is insecure), by seducing women and beating up men.

Girls experience a comparable conflict in the phallic stage—the Electra complex. The Electra complex, while often attributed to Freud, was actually proposed by Freud’s contemporary, Carl Jung (Jung & Kerenyi, 1963). A little girl experiences the Electra complex

in which she develops an attraction for her father but realizes that she cannot compete with her mother and so gives up that affection and learns to become more like her mother. This is not without some regret, however. Freud believed that the girl feels inferior because she does not have a penis (experiences “penis envy”). But she must resign herself to the fact that she is female and will just have to learn her inferior role in society as a female. However, if she does not resolve this conflict successfully, she may have a weak sense of femininity and grow up to be a “castrating female” who tries to compete with men in the workplace or in other areas of life. The formation of the superego takes place during the dissolution of the Oedipus and Electra complex.

During middle childhood (6-11), the child enters the **latency stage**, focusing their attention outside the family and toward friendships. The biological drives are temporarily quieted (latent) and the child can direct attention to a larger world of friends. If the child is able to make friends, they will gain a sense of confidence. If not, the child may continue to be a loner or shy away from others, even as an adult.

The final stage of psychosexual development is referred to as the **genital stage**. From adolescence throughout adulthood, a person is preoccupied with sex and reproduction. The adolescent experiences rising hormone levels and the sex drive and hunger drives become very strong. Ideally, the adolescent will rely on the ego to help think logically through these urges without taking actions that might be damaging. An adolescent might learn to redirect their sexual urges into a safer activity such as running, for example. Quieting the id with the superego can lead to feeling overly self-conscious and guilty about these urges. Hopefully, it is the ego that is strengthened during this stage and the adolescent uses reason to manage urges.

Freud’s psychosexual development theory is quite controversial. To understand the origins of the theory, it is helpful to be familiar with the political, social, and cultural influences of Freud’s day in Vienna at the turn of the 20th century. During this era, a climate of sexual repression, combined with limited understanding and education surrounding human sexuality heavily influenced Freud’s perspective. Given that sex was a taboo topic, Freud assumed that negative emotional states (neuroses) stemmed from the suppression of unconscious sexual and aggressive urges. For Freud, his own recollections and interpretations of patients’ experiences and dreams were sufficient proof that psychosexual stages were universal events in early childhood.

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Defense mechanisms

Freud believed that feelings of anxiety result from the ego's inability to mediate the conflict between the id and superego. When this happens, Freud believed that the ego seeks to restore balance through various protective measures known as **defense mechanisms**. When certain events, feelings, or yearnings cause anxiety, the individual wishes to reduce that anxiety. To do that, the individual's unconscious mind uses ego defense mechanisms, unconscious protective behaviors that aim to reduce anxiety. The ego, usually conscious, resorts to unconscious strivings to protect the ego from being overwhelmed by anxiety. When we use defense mechanisms, we are unaware that we are using them. Further, they operate in various ways that distort reality. According to Freud, we all use ego defense mechanisms.

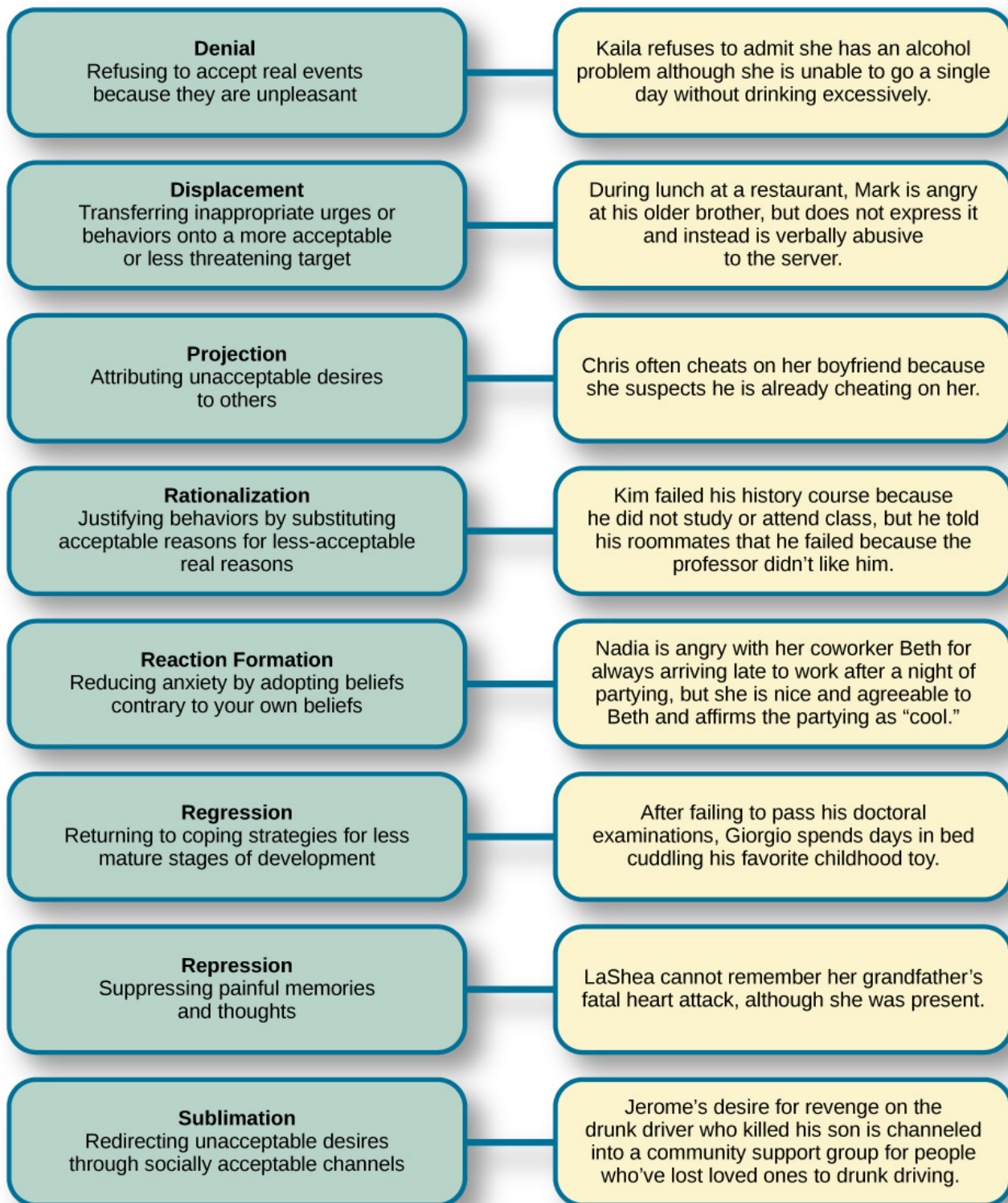


Figure 3. Defense mechanisms are unconscious protective behaviors that work to reduce anxiety. (Image Source: OpenStax Psychology, CC BY 4.0)

Defense mechanisms emerge to help a person distort reality so that the truth is less painful. Defense mechanisms may include:

- **Denial:** not accepting the truth or lying to oneself. Thoughts such as “it won’t happen to me” or “you’re not leaving” or “I don’t have a problem with alcohol” are examples.
- **Displacement:** taking out frustrations on a safer target. A person who is angry at a boss may take out their frustration at others when driving home or at a spouse upon arrival.
- **Projection:** a defense mechanism in which a person attributes their unacceptable thoughts onto others. If someone is frightened, for example, they accuse someone else of being afraid.
- **Rationalization:** a defense mechanism proposed by Anna Freud (Freud’s daughter who continued in her father’s path of psychoanalysis). Rationalization involves a cognitive distortion of “the facts” to make an event or an impulse less threatening. We often do it on a fairly conscious level when we provide ourselves with excuses.
- **Reaction formation:** a defense mechanism in which a person outwardly opposes something they inwardly desire, but that they find unacceptable. An example of this might be someone who dislikes or fears people of another race acting overly nice to people of that race.
- **Regression:** going back to a time when the world felt like a safer place, perhaps reverting to one’s childhood behaviors.
- **Repression:** to push the painful thoughts out of consciousness (in other words, think about something else).
- **Sublimation:** transforming unacceptable urges into more socially acceptable behaviors. For example, a teenager who experiences strong sexual urges uses exercise to redirect those urges into more socially acceptable behavior.

Video Example

This video explains more about each of the defense mechanisms.

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You can view the transcript for “PSYCHOTHERAPY – Anna Freud” here (opens in new window).

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Assessing the Psychodynamic Perspective

Originating in the work of Sigmund Freud, the psychodynamic perspective emphasizes unconscious psychological processes (for example, wishes and fears of which we're not fully aware), and contends that childhood experiences are crucial in shaping adult personality. When reading Freud's theories, it is important to remember that he was a medical doctor, not a psychologist. There was no such thing as a degree in psychology at the time that he received his education, which can help us understand some of the controversies over his theories today. However, Freud was the first to systematically study and theorize the workings of the unconscious mind in the manner that we associate with modern psychology. The psychodynamic perspective has evolved considerably since Freud's time, encompassing all the theories in psychology that see human functioning based upon the interaction of conscious and unconscious drives and forces within the person, and between the different structures of the personality (id, ego, superego).

Freud's theory has been heavily criticized for several reasons. One is that it is very difficult to test scientifically. How can parenting in infancy be traced to personality in adulthood? Are there other variables that might better explain development? Because psychodynamic theories are difficult to prove wrong, evaluating those theories, in general, is difficult in that we cannot make definite predictions about a given individual's behavior using the theories. The theory is also considered to be sexist in suggesting that women who do not accept an inferior position in society are somehow psychologically flawed. Freud focused on the darker side of human nature and suggested that much of what determines our actions is unknown to us. Others make the criticism that the psychodynamic approach is too deterministic, relating to the idea that all

events, including human action, are ultimately determined by causes regarded as external to the will, thereby leaving little room for the idea of free will.³

Freud's work has been extremely influential, and its impact extends far beyond psychology (several years ago *Time* magazine selected Freud as one of the most important thinkers of the 20th century). Freud's work has been not only influential but quite controversial as well. As you might imagine, when Freud suggested in 1900 that much of our behavior is determined by psychological forces of which we're largely unaware—that we literally don't know what's going on in our own minds—people were (to put it mildly) displeased.⁴ When he suggested in 1905 that we humans have strong sexual feelings from a very early age and that some of these sexual feelings are directed toward our parents, people were more than displeased—they were outraged.⁵ Few theories in psychology have evoked such strong reactions from other professionals and members of the public.

So why do we study Freud? As mentioned above, despite the criticisms, Freud's assumptions about the importance of early childhood experiences in shaping our psychological selves have found their way into child development, education, and parenting practices. Freud's theory has heuristic value in providing a framework from which to elaborate and modify subsequent theories of development. Many later theories, particularly behaviorism and humanism, were challenges to Freud's views. Controversy notwithstanding, no competent psychologist, or student of psychology, can ignore psychodynamic theory. It is simply too important for psychological science and practice and continues to play an important role in a wide variety of disciplines within and outside psychology (for example, developmental psychology, social psychology, sociology, and neuroscience).⁶⁷⁸

3. McAdams, D. P., Kim, T.-C., & Aubin, D. (Eds.). (2003). *The generative society: Caring for future generations*. American Psychological Association

4. Freud, S. (1953a). The interpretation of dreams. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vols. 4-5). London, England: Hogarth. (Original work published 1900)

5. Freud, S. (1953b). Three essays on the theory of sexuality. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 7, pp. 125–245). London, England: Hogarth. (Original work published 1905)

6. Bornstein, R. F. (2005). Reconnecting psychoanalysis to mainstream psychology: Challenges and opportunities. *Psychoanalytic Psychology*, 22, 323–340.

7. Bornstein, R. F. (2006). A Freudian construct lost and reclaimed: The psychodynamics of personality pathology. *Psychoanalytic Psychology*, 23, 339–353.

8. Solms, M., & Turnbull, O. H. (2011). What is neuropsychanalysis? *Neuropsychanalysis*, 13, 133–145.

Key Terms

- **anal stage:** the stage of development when children are learning to control impulses; coincides with toddlerhood and toileting
- **defense mechanisms:** psychological strategies that are unconsciously used to protect a person from anxiety arising from unacceptable thoughts or feelings
- **ego:** the part of the self that helps balance the id and superego by satisfying the id's desires in a rational way
- **genital stage:** the final stage of psychosexual development when individuals develop sexual interests; begins in adolescence and lasts throughout adulthood
- **id:** the part of the self that is biologically-driven, includes our instincts and drives, and wants immediate gratification
- **latency stage:** the fourth stage of psychosexual development, spanning middle childhood, during which sexual development and sexual impulses are dormant
- **neurosis:** a tendency to experience negative emotions
- **oral stage:** the first stage of psychosexual development when infants needs are met primarily through oral gratification
- **phallic stage:** the third stage of psychosexual development, spanning the ages of 3 to 6 years, when the young child's libido (desire) centers upon their genitalia as the erogenous zone
- **psychodynamic perspective:** the perspective that behavior is motivated by inner forces, memories, and conflicts that are generally beyond people's awareness and control
- **psychosexual stages:** Freud's oral, anal, phallic, latency, and genital stages
- **superego:** the part of the self that acts as our conscience, telling us how we should behave

PSYCHOSOCIAL THEORY: ERIKSON

Sonja Ann Miller; OpenStax College; and Diana Lang

Learning Objectives

- Describe Erikson's eight stages of psychosocial development



Figure 1. Erik Erikson.

Now, let's turn to a less controversial psychodynamic theorist, the father of developmental psychology, Erik Erikson (1902-1994). Erikson was a student of Freud's and expanded on his theory of psychosexual development by emphasizing the importance of culture in parenting practices and motivations and adding three stages of adult development.¹²

Background

As an art school dropout with an uncertain future, young Erik Erikson met Freud's daughter, Anna Freud, while he was tutoring the children of an American couple undergoing psychoanalysis in Vienna. It was Anna Freud who encouraged Erikson to study psychoanalysis. Erikson received his diploma from the Vienna Psychoanalytic Institute in 1933, and as Nazism spread across Europe, he fled the country and immigrated to the United States that same year. Erikson

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1. This chapter was adapted from Lumen Learning's *Lifespan Development*, developed by Sonja Ann Miller and available under a Creative Commons Attribution-ShareAlike license. Portions of the Lumen text were adapted from Laura Overstreet's *Lifespan Psychology*, *OpenStax Psychology*, *Noba Psychology*, and Wikipedia.
 2. Erikson, E. H. (1968). *Identity: Youth and crisis*. Norton.

later proposed a psychosocial theory of development, suggesting that an individual's personality develops throughout the lifespan—a departure from Freud's view that personality is fixed in early life. In his theory, Erikson emphasized the social relationships that are important at each stage of personality development, in contrast to Freud's emphasis on erogenous zones. Erikson identified eight stages, each of which includes a conflict or developmental task. The development of a healthy personality and a sense of competence depend on the successful completion of each task.

Psychosocial Stages of Development

Erikson believed that we are aware of what motivates us throughout life and that the ego has greater importance in guiding our actions than does the id. We make conscious choices in life, and these choices focus on meeting certain social and cultural needs rather than purely biological ones. Humans are motivated, for instance, by the need to feel that the world is a trustworthy place, that we are capable individuals, that we can make a contribution to society, and that we have lived a meaningful life. These are all psychosocial problems.

Erikson's theory is based on what he calls the *epigenetic principle*, encompassing the notion that we develop through an unfolding of our personality in predetermined stages, and that our environment and surrounding culture influence how we progress through these stages. This biological unfolding in relation to our socio-cultural settings is done in stages of psychosocial development, where “progress through each stage is in part determined by our success, or lack of success, in all the previous stages.”³

Erikson described eight stages, each with a major psychosocial task to accomplish or crisis to overcome. Erikson believed that our personality continues to take shape throughout our life span as we face these challenges. We will discuss each of these stages in greater detail when we discuss each of these life stages throughout the course. Here is an overview of each stage:

1. **Trust vs. Mistrust (Hope)**—From birth to 12 months of age, infants must learn that adults can be trusted. This occurs when adults meet a child's basic needs for survival. Infants are dependent upon their caregivers, so caregivers who are responsive and sensitive to their infant's needs help their baby to develop a sense of trust; their baby will see the world as a safe, predictable place. Unresponsive caregivers who do not meet their baby's needs can engender feelings of anxiety, fear, and mistrust; their baby may see the world as unpredictable. If infants are treated cruelly or their needs are not met

3. Erikson, Erik (1968). *Identity: Youth and Crisis*. W.W. Norton and Company. p. 92.

appropriately, they will likely grow up with a sense of mistrust for people in the world.

2. **Autonomy vs. Shame (Will)**—As toddlers (ages 1–3 years) begin to explore their world, they learn that they can control their actions and act on their environment to get results. They begin to show clear preferences for certain elements of the environment, such as food, toys, and clothing. A toddler’s main task is to resolve the issue of autonomy vs. shame and doubt by working to establish independence. This is the “me do it” stage. For example, we might observe a budding sense of autonomy in a 2-year-old child who wants to choose her clothes and dress herself. Although her outfits might not be appropriate for the situation, her input in such basic decisions has an effect on her sense of independence. If denied the opportunity to act on her environment, she may begin to doubt her abilities, which could lead to low self-esteem and feelings of shame.
3. **Initiative vs. Guilt (Purpose)**—Once children reach the preschool stage (ages 3–6 years), they are capable of initiating activities and asserting control over their world through social interactions and play. According to Erikson, preschool children must resolve the task of initiative vs. guilt. By learning to plan and achieve goals while interacting with others, preschool children can master this task. Initiative, a sense of ambition and responsibility, occurs when parents allow a child to explore within limits and then support the child’s choice. These children will develop self-confidence and feel a sense of purpose. Those who are unsuccessful at this stage—with their initiative misfiring or stifled by over-controlling parents—may develop feelings of guilt.
4. **Industry vs. Inferiority (Competence)**—During the elementary school stage (ages 7–12), children face the task of industry vs. inferiority. Children begin to compare themselves with their peers to see how they measure up. They either develop a sense of pride and accomplishment in their schoolwork, sports, social activities, and family life, or they feel inferior and inadequate because they feel that they don’t measure up. If children do not learn to get along with others or have negative experiences at home or with peers, an inferiority complex might develop into adolescence and adulthood.
5. **Identity vs. Role Confusion (Fidelity)**—In adolescence (ages 12–18), children face the task of *identity vs. role confusion*. According to Erikson, an adolescent’s main task is developing a sense of self. Adolescents struggle with questions such as “Who am I?” and “What do I want to do with my life?” Along the way, most adolescents try on many different selves to see which ones fit; they explore various roles and ideas, set goals, and attempt to discover their adult selves. Adolescents who are successful at this stage have a strong sense of identity and are able to remain true to their beliefs and values in the face of problems and other people’s perspectives. When adolescents are apathetic, do not make a conscious search for identity, or are pressured to conform to their parents’ ideas for the future, they may develop a weak sense of self and experience role confusion. They

will be unsure of their identity and confused about the future. Teenagers who struggle to adopt a positive role will likely struggle to find themselves as adults.

6. **Intimacy vs. Isolation (Love)**—People in early adulthood (20s through early 40s) are concerned with intimacy vs. isolation. After we have developed a sense of self in adolescence, we are ready to share our life with others. However, if other stages have not been successfully resolved, young adults may have trouble developing and maintaining successful relationships with others. Erikson said that we must have a strong sense of self before we can develop successful intimate relationships. Adults who do not develop a positive self-concept in adolescence may experience feelings of loneliness and emotional isolation.
7. **Generativity vs. Stagnation (Care)**—When people reach their 40s, they enter the time known as middle adulthood, which extends to the mid-60s. The social task of middle adulthood is generativity vs. stagnation. Generativity involves finding your life's work and contributing to the development of others through activities such as volunteering, mentoring, and raising children. During this stage, middle-aged adults begin contributing to the next generation, often through caring for others; they also engage in meaningful and productive work which contributes positively to society. Those who do not master this task may experience stagnation and feel as though they are not leaving a mark on the world in a meaningful way; they may have little connection with others and little interest in productivity and self-improvement.
8. **Integrity vs. Despair (Wisdom)**—From the mid-60s to the end of life, we are in the period of development known as late adulthood. Erikson's task at this stage is called integrity vs. despair. He said that people in late adulthood reflect on their lives and feel either a sense of satisfaction or a sense of failure. People who feel proud of their accomplishments feel a sense of integrity, and they can look back on their lives with few regrets. However, people who are not successful at this stage may feel as if their life has been wasted. They focus on what "would have," "should have," and "could have" been. They may face the end of their lives with feelings of bitterness, depression, and despair.

Erikson's Psychosocial Stages of Development

Stage	Approximate Age (years)	Virtue: Developmental Task	Description
1	0–1	Hope: Trust vs. Mistrust	Trust (or mistrust) that basic needs, such as nourishment and affection, will be met
2	1–3	Will: Autonomy vs. Shame	Sense of independence in many tasks develops
3	3–6	Purpose: Initiative vs. Guilt	Take initiative on some activities, may develop guilt when success not met or boundaries overstepped
4	7–11	Competence: Industry vs. Inferiority	Develop self-confidence in abilities when competent or sense of inferiority when not
5	12–18	Fidelity: Identity vs. Role Confusion	Experiment with and develop identity and roles
6	19–39	Love: Intimacy vs. Isolation	Establish intimacy and relationships with others
7	40–64	Care: Generativity vs. Stagnation	Contribute to society and be part of a family
8	65+	Wisdom: Integrity vs. Despair	Assess and make sense of life and meaning of contributions

Strengths and weaknesses of Erikson's theory

Erikson's eight stages form a foundation for discussions on emotional and social development during the lifespan. Keep in mind, however, that these stages or crises can occur more than once or at different times of life. For instance, a person may struggle with a lack of trust beyond infancy. Erikson's theory has been criticized for focusing so heavily on stages and assuming that the completion of one stage is prerequisite for the next crisis of development. His theory also focuses on the social expectations that are found in certain cultures, but not in all. For instance, the idea that adolescence is a time of searching for identity might translate well in the middle-class culture of the United States, but not as well in cultures where the transition into adulthood coincides with puberty through rites of passage and where adult roles offer fewer choices.

By and large, Erikson's view that development continues throughout the lifespan is very significant and has received great recognition. However, like Freud's theory, it has been criticized for focusing on more men than women and also for its vagueness, making it difficult to test rigorously.

Video Example

Watch this video to learn more about each of Erikson's stages.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=72#oembed-1>

You can view the transcript for “Erikson's psychosocial development | Individuals and Society | MCAT | Khan Academy” here (opens in new window).

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=72#h5p-11>

Key Terms

- **eight stages of psychosocial development:** Erikson's stages of trust vs. mistrust, autonomy vs. shame/doubt, initiative vs. guilt, industry vs. inferiority, identity vs. role confusion, intimacy vs. isolation, generativity vs. stagnation, and integrity vs. despair
- **psychosocial theory:** Erikson's theory that emphasizes the social relationships that are important at each stage of personality development. The lifespan is broken into eight stages, each with a major psychosocial task to accomplish or crisis to overcome.

BEHAVIORAL PERSPECTIVE

Sonja Ann Miller; Laura Overstreet; and Diana Lang

Learning Objectives

- Describe the principles of classical conditioning
- Describe the principles of operant conditioning

The Behavioral Perspective: A Focus on Observable Behavior

The **behavioral perspective** is the psychological approach that suggests that the keys to understanding development are observable behavior and external stimuli in the environment. Behaviorism is a theory of learning, and learning theories focus on how we respond to events or stimuli rather than emphasizing internal factors that motivate our actions. These theories provide an explanation of how experience can change what we do.¹

Behaviorism emerged early in the 20th century and became a major force in American psychology. Championed by psychologists such as John B. Watson (1878–1958) and B. F. Skinner (1904–1990), behaviorism rejected any reference to mind and viewed overt and observable behavior as the proper subject matter of psychology. Through the scientific study of behavior, it was hoped that laws of learning could be derived that would promote the prediction and control of behavior. Russian physiologist Ivan Pavlov (1849–1936) influenced early behaviorism in America. His work on conditioned learning, popularly referred to as classical conditioning, provided support for the notion that learning and behavior were

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controlled by events in the environment and could be explained with no reference to mind or consciousness.²

Classical Conditioning and Emotional Responses

Classical conditioning theory helps us to understand how our responses to one situation become attached to new situations. For example, a smell might remind us of a time when we were a kid. If you went to a new cafe with the same smell as your elementary cafeteria, it might evoke the feelings you had when you were in school. Or a song on the radio might remind you of a memorable evening you spent with your first true love. Or, if you hear your entire name (Isaiah Wilmington Brewer, for instance) called as you walk across the stage to get your diploma and it makes you tense because it reminds you of how your father used to use your full name when he was mad at you, then you’ve been classically conditioned.

Classical conditioning explains how we develop many of our emotional responses to people or events or our “gut level” reactions to situations. New situations may bring about an old response because the two have become connected. Attachments form in this way. Addictions are affected by classical conditioning, as anyone who’s tried to quit smoking can tell you. When you try to quit, everything that was associated with smoking makes you crave a cigarette.

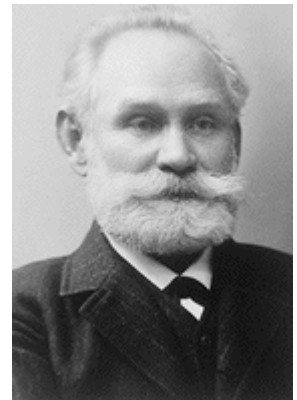


Figure 1. Ivan Pavlov

Pavlov and Classical Conditioning

Ivan Pavlov (1849–1936) was a Russian physiologist interested in studying digestion (Figure 1). As he recorded the amount of salivation his laboratory dogs produced as they ate, he noticed that they actually began to salivate before the food arrived as the researcher walked down the hall and toward the cage. “This,” he thought, “is not natural!” One would expect a dog to automatically salivate when the food hit their palate, but *before* the food comes? Of course, what happened is that the dogs knew that the food was coming because they had learned to associate the footsteps with the food. The keyword here is “learned.”

A learned response is called a “conditioned” response. Pavlov began to experiment with this “psychic” reflex. He began to ring a bell, for instance, prior to introducing the food. Sure enough, after making this connection several times, the dogs could be made to salivate to the

2. Fancher, R. W. (1979). *Pioneers of psychology*. Norton.

sound of a bell. Once the bell had become an event to which the dogs had learned to salivate, it was called a conditioned stimulus. The act of salivating to a bell was a response that had also been learned, now termed in Pavlov's jargon, a conditioned response. Notice that the response, salivation, is the same whether it is conditioned or unconditioned (unlearned or natural). What changed is the stimulus to which the dog salivates. One is natural (unconditioned) and one is learned (conditioned) (Figure 2).

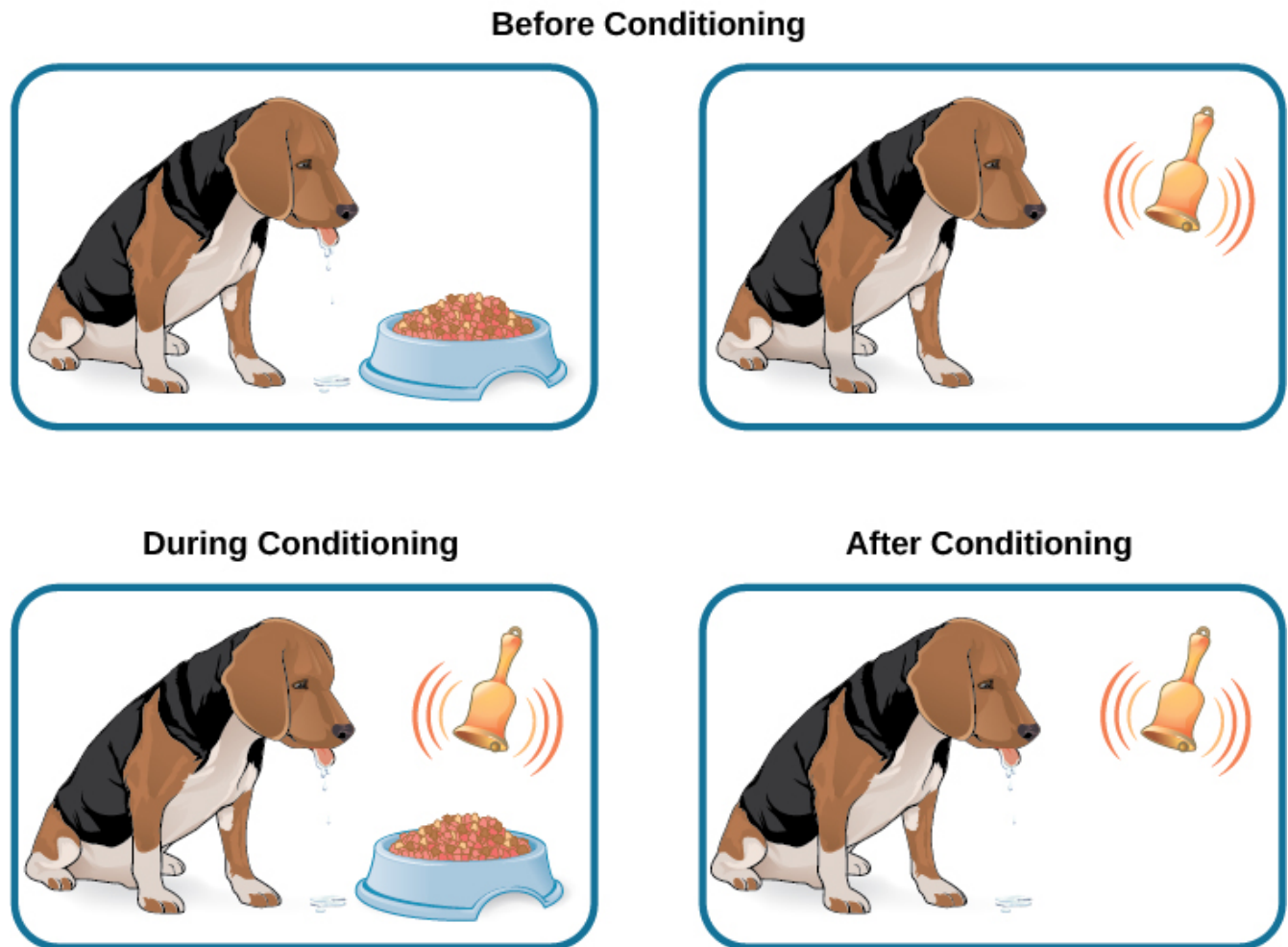


Figure 2. Before conditioning, an unconditioned stimulus (food) produces an unconditioned response (salivation), and a neutral stimulus (bell) does not produce a response. During conditioning, the unconditioned stimulus (food) is presented repeatedly just after the presentation of the neutral stimulus (bell). After conditioning, the neutral stimulus alone produces a conditioned response (salivation), thus becoming a conditioned stimulus. (Image Source: OpenStax Psychology, CC BY 4.0)

Video Example

View the following video to learn more about Pavlov and his dogs:

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You can view the transcript for “Classical Conditioning – Ivan Pavlov” here (opens in new window).

Watson and Behaviorism

Let’s think about how classical conditioning is used on people, and not just with dogs. One of the most widespread applications of classical conditioning principles was brought to us by the psychologist, John B. Watson. Watson proposed that the process of classical conditioning (based on Pavlov’s observations) was able to explain all aspects of human psychology. He established the psychological school of behaviorism, after doing research on animal behavior. This school was extremely influential in the middle of the 20th century when B.F. Skinner developed it further.

Watson believed that most of our fears and other emotional responses are classically conditioned. He gained a good deal of popularity in the 1920s with his expert advice on parenting offered to the public. He believed that parents could be taught to help shape their children’s behavior and tried to demonstrate the power of classical conditioning with his famous experiment with an 18-month-old boy named “Little Albert.” Watson sat Albert down and introduced a variety of seemingly scary objects to him: a burning piece of newspaper, a white rat, etc. But Albert remained curious and reached for all of these things. Watson knew that one of our only inborn fears is the fear of loud noises so he proceeded to make a loud noise each time he introduced one of Albert’s favorites, a white rat. After hearing the loud noise several times paired with the rat, Albert soon came to fear the rat and began to cry when it was introduced.

Watson filmed this experiment for posterity and used it to demonstrate that he could help parents achieve any outcomes they desired if they would only follow his advice. Watson wrote columns in newspapers and in magazines and gained a lot of popularity among parents eager to apply science to household order. Parenting advice was not the legacy Watson left us, however;

where he really made his impact was in advertising. After Watson left academia, he went into the world of business and showed companies how to tie something that brings about a natural positive feeling to their products to enhance sales. Thus the union of sex and advertising!

Little Albert

View scenes from John Watson's experiment in which Little Albert was conditioned to respond in fear to furry objects. As you watch the video, look closely at Little Albert's reactions and the manner in which Watson and Rayner present the stimuli before and after conditioning. In the experiment with Little Albert, check to see if you can identify the conditioned and unconditioned stimuli and responses: identify the unconditioned stimulus, the unconditioned response, and, after conditioning, the conditioned stimulus and the conditioned response.

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You can view the transcript for "Baby Albert Experiments" here (opens in new window).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=74#h5p-12>

Operant Conditioning

Now we turn to the second type of associative learning, operant conditioning. In **operant conditioning**, organisms learn to associate a behavior and its consequence (Table 1). A pleasant consequence makes that behavior more likely to be repeated in the future. For example, Spirit, a dolphin at the National Aquarium in Baltimore, does a flip in the air when her trainer blows a whistle. The consequence is that she gets a fish.

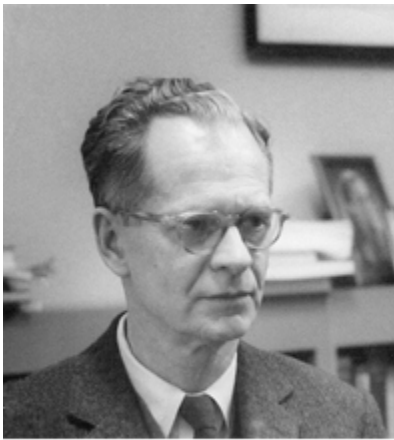
Psychologist B. F. Skinner saw that classical conditioning is limited to existing behaviors

that are reflexively elicited, and it doesn't account for new behaviors such as riding a bike. He proposed a theory about how such behaviors come about. Skinner believed that behavior is motivated by the consequences we receive for the behavior: the reinforcements and punishments. His idea that learning is the result of consequences is based on the **law of effect**, which was first proposed by psychologist Edward Thorndike. According to the law of effect, behaviors that are followed by consequences that are satisfying to the organism are more likely to be repeated, and behaviors that are followed by unpleasant consequences are less likely to be repeated.³ Essentially, if an organism does something that brings about a desired result, the organism is more likely to do it again. If an organism does something that does not bring about a desired result, the organism is less likely to do it again. An example of the law of effect is in employment. One of the reasons (and often the main reason) we show up for work is because we get paid to do so. If we stop getting paid, we will likely stop showing up—even if we love our job.

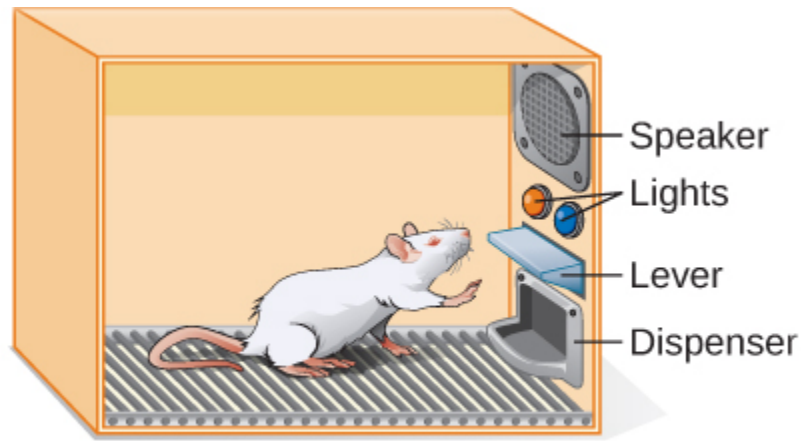
Working with Thorndike's law of effect as his foundation, Skinner began conducting scientific experiments on animals (mainly rats and pigeons) to determine how organisms learn through operant conditioning.⁴ He placed these animals inside an operant conditioning chamber, which has come to be known as a "Skinner box" (Figure 3). A Skinner box contains a lever (for rats) or disk (for pigeons) that the animal can press or peck for a food reward via the dispenser. Speakers and lights can be associated with certain behaviors. A recorder counts the number of responses made by the animal.

3. Thorndike, E. L. (1911). Animal intelligence: An experimental study of the associative processes in animals. *Psychological Monographs*, 8.

4. Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis*. Appleton-Century-Crofts.



(a)



(b)

Figure 3. (a) B. F. Skinner developed operant conditioning for the systematic study of how behaviors are strengthened or weakened according to their consequences. (b) In a Skinner box, a rat presses a lever in an operant conditioning chamber to receive a food reward. (credit a: modification of work by “Silly rabbit”/Wikimedia Commons; adaptation included in OpenStax Psychology, CC BY 4.0)

Skinner believed that we learn best when our actions are reinforced. For example, a child who cleans his room and is reinforced (rewarded) with a big hug and words of praise is more likely to clean it again than a child whose deed goes unnoticed. Skinner believed that almost anything could be reinforcing. A reinforcer is anything following a behavior that makes it more likely to occur again. It can be something intrinsically rewarding (called intrinsic or primary reinforcers), such as food or praise, or it can be something that is rewarding because it can be exchanged for what one really wants (such as receiving money and using it to buy a cookie). Such reinforcers are referred to as secondary reinforcers.

Video Example

Watch the following clip to learn more about operant conditioning and to watch an interview with Skinner as he talks about conditioning pigeons.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=74#oembed-3>

You can view the transcript for “Operant conditioning” here (opens in new window).

Comparing Classical and Operant Conditioning

Table 1. Classical and Operant Conditioning Compared

	Classical Conditioning	Operant Conditioning
Conditioning approach	An unconditioned stimulus (such as food) is paired with a neutral stimulus (such as a bell). The neutral stimulus eventually becomes the conditioned stimulus, which brings about the conditioned response (salivation).	The target behavior is followed by reinforcement or punishment to either strengthen or weaken it so that the learner is more likely to exhibit the desired behavior in the future.
Stimulus timing	The stimulus occurs immediately before the response.	The stimulus (either reinforcement or punishment) occurs soon after the response.

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Key Terms

- **behavioral perspective:** the approach that suggests that the keys to understanding development are observable behavior and outside stimuli in the environment
- **classical conditioning:** a type of learning in which an organism responds in a particular way to a neutral stimulus that normally does not bring about that type of response
- **law of effect:** behavior that is followed by consequences satisfying to the organism will be repeated and behaviors that are followed by unpleasant consequences will be discouraged
- **operant conditioning:** a form of learning in which a voluntary response is strengthened or weakened by its association with positive or negative consequences

SOCIAL LEARNING THEORY: OBSERVATIONAL LEARNING

Sonja Ann Miller; Laura Overstreet; and Diana Lang

Learning Objectives

- Describe the Social Cognitive Theory (SCT) by Albert Bandura
- Describe the concept of reciprocal determinism

Social Cognitive Theory (SCT), originally known as the Social Learning Theory (SLT), began in the 1960s through research done by Albert Bandura. The theory proposes that learning occurs in a social context. It takes into consideration the dynamic and reciprocal interaction of the person, environment, and their own behavior.¹

Not all forms of learning are accounted for entirely by classical and operant conditioning. Imagine a child walking up to a group of children playing a game on the playground. The game looks fun, but it is new and unfamiliar. Rather than joining the game immediately, the child opts to sit back and watch the other children play a round or two. Observing the others, the child takes note of the ways in which they behave while



Figure 1. Children observing a social model (an experienced chess player) to learn the rules and strategies of the game of chess. (Image Source: David R. Tribble, CC BY-SA 3.0)

1. LaMonte, W. W. (2019). Behavioral Change Models. The Social Cognitive Theory. <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories5.html>.

playing the game. By watching the behavior of the other kids, the child can figure out the rules of the game and even some strategies for doing well at the game. This is called observational learning.²

Observational learning is a component of Albert Bandura's Social Learning Theory,³ which posits that individuals can learn novel responses via observation of key others' behaviors. Observational learning does not necessarily require reinforcement, but instead hinges on the presence of others, referred to as social models. Social models are normally of higher status or authority compared to the observer, examples of which include parents, teachers, and police officers. In the example above, the children who already know how to play the game could be thought of as being authorities—and are therefore social models—even though they are the same age as the observer. By observing how the social models behave, an individual is able to learn how to act in a certain situation. Other examples of observational learning might include a child learning to place her napkin in her lap by watching her parents at the dinner table, or a customer learning where to find the ketchup and mustard after observing other customers at a hot dog stand.

Bandura theorizes that the observational learning process consists of four parts. The first is *attention*—one must pay attention to what they are observing in order to learn. The second part is *retention*: to learn one must be able to retain the behavior they are observing in memory. The third part of observational learning, *initiation*, acknowledges that the learner must be able to execute (or initiate) the learned behavior. Lastly, the observer must possess the *motivation* to engage in observational learning. In our vignette, the child must want to learn how to play the game in order to properly engage in observational learning.

In this experiment, Bandura⁴ had children individually observe an adult social model interact with a clown doll (Bobo). For one group of children, the adult interacted aggressively with Bobo: punching it, kicking it, throwing it, and even hitting it in the face with a toy mallet. Another group of children watched the adult interact with other toys, displaying no aggression toward Bobo. In both instances, the adult left and the children were allowed to interact with Bobo on their own. Bandura found that children exposed to the aggressive social model were significantly more likely to behave aggressively toward Bobo, hitting and kicking him, compared to those exposed to the non-aggressive model. The researchers concluded that the

2. This chapter was adapted from Lumen Learning's *Lifespan Development*, developed by Sonja Ann Miller and available under a Creative Commons Attribution-ShareAlike license. Portions of the Lumen text were adapted from Laura Overstreet's *Lifespan Psychology*, Noba Psychology, Lumen Learning, OpenStax College, and Wikipedia.

3. Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191–215.

4. Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology*, 63, 575–582.

children in the aggressive group used their observations of the adult social model's behavior to determine that aggressive behavior toward Bobo was acceptable.

While reinforcement was not required to elicit the children's behavior in Bandura's first experiment, it is important to acknowledge that consequences do play a role within observational learning. A future adaptation of this study⁵ demonstrated that children in the aggression group showed less aggressive behavior if they witnessed the adult model receive punishment for aggressing against Bobo. Bandura referred to this process as vicarious reinforcement because the children did not experience the reinforcement or punishment directly yet were still influenced by observing it.

Do parents socialize children or do children socialize parents?

Bandura's⁶ findings suggest that there is interplay between the environment and the individual (Figure 1). We are not just the product of our surroundings, rather we influence our surroundings. There is interplay between our personality and the way we interpret events and how they influence us. This concept is called **reciprocal determinism**. An example of this might be the interplay between parents and children. Parents not only influence their child's environment, perhaps intentionally through the use of reinforcement, etc., but children influence parents as well. Parents may respond differently to their first child than with their fourth. Perhaps they try to be the perfect parents with their firstborn, but by the time their last child comes along, they have very different expectations of themselves and their child. Our environment creates us and we create our environment. Today there are numerous other social influences, from TV, games, the Internet, i-pads, phones, social media, influencers, advertisements, etc.

5. Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. *The Journal of Abnormal and Social Psychology*, 66(1), 3–11. <https://doi.org/10.1037/h0048687>

6. Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Video Example

Watch this clip to better understand Bandura's research on social learning.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=89#oembed-1>

You can view the transcript for “The Bandura Bobo Doll Experiment” here (opens in new window).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=89#h5p-15>

Key Terms

- **reciprocal determinism:** the interplay between our personality and the way we interpret events and how they influence us
- **social-cognitive learning theory:** learning by observing the behavior of another person, called a model

COGNITIVE THEORIES

Psychology Notes Headquarters; Laura Overstreet; Lumen Learning; and Diana Lang

Learning Objectives

- Describe Piaget's theory of cognitive development
- Describe information processing approaches to cognitive development

The Jean Piaget Stages of Cognitive Development

In the 1960s and 1970s, as Freudian and Jungian psychology were rapidly being replaced by more empirical methods of studying human behavior, a Swiss philosopher and psychologist named Jean Piaget (1896-1980) offered a new theory of cognitive development.¹

The Jean Piaget theory of cognitive development suggests that regardless of culture, the cognitive development of children follows a predetermined order of stages, which are widely known as the Jean Piaget stages of cognitive development.

According to this Jean Piaget theory, children are not capable of performing certain tasks or understanding certain concepts until they reach a particular Piaget stage.

In addition, Piaget believed that children move from one stage to the next after extensive exposure to relevant stimuli and experiences. With these experiences, both physical and cognitive, they are ready to master new skills, which are essential for children to move through the Piaget stages.

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The Four Jean Piaget Stages of Development

Piaget's Stages of Development

Stage	Age range	What happens at this stage?
Sensorimotor	0-2 years old	Coordination of sense with motor responses, sensory curiosity about the world. Language used for demands and cataloguing. Object permanence is developed.
Preoperational	2-7 years old	Symbolic thinking, use of proper syntax and grammar to express concepts. Imagination and intuition are strong, but complex thoughts are still difficult. Conservation is developed.
Concrete operational	7-11 years old	Concepts attached to concrete situations. Time, space, and quantity are understood and can be applied, but not as independent concepts.
Formal operational	11 years and older	Theoretical, hypothetical, and counterfactual thinking. Abstract logic and reasoning. Strategy and planning become possible. Concepts learned in one context can be applied to another.

Sensorimotor Stage



(Image Source: Anna Shvets on Pexels)

Age Range: Birth to 2 years old

According to the Piaget theory, children like to explore at the sensorimotor stage. They want to watch, hear, taste, touch things around them. They learn about their environment by sensation: watching, grasping, sucking and manipulating objects they can get their eyes and hands on. They generally don't appear to be thinking about what they do.

As infants become toddlers, children enjoy their rapidly improving abilities to move around and take in new experiences. They focus on making sense of the world by linking their experiences to their actions.

Piaget further divided the sensorimotor stage into six substages, each sighted with at the establishment of a new skill.

- Reflexes (0 – 1 month): Understanding of environment is attained through reflexes such as sucking and crying.
- Primary Circular Reactions (1 – 4 months): New schemas and sensations are combined, allowing children to engage in pleasurable actions deliberately, such as sucking their thumb.
- Secondary Circular Reactions (4 – 8 months): Children are now aware that their actions influence their environment and purposefully perform actions in order to achieve desired results. For example, they push a key on a toy piano to make a sound.
- Coordination of Reactions (8 – 12 months): Children explore their environment and often imitate the behavior of others.
- Tertiary Circular Reactions – (12 – 18 months): Children begin to experiment and try out new behavior.
- Early Representational Thought (18 – 24 months): Children begin to recognize and appreciate symbols that represent objects or events. They use simple language to catalog objects, e.g. “doggie”, “horsey”.

During the late sensorimotor stage, children begin to learn the concept of **object permanence**. In other words, they know that an object will continue to exist even if they can no longer see it.

The practical knowledge developed during the sensorimotor stage will form the basis for children's ability to form mental representations of objects in later Piaget stages.

Preoperational Stage

Age Range: 2-7 years old

Around age two, children enter what Piaget called the preoperational stage where they learn how to think abstractly, understand symbolic concepts, and use language in more sophisticated ways. They learn to use words to describe people, their feelings and their environments.

Now that children can express themselves better, they become insatiably curious and begin to ask questions about everything they see. They can imagine people or objects that don't exist (such as a lizard with wings) more readily than younger children, and they like to make up their own games.



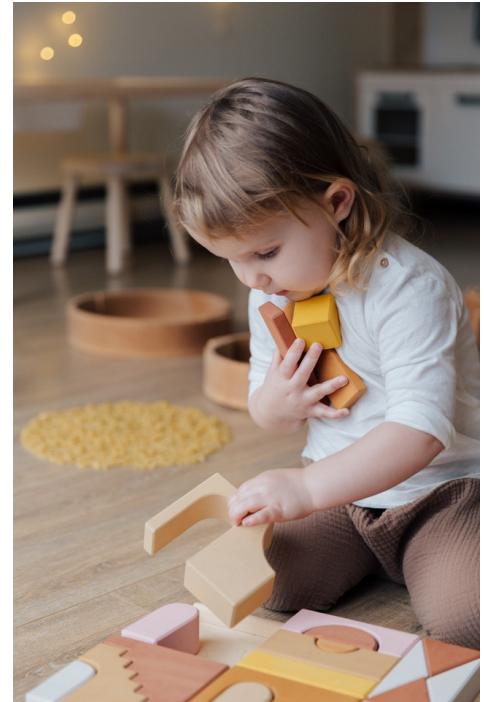
(Image Source: Anna Shvets on Pexels)

Piaget's theory of cognitive development suggests that at this stage, children are so engrossed in egocentric thoughts that they believe their view of the world is shared by everyone else. They can't understand that there are other ways of looking at the world and interpreting information. For example, a child in a game of hide and seek may simply close his eyes and believe that others can't see him (since he can't see others).

At the preoperational stage, children understand object permanence very well. However, they still don't get the concept of conservation. They don't understand that changing an object's appearance doesn't change its properties or quantity. To illustrate this, Piaget performed an experiment on children who were at the preoperational

stage:

In the experiment, Piaget poured the exact same amount of water into two identical glasses and asked the children whether the glasses contained the same amount of water. The children said that both glasses contained the same amount of water. Piaget then poured the water in one



(Image Source: Tatiana Syrikova on Pexels)

glass into a tall, narrow beaker and repeated the question. This time, the children said there was more water in the cylinder because it was taller.

Concrete Operational Stage



(Image Source: Tima Miroshnichenko on Pexels)

Age Range: 7-11 years old

By the time they reach the concrete operational stage, children can understand much more complex abstract concepts, such as time, space, and quantity. They can apply these concepts to concrete situations, but they still have trouble thinking about them independently of those situations.

Piaget pointed out that at this stage, children's ideas about time and space are sometimes inconsistent. They can learn rules fairly easily, but they may have trouble understanding the logical implications of those rules in unusual situations.

In addition, at the concrete operational stage, children are able to use inductive logic – the type of reasoning that starts from a specific idea and leads to a generalization. They can also distinguish facts from fantasies, as well as formulate judgements about cause and effect.

Another important child development milestone at this stage is the idea of **reversibility** –

children understand that some objects can be altered and then shaped back to their original shape. For example, a deflated balloon can be filled with air again to become an inflated balloon.

Formal Operational Stage



(Image Source: Pixabay)

Age Range: 11 years old and older

At the final stage of the Jean Piaget stages of cognitive development, children are capable of more abstract, hypothetical, and theoretical reasoning. They are no longer bound to observable and physical events. They can approach and resolve problems systematically by formulating hypotheses and methodically testing them out.

Children can now apply their reasoning to a variety of situations including counterfactual “if-then” situations, meaning in situations where the “if” is known to be untrue. For example “if dogs were reptiles, they would have cold blood.” They can accept this as valid reasoning, even though the premise is obviously false.

As children grow older, formal logic becomes possible and verbal explanations of concepts

are usually sufficient without demonstration. They can consider possible outcomes and consequences of their actions without actually performing them. In addition, strategy-based games become more enjoyable, whereas rote games like “chutes-and-ladders” become too repetitive and boring for them.

The Jean Piaget theory of cognitive development has been the subject of some criticism over the years, particularly from cross-cultural psychologists who question whether the Piaget stages are unique to Western children.

Regardless of the criticism, the Piaget theory has proven to be invaluable and formed the basis for a number of other famous psychological ideas, including Kohlberg’s theory of moral development.

Information-Processing Approach to Cognitive Development

Information-processing approaches have become an important alternative to Piagetian approaches. The theory is based on the idea that humans process the information they receive, rather than merely responding to stimuli. As a model, it assumes that even complex behavior such as learning, remembering, categorizing, and thinking can be broken down into a series of individual, specific steps, and as a person develops strategies for processing information, they can learn more complex information. This perspective equates the mind to a computer, which is responsible for analyzing information from the environment.²

The most common information-processing model is applied to an understanding of memory and the way that information is encoded, stored, and then retrieved from the brain (Atkinson & Shiffrin, 1968), but information processing approaches also apply to cognitive processing in general. In one study, Stephanie Thornton assessed how children solved the problem of building a small bridge out of playing blocks to cross a small “river.” A single block was not wide enough to reach across the river, so the bridge could only be built by having two of the blocks meet in the middle, then by using extra blocks on the top of the sides of the bridge to serve as counterweights to hold the bridge upright. This task was relatively easy for older children (7 and 9 years old), but significantly harder for 5-year-olds (in the study, only one 5-year-old eventually completed the task by using trial and error).³ This supports the idea that cognitive development is specific to the individual.

2. The section on the information-processing approach was adapted from Lumen Learning's *Lifespan Development*, available under a Creative Commons Attribution license. Portions of the Lumen text were adapted from Laura Overstreet's *Lifespan Psychology*, Lumen Learning, and Wikipedia.

3. Thorton, S. (1999). Creating conditions for cognitive change: The interaction between task structures and specific strategies. *Child Development*, 70, 588-603.

Key Terms

- **concrete operational stage:** the stage in which children can think logically about real (concrete) events, have a firm grasp on the use of numbers and start to employ memory strategies, lasts from about 7 to 11 years old
- **conservation:** the idea that even if you change the appearance of something, it is still equal in size as long as nothing has been removed or added, usually develops during the concrete operational stage
- **formal operational stage:** the fourth, and last, stage in Piaget's theory and lasts from about age 11 to adulthood. Children in the formal operational stage can deal with abstract ideas and hypothetical situations
- **information-processing approach:** an alternative to Piagetian approaches, a model that seeks to identify the ways individuals take in, use, and store information
- **object permanence:** the understanding that even if something is out of sight it still exists, develops between 5 and 8 months old
- **Piaget's theory of cognitive development:** a description of cognitive development as four distinct stages in children: sensorimotor, preoperational, concrete, and formal
- **preoperational stage:** the stage in which children can use symbols to represent words, images, and ideas, which is why children in this stage engage in pretend play, lasts approximately 2 to 7 years old
- **reversibility:** objects can be changed and then returned back to their original form or condition, typically observed during the concrete operational stage
- **sensorimotor stage:** the stage in which children learn about the world through their senses and motor behavior, lasts from birth to about 2 years old

HUMANISTIC THEORY

Sonja Ann Miller; Lumen Learning; and Diana Lang

Learning Objectives

- Describe the major concepts of humanistic theory (unconditional positive regard, the good life), as developed by Carl Rogers
- Explain Maslow's hierarchy of needs

The humanistic perspective rose to prominence in the mid-20th century in response to psychoanalytic theory and behaviorism; this perspective focuses on how healthy people develop and emphasizes an individual's inherent drive towards self-actualization and creativity. **Humanism** emphasizes human potential and an individual's ability to change, and rejects the idea of biological determinism. Humanistic work and research are sometimes criticized for being qualitative (not measurement-based), but there exist a number of quantitative research strains within humanistic psychology, including research on happiness, self-concept, meditation, and the outcomes of humanistic psychotherapy.¹²

Carl Rogers and Humanism

One pioneering humanistic theorist was Carl Rogers. He was an influential humanistic psychologist who developed a personality theory that emphasized the importance of the self-actualizing tendency in shaping human personalities. He also believed that humans are constantly reacting to stimuli with their subjective reality (**phenomenal field**),

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1. Friedman, H. (2008), Humanistic and positive psychology: The methodological and epistemological divide. *The Humanistic Psychologist*, 36, 113–126.
 2. This chapter was adapted from Lumen Learning's *Lifespan Development*, developed by Sonja Ann Miller and available under a Creative Commons Attribution-ShareAlike license.

which changes continuously. Over time, a person develops a self-concept based on the feedback from this field of reality.

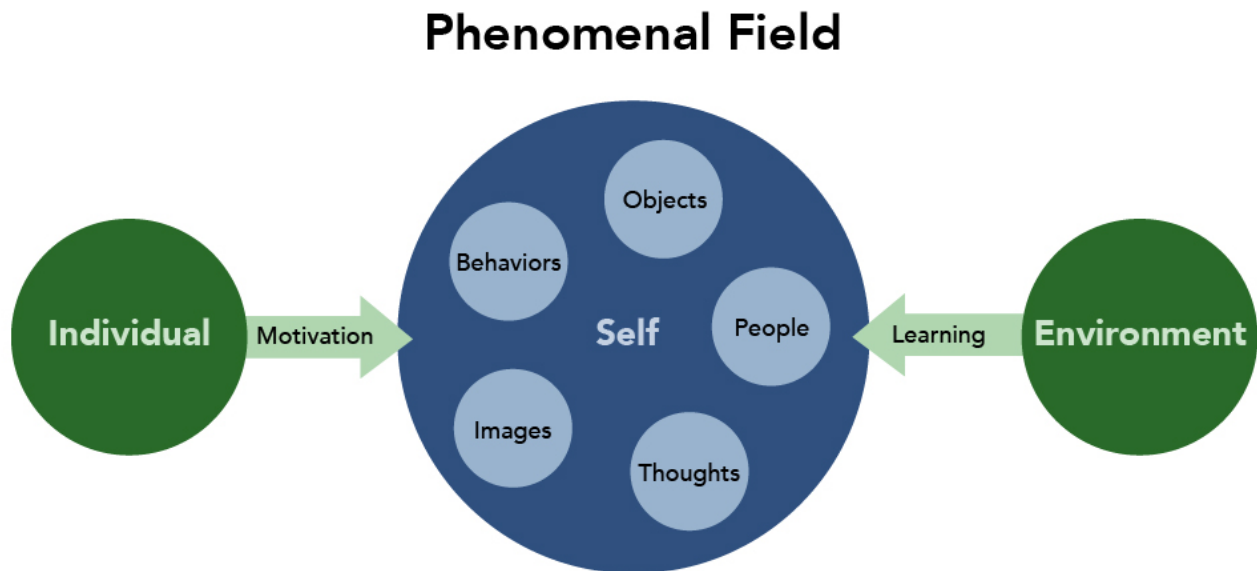


Figure 1. The phenomenal field refers to a person’s subjective reality, which includes external objects and people as well as internal thoughts and emotions. The person’s motivations and environments both act on their phenomenal field. (Image Source: Tekks, modified by Lumen Learning, CC BY SA)

One of Rogers’s main ideas about personality regards self-concept, our thoughts and feelings about ourselves. How would you respond to the question, “Who am I?” Your answer can show how you see yourself. If your response is primarily positive, then you tend to feel good about who you are, and you probably see the world as a safe and positive place. If your response is mainly negative, then you may feel unhappy with who you are. Rogers further divided the self into two categories: the ideal self and the real self. The ideal self is the person that you would like to be; the real self is the person you actually are. Rogers focused on the idea that we need to achieve consistency between these two selves.

Unconditional Positive Regard

Human beings develop an ideal self and a real self, based on the conditional status of positive regard. How closely one’s real self matches up with their ideal self is called congruence. We experience congruence when our thoughts about our real self and ideal self are very similar—in other words when our self-concept is accurate. High congruence leads to a greater sense of self-worth and a healthy, productive life. Conversely, when there is a great discrepancy between

our ideal and actual selves, we experience a state Rogers called incongruence, which can lead to maladjustment.

According to Rogers, parents can help their children achieve their ideal self by giving them unconditional positive regard, or unconditional love. In the development of self-concept, positive regard is key. Unconditional positive regard is an environment that is free of preconceived notions of value. Conditional positive regard is full of conditions of worth that must be achieved to be considered successful. Rogers³ explained it this way: “As persons are accepted and prized, they tend to develop a more caring attitude towards themselves” (p. 116).

The Good Life

Rogers described life in terms of principles rather than stages of development. These principles exist in fluid processes rather than static states. He claimed that a fully functioning person would continually aim to fulfill his or her potential in each of these processes, achieving what he called “the good life.” These people would allow personality and self-concept to emanate from experience. He found that fully functioning individuals had several traits or tendencies in common:

1. A growing openness to experience—they move away from defensiveness.
2. An increasingly existential lifestyle—living each moment fully, rather than distorting the moment to fit personality or self-concept.
3. Increasing organismic trust—they trust their own judgment and their ability to choose behavior that is appropriate for each moment.
4. Freedom of choice—they are not restricted by incongruence and are able to make a wide range of choices more fluently. They believe that they play a role in determining their own behavior and so feel responsible for their own behavior.
5. Higher levels of creativity—they will be more creative in the way they adapt to their own circumstances without feeling a need to conform.
6. Reliability and constructiveness—they can be trusted to act constructively. Even aggressive needs will be matched and balanced by intrinsic goodness in congruent individuals.
7. A rich full life—they will experience joy and pain, love and heartbreak, fear and courage more intensely.

3. Rogers, C. (1980). *A way of being*. Houghton Mifflin.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=78#h5p-16>

Abraham Maslow's Hierarchy of Needs

Abraham Maslow (1908–1970) was an American psychologist who is best known for proposing a **hierarchy of human needs** in motivating behavior. Maslow described a pattern through which human motivations generally move, meaning that in order for motivation to occur at the next level, each level must be satisfied within the individual themselves. These stages include:

- physiological needs: the main physical requirements for human survival, including homeostasis, food, water, sleep, shelter, and sex.
- safety needs: the need for personal, emotional, financial, and physical security. Once a person's physiological needs are relatively satisfied, their safety needs take precedence and dominate behavior. In the absence of physical safety – due to war, natural disaster, family violence, childhood abuse, institutional racism, etc. – people may (re-)experience post-traumatic stress disorder or transgenerational trauma. In the absence of economic safety – due to an economic crisis and lack of work opportunities – these safety needs manifest themselves in ways such as a preference for job security, grievance procedures for protecting the individual from unilateral authority, savings accounts, insurance policies, disability accommodations, etc. This level is more likely to predominate in children as they generally have a greater need to feel safe.
- love and belonging: the need for friendships, intimacy, and belonging. This need is especially strong in childhood and it can override the need for safety as witnessed in children who cling to abusive parents. Deficiencies within this level of Maslow's hierarchy – due to hospitalism, neglect, shunning, ostracism, etc. – can adversely affect the individual's ability to form and maintain emotionally significant relationships in general.
- esteem: the typical human desire to be accepted and valued by others. People often engage in a profession or hobby to gain recognition. Esteem needs are ego needs or status needs. People develop a concern with getting recognition, status, importance, and respect

from others. Most humans have a need to feel respected; this includes the need to have self-esteem and self-respect.

- **self-actualization:** Maslow describes this level as the desire to accomplish everything that one can, to become the most that one can be. Individuals may perceive or focus on this need very specifically. For example, one individual may have a strong desire to become an ideal parent. In another, the desire may be expressed athletically. For others, it may be expressed in paintings, pictures, or inventions. Some examples of this include utilizing abilities and talents, pursuing goals, and seeking happiness.

Furthermore, this theory is a key foundation in understanding how drive and motivation are correlated when discussing human behavior. Each of these individual levels contains a certain amount of internal sensation that must be met in order for an individual to complete their hierarchy. The goal in Maslow's theory is to attain the fifth level or stage of **self-actualization**.

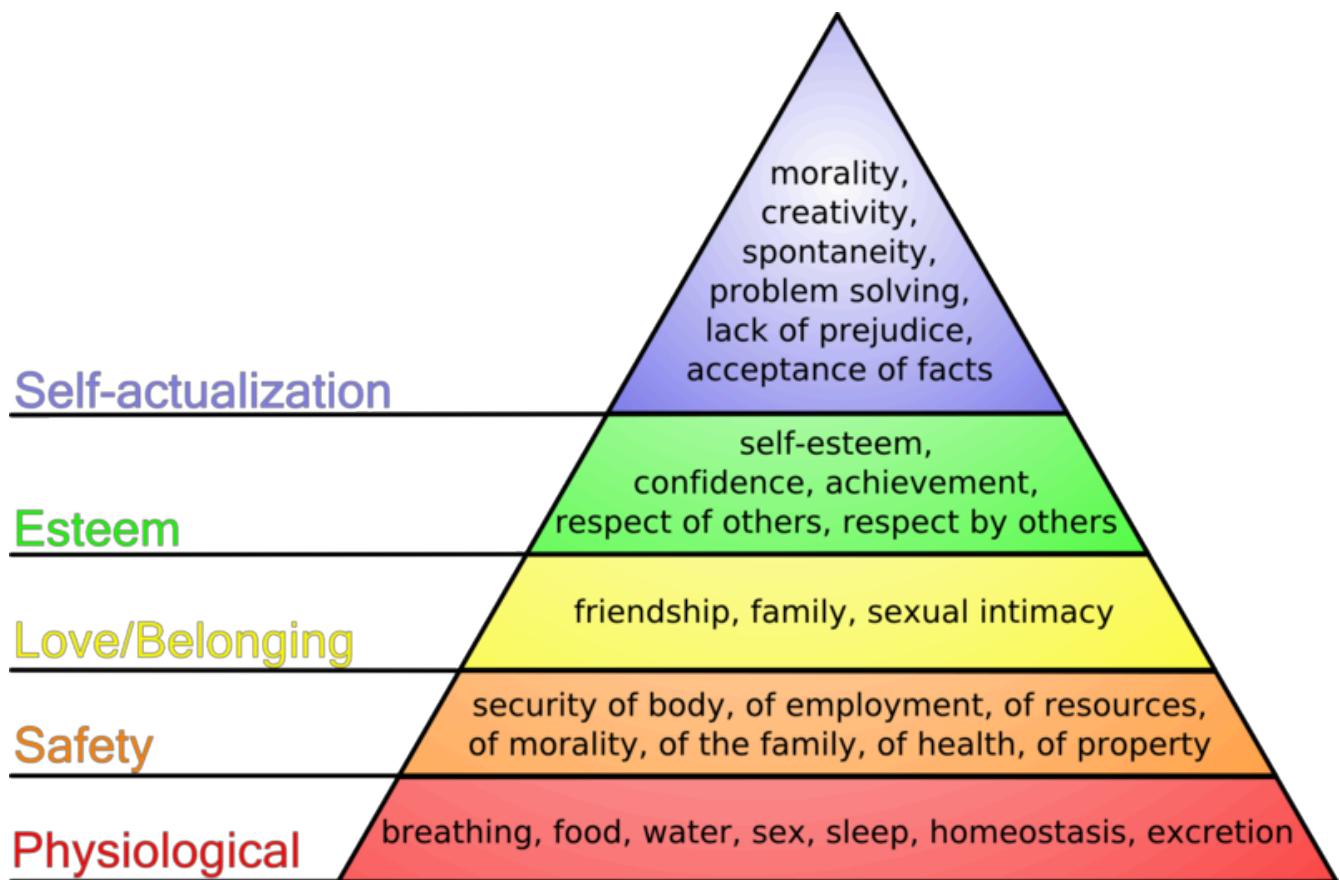


Figure 2. Diagram of Maslow's hierarchy of needs. Maslow's hierarchy of needs is often portrayed in the shape of a pyramid with the largest, most fundamental needs at the bottom and the need for self-actualization and transcendence at the top. In other words, the crux of the theory is that individuals' most basic needs must be met before they become motivated to achieve higher-level needs. (Image source: J. Finkelstein, CC BY SA)

Video Example

Watch as Maslow's hierarchy of needs comes to life in this quick video.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=78#oembed-1>

You can view the transcript for “Maslow's Hierarchy of Needs” here (opens in new window).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=78#h5p-17>

Key Terms

- **congruence:** an instance or point of agreement or correspondence between the ideal self and the real self in Rogers' humanistic personality theory
- **humanism:** a psychological theory that emphasizes an individual's inherent drive towards self-actualization and contends that people have a natural capacity to make decisions about their lives and control their own behavior
- **Maslow's hierarchy of needs:** a motivational theory in psychology comprising a five-tier model of human needs, often depicted as hierarchical levels within a pyramid. Needs lower down in the hierarchy must be satisfied before individuals are motivated to attend to needs higher up
- **phenomenal field:** our subjective reality, all that we are aware of, including objects and people as well as our behaviors, thoughts, images, and ideas
- **self-actualization:** according to humanistic theory, the realizing of one's full potential can include creative expression, a quest for spiritual enlightenment, the pursuit of knowledge, or the desire to contribute to society. For Maslow, it is a state of self-fulfillment in which people achieve their highest potential in their own unique way

CONTEXTUAL PERSPECTIVES

Sonja Ann Miller; Lumen Learning; Laura Overstreet; and Diana Lang

Learning Objectives

- Describe Vygotsky's sociocultural theory of cognitive development
- Explain Bronfenbrenner's bioecological model

Contextual Perspectives: A Broad Approach to Development

Contextual perspectives consider the relationship between individuals and their physical, cognitive, and social worlds. They also examine socio-cultural and environmental influences on development. We will focus on two major theorists who pioneered this perspective: Lev Vygotsky and Urie Bronfenbrenner. Lev Vygotsky was a Russian psychologist who is best known for his sociocultural theory. He believed that social interaction plays a critical role in children's learning; through such social interactions, children go through a continuous process of scaffolded learning. Urie Bronfenbrenner developed the ecological systems theory to explain how everything in a child and the child's environment affects how a child grows and develops. He labeled different aspects or levels of the environment that influence children's development.¹

1. This chapter was adapted from Lumen Learning's *Lifespan Development*, developed by Sonja Ann Miller and Laura Overstreet and available under a Creative Commons Attribution-ShareAlike license.

Vygotsky's Sociocultural Theory: Changes in thought with guidance

Modern social learning theories stem from the work of Russian psychologist Lev Vygotsky (Figure 1), who produced his ideas as a reaction to existing conflicting approaches in psychology.² Vygotsky's ideas are most recognized for identifying the role of social interactions and culture in the development of higher-order thinking skills. His theory is especially valuable for the insights it provides about the dynamic “interdependence between individual and social processes in the construction of knowledge”.³ Vygotsky's views are often considered primarily as developmental theories, focusing on qualitative changes in behavior over time as attempts to explain unseen processes of development of thought, language, and higher-order thinking skills. Although Vygotsky's intent was mainly to understand higher psychological processes in children, his ideas have many implications and practical applications for learners of all ages.



Figure 1. Lev Vygotsky, founder of the sociocultural theory, which emphasizes contextual factors in cognitive development.

Three themes are often identified with Vygotsky's ideas of sociocultural learning: (1) human development and learning originate in social, historical, and cultural interactions, (2) use of psychological tools, particularly language, mediate development of higher mental functions, and (3) learning occurs within the Zone of Proximal Development. While we discuss these ideas separately, they are closely interrelated, non-hierarchical, and connected.

Vygotsky's **sociocultural theory** emphasizes the importance of culture and interaction in the development of cognitive abilities. Vygotsky contended that thinking has social origins, social interactions play a critical role especially in the development of higher-order thinking skills, and cognitive development cannot be fully understood without considering the social and historical context within which it is embedded. He explained, “Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first between people (interpsychological) and then inside the child (intrapsychological)”.⁴ It

2. Kozulin, A. (1990). *Vygotsky's psychology: A biography of ideas*. Harvard University Press.

3. John-Steiner, V. & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist*, 31, 191–206.

4. Vygotsky, Lev (1978). *Mind in Society*. London: Harvard University Press. p. 57

is through working with others on a variety of tasks that a learner adopts socially shared experiences and associated effects and acquires useful strategies and knowledge.⁵

Rogoff⁶ refers to this process as guided participation, where a learner actively acquires new culturally valuable skills and capabilities through a meaningful, collaborative activity with an assisting, more experienced other. It is critical to notice that these culturally mediated functions are viewed as being embedded in sociocultural activities rather than being self-contained. Development is a “transformation of participation in a sociocultural activity” not a transmission of discrete cultural knowledge or skills.⁷

Scaffolding and the Zone of Proximal Development



Figure 2. According to Vygotsky, children can develop cognitively in their understanding of the world and learn what is important in society through play and cooperation with others. (Image Source: U.S. Air Force, public domain)

Vygotsky differed with Piaget in that he believed that a person not only has a set of abilities, but also a set of potential abilities that can be realized if given the proper guidance from others. He believed that through guided participation known as **scaffolding**, with a teacher or capable peer, a child can learn cognitive skills within a certain range known as the **zone of proximal development** (Figure 2). While Piaget’s ideas of cognitive development assume that development through certain stages is biologically determined, originates in the individual, and precedes cognitive complexity, Vygotsky presents a different view in which learning drives development. The idea of learning driving development, rather than being

determined by the developmental level of the learner, fundamentally changes our understanding of the learning process and has significant instructional and educational implications.⁸

Have you ever taught a child to perform a task? Maybe it was brushing their teeth or

5. Scott, S., & Palincsar, A. (2013). Sociocultural theory. http://dr-hatfield.com/theorists/resources/sociocultural_theory.pdf

6. Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. New York: Oxford University Press.

7. Matusov, E. (2015). Vygotsky’s theory of human development and new approaches to education. In *International Encyclopedia of the Social & Behavioral Sciences* (pp. 316–321). Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.92016-6>

8. Miller, P. (2011). *Theories of developmental psychology* (5th ed.). New York, NY: Worth Publishers.

preparing food. Chances are you spoke to them and described what you were doing while you demonstrated the skill and let them work along with you throughout the process. You gave them assistance when they seemed to need it, but once they knew what to do-you stood back and let them go. This is scaffolding. This approach to teaching has also been adopted by educators. Rather than assessing students on what they are doing, they should be understood in terms of what they are capable of doing with the proper guidance.

This difference in assumptions has significant implications for the design and development of learning experiences. If we believe as Piaget did that development precedes learning, then we will make sure that new concepts and problems are not introduced until learners have developed innate capabilities to understand them. On the other hand, if we believe as Vygotsky did that learning drives development and that development occurs as we learn a variety of concepts and principles, recognizing their applicability to new tasks and new situations, then our instructional design will look very different.

Example Video

Watch this video to learn more about Vygotsky's theory of sociocultural development.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=80#oembed-1>

You can view the transcript for “Vygotsky sociocultural development | Individuals and Society” here (opens in new window).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=80#h5p-18>

Bronfenbrenner's Ecological Systems Theory

Another psychologist who recognized the importance of the environment on development was American psychologist, Urie Bronfenbrenner (1917-2005), who formulated the **ecological systems theory** (Figure 3) to explain how the inherent qualities of a child and their environment interact to influence how they will grow and develop. The term “ecological” refers to a natural environment; human development is understood through this model as a long-lasting transformation in the way one perceives and deals with the environment. Bronfenbrenner's ecological theory stresses the importance of studying children in the context of multiple environments because children typically find themselves enmeshed simultaneously in different ecosystems. Each of these systems inevitably interact with and influence each other in every aspect of the child's life, from the most intimate level to the broadest. Furthermore, he eventually renamed his theory the **bioecological model** in order to recognize the importance of biological processes in development. However, he only recognized biology as producing a person's potential, with this potential being realized or not via environmental and social forces.

An individual is impacted by **microsystems** such as parents or siblings; those who have direct, significant contact with the person. The input of those people is modified by the cognitive and biological state of the individual as well. These influence the person's actions, which in turn influence systems operating on them. The **mesosystem** includes larger organizational structures such as school, the family, or religion. These institutions impact the microsystems just described. For example, the religious teachings and traditions of a family may create a climate that makes the family feel stigmatized and this indirectly impacts the child's view of their self and others. The philosophy of the school system, daily routine, assessment methods, and other characteristics can affect the child's self-image, growth, sense of accomplishment, and schedule, thereby impacting the child physically, cognitively, and emotionally. These mesosystems both influence and are influenced by the larger contexts of the community, referred to as the **exosystem**. A community's values, history, and economy can impact the organizational structures it houses. And the community is influenced by **macrosystems**, which are cultural elements such as global economic conditions, war, technological trends, values, philosophies, and a society's responses to the global community. In sum, a child's experiences are shaped by larger forces such as the family, school, religion, and culture. All of this occurs within the relevant historical context and timeframe, or **chronosystem**. The chronosystem is made up of the environmental events and transitions that occur throughout a child's life, including any socio-historical events. This system consists of all the experiences that a person has had during their lifetime.

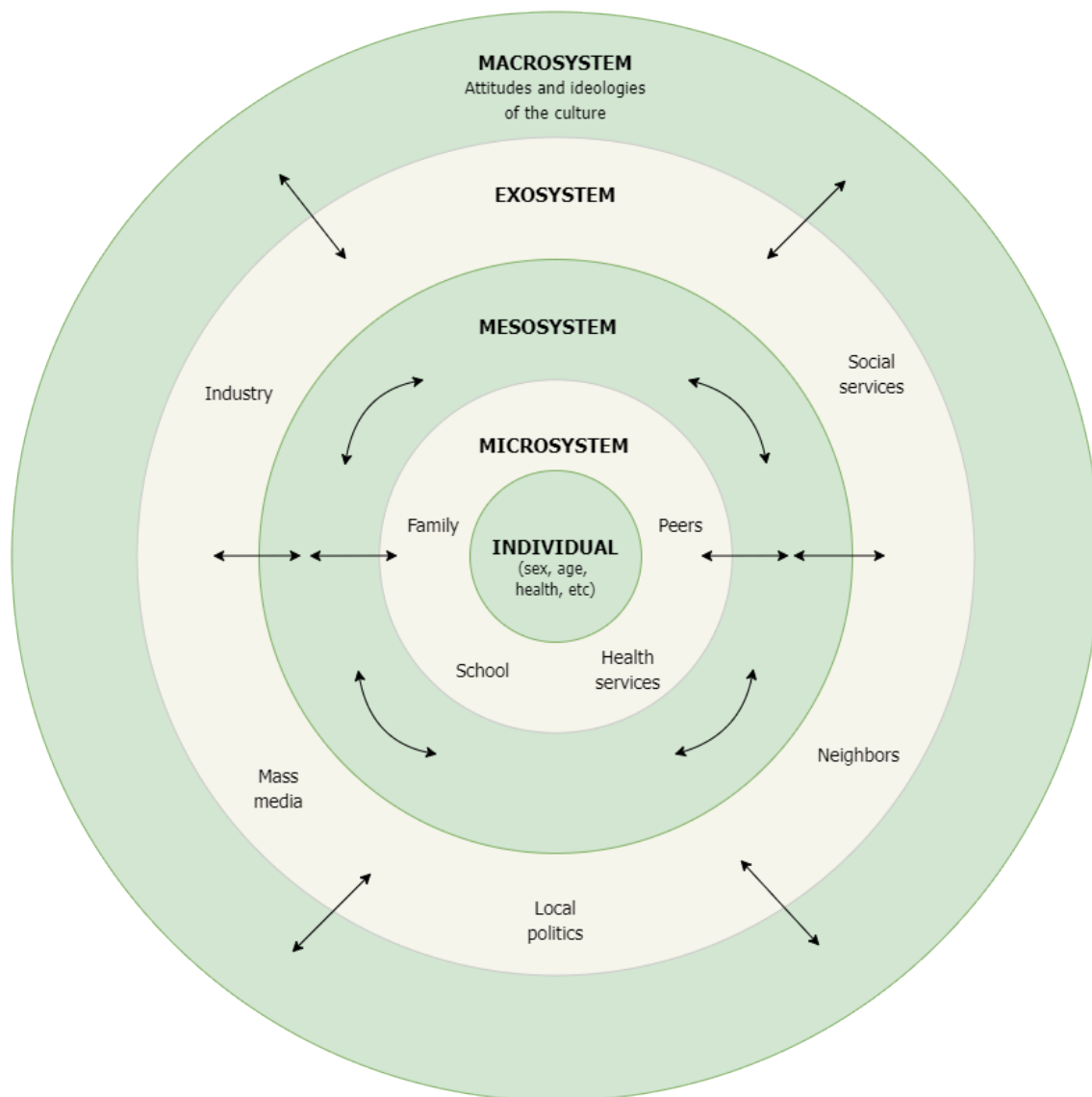


Figure 3. Bronfenbrenner's ecological theory emphasizes the influence of microsystems, mesosystems, exosystems, and the macrosystems on an individual. Not pictured is the chronosystem, or the historical context and timeframe which provides the context for all the other systems. The chronosystem includes environmental events, major life transitions, and historical events. (Image Source: Abbeyelder on Wikimedia Commons, CC BY SA)

Example Video

This short video from Professor Rachelle Tannenbaum of Anne Arundel Community College explains and gives examples of Bronfenbrenner's theory.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=80#oembed-2>

You can view the transcript for “Bronfenbrenner's ecological theory” here (opens in new window).

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=80#h5p-19>

Key Terms

- **bioecological model:** the perspective suggesting that multiple levels of the environment interact with biological potential to influence development
- **chronosystem:** the environmental events and transitions that occur throughout a child's life, including any socio-historical events
- **contextual perspective:** a theory that considers the relationship between individuals and their physical, cognitive, and social worlds
- **ecological systems theory:** Urie Bronfenbrenner's theory stressing the importance of studying a child in the context of multiple environments, organized into five levels of external influence: microsystem, mesosystem, exosystem, macrosystem, and chronosystem
- **ecosystem:** the larger contexts of the community, including the values, history, and economy
- **macrosystem:** cultural elements such as global economic conditions, war, technological trends, values, philosophies, and a society's responses to the global community which impact a community
- **mesosystem:** larger organizational structures such as school, the family, or religion
- **microsystem:** immediate surrounds including those who have direct, significant contact with the person, such as parents or siblings
- **scaffolding:** a process in which adults or capable peers model or demonstrate how to solve a problem, and then step back, offering support as needed
- **sociocultural theory:** Vygotsky's theory that emphasizes how cognitive development proceeds as a result of social interactions between members of a culture
- **zone of proximal development (ZPD):** the difference between what a learner can do without help, and what they can do with help

EVOLUTIONARY AND BEHAVIOR GENETICS

Sonja Ann Miller; Lumen Learning; and Diana Lang

Learning Objectives

- Describe the evolutionary perspective

The fundamentals of the evolutionary perspective

One very influential approach in understanding human development is the evolutionary perspective, the final developmental perspective that we will consider. This perspective seeks to identify behavior that is the result of our genetic inheritance from our ancestors. **Evolutionary psychology** is a theoretical approach in the social and natural sciences that examines psychological structure from a modern evolutionary perspective. It seeks to identify which human psychological traits are evolved adaptations – that is, the functional products of natural selection or sexual selection in human evolution.¹

David M. Buss is an evolutionary psychologist at the University of Texas at Austin, theorizing and researching human sex differences in mate selection. The primary topics of his research include male mating strategies, conflict between the sexes, social status, social reputation,

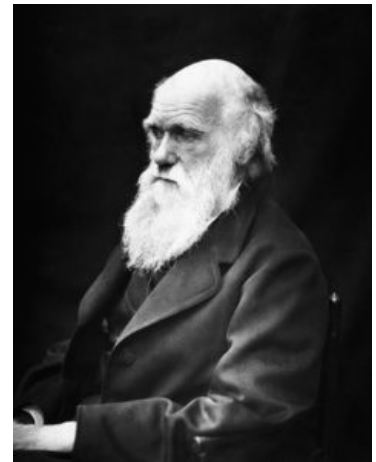


Figure 1. A portrait of Charles Robert Darwin.

1. This chapter was adapted from Lumen Learning's *Lifespan Development*, developed by Sonja Ann Miller and available under a Creative Commons Attribution-ShareAlike license. Portions of the Lumen text were adapted from Wikipedia.

prestige, the emotion of jealousy, homicide, anti-homicide defenses, and—most recently—stalking. All of these are approached from an evolutionary perspective.

Evolutionary psychology has its historical roots in Charles Darwin's theory of natural selection (Figure 1). In *The Origin of Species*, Darwin predicted that psychology would develop an evolutionary basis, and that a process of natural selection creates traits in a species that are adaptive to its environment.

Using Darwin's arguments, evolutionary approaches claim that one's genetic inheritance not only determine such physical traits as skin and eye color, but also certain personality traits and social behaviors. For example, some evolutionary developmental psychologists suggest that behavior such as shyness and jealousy may be produced in part by genetic causes, presumably because they helped increase the survival rates of human's ancient relatives.²³⁴

In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation. — DARWIN, CHARLES (1859). THE ORIGIN OF SPECIES . P. 488 – VIA WIKISOURCE

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2. Buss, D. M. (2003). *The Evolution of Desire: Strategies of Human Mating*. BasicBooks
 3. Buss, A. H. (2012) Pathways to individuality: evolution and development of personality traits. Washington, DC: American psychological Association
 4. Easton, J. A., Schipper, L. D., & Shackelford, T. K. (2007). Morbid jealousy from an evolutionary psychological perspective. *Evolution and Human Behavior: Official Journal of the Human Behavior and Evolution Society*, 28(6), 399–402. <https://doi.org/10.1016/j.evolhumbehav.2007.05.005>

Lorenz and Imprinting



Figure 2. Through a process known as **imprinting**, birds who leave the nest early attach to the first moving object they see. (Image Source: Donar Reiskoffer, CC BY 3.0)

The evolutionary perspective draws heavily on the field of **ethology**, which examines the ways in which our biological makeup influences our behavior. The primary proponent of ethology was Konrad Lorenz, who discovered that newborn geese are genetically pre-programmed to become attached to the first moving object they see after birth. Lorenz's work led developmentalists to consider the ways in which human behavior might reflect inborn genetic patterns. Working with geese, he investigated the principle of imprinting, the process by which some nidifugous birds (i.e. birds that leave their nest early) bond

instinctively with the first moving object that they see within the first hours of hatching. Although Lorenz did not discover the topic, he became widely known for his descriptions of imprinting as an instinctive bond.

In psychology and ethology, **imprinting** is any kind of phase-sensitive learning (learning occurring at a particular age or a particular life stage) that is rapid and apparently independent of the consequences of behavior (Figure 2). It was first used to describe situations in which an animal or person learns the characteristics of some stimulus, which is therefore said to be “imprinted” onto the subject. Imprinting is hypothesized to have a critical period.

Behavioral Genetics

The evolutionary perspective encompasses one of the fastest-growing areas within the field of lifespan development: behavioral genetics. **Behavioral genetics** is a field of scientific research that uses genetic methods to investigate the nature and origins of individual differences in behavior and studies the effects of heredity on behavior. Behavioral geneticists strive to understand how we might inherit certain behavioral traits and how the environment influences

whether we actually displayed those traits. It also considers how genetic factors may influence psychological disorders such as schizophrenia, depression and substance abuse.⁵⁶⁷

Video Example

Watch, stanford professor and author of *Why Zebras Don't Get Ulcers*, Robert Sapolsky, describes how our history and biology influence our behavior. This tour of our individual and collective history provides an enlightening overview of behavioral genetics.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=82#oembed-1>

Criticisms of the Evolutionary Perspective

There is a general acceptance that Darwin's evolutionary theory provides an accurate description of basic genetic processes and that the evolutionary perspective is increasingly visible in the field of lifespan development. However, applications of the evolutionary perspective have been subjected to considerable criticism. Some developmental psychologists are concerned over too much emphasis on genetic and biological aspects of behavior and suggest that the evolutionary perspective places insufficient attention on environmental and social factors involved in producing children's and adults behavior. Other critics argue that there is no good way to experimentally test theories derived from this approach because humans evolved so long ago. For example, we may admit that jealousy helps individuals to survive more effectively, but how do we prove it. All things considered however, the evolutionary approach is continually stimulating research on how our biological inheritance at least partially influences our traits and behaviors.⁸⁹¹⁰

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5. Ellis, B. J., & Bjorklund, D. F. (Eds.). (2004). *Origins of the social mind: Evolutionary psychology and child development*. Guilford Publications.
 6. Rembis, M. A. (2009). (Re)Defining disability in the 'genetic age': behavioral genetics, 'new' eugenics and the future of impairment. *Disability & Society*, 24(5), 585–597. <https://doi.org/10.1080/09687590903010941>
 7. Plomin, R., DeFries, J. C., Knopik, V. S., & Neiderhiser, J. M. (2016). Top 10 replicated findings from behavioral genetics. *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 11(1), 3–23. <https://doi.org/10.1177/1745691615617439>
 8. Bjorklund, D. (2006). Mother knows best: Epigenetic inheritance, maternal effects, and the evolution of human

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=82#h5p-20>

Key Terms

- **behavioral genetics:** one of the fastest-growing areas within the field of lifespan development and studies the effects of heredity on behavior
- **ethology:** the study of behavior through a biological lens
- **evolutionary psychology:** a field of study that seeks to identify behavior that is a result of our genetic inheritance from our ancestors
- **imprinting:** in psychology and ethology, imprinting is any kind of phase-sensitive learning (learning occurring at a particular age or a particular life stage) that is rapid and apparently independent of the consequences of behavior

intelligence. *Developmental Review: DR*, 26(2), 213–242. <https://doi.org/10.1016/j.dr.2006.02.007>

9. Baptista, T., Aldana, E., Angeles, F., & Beaulieu, S. (2008). Evolution theory: an overview of its applications in psychiatry. *Psychopathology*, 41(1), 17–27. <https://doi.org/10.1159/000109951>

10. Del Giudice, M. (2015). Self-regulation in an evolutionary perspective. In G. H. E. Gendolla, M. Tops, & S. L. Koole (Eds.), *Handbook of biobehavioral approaches to self-regulation* (pp. 25–41). Springer Science + Business Media. https://doi.org/10.1007/978-1-4939-1236-0_3

RESEARCH

RESEARCHING INDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Laura Overstreet; Lumen Learning; and Diana Lang

Learning Objectives

- Explain how the scientific method is used in researching development
- Compare various types and objectives of developmental research

Introduction to Research

How do we know what changes and stays the same (and when and why) in families and individuals across the lifespan? We rely on research that utilizes the scientific method so that we can have confidence in the findings. How data are collected may vary by age group and by the type of information sought. The developmental design (for example, following individuals as they age over time or comparing individuals of different ages at one point in time) will affect the data and the conclusions that can be drawn from them about actual age changes. What do you think are the particular challenges or issues in conducting developmental research, such as with infants and children? Read on to learn more.¹

1. This chapter was adapted from Lumen Learning's *Lifespan Development*, adapted from *Lifespan Psychology* by Laura Overstreet and available under a Creative Commons Attribution license.

How do we know what we know?



Figure 1. Scientific inquiry and questioning is critical in drawing conclusions about human development.

An important part of learning any science is having a basic knowledge of the techniques used in gathering information. The hallmark of scientific investigation is that of following a set of procedures designed to keep questioning or skepticism alive while describing, explaining, or testing any phenomenon. Not long ago a friend said to me that he did not trust academicians or researchers because they always seem to change their story. That, however, is exactly what science is all about; it involves continuously renewing our understanding of the subjects in question and an ongoing investigation of how and why events occur. Science is a vehicle for going on a never-ending journey. In the area of development, we have seen changes in recommendations for nutrition, in explanations

of psychological states as people age, and in parenting advice. So think of learning about human development as a lifelong endeavor.

Personal Knowledge

How do we know what we know? Take a moment to write down two things that you know about childhood. Okay. Now, how do you know? Chances are you know these things based on your own history (experiential reality), what others have told you, or cultural ideas (agreement reality).² There are several problems with personal inquiry, or drawing conclusions based on our personal experiences. Read the following sentence aloud:

Paris in the the spring

Are you sure that is what it said? Read it again:

Paris in the the spring

If you read it differently the second time (adding the second “the”) you just experienced one

2. Seccombe, K., & Warner, R. L. (2004). *Marriages and families: Relationships in social context*. Belmont, CA: Wadsworth/Thomson Learning.

of the problems with relying on personal inquiry; that is, the tendency to see what we believe. Our assumptions very often guide our perceptions, consequently, when we believe something, we tend to see it even if it is not there. Have you heard the saying, “seeing is believing”? Well, the truth is just the opposite: believing is seeing. This problem may just be a result of cognitive ‘blindness’ or it may be part of a more conscious attempt to support our own views. Confirmation bias is the tendency to look for evidence that we are right and in so doing, we ignore contradictory evidence.

Science offers a more systematic way to make comparisons and guard against bias. One technique used to avoid sampling bias is to select participants for a study in a random way. This means using a technique to ensure that all members have an equal chance of being selected. Simple random sampling may involve using a set of random numbers as a guide in determining who is to be selected. For example, if we have a list of 400 people and wish to randomly select a smaller group or sample to be studied, we use a list of random numbers and select the case that corresponds with that number (Case 39, 3, 217, etc.). This is preferable to asking only those individuals with whom we are familiar to participate in a study; if we conveniently chose only people we know, we know nothing about those who had no opportunity to be selected. There are many more elaborate techniques that can be used to obtain samples that represent the composition of the population we are studying. But even though a randomly selected representative sample is preferable, it is not always used because of costs and other limitations. As a consumer of research, however, you should know how the sample was obtained and keep this in mind when interpreting results. It is possible that what was found was limited to that sample or similar individuals and not generalizable to everyone else.

Scientific Methods

The particular method used to conduct research may vary by discipline and since lifespan development is multidisciplinary, more than one method may be used to study human development. One method of scientific investigation involves the following steps, preferably guided by a theory:

- Determining a research question
- Reviewing previous studies addressing the topic in question (known as a literature review)
- Determining a method of gathering information
- Conducting the study
- Interpreting the results
- Drawing conclusions; stating limitations of the study and suggestions for future research

- Making the findings available to others (both to share information and to have the work scrutinized by others)

The findings of these scientific studies can then be used by others to further explore the area of interest. Through this process, a literature or knowledge base is established. This model of scientific investigation presents research as a linear process guided by a specific research question. And it typically involves **quantitative research**, which relies on numerical data or using statistics to understand and report what has been studied. Quantitative researchers typically start with simple analyses like mean, median, mode, or frequency count, and can utilize analyses to compare averages, or finding correlations between concepts.

Another model of research, referred to as **qualitative research**, may involve steps such as these:

- Begin with a broad area of interest and a research question
- Gain entrance into a group to be researched
- Gather field notes about the setting, the people, the structure, the activities or other areas of interest
- Ask open-ended, broad “grand tour” types of questions when interviewing subjects
- Modify research questions as the study continues
- Note patterns or consistencies
- Explore new areas deemed important by the people being observed
- Report findings

In this type of research, theoretical ideas are “grounded” in the experiences of the participants. The researcher is the student and the people in the setting are the teachers as they inform the researcher of their world.³ Researchers should be aware of their own biases and assumptions, acknowledge them and report them in efforts to keep them from limiting accuracy in reporting results. Sometimes qualitative studies are used initially to explore a topic and then quantitative studies are employed to test or explain what was first described.

A good way to become more familiar with these scientific research methods, both quantitative and qualitative, is to look at journal articles, which are written in sections that follow these steps in the scientific process. Most psychological articles and many papers in the social sciences follow the writing guidelines and format dictated by the American Psychological Association (APA). In general, the structure follows: abstract (summary of the

3. Glazer, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine.

article), introduction or literature review, methods explaining how the study was conducted, results of the study, discussion and interpretation of findings, and references.

Link to Learning

Brené Brown is a bestselling author and social work professor at the University of Houston. She conducts grounded theory research by collecting qualitative data from large numbers of participants. In Brené Brown's TED Talk, *The Power of Vulnerability*, Brown refers to herself as a storyteller-researcher as she explains her research process and summarizes her results.

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Research Methods and Objectives

The main categories of psychological research are descriptive, correlational, and experimental research. Research studies that do not test specific relationships between variables are called **descriptive, or qualitative, studies**. These studies are used to describe general or specific behaviors and attributes that are observed and measured. In the early stages of research it might be difficult to form a hypothesis, especially when there is not any existing literature in the area. In these situations designing an experiment would be premature, as the question of interest is not yet clearly defined as a hypothesis. Often a researcher will begin with a non-experimental approach, such as a descriptive study, to gather more information about the topic before designing an experiment or correlational study to address a specific hypothesis. Some examples of descriptive questions include:

- “How much time do parents spend with children?”
- “How many times per week do couples have intercourse?”
- “When is marital satisfaction greatest?”

The main types of descriptive studies include observation, case studies, surveys, and content analysis (which we'll examine further in the module). Descriptive research is distinct from **correlational research**, in which psychologists formally test whether a relationship exists between two or more variables. **Experimental research** goes a step further beyond descriptive

and correlational research and randomly assigns people to different conditions, using hypothesis testing to make inferences about how these conditions affect behavior. Some experimental research includes **explanatory studies**, which are efforts to answer the question “why” such as:

- “Why have rates of divorce leveled off?”
- “Why are teen pregnancy rates down?”
- “Why has the average life expectancy increased?”

Evaluation research is designed to assess the effectiveness of policies or programs. For instance, research might be designed to study the effectiveness of safety programs implemented in schools for installing car seats or fitting bicycle helmets. Do children who have been exposed to the safety programs wear their helmets? Do parents use car seats properly? If not, why not?

Video Example

This Crash Course video provides a brief overview of psychological research, which we’ll cover in more detail on the coming pages.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=130#oembed-2>

You can view the transcript for “Psychological Research: Crash Course Psychology #2” here.

Key Terms

correlational research: research that formally tests whether a relationship exists between two or more variables, however, correlation does not imply causation

descriptive studies: research focused on describing an occurrence

evaluation research: research designed to assess the effectiveness of policies or programs

experimental research: research that involves randomly assigning people to different conditions and using hypothesis testing to make inferences about how these conditions affect behavior; the only method that measures cause and effect between variables

explanatory studies: research that tries to answer the question “why”

qualitative research: theoretical ideas are “grounded” in the experiences of the participants, who answer open-ended questions

quantitative research: involves numerical data that are quantified using statistics to understand and report what has been studied

RESEARCH METHODS

Laura Overstreet; Lumen Learning; and Diana Lang

Learning Objectives

- Describe methods for collecting research data (including observation, survey, case study, content analysis, and secondary content analysis)

We have just learned about some of the various models and objectives of research in lifespan development. Now we'll dig deeper to understand the methods and techniques used to describe, explain, or evaluate behavior.¹

All types of research methods have unique strengths and weaknesses, and each method may only be appropriate for certain types of research questions. For example, studies that rely primarily on observation produce incredible amounts of information, but the ability to apply this information to the larger population is somewhat limited because of small sample sizes. Survey research, on the other hand, allows researchers to easily collect data from relatively large samples. While this allows for results to be generalized to the larger population more easily, the information that can be collected on any given survey is somewhat limited and subject to problems associated with any type of self-reported data. Some researchers conduct archival research by using existing records. While this can be a fairly inexpensive way to collect data that can provide insight into a number of research questions, researchers using this approach have no control on how or what kind of data was collected.

1. This chapter was adapted from Lumen Learning's *Lifespan Development*, adapted from *Lifespan Psychology* by Laura Overstreet and available under a Creative Commons Attribution license.

Types of Descriptive Research

Observation

Observational studies, also called naturalistic observation, involve watching and recording the actions of participants. This may take place in the natural setting, such as observing children at play in a park, or behind a one-way glass while children are at play in a laboratory playroom. The researcher may follow a checklist and record the frequency and duration of events (perhaps how many conflicts occur among 2-year-olds) or may observe and record as much as possible about an event as a participant (such as attending an Alcoholics Anonymous meeting and recording the slogans on the walls, the structure of the meeting, the expressions commonly used, etc.). The researcher may be a participant or a non-participant. What would be the strengths of being a participant? What would be the weaknesses?

In general, observational studies have the strength of allowing the researcher to see how people behave rather than relying on self-report. One weakness of self-report studies is that what people do and what they say they do are often very different. A major weakness of observational studies is that they do not allow the researcher to explain causal relationships. Yet, observational studies are useful and widely used when studying children. It is important to remember that most people tend to change their behavior when they know they are being watched (known as the **Hawthorne effect**) and children may not survey well.

Case Studies

Case studies involve exploring a single case or situation in great detail. Information may be gathered with the use of observation, interviews, testing, or other methods to uncover as much as possible about a person or situation. Case studies are helpful when investigating unusual situations such as brain trauma or children reared in isolation. And they are often used by clinicians who conduct case studies as part of their normal practice when gathering information about a client or patient coming in for treatment. Case studies can be used to explore areas about which little is known and can provide rich detail about situations or conditions. However, the findings from case studies cannot be generalized or applied to larger populations; this is because cases are not randomly selected and no control group is used for comparison. (Read *The Man Who Mistook His Wife for a Hat* by Dr. Oliver Sacks as a good example of the case study approach.)

Surveys

Surveys are familiar to most people because they are so widely used. Surveys enhance accessibility to subjects because they can be conducted in person, over the phone, through the mail, or online. A survey involves asking a standard set of questions to a group of subjects. In a highly structured survey, subjects are forced to choose from a response set such as “strongly disagree, disagree, undecided, agree, strongly agree”; or “0, 1-5, 6-10, etc.” Surveys are commonly used by sociologists, marketing researchers, political scientists, therapists, and others to gather information on many variables in a relatively short period of time. Surveys typically yield surface information on a wide variety of factors, but may not allow for an in-depth understanding of human behavior.



Figure 1. A survey is a common tool for collecting research data.

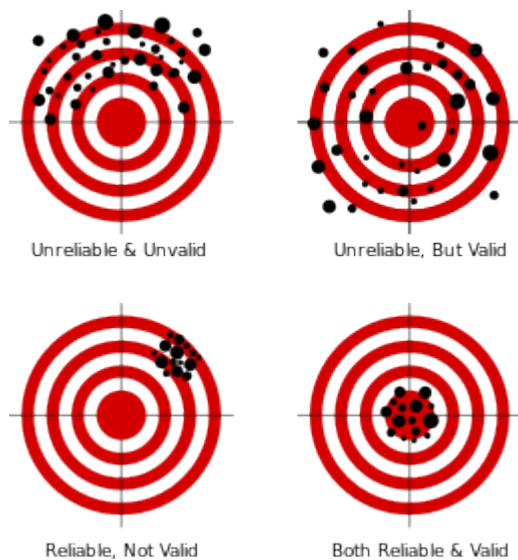


Figure 2. Demonstration of reliability, and validity, visualized. (Image Source: Nevit Dilmen, CC BY SA 3.0)

Of course, surveys can be designed in a number of ways. They may include forced-choice questions and semi-structured questions in which the researcher allows the respondent to describe or give details about certain events. One of the most difficult aspects of designing a good survey is wording questions in an unbiased way and asking the right questions so that respondents can give a clear response rather than choosing “undecided” each time. Knowing that 30% of respondents are undecided is of little use! So a lot of time and effort should be placed on the construction of survey items.

One of the benefits of having forced-choice items is that each response is coded so that the results can be quickly entered and analyzed using statistical software.

The analysis takes much longer when respondents give lengthy responses that must be analyzed in a different way. Surveys are useful in examining stated values, attitudes, opinions, and reporting on practices. However, they are based on self-report, or what people say they do rather than on observation, and this can limit accuracy.

Validity refers to accuracy and **reliability** refers to consistency in responses to tests and other measures; great care is taken to ensure the validity and reliability of surveys (Figure 2).

Video Example

In this video, Harvard psychologist Dan Gilbert explains survey research that was conducted to explore the way our preferences change over time.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=154#oembed-1>

You can view the transcript for “The psychology of your future self | Dan Gilbert” here (opens in new window).

Content Analysis

Content analysis involves looking at media such as old texts, pictures, commercials, lyrics or other materials to explore patterns or themes in culture. An example of content analysis is the classic history of childhood by Aries² called “Centuries of Childhood” or the analysis of television commercials for sexual or violent content or for ageism. Passages in text or television programs can be randomly selected for analysis as well. Again, one advantage of analyzing work such as this is that the researcher does not have to go through the time and expense of finding respondents, but the researcher cannot know how accurately the media reflects the actions and sentiments of the population.

Secondary content analysis, or archival research, involves analyzing information that has already been collected or examining documents or media to uncover attitudes, practices or preferences. There are a number of data sets available to those who wish to conduct this type of research. The researcher conducting secondary analysis does not have to recruit subjects but does need to know the quality of the information collected in the original study. And unfortunately, the researcher is limited to the questions asked and data collected originally.

2. Aries, P. (1962). *Centuries of childhood. A social history of family life*. New York: Vintage.

Link to Learning

U.S. Census Data is available and widely used to look at trends and changes taking place in the United States (visit the United States Census website and check it out). There are also a number of other agencies that collect data on family life, sexuality, and on many other areas of interest in human development (go to the NORC at the University of Chicago website or the Henry J Kaiser Family Foundation website and see what you find.).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=154#h5p-21>

Key Terms

- **case study:** exploring a single case or situation in great detail. Information may be gathered with the use of observation, interviews, testing, or other methods to uncover as much as possible about a person or situation
- **content analysis:** involves looking at media such as old texts, pictures, commercials, lyrics or other materials to explore patterns or themes in culture
- **Hawthorne effect:** individuals tend to change their behavior when they know they are being watched
- **observational studies:** also called naturalistic observation, involves watching and recording the actions of participants
- **reliability:** when something yields consistent results
- **secondary content analysis:** archival research, involves analyzing information that has already been collected or examining documents or media to uncover attitudes, practices or preferences
- **survey:** asking a standard set of questions to a group of subjects
- **validity:** when something yields accurate results

CORRELATIONAL AND EXPERIMENTAL RESEARCH

Lumen Learning; Laura Overstreet; Christie Napa Scollon; Noba Psychology; and Diana Lang

Learning Objectives

- Explain correlational research
- Describe the value of experimental research

Correlational Research

When scientists passively observe and measure phenomena it is called **correlational research**. Here, researchers do not intervene and change behavior, as they do in experiments. In correlational research, the goal is to identify patterns of relationships, but not cause and effect. Importantly, with correlational research, you can examine only two variables at a time, no more and no less.¹

So, what if you wanted to test whether spending money on others is related to happiness, but you don't have \$20 to give to each participant in order to have them spend it for your experiment? You could use a correlational design—which is exactly what Professor Elizabeth Dunn² at the University of British Columbia did when she conducted research on spending and happiness. She asked people how much of their income they spent on others or donated to charity, and later she asked them how happy they were. Do you think these two variables were

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2. Dunn, E. (2008). *Money buys happiness when you spend on others, study shows*. ScienceDaily. <https://www.sciencedaily.com/releases/2008/03/080320150034.htm>

related? Yes, they were! The more money people reported spending on others, the happier they were.

Understanding Correlation

To find out how well two variables correlate, you can plot the relationship between the two scores on what is known as a **scatterplot**. In the scatterplot, each dot represents a data point. (In this case it's individuals, but it could be some other unit.) Importantly, each dot provides us with two pieces of information—in this case, information about how good the person rated the past month (x-axis) and how happy the person felt in the past month (y-axis). Which variable is plotted on which axis does not matter.

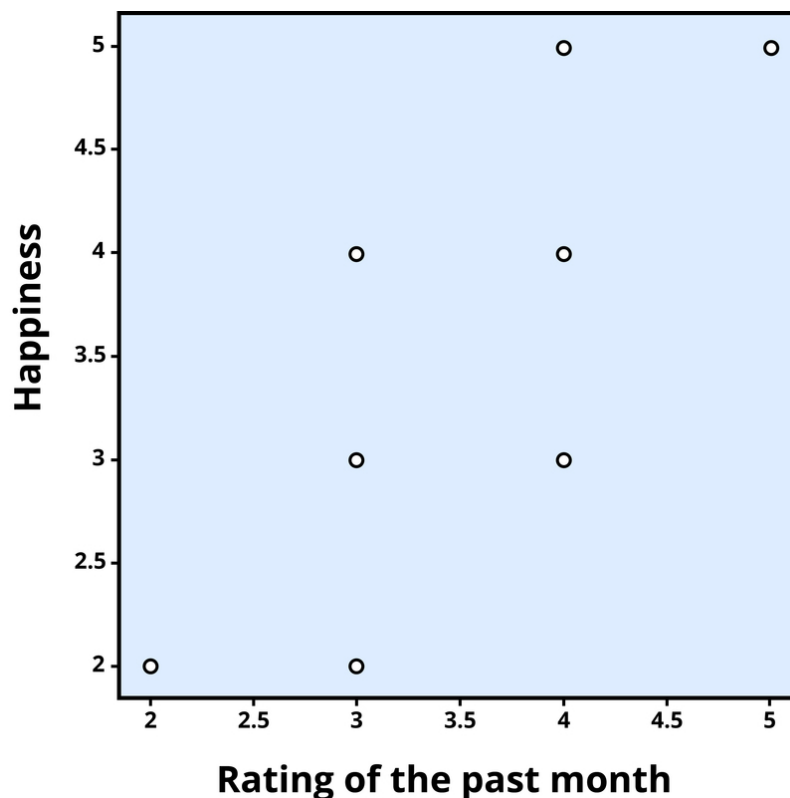


Figure 1. Scatterplot of the association between happiness and ratings of the past month, a positive correlation ($r = .81$). Each dot represents an individual.

The association between two variables can be summarized statistically using the **correlation coefficient** (abbreviated as r). A correlation coefficient provides information about the direction and strength of the association between two variables. For the example above, the direction of the association is positive. This means that people who perceived the past month

as being good reported feeling more happy, whereas people who perceived the month as being bad reported feeling less happy.

With a **positive correlation**, the two variables go up or down together. In a scatterplot, the dots form a pattern that extends from the bottom left to the upper right (just as they do in Figure 1). The r value for a positive correlation is indicated by a positive number (although, the positive sign is usually omitted). Here, the r value is .81.

A **negative correlation** is one in which the two variables move in opposite directions. That is, as one variable goes up, the other goes down. Figure 2 shows the association between the average height of males in a country (y-axis) and the pathogen prevalence (or commonness of disease; x-axis) of that country. In this scatterplot, each dot represents a country. Notice how the dots extend from the top left to the bottom right. What does this mean in real-world terms? It means that people are shorter in parts of the world where there is more disease. The r value for a negative correlation is indicated by a negative number—that is, it has a minus (–) sign in front of it. Here, it is $-.83$.

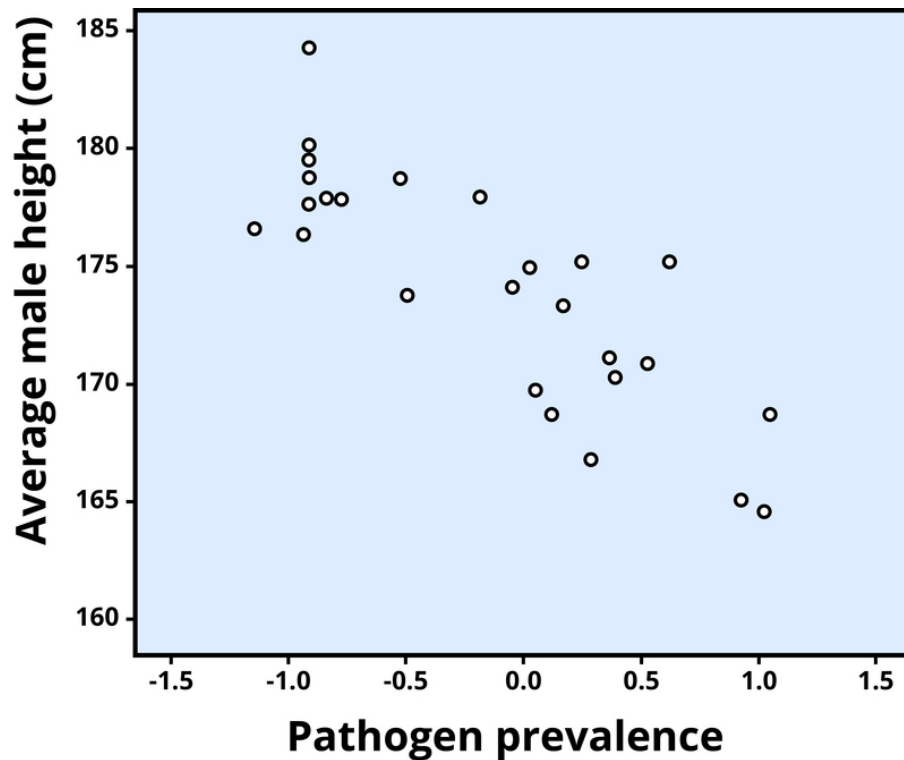


Figure 2. Scatterplot showing the association between average male height and pathogen prevalence, a negative correlation ($r = -.83$). Each dot represents a country (Chiao, 2009).

The strength of a correlation has to do with how well the two variables align. Recall that in Professor Dunn's correlational study, spending on others positively correlated with happiness; the more money people reported spending on others, the happier they reported to be. At this point you may be thinking to yourself, I know a very generous person who gave away lots of money to other people but is miserable! Or maybe you know of a very stingy person who is happy as can be. Yes, there might be exceptions. If an association has many exceptions, it is considered a weak correlation. If an association has few or no exceptions, it is considered a strong correlation. A strong correlation is one in which the two variables always, or almost always, go together. In the example of happiness and how good the month has been, the association is strong. The stronger a correlation is, the tighter the dots in the scatterplot will be arranged along a sloped line.

The r value of a strong correlation will have a high absolute value (a perfect correlation has an absolute value of the whole number one, or 1.00). In other words, you disregard whether there is a negative sign in front of the r value, and just consider the size of the numerical value itself. If the absolute value is large, it is a strong correlation. A weak correlation is one in which the two variables correspond some of the time, but not most of the time. Figure 3 shows the relation between valuing happiness and grade point average (GPA). People who valued happiness more tended to earn slightly lower grades, but there were lots of exceptions to this. The r value for a weak correlation will have a low absolute value. If two variables are so weakly related as to be unrelated, we say they are uncorrelated, and the r value will be zero or very close to zero. In the previous example, is the correlation between height and pathogen prevalence strong? Compared to Figure 3, the dots in Figure 2 are tighter and less dispersed. The absolute value of $-.83$ is large (closer to one than to zero). Therefore, it is a strong negative correlation.



Figure 3. Scatterplot showing the association between valuing happiness and GPA, a weak negative correlation ($r = -.32$). Each dot represents an individual.

Problems with correlation

If generosity and happiness are positively correlated, should we conclude that being generous causes happiness? Similarly, if height and pathogen prevalence are negatively correlated, should we conclude that disease causes shortness? From a correlation alone, we can't be certain. For example, in the first case, it may be that happiness causes generosity, or that generosity causes happiness. Or, a third variable might cause both happiness and generosity, creating the illusion of a direct link between the two. For example, wealth could be the third variable that causes both greater happiness and greater generosity. This is why correlation does not mean causation—an often repeated phrase among psychologists.

Example Video

In this video, University of Pennsylvania psychologist and bestselling author, Angela Duckworth describes the correlational research that informed her understanding of grit.

You can view the transcript for “Grit: The power of passion and perseverance | Angela Lee Duckworth” here (opens in new window).

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Experimental Research

Experiments are designed to test **hypotheses** (or specific statements about the relationship between **variables**) in a controlled setting in efforts to explain how certain factors or events produce outcomes. A variable is anything that changes in value. Concepts are **operationalized** or transformed into variables in research which means that the researcher must specify exactly what is going to be measured in the study. For example, if we are interested in studying marital satisfaction, we have to specify what marital satisfaction really means or what we are going to use as an indicator of marital satisfaction. What is something measurable that would indicate some level of marital satisfaction? Would it be the amount of time couples spend together each day? Or eye contact during a discussion about money? Or maybe a subject’s score on a marital satisfaction scale? Each of these is measurable but these may not be equally valid or accurate indicators of marital satisfaction. What do you think? These are the kinds of considerations researchers must make when working through the design.

The experimental method is the only research method that can measure cause and effect

relationships between variables. Three conditions must be met in order to establish cause and effect. Experimental designs are useful in meeting these conditions:

- *The independent and dependent variables must be related.* In other words, when one is altered, the other changes in response. The **independent variable** is something altered or introduced by the researcher; sometimes thought of as the treatment or intervention. The **dependent variable** is the outcome or the factor affected by the introduction of the independent variable; the dependent variable *depends* on the independent variable. For example, if we are looking at the impact of exercise on stress levels, the independent variable would be exercise; the dependent variable would be stress.
- *The cause must come before the effect.* Experiments measure subjects on the dependent variable before exposing them to the independent variable (establishing a baseline). So we would measure the subjects' level of stress before introducing exercise and then again after the exercise to see if there has been a change in stress levels. (Observational and survey research does not always allow us to look at the timing of these events which makes understanding causality problematic with these methods.)
- *The cause must be isolated.* The researcher must ensure that no outside, perhaps unknown variables, are actually causing the effect we see. The experimental design helps make this possible. In an experiment, we would make sure that our subjects' diets were held constant throughout the exercise program. Otherwise, the diet might really be creating a change in stress level rather than exercise.

A basic experimental design involves beginning with a sample (or subset of a population) and randomly assigning subjects to one of two groups: the **experimental group** or the **control group**. Ideally, to prevent bias, the participants would be blind to their condition (not aware of which group they are in) and the researchers would also be blind to each participant's condition (referred to as "**double blind**"). The experimental group is the group that is going to be exposed to an independent variable or condition the researcher is introducing as a potential cause of an event. The control group is going to be used for comparison and is going to have the same experience as the experimental group but will not be exposed to the independent variable. This helps address the placebo effect, which is that a group may expect changes to happen just by participating. After exposing the experimental group to the independent variable, the two groups are measured again to see if a change has occurred. If so, we are in a better position to suggest that the **independent variable** caused the change in the **dependent variable**. The basic experimental model looks like this:

Table 1. Variables and Experimental and Control Groups

Sample is randomly assigned to one of the groups below:	Measure DV	Introduce IV
Experimental Group	X	X
Control Group	X	–

The major advantage of the experimental design is that of helping to establish cause and effect relationships. A disadvantage of this design is the difficulty of translating much of what concerns us about human behavior into a laboratory setting.

Example Video

Have you ever wondered why people make decisions that seem to be in opposition to their longterm best interest? In Eldar Shafir's TED Talk Living Under Scarcity, Shafir describes a series of experiments that shed light on how scarcity (real or perceived) affects our decisions.

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=156#h5p-22>

Key Terms

- **control group:** a comparison group that is equivalent to the experimental group, but is not given the independent variable
- **correlation:** the relationship between two or more variables; when two variables are correlated, one variable changes as the other does
- **correlation coefficient:** number from -1 to +1, indicating the strength and direction of the relationship between variables, and usually represented by r
- **correlational research:** research design with the goal of identifying patterns of relationships, but not cause and effect
- **dependent variable:** the outcome or variable that is supposedly affected by the independent variable
- **double-blind:** a research design in which neither the participants nor the researchers know whether an individual is assigned to the experimental group or the control group
- **experimental group:** the group of participants in an experiment who receive the independent variable
- **experiments:** designed to test hypotheses in a controlled setting to explain how certain factors or events produce outcomes; the only research method that measures cause and effect relationships between variables
- **hypotheses:** specific statements or predictions about the relationship between variables
- **independent variable:** something that is manipulated or introduced by the researcher to the experimental group; treatment or intervention
- **negative correlation:** two variables change in different directions, with one becoming larger as the other becomes smaller; a negative correlation is not the same thing as no correlation
- **operationalized:** concepts transformed into variables that can be measured in research
- **positive correlation:** two variables change in the same direction, both becoming either larger or smaller
- **scatterplot:** a plot or mathematical diagram consisting of data points that represent two variables
- **variables:** factors that change in value

DEVELOPMENTAL RESEARCH DESIGNS

Margaret Clark-Plaskie; Lumen Learning; Angela Lukowski; Helen Milojevich;
and Diana Lang

Learning Objectives

- Compare advantages and disadvantages of developmental research designs (cross-sectional, longitudinal, and sequential)
- Describe challenges associated with conducting research in lifespan development

Now you know about some tools used to conduct research about human development. Remember, *research methods* are tools that are used to collect information. But it is easy to confuse research methods and research design. **Research design** is the strategy or blueprint for deciding how to collect and analyze information. Research design dictates which methods are used and how. Developmental research designs are techniques used particularly in lifespan development research. When we are trying to describe development and change, the research designs become especially important because we are interested in what changes and what stays the same with age. These techniques try to examine how age, cohort, gender, and social class impact development.¹

Cross-sectional designs

The majority of developmental studies use cross-sectional designs because they are less time-consuming and less expensive than other developmental designs. **Cross-sectional research** designs are used to examine behavior in participants of different ages who are tested at the

1. This chapter was adapted from Lumen Learning's *Lifespan Development*, created by Margaret Clark-Plaskie for Lumen Learning and adapted from *Research Methods in Developmental Psychology* by Angela Lukowski and Helen Milojevich for Noba Psychology, available under a Creative Commons NonCommercial Sharealike Attribution license.

same point in time (Figure 1). Let's suppose that researchers are interested in the relationship between intelligence and aging. They might have a hypothesis (an educated guess, based on theory or observations) that intelligence declines as people get older. The researchers might choose to give a certain intelligence test to individuals who are 20 years old, individuals who are 50 years old, and individuals who are 80 years old at the same time and compare the data from each age group. This research is cross-sectional in design because the researchers plan to examine the intelligence scores of individuals of different ages within the same study at the same time; they are taking a "cross-section" of people at one point in time. Let's say that the comparisons find that the 80-year-old adults score lower on the intelligence test than the 50-year-old adults, and the 50-year-old adults score lower on the intelligence test than the 20-year-old adults. Based on these data, the researchers might conclude that individuals become less intelligent as they get older. Would that be a valid (accurate) interpretation of the results?

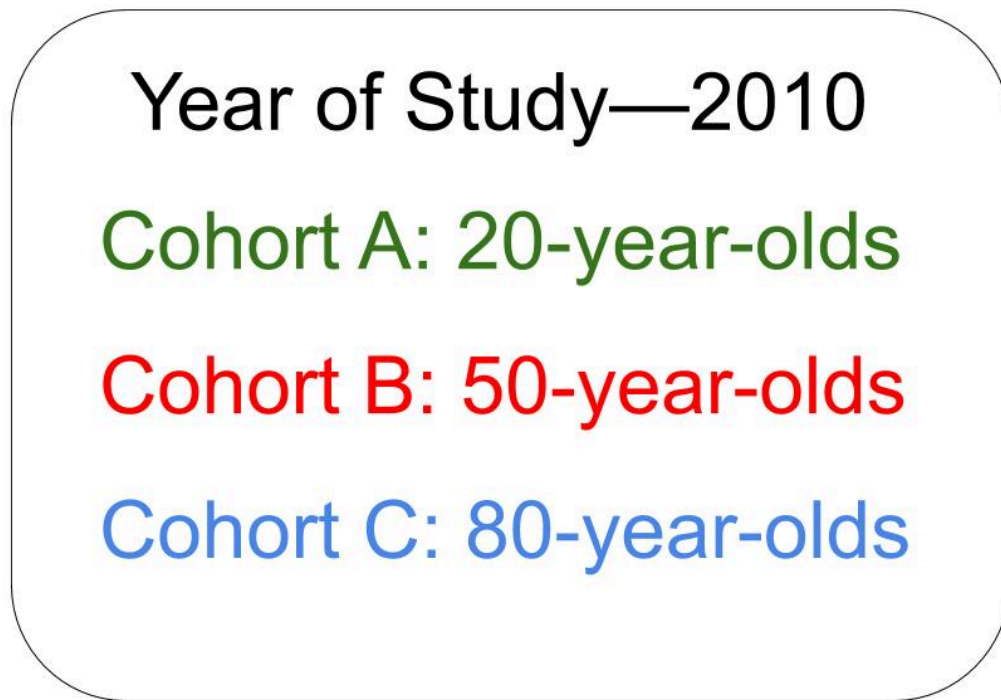


Figure 1. Example of cross-sectional research design

No, that would not be a valid conclusion because the researchers did not follow individuals as they aged from 20 to 50 to 80 years old. One of the primary limitations of cross-sectional research is that the results yield information about age *differences* not necessarily *changes* with age or over time. That is, although the study described above can show that in 2010, the 80-year-olds scored lower on the intelligence test than the 50-year-olds, and the 50-year-olds

scored lower on the intelligence test than the 20-year-olds, the data used to come up with this conclusion were collected from different individuals (or groups of individuals). It could be, for instance, that when these 20-year-olds get older (50 and eventually 80), they will still score just as high on the intelligence test as they did at age 20. In a similar way, maybe the 80-year-olds would have scored relatively low on the intelligence test even at ages 50 and 20; the researchers don't know for certain because they did not follow the same individuals as they got older.

It is also possible that the differences found between the age groups are not due to age, *per se*, but due to cohort effects. The 80-year-olds in this 2010 research grew up during a particular time and experienced certain events as a group. They were born in 1930 and are part of the Traditional or Silent Generation. The 50-year-olds were born in 1960 and are members of the Baby Boomer cohort. The 20-year-olds were born in 1990 and are part of the Millennial or Gen Y Generation. What kinds of things did each of these cohorts experience that the others did not experience or at least not in the same ways?

You may have come up with many differences between these cohorts' experiences, such as living through certain wars, political and social movements, economic conditions, advances in technology, changes in health and nutrition standards, etc. There may be particular cohort differences that could especially influence their performance on intelligence tests, such as education level and use of computers. That is, many of those born in 1930 probably did not complete high school; those born in 1960 may have high school degrees, on average, but the majority did not attain college degrees; the young adults are probably current college students. And this is not even considering additional factors such as gender, race, or socioeconomic status. The young adults are used to taking tests on computers, but the members of the other two cohorts did not grow up with computers and may not be as comfortable if the intelligence test is administered on computers. These factors could have been a factor in the research results.

Another disadvantage of cross-sectional research is that it is limited to one time of measurement. Data are collected at one point in time and it's possible that something could have happened in that year in history that affected all of the participants, although possibly each cohort may have been affected differently. Just think about the mindsets of participants in research that was conducted in the United States right after the terrorist attacks on September 11, 2001.

Longitudinal research designs

Longitudinal research involves beginning with a group of people who may be of the same age and background (cohort) and measuring them repeatedly over a long period of time (Figure 2 & 3). One of the benefits of this type of research is that people can be followed through time and be compared with themselves when they were younger; therefore changes with age over time are measured. What would be the advantages and disadvantages of longitudinal research? Problems with this type of research include being expensive,



Figure 2. Longitudinal research studies the same person or group of people over an extended period of time. (Image Source: Pxhere, CC0)

taking a long time, and subjects dropping out over time. Think about the film, *63 Up*, part of the Up Series mentioned earlier, which is an example of following individuals over time. In the videos, filmed every seven years, you see how people change physically, emotionally, and socially through time; and some remain the same in certain ways, too. But many of the participants really disliked being part of the project and repeatedly threatened to quit; one disappeared for several years; another died before her 63rd year. Would you want to be interviewed every seven years? Would you want to have it made public for all to watch?

Longitudinal research designs are used to examine behavior in the same individuals over time. For instance, with our example of studying intelligence and aging, a researcher might conduct a longitudinal study to examine whether 20-year-olds become less intelligent with age over time. To this end, a researcher might give an intelligence test to individuals when they are 20 years old, again when they are 50 years old, and then again when they are 80 years old. This study is longitudinal in nature because the researcher plans to study the same individuals as they age. Based on these data, the pattern of intelligence and age might look different than from the cross-sectional research; it might be found that participants' intelligence scores are higher at age 50 than at age 20 and then remain stable or decline a little by age 80. How can that be when cross-sectional research revealed declines in intelligence with age?



Figure 3. Example of a longitudinal research design

Since longitudinal research happens over a period of time (which could be short term, as in months, but is often longer, as in years), there is a risk of attrition. **Attrition** occurs when participants fail to complete all portions of a study. Participants may move, change their phone numbers, die, or simply become disinterested in participating over time. Researchers should account for the possibility of attrition by enrolling a larger sample into their study initially, as some participants will likely drop out over time. There is also something known as **selective attrition**—this means that certain groups of individuals may tend to drop out. It is often the least healthy, least educated, and lower socioeconomic participants who tend to drop out over time. That means that the remaining participants may no longer be representative of the whole population, as they are, in general, healthier, better educated, and have more money. This could be a factor in why our hypothetical research found a more optimistic picture of intelligence and aging as the years went by. What can researchers do about selective attrition? At each time of testing, they could randomly recruit more participants from the same cohort as the original members, to replace those who have dropped out.

The results from longitudinal studies may also be impacted by repeated assessments. Consider how well you would do on a math test if you were given the exact same exam every day for a week. Your performance would likely improve over time, not necessarily because you developed better math abilities, but because you were continuously practicing the same math problems. This phenomenon is known as a practice effect. Practice effects occur when participants become better at a task over time because they have done it again and again (not due to natural psychological development). So our participants may have become familiar with the intelligence test each time (and with the computerized testing administration).

Another limitation of longitudinal research is that the data are limited to only one cohort. As an example, think about how comfortable the participants in the 2010 cohort of 20-year-olds are with computers. Since only one cohort is being studied, there is no way to know if findings would be different from other cohorts. In addition, changes that are found as individuals age over time could be due to age or to time of measurement effects. That is, the participants are tested at different periods in history, so the variables of age and time of measurement could be confounded (mixed up). For example, what if there is a major shift in workplace training and education between 2020 and 2040 and many of the participants experience a lot more formal education in adulthood, which positively impacts their intelligence scores in 2040? Researchers wouldn't know if the intelligence scores increased due to growing older or due to a more educated workforce over time between measurements.

Sequential research designs

Sequential research designs include elements of both longitudinal and cross-sectional

research designs. Similar to longitudinal designs, sequential research features participants who are followed over time; similar to cross-sectional designs, sequential research includes participants of different ages. This research design is also distinct from those that have been discussed previously in that individuals of different ages are enrolled into a study at various points in time to examine age-related changes, development within the same individuals as they age, and to account for the possibility of cohort and/or time of measurement effects. In 1965, Schaie² (a leading theorist and researcher on intelligence and aging), described particular sequential designs: cross-sequential, cohort sequential, and time-sequential. The differences between them depended on which variables were focused on for analyses of the data (data could be viewed in terms of multiple cross-sectional designs or multiple longitudinal designs or multiple cohort designs). Ideally, by comparing results from the different types of analyses, the effects of age, cohort, and time in history could be separated out.

Consider, once again, our example of intelligence and aging. In a study with a sequential design, a researcher might recruit three separate groups of participants (Groups A, B, and C). Group A would be recruited when they are 20 years old in 2010 and would be tested again when they are 50 and 80 years old in 2040 and 2070, respectively (similar in design to the longitudinal study described previously). Group B would be recruited when they are 20 years old in 2040 and would be tested again when they are 50 years old in 2070. Group C would be recruited when they are 20 years old in 2070 and so on (Figure 4).

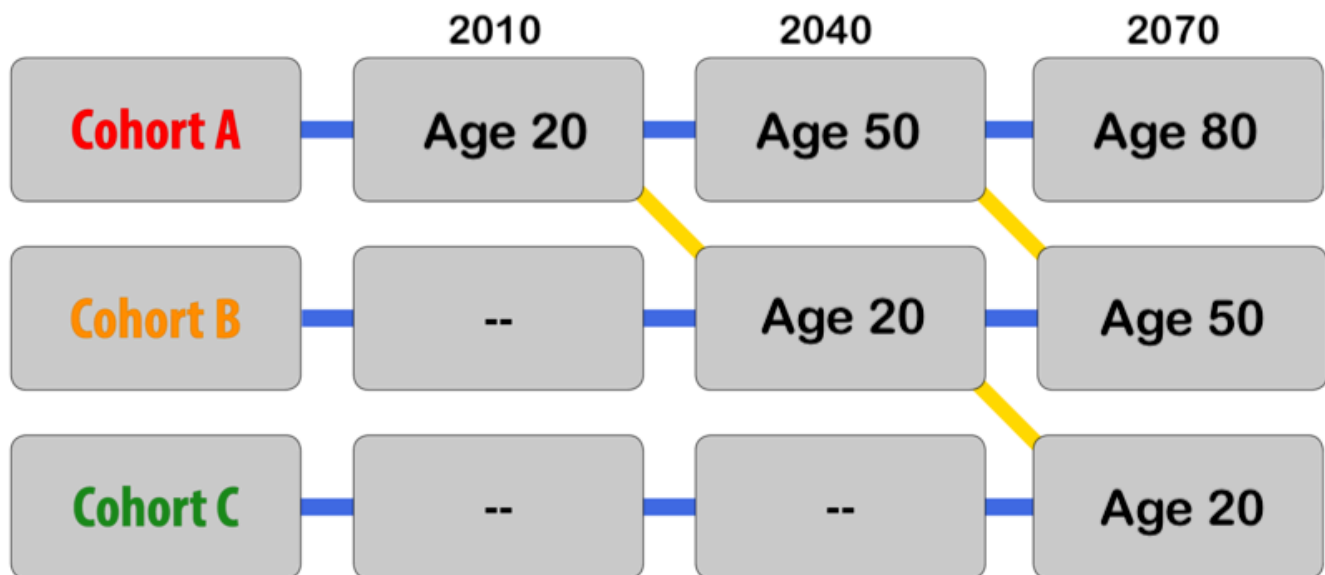


Figure 4. Example of sequential research design

2. Schaie, K. W. (1965). A general model for the study of developmental problems. *Psychological Bulletin*, 64(2), 92-107.

Studies with sequential designs are powerful because they allow for both longitudinal and cross-sectional comparisons—changes and/or stability with age over time can be measured and compared with differences between age and cohort groups. This research design also allows for the examination of cohort and time of measurement effects. For example, the researcher could examine the intelligence scores of 20-year-olds in different times in history and different cohorts (follow the yellow diagonal lines in figure 3). This might be examined by researchers who are interested in sociocultural and historical changes (because we know that lifespan development is multidisciplinary). One way of looking at the usefulness of the various developmental research designs was described by Schaie and Baltes³: cross-sectional and longitudinal designs might reveal change patterns while sequential designs might identify developmental origins for the observed change patterns.

Since they include elements of longitudinal and cross-sectional designs, sequential research has many of the same strengths and limitations as these other approaches. For example, sequential work may require less time and effort than longitudinal research (if data are collected more frequently than over the 30-year spans in our example) but more time and effort than cross-sectional research. Although practice effects may be an issue if participants are asked to complete the same tasks or assessments over time, attrition may be less problematic than what is commonly experienced in longitudinal research since participants may not have to remain involved in the study for such a long period of time.

When considering the best research design to use in their research, scientists think about their main research question and the best way to come up with an answer. A table of advantages and disadvantages for each of the described research designs is provided here to help you as you consider what sorts of studies would be best conducted using each of these different approaches.

3. Schaie, K.W. & Baltes, B.P. (1975). On sequential strategies in developmental research: Description or Explanation. *Human Development*, 18, 384-390.

Table 1. Advantages and disadvantages of different research designs

Research Design	Advantages	Disadvantages
Cross-Sectional	<ul style="list-style-type: none"> Examines changes between participants of different ages at the same point in time Provides information on age differences 	<ul style="list-style-type: none"> Cannot examine change over time Limited to one time in history Cohort differences confounded with age differences
Longitudinal	<ul style="list-style-type: none"> Examines changes within individuals over time Provides a developmental analysis 	<ul style="list-style-type: none"> Expensive Takes a long time Participant attrition Possibility of practice effects Limited to one cohort Time in history effects confounded with age changes
Sequential	<ul style="list-style-type: none"> Examines changes within individuals over time Examines changes between participants of different ages at the same point in time Can be used to examine cohort effects Can be used to examine time in history effects 	<ul style="list-style-type: none"> May be expensive May take a long time Possibility of practice effects Some participant attrition

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=158#h5p-24>

Challenges Associated with Conducting Developmental Research

The previous sections describe research tools to assess development across the lifespan, as well as the ways that research designs can be used to track age-related changes and development over time. Before you begin conducting developmental research, however, you must also be aware that testing individuals of certain ages (such as infants and children) or making comparisons across ages (such as children compared to teens) comes with its own unique set of challenges. In the final section of this module, let's look at some of the main issues that are encountered when conducting developmental research, namely ethical concerns, recruitment issues, and participant attrition.

Ethical Concerns

As a student of the social sciences, you may already know that **Institutional Review Boards (IRBs)** must review and approve all research projects that are conducted at universities, hospitals, and other institutions (each broad discipline or field, such as psychology or social work, often has its own code of ethics that must also be followed, regardless of institutional affiliation). An IRB is typically a panel of experts who read and evaluate proposals for research. IRB members want to ensure that the proposed research will be carried out ethically and that the potential benefits of the research outweigh the risks and potential harm (psychological as well as physical harm) for participants.

What you may not know though, is that the IRB considers some groups of participants to be more vulnerable or at-risk than others. Whereas university students are generally not viewed as vulnerable or at-risk, infants and young children commonly fall into this category. What makes infants and young children more vulnerable during research than young adults? One reason infants and young children are perceived as being at increased risk is due to their limited cognitive capabilities, which makes them unable to state their willingness to participate in research or tell researchers when they would like to drop out of a study. For these reasons, infants and young children require special accommodations as they participate in the research process. Similar issues and accommodations would apply to adults who are deemed to be of limited cognitive capabilities.

When thinking about special accommodations in developmental research, consider the **informed consent** process. If you have ever participated in scientific research, you may know through your own experience that adults commonly sign an informed consent statement (a contract stating that they agree to participate in research) after learning about a study. As part of this process, participants are informed of the procedures to be used in the research, along

with any expected risks or benefits. Infants and young children cannot verbally indicate their willingness to participate, much less understand the balance of potential risks and benefits. As such, researchers are oftentimes required to obtain written informed consent from the parent or legal guardian of the child participant, an adult who is almost always present as the study is conducted. In fact, children are not asked to indicate whether they would like to be involved in a study at all (a process known as assent) until they are approximately seven years old. Because infants and young children cannot easily indicate if they would like to discontinue their participation in a study, researchers must be sensitive to changes in the state of the participant (determining whether a child is too tired or upset to continue) as well as to parent desires (in some cases, parents might want to discontinue their involvement in the research). As in adult studies, researchers must always strive to protect the rights and well-being of the minor participants and their parents when conducting developmental research.

Example Video

This video from the US Department of Health and Human Services provides an overview of the Institutional Review Board process.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=158#oembed-1>

You can view the transcript for “How IRBs Protect Human Research Participants” here (opens in new window).

Recruitment

An additional challenge in developmental science is participant recruitment. Recruiting university students to participate in adult studies is typically easy. Many colleges and universities offer extra credit for participation in research and have locations such as bulletin boards and school newspapers where research can be advertised. Unfortunately, young children cannot be recruited by making announcements in Introduction to Psychology courses, by posting ads on campuses, or through online platforms such as Amazon Mechanical Turk. Given these limitations, how do researchers go about finding infants and young children to be in their studies?

The answer to this question varies along multiple dimensions. Researchers must consider

the number of participants they need and the financial resources available to them, among other things. Location may also be an important consideration. Researchers who need large numbers of infants and children may attempt to recruit them by obtaining infant birth records from the state, county, or province in which they reside. Some areas make this information publicly available for free, whereas birth records must be purchased in other areas (and in some locations birth records may be entirely unavailable as a recruitment tool). If birth records are available, researchers can use the obtained information to call families by phone or mail them letters describing possible research opportunities. All is not lost if this recruitment strategy is unavailable, however. Researchers can choose to pay a recruitment agency to contact and recruit families for them. Although these methods tend to be quick and effective, they can also be quite expensive. More economical recruitment options include posting advertisements and fliers in locations frequented by families, such as mommy-and-me classes, local malls, and preschools or daycare centers. Researchers can also utilize online social media outlets like Facebook, which allows users to post recruitment advertisements for a small fee. Of course, each of these different recruitment techniques requires IRB approval. And if children are recruited and/or tested in school settings, permission would need to be obtained ahead of time from teachers, schools, and school districts (as well as informed consent from parents or guardians).

And what about the recruitment of adults? While it is easy to recruit young college students to participate in research, some would argue that it is too easy and that college students are samples of convenience. They are not randomly selected from the wider population, and they may not represent all young adults in our society (this was particularly true in the past with certain cohorts, as college students tended to be mainly white males of high socioeconomic status). In fact, in the early research on aging, this type of convenience sample was compared with another type of convenience sample—young college students tended to be compared with residents of nursing homes! Fortunately, it didn't take long for researchers to realize that older adults in nursing homes are not representative of the older population; they tend to be the oldest and sickest (physically and/or psychologically). Those initial studies probably painted an overly negative view of aging, as young adults in college were being compared to older adults who were not healthy, had not been in school nor taken tests in many decades, and probably did not graduate high school, let alone college. As we can see, recruitment and random sampling can be significant issues in research with adults, as well as infants and children. For instance, how and where would you recruit middle-aged adults to participate in your research?

Attrition



Figure 5. Participating in developmental research can sometimes be difficult for both children and their parents. This can contribute to a higher attrition rate than is typical in other types of research. (Image Source: Tina Franklin, CC BY 2.0)

Another important consideration when conducting research with infants and young children is **attrition**. Although attrition is quite common in longitudinal research in particular (see the previous section on longitudinal designs for an example of high attrition rates and selective attrition in lifespan developmental research), it is also problematic in developmental science more generally, as studies with infants and young children tend to have higher attrition rates than studies with adults. For example, high attrition rates in ERP (event-related potential, which is a technique to understand brain function) studies oftentimes result from the demands of the task: infants are required to sit still and have a tight, wet cap placed on their heads before watching still photographs on a computer screen in a dark, quiet room (Figure 5).

In other cases, attrition may be due to motivation (or a lack thereof). Whereas adults may be motivated to participate in research in order to receive money or extra course credit, infants and young children are not as easily enticed. In addition, infants and young children are more likely to tire easily, become fussy, and lose interest in the study procedures than are adults. For these reasons, research studies should be designed to be as short as possible – it is likely better to break up a large study into multiple short sessions rather than cram all of the tasks into one long visit to the lab. Researchers should also allow time for breaks in their study protocols so that infants can rest or have snacks as needed. Happy, comfortable participants provide the best data.

Conclusions

Lifespan development is a fascinating field of study – but care must be taken to ensure that researchers use appropriate methods to examine human behavior, use the correct experimental design to answer their questions, and be aware of the special challenges that are part-and-parcel of developmental research. After reading this module, you should have a solid understanding of these various issues and be ready to think more critically about research questions that interest you. For example, what types of questions do you have about lifespan development? What types of research would you like to conduct? Many interesting questions

remain to be examined by future generations of developmental scientists – maybe you will make one of the next big discoveries!

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=158#h5p-25>

Key Terms

- **attrition:** occurs when participants fail to complete all portions of a study
- **cross-sectional research:** used to examine behavior in participants of different ages who are tested at the same point in time; may confound age and cohort differences
- **informed consent:** a process of informing a research participant what to expect during a study, any risks involved, and the implications of the research, and then obtaining the person's agreement to participate
- **Institutional Review Boards (IRBs):** a panel of experts who review research proposals for any research to be conducted in association with the institution (for example, a university)
- **longitudinal research:** studying a group of people who may be of the same age and background (cohort), and measuring them repeatedly over a long period of time; may confound age and time of measurement effects
- **research design:** the strategy or blueprint for deciding how to collect and analyze information; dictates which methods are used and how
- **selective attrition:** certain groups of individuals may tend to drop out more frequently resulting in the remaining participants no longer being representative of the whole population
- **sequential research design:** combines aspects of cross-sectional and longitudinal designs, but also adding new cohorts at different times of measurement; allows for analyses to consider effects of age, cohort, time of measurement, and socio-historical change

FAMILIES AND OTHER INFLUENCES ON DEVELOPMENT

ACES

Diana Lang

Adverse Childhood Experiences (ACEs)

The term Adverse Childhood Experiences (ACEs) is defined as a traumatic experience that happens to someone before the age of 18 years that the person “recalls” as an adult.¹

ACEs can include sexual, psychological, or physical abuse. ACEs have been linked to premature death and various health conditions and risks.²

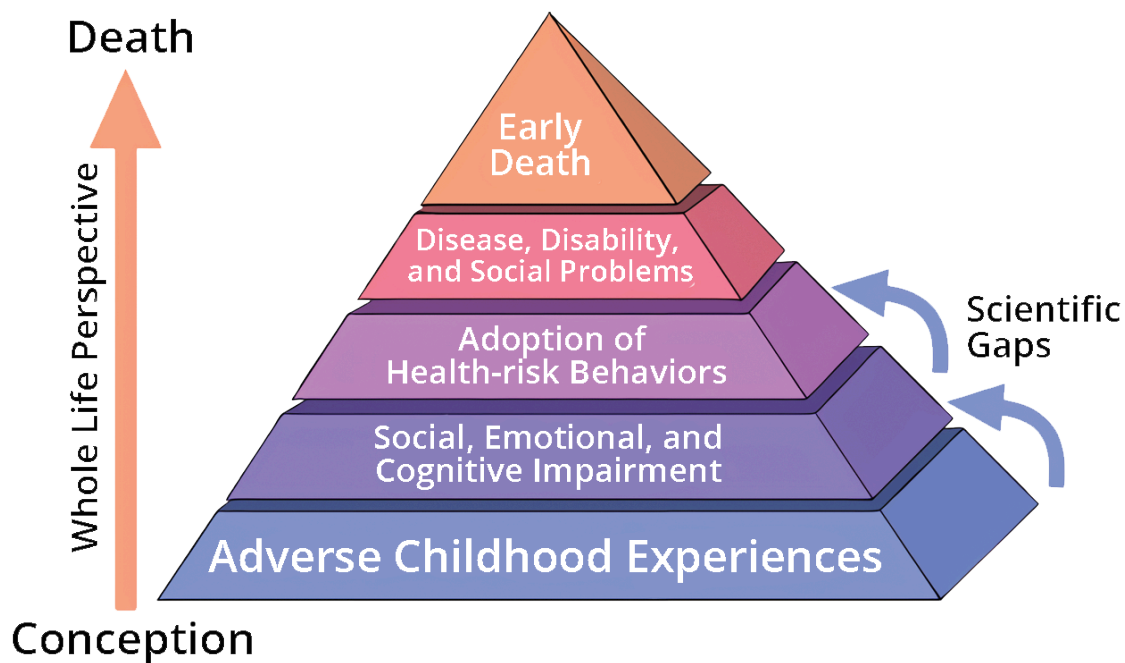


Figure 1. The ACEs pyramid (Image Source: Charles Whitfield, Centers for Disease Control and Prevention)

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1. Centers for Disease Control and Prevention. (2019). *About adverse childhood experiences*. <https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/aboutace.html>
 2. Center on the Developing Child at Harvard University. (n.d.). *What are ACEs? And how do they relate to toxic stress?* <https://developingchild.harvard.edu/resources/aces-and-toxic-stress-frequently-asked-questions/>

ACES score

To determine your own ACEs score, visit this website to take the Adverse Childhood Experiences Quiz.

Several studies have shown that ACEs are associated with health-related risk factors such as substance abuse, risky sexual behavior, obesity, cardiovascular disease, cancer, and diabetes.³ Having multiple ACEs is an important risk factor for several unfavorable health outcomes, including early death. The research suggests that the impact of these adverse experiences in childhood on adult health status is strong and cumulative.⁴

Best-practice recommendations for preventing ACEs entail reducing child abuse and neglect by:

- Strengthening economic supports for families,
- Supporting parents via education about positive parenting techniques,
- Providing high-quality care and education immediately following a child's birth,
- Improving parenting skills to enhance healthy child development and well-being, and
- Providing early interventions to reduce adverse effects and to prevent future risks.⁵

3. Ximenes, R. de B. B., Ximenes, J. C. M., Nascimento, S. L., Roddy, S. M., & Leite, Á. J. M. (2019). Relationship between maternal adverse childhood experiences and infant development: A systematic review (protocol): A systematic review (protocol). *Medicine*, 98(10), e14644. <https://doi.org/10.1097/MD.00000000000014644>

4. Ximenes, R. de B. B., Ximenes, J. C. M., Nascimento, S. L., Roddy, S. M., & Leite, Á. J. M. (2019). Relationship between maternal adverse childhood experiences and infant development: A systematic review (protocol): A systematic review (protocol). *Medicine*, 98(10), e14644. <https://doi.org/10.1097/MD.00000000000014644>

5. Centers for Disease Control and Prevention. (2020). *Prevention Strategies*. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau. <https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/prevention.html>

Video Examples

Watch Dr. Bruce Perry talk about reducing the effects of trauma.

Additional video examples can be viewed on the CDC's YouTube channel.

Watch Dr. Dan Siegel discuss the brain's ability to repair after trauma.

Links to Learning

Center for Disease Control and Prevention: Adverse Childhood Experiences Handout [PDF]

Center for Disease Control and Prevention: Adverse Childhood Experiences website

More information will be addressed within the Child Abuse, Neglect, and Corporal Punishment content.

CHILD ABUSE, NEGLECT, AND FOSTER CARE

Diana Lang and Wikimedia contributors

Child abuse takes many forms. Children can be physically or sexually assaulted, and they may also suffer from emotional abuse and neglect of many different forms. Whatever form it takes, child abuse is a serious problem.

It is especially difficult to know how much child abuse occurs. Infants obviously cannot talk, and toddlers and older children who are abused usually do not tell anyone about the abuse. They might not define it as abuse, they might be scared to tell a trusted adult, they might blame themselves for being abused, or they might not know with whom they could talk about their abuse. Whatever the reason, children usually remain silent, thus making it very difficult to know how much abuse takes place. Up-to-date statistics on the different types of child abuse in the United States can be found at the U.S. Children's Bureau website.

Abuse

Abuse can occur in multiple forms and across all family relationships. Breiding, Basile, Smith, Black, and Mahendra¹ define the forms of abuse as:

- **Physical abuse**, the use of intentional physical force to cause harm. Scratching, pushing, shoving, throwing, grabbing, biting, choking, shaking, slapping, punching, and hitting are common forms of physical abuse;
- **Sexual abuse**, the act of forcing someone to participate in a sex act against the person's will. Such abuse is often referred to as sexual assault or rape.
- **Psychological abuse**, aggressive behavior that is intended to control someone else. Such abuse can include threats of physical or sexual abuse, manipulation, bullying, and stalking.

1. Breiding, M. J., Basile, K. C., Smith, S. G., Black, M. C., & Mahendra, R. (2015). *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements*. Center for Disease Control and Prevention, Version 2.0.

Abuse between partners is referred to as intimate partner violence; however, such abuse can also occur between a parent and child (child abuse), adult children and their aging parents (elder abuse), and between siblings.²

The most common form of child abuse is neglect. **Child neglect** is a deficit in meeting a child's basic needs, such as failure to provide adequate nutrition, supervision, health care, clothing, or housing, as well as other physical, emotional, social, educational, and safety needs. All societies have established necessary behaviors a caregiver must provide in order for a child to develop well within the domains of physical, social, and emotional development. Causes of neglect may result from caregivers experiencing problems associated with mental disorders, unplanned pregnancy, substance abuse, unemployment, over-employment, domestic violence, and, in special cases, poverty.

Child neglect depends on how a child and society perceives the caregivers' behaviors; it is not how parents or caregivers believe they are behaving toward their child.³ Caregiver's failure to provide for a child, when options are available, is different from failure to provide when options are not available. Poverty and lack of resources are often contributing factors that may prevent caregivers from meeting children's needs, when they otherwise would be able to meet those needs.⁴

There are various types of child neglect which include:

- Physical neglect is the failure to provide a child with basic necessities of life such as adequate food, shelter, and clothing.
- Medical neglect is the failure of caregivers to meet a child's basic health care needs. Examples include not brushing teeth on a daily basis, not bathing a child, and/or taking children to doctor visits when needed.
- Emotional neglect is the failure to provide emotional support such as emotional security and encouragement (love, nurturance, etc.).
- Educational and developmental neglect include the failure to provide children with experiences necessary for normative growth and development. These may include failing to ensure children receive adequate education or experiences that help foster normative, developmental standards.
- Depending on the laws and child protective policies in one's area, leaving a young child

2. Breiding, M. J., Basile, K. C., Smith, S. G., Black, M. C., & Mahendra, R. (2015). *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements*. Center for Disease Control and Prevention, Version 2.0.

3. Barnett, W. S., & Belfield, C. R. (2006). Early childhood development and social mobility. *The Future of Children*, 16(2), 73–98. <https://doi.org/10.1353/foc.2006.0011>

4. This section is adapted in part from *Child neglect* by Wikimedia contributors, licensed CC BY SA.

unsupervised may be considered neglect, especially if doing so places the child in danger.

All types of abuse are complex issues, especially within families. There are many reasons people may become abusers, such as poverty, stress, and substance abuse are common characteristics shared by abusers, although abuse can happen in any family.

Children who experience any type of abuse may “act out” or respond in a variety of unhealthful ways. These may include acts of self-destruction, withdrawal, and aggression, and struggles with depression, anxiety, and academic performance.

Researchers have found that abused children’s brains may produce higher levels of stress hormones. These hormones can lead to decreased brain development, lower stress thresholds, suppressed immune responses, and lifelong difficulties with learning and memory.⁵ Abused children are much more likely than children who are not abused to end up with various developmental, psychological, and behavioral problems throughout their life course. In particular, they are more likely to be aggressive, to use alcohol and other drugs, to be anxious and depressed, and to get divorced if they marry.⁶

Children who experience abuse or neglect are at risk of developing lifelong social, emotional, and health problems, particularly if neglected before the age of two years. This is consistent with what we learned about ACEs. However, it is important to note that not all children who experience abuse and neglect will have the same outcomes. As we learned, there are many ways in which we can foster stable, permanent, safe, secure, nurturing, loving care for children who have been associated with reduced effects of ACEs.

It is extremely important to understand the ways in which child abuse and neglect can be prevented, such as those listed in this infographic from the CDC. For more information, visit cdc.gov/violenceprevention/childabuseandneglect.



Figure 1. While physical abuse might be the easiest to see, neglect is much more common. (Photo Source: US Air Force)

5. Middlebrooks, J. S., & Audage, N. C. (2008). *The Effects of Childhood Stress on Health Across the Lifespan*. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Atlanta, GA.

6. Laff, R., & Ruiz, W. (2019). *Child, Family, and Community*. College of the Canyons. Open Textbook Library. <https://open.umn.edu/opentextbooks/textbooks/child-family-and-community>

Link to Learning: Shaken Baby Syndrome

Read this article to learn more about shaken baby syndrome.

Corporal Punishment

Worldwide initiatives have recommended banning the use of corporal punishment with or in children of all ages. According to the Global Initiative to End all Corporal Punishment of Children, corporal punishment is defined as “any punishment in which physical force issued and intended to cause some degree of pain or discomfort, however light”.⁷ Examples include shaking, kicking, forcing ingestion (e.g., soap, hot sauce), and “smacking,” “slapping,” or “spanking” with any object or a hand. Nonphysical forms of punishment (e.g., verbal and emotional abuse) include activities that are intended to cause shame to a person such as humiliation, threats, ridicules, etc.

Vast amounts of research have consistently demonstrated strong correlations between youth who experienced harsh punishment (e.g., spanking) by their parents and increased risks of:

- changes in brain physiology that show on MRI studies,
- mental health disorders such as depression or anxiety,
- elevated cortisol levels,
- cognitive problems,
- aggressive behaviors,
- unhealthy caregiver-child relationships,
- suicide attempts,
- moderate-to-heavy drinking,
- substance use disorders,
- misconduct, and
- adverse outcomes that extend into adulthood.

7. Wolraich, M. L., Aceves, J., Feldman, H. M., Hagan, J. F, Howard, B.J., Richtsmeier, A. J., Tolchin, D., & Tolmas, H. C. (1998). Guidance for Effective Discipline. *Pediatrics*, 101(4) 723-728; <https://doi.org/10.1542/peds.101.4.723>.

Foster Care

In the United States and in some other countries, another way to immediately protect children from further abuse is to remove them from their primary caregivers and place them into foster care or with family members. **Foster care** is a system in which a minor is placed into a group home (residential child care community, treatment center, etc.), or private home of a state-certified caregiver, referred to as a “foster parent,” or with a family member approved by the state. The placement of the child is normally arranged through the government or a social service agency. The institution, group home, or foster parent is typically compensated for expenses unless the child is placed with a family member.⁸

In the United States, on any given day, there are more than 400,000 youth living in foster care (out-of-home care) primarily due to abuse and/or neglect. And, more than 100,000 of these youth are waiting to be adopted from foster care. This means that these parents have lost permanent legal rights and custody of their children, leaving their children without any permanently legal caregivers (the government assumes this responsibility until someone adopts the children). The average age of youth waiting to be adopted from foster care is eight years old. Contrary to popular belief, it typically *does not* cost any money to adopt a child from foster care. For more information about becoming a foster parent or adopting from foster care, visit: www.adoptuskids.org. For additional statistics about adoption and foster care visit the Adoption and Foster Care Statistics website.

8. Wikipedia. (2020). *Foster care*. https://en.wikipedia.org/wiki/Foster_care#cite_note-1

HEREDITY, PRENATAL DEVELOPMENT, AND BIRTH

HEREDITY

Diana Lang; Martha Lally; Suzanne Valentine-French; Laura Overstreet; and Naomi H. Dan Karami

Learning Objectives

- Define gene, chromosome, and gamete.
- Distinguish between mitosis and meiosis, genotype and phenotype, homozygous and heterozygous, and dominant and recessive.
- Question the assertion that human traits are genetic. Define genotype-environment correlations and genotype-environment interactions, and define epigenetics.
- Differentiate between genetic disorders and chromosomal abnormalities. Describe Trisomy 21.
- Describe the function of genetic counseling.
- Describe human development during the germinal, embryonic, and fetal periods and differentiate between the three periods of development.
- Describe a normal delivery and complications of pregnancy and delivery.
- Predict the risks to prenatal development posed by exposure to teratogens.
- Interpret APGAR scores.
- Discover the sensory abilities and risks of newborns
- Describe adoption and understand the family types
- Understand the after process for communication with the adoption process
- Using appropriate adoption terminology

Next, we will present the birth process and some of the complications that can occur during delivery. Before going into these topics, however, it is important to understand how genes and chromosomes affect development.¹

1. This chapter was adapted from select chapters in Lumen Learning's Lifespan Development, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and

Nature refers to the contribution of genetics to one's development. The basic building block of the nature perspective is the gene. **Genes** are *recipes for making proteins*, while proteins influence the structure and functions of cells. Genes are located on the chromosomes and there are an estimated 20,500 genes for humans, according to the Human Genome Project.² See the box below for more details on the Human Genome Project.

The Human Genome Project

In 1990, the Human Genome Project (HGP), an international scientific endeavor, began the task of sequencing the 3 billion base pairs that make up the human genome. In April of 2003, more than two years ahead of schedule, scientists have given us the genetic blueprint for building a human. Since this time, using the information from the HGP, researchers have discovered the genes involved in over 1800 diseases. In 2005, the HGP amassed a large data base called HapMap that catalogs the genetic variations in 11 global populations. Data on genetic variation can improve our understanding of differential risk for disease and reactions to medical treatments, such as drugs. Pharmacogenomic researchers have already developed tests to determine whether a patient will respond favorably to certain drugs used in the treatment of breast cancer or HIV by using information from HapMap.

Future directions for the HGP include identifying the genetic markers for all 50 major forms of cancer (The Cancer Genome Atlas), continued use of the HapMap for creating more effective drugs for the treatment of disease, and examining the legal, social and ethical implications of genetic knowledge.

From the outset, the HGP made ethical issues one of their main concerns. Part of the HGP's budget supports research and holds workshops that address these concerns. Who owns this information, and how the availability of genetic information may influence healthcare and its impact on individuals, their families, and the greater community are just some of the many questions being addressed.

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2. National Institute of Health (2015). *An overview of the human genome project*. <http://www.genome.gov/12011238>

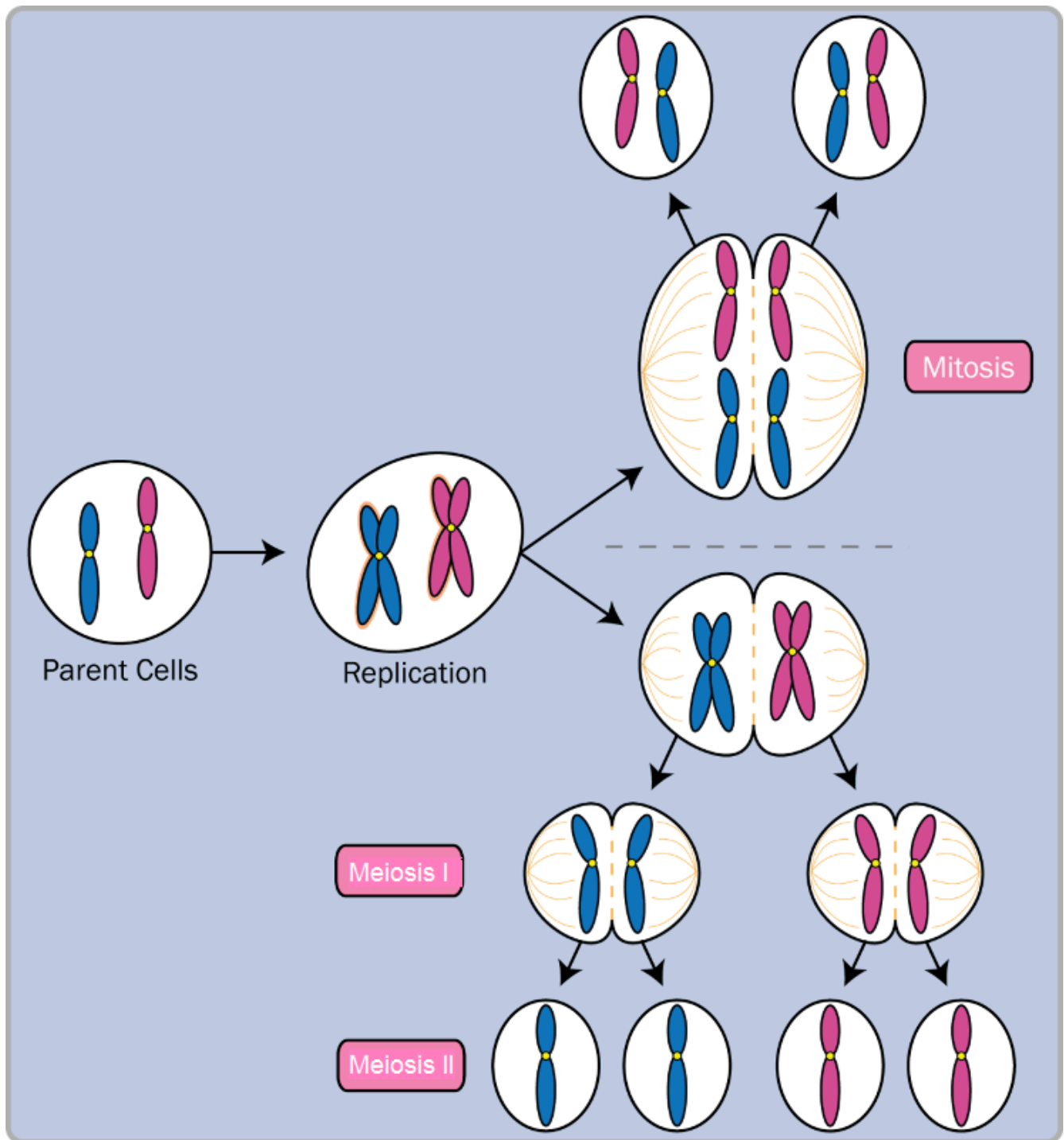


Figure 1. Mitosis versus Meiosis. All cells, except those used in sexual reproduction, are created by mitosis, which creates two identical cells. Cells used in sexual reproduction are created by meiosis, wherein genes are divided into halves. Image Source: Community College Consortium for Bioscience Credentials, CC BY 3.0.

Normal human cells contain 46 chromosomes (or 23 pairs; one from each parent) in the nucleus of the cells. After conception, most cells of the body are created by a process called mitosis.

Mitosis is defined as *the cell's nucleus making an exact copy of all the chromosomes and splitting into two new cells*. However, the cells used in sexual reproduction, called the gametes (sperm or ova), are formed in a process called meiosis. In **meiosis** *the gamete's chromosomes duplicate, and then divide twice resulting in four cells containing only half the genetic material of the original gamete*. Thus, each sperm and egg possesses 23 chromosomes and combine to produce what is considered to be normative—a total of 46. See Figure 1 for details on both mitosis and meiosis. Given the amount of genes present and the unpredictability of the meiosis process, the likelihood of having offspring that are genetically identical (and not twins) is one in trillions.³

Of the 23 pairs of chromosomes created at conception, 22 pairs are similar in length. These are called autosomes. The remaining pair, or sex chromosomes, may differ in length. If a child receives the combination of XY the child will be genetically male. If the child receives the combination XX the child will be genetically female. Many genetic variations can occur within the sex chromosomes. For instance, people who have Turner syndrome typically have only one sex chromosome, an X, and people with Klinefelter syndrome have an extra X chromosome (XXY). See Table 2 below.

Genetic variations and inheritance

Genetic variation, the genetic differences between individuals, is what contributes to a species' ability to adapt to its environment. In humans, genetic variation begins with an egg, several million sperm, and fertilization. The egg and the sperm each contain 23 chromosomes, which make up our genes. A single gene may have multiple possible variations or alleles (a specific version of a gene), resulting in a variety of combinations of inherited traits.

Genetic inheritance of traits for humans is based upon Gregor Mendel's model of inheritance. For genes on an autosome (any chromosome other than a sex chromosome), the alleles and their associated traits are autosomal dominant or autosomal recessive. In this model, some genes are considered dominant because they will be expressed. Others, termed recessive, are only expressed in the absence of a dominant gene. Some characteristics that were once thought of as dominant-recessive, such as eye color, are now believed to be a result of the interaction between several genes.⁴ Dominant traits include curly hair, facial dimples, normal vision, and dark hair. Recessive characteristics include red hair, pattern baldness, and nearsightedness.

3. Gould, J. L., & Keeton, W. T. (1997). *Biological science* (6th ed.). New York: Norton.

4. McKusick, V. A. (1998). *Mendelian inheritance in man: A catalog of human genes and genetic disorders*. Baltimore, MD: Johns Hopkins University Press.

Sickle cell anemia is an autosomal recessive disease; Huntington disease is an autosomal dominant disease. Other traits are a result of partial dominance or co-dominance in which both genes are influential. For example, if a person inherits both recessive genes for cystic fibrosis, the disease will occur. But if a person has only one recessive gene for the disease, the person would be a carrier of the disease.

In this example, we will call the normal gene “N,” and the gene for cystic fibrosis “c.” The normal gene is dominant, which means that having the dominant allele either from one parent (Nc) or both parents (NN) will always result in the phenotype associated with the dominant allele. When someone has two copies of the same allele, they are said to be **homozygous** for that allele. When someone has a combination of alleles for a given gene, they are said to be **heterozygous**. For example, cystic fibrosis is a recessive disease which means that an individual will only have the disease if they are homozygous for that recessive allele (cc).

Imagine that a woman who is a carrier of the cystic fibrosis gene has a child with a man who also is a carrier of the same disease. What are the odds that their child would inherit the disease? Both the woman and the man are heterozygous for this gene (Nc). We can expect the offspring to have a 25% chance of having cystic fibrosis (cc), a 50% chance of being a carrier of the disease (Nc), and a 25% chance of receiving two normal copies of the gene (NN).

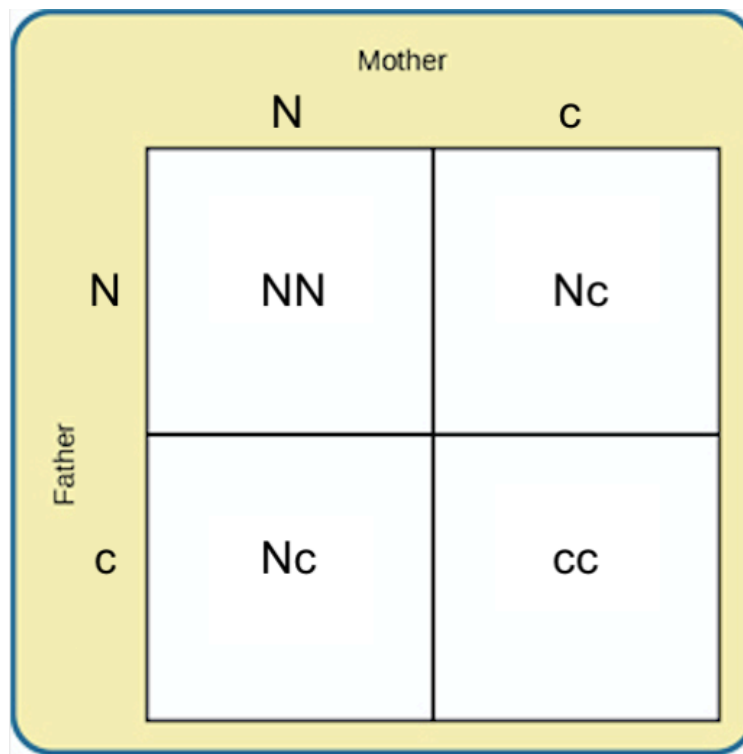


Figure 2. A Punnett square is a tool used to predict how genes will interact in the production of offspring. The capital N represents the dominant allele, and the lowercase c represents the recessive allele. In the example of the cystic fibrosis, where N is the normal gene (dominant allele), wherever a pair contains the dominant allele, N, you can expect a phenotype that does not express the disease. You can expect a cystic fibrosis phenotype only when there are two copies of the c (recessive allele) which contains the gene mutation that causes the disease.

Gene mutations are one source of harmful genes. A **mutation** is a sudden, permanent change in a gene. While many mutations can be harmful or lethal, some mutations are beneficial by giving a person an advantage over those who do not have the mutation. Recall that the theory of evolution maintains that individuals best adapted to their particular environments are more likely to reproduce and pass on their genes to future generations. In order for this process to occur, there must be variability in genes (and resultant traits) that allow for variation in adaptability to the environment. If a population consisted of identical individuals, then any dramatic changes in the environment would affect everyone in the same way, and there would be no variation in selection. In contrast, diversity in genes and associated traits allows some individuals to perform slightly better than others when faced with environmental change. This creates a distinct advantage for individuals best suited for their environments in terms of successful reproduction and genetic transmission.

Genotypes and Phenotypes

The word **genotype** refers to *the sum total of all the genes a person inherits*. The word **phenotype** refers to *the features that are actually expressed*. Look in the mirror. What do you see, your genotype or your phenotype? What determines whether or not genes are expressed? Because genes are inherited in pairs on the chromosomes, we may receive either the same version of a gene from our mother and father, that is, be **homozygous** for that characteristic the gene influences. If we receive a different version of the gene from each parent, that is referred to as **heterozygous**. In the homozygous situation we will display that characteristic. It is in the heterozygous condition that it becomes clear that not all genes are created equal. Some genes are **dominant**, meaning they express themselves in the phenotype even when paired with a different version of the gene, while their silent partner is called recessive. **Recessive** genes express themselves only when paired with a similar version gene.

Geneticists refer to different versions of a gene as **alleles**. Some dominant traits include having facial dimples, curly hair, normal vision, and dark hair. Some recessive traits include red hair, being nearsighted, and straight hair.

Most characteristics are not the result of a single gene; they are **polygenic**, meaning *they are the result of several genes*. In addition, the dominant and recessive patterns described above are usually not that simple either. Sometimes the dominant gene does not completely suppress the recessive gene; this is called **incomplete dominance**. An example of this can be found in the recessive gene disorder sickle cell disease. The gene that produces healthy round-shaped red blood cells is dominant. The recessive gene causes an abnormality in the shape of red blood cells; they take on a sickle form, which can clog the veins and deprive vital organs of oxygen and increase the risk of stroke. To inherit the disorder a person must receive the recessive gene from both parents. Those who have inherited only one recessive-gene are called carriers and should be unaffected by this recessive trait. Yet, carriers of sickle cell have some red blood cells that take on the c-shaped sickle pattern. Under circumstances of oxygen deprivation, such as high altitudes or physical exertion, carriers for the sickle cell gene may experience some of the symptoms of sickle cell.⁵

Monozygotic and Dizygotic Twins

Many students are interested in twins. **Monozygotic** or *identical twins occur when a fertilized egg splits apart in the first two weeks of development* (Figure 3). The result is the creation of two

5. Berk, L. (2004). *Development through the life span* (3rd ed.). Boston: Allyn and Bacon.

separate, but genetically identical offspring. That is, they possess the same genotype and often the same phenotype.



Figure 3. Monozygotic twins (Image Credit: Derek Dolro from Pexels)

About one-third of twins are monozygotic twins. Sometimes, however, two eggs or ova are released and fertilized by two separate sperm. The result is **dizygotic** or *fraternal twins* (Figure 4). These two individuals share the same amount of genetic material as would any two children from the same mother and father. In other words, they possess a different genotype and phenotype. Older mothers are more likely to have dizygotic twins than are younger mothers, and couples who use fertility drugs are also more likely to give birth to dizygotic twins. Consequently, there has been an increase in the number of fraternal twins recently.⁶

6. Bortolus, R., Parazzini, F., Chatenoud, L., Benzi, G., Bianchi, M. M., & Marini, A. (1999). The epidemiology of multiple births. *Human Reproduction Update*, 5, 179-187.



Figure 4. Dizygotic Twins (Image Credit: Kris Krüg on Flickr, licensed CC BY NC ND 2.0)

Genetic Disorders

Most known genetic disorders are dominant gene-linked; however, the vast majority of dominant gene linked disorders are not serious or debilitating. For example, the majority of those with Tourette's Syndrome suffer only minor tics from time to time and can easily control their symptoms. Huntington's Disease is a dominant gene linked disorder that affects the nervous system and is fatal, but does not appear until midlife. Recessive gene disorders, such as cystic fibrosis and sickle-cell anemia, are less common but may actually claim more lives because they are less likely to be detected, so people are unaware that they are carriers of the disease. Some genetic disorders are **sex-linked**; *the defective gene is found on the X-chromosome*. Males have only one X chromosome so are at greater risk for sex-linked disorders due to a recessive gene, such as hemophilia, color-blindness, and baldness. For females to be affected by the genetic defects, they need to inherit the recessive gene on both X-chromosomes, but if the defective gene is dominant, females can be equally at risk. Table 1 lists several genetic disorders.

Table 1 Genetic disorders

Recessive Disorders (Homozygous): The individual inherits a gene change from both parents. If the gene is inherited from just one parent, the person is a carrier and does not have the condition.	Cases per Birth
Sickle Cell Disease (SCD) is a condition in which the red blood cells in the body are shaped like a sickle (like the letter C) and affect the ability of the blood to transport oxygen. Carriers may experience some effects, but do not have the full condition.	1 in 500 Black births 1 in 36,000 Hispanic births
Cystic Fibrosis (CF) is a condition that affects breathing and digestion due to thick mucus building up in the body, especially the lungs and digestive system. In CF, the mucus is thicker than normal and sticky.	1 in 3500
Phenylketonuria (PKU) is a metabolic disorder in which the individual cannot metabolize phenylalanine, an amino acid. Left untreated intellectual deficits occur. PKU is easily detected and is treated with a special diet.	1 in 10,000
Tay Sachs Disease is caused by enzyme deficiency resulting in the accumulation of lipids in the nerve cells of the brain. This accumulation results in progressive damage to the cells and a decrease in cognitive and physical development. Death typically occurs by age five.	1 in 4000 1 in 30 American Jews is a carrier 1 in 20 French Canadians is a carrier
Albinism is when the individual lacks melanin and possesses little to no pigment in the skin, hair, and eyes. Vision problems can also occur.	Fewer than 20,000 US cases per year
Autosomal Dominant Disorders (Heterozygous): In order to have the disorder, the individual only needs to inherit the gene change from one parent.	Cases per Birth
Huntington's Disease is a condition that affects the individual's nervous system. Nerve cells become damaged, causing various parts of the brain to deteriorate. The disease affects movement, behavior and cognition. It is fatal, and occurs at midlife.	1 in 10,000
Tourette Syndrome is a tic disorder which results in uncontrollable motor and vocal tics as well as body jerking.	1 in 250
Achondroplasia is the most common form of disproportionate short stature. The individual has abnormal bone growth resulting in short stature, disproportionately short arms and legs, short fingers, a large head, and specific facial features.	1 in 15,000-40,000
Sex-Linked Disorders: When the X chromosome carries the mutated gene, the disorder is referred to as an X-linked disorder. Males are more affected than females because they possess only one X chromosome without an additional X chromosome to counter the harmful gene.	Cases per Birth

Recessive Disorders (Homozygous): The individual inherits a gene change from both parents. If the gene is inherited from just one parent, the person is a carrier and does not have the condition.	Cases per Birth
Fragile X Syndrome occurs when the body cannot make enough of a protein it needs for the brain to grow and problems with learning and behavior can occur. Fragile X syndrome is caused from an abnormality in the X chromosome, which then breaks. If a female has fragile X, her second X chromosome usually is healthy, but males with fragile X don't have a second healthy X chromosome.	1 in 4000 males 1 in 8000 females
This is why symptoms of fragile X syndrome usually are more serious in males.	
Hemophilia occurs when there are problems in blood clotting causing both internal and external bleeding.	1 in 10,000 males
Duchenne Muscular Dystrophy is a weakening of the muscles resulting in an inability to move, wasting away, and possible death.	1 in 3500 males

Chromosomal Variations

A chromosomal abnormality (or variation) occurs when a person inherits too many or too few chromosomes. The most common cause of chromosomal variations is the age of the mother. A 20-year-old woman has a 1 in 800 chance of having a child with a common chromosomal abnormality. A woman of 44, however, has a one in 16 chance. It is believed that the problem occurs when the ovum is ripening prior to ovulation each month. As the mother ages, the ovum is more likely to suffer abnormalities at this time.

Another common cause of chromosomal variations is that gametes do not divide evenly when they are forming. Therefore, some cells have more than 46 chromosomes. In fact, it is believed that close to half of all zygotes have an odd number of chromosomes. Most of these zygotes fail to develop and are spontaneously aborted by the body. If the abnormal number occurs on pair # 21 or # 23, however, the individual may have certain physical or other abnormalities. See Table 2 for additional information.

One of the most common chromosomal abnormalities is on pair # 21. Trisomy 21 occurs when there are three rather than two chromosomes on #21. A person with **Down syndrome** has distinct facial features, intellectual variations, and oftentimes heart and gastrointestinal disorders. Symptoms vary from person to person and can range from mild to severe. With early intervention, the life expectancy of persons with Down syndrome has increased in recent years. Keep in mind that there is as much variation in people with Down syndrome as in most populations and those differences need to be recognized and appreciated.

Video Example

Watch the following video clip about Down syndrome from the National Down Syndrome Society:

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=410#oembed-1>

You can view the transcript for “Down syndrome – Ability Awareness PSA Video” here (opens in new window).

Table 2 Chromosomal Disorders

Autosomal Chromosome Disorders: The individual inherits too many or too few chromosomes.	Cases per Birth
Down syndrome/Trisomy 21 is caused by an extra chromosome 21 and includes a combination of birth defects. Affected individuals have some degree of intellectual variations, characteristic facial features, often heart defects, and other health problems. The severity varies greatly among affected individuals.	1 in 691 1 in 300 births at age 35
Trisomy 13 is caused by an extra chromosome 13. Affected individuals have multiple birth defects and generally die in the first weeks or months of life.	1 in 7,906
Trisomy 18 is caused by an extra chromosome 18 and the affected individual also has multiple birth defects within many areas of the body and typically results in early death.	1 in 3,762
Sex-Linked Chromosomal Disorders: The disorder occurs on chromosome pair #23 or the sex chromosomes.	Cases per Birth
Turner Syndrome is caused when all or part of one of the X chromosomes is lost before or soon after conception due to a random event. The resulting zygote has an XO composition. Turner Syndrome typically affects cognitive functioning and sexual maturation in girls. Infertility and a short stature may be noted.	1 in 2500 females
Klinefelter Syndrome is caused when an extra X chromosome is present in the cells of a male due to a random event. The Y chromosome stimulates the growth of male genitalia, but the additional X chromosome inhibits this development. The male may have some breast development, infertility, and low levels of testosterone.	1 in 700 males

Genetic Counseling

Genetic counseling refers to a service that assists individuals identify, test for, and explain potential genetic conditions that could adversely affect themselves or their offspring.⁷ The more common reasons for genetic counseling include:

- Family history of a genetic condition.
- Membership in a certain ethnic group with a higher risk of a genetic condition.
- Information regarding the results of genetic testing, including blood tests, amniocentesis, or ultrasounds.
- Learning about the chances of having a baby with a genetic condition if the mother is older, has had several miscarriages, has offspring with birth defects, experiences infertility, or has a medical condition.

Behavioral Genetics

Behavioral Genetics is the scientific study of the interplay between the genetic and environmental contributions to behavior. Often referred to as the nature/nurture debate, Gottlieb suggests an analytic framework for this debate that recognizes the interplay between the environment, behavior, and genetic expression.⁸ This bidirectional interplay suggests that the environment can affect the expression of genes just as genetic predispositions can impact a person's potentials. Additionally, environmental circumstances can trigger symptoms of a genetic disorder. For example, a person who has sickle cell anemia, a recessive gene linked disorder, can experience a sickle cell crisis under conditions of oxygen deprivation. Someone predisposed genetically for type-two diabetes can trigger the disease through poor diet and little exercise.

Research has shown how the environment and genotype interact in several ways. **Genotype-environment correlations** refer to the *processes by which genetic factors contribute to variations in the environment*.⁹ There are three types of genotype-environment correlations:

Passive genotype-environment correlation occurs when children passively inherit the genes and the environments their family provides. Certain behavioral characteristics, such as being athletically inclined, may run in families. The children have inherited both the genes

7. Centers for Disease Control and Prevention. (2015) *Genetic Counseling*. Retrieved from http://www.cdc.gov/ncbddd/genetics/genetic_counseling.html

8. Gottlieb, G. (2002). *Individual development and evolution: The genesis of novel behavior*. New York: Oxford University Press.

9. Plomin, R., DeFries, J. C., Knopik, V. S., & Niederhiser, J. M. (2013). *Behavioral Genetics (6th edition)*. NY: Worth Publishers.

that would enable success at these activities, and given the environmental encouragement to engage in these actions.

Evocative genotype-environment correlation refers to how the social environment reacts to individuals based on their inherited characteristics. For example, whether one has a more outgoing or shy temperament will affect how they are treated by others.

Active genotype-environment correlation occurs when individuals seek out environments that support their genetic tendencies. This is also referred to as niche picking. For example, children who are musically inclined seek out music instruction and opportunities that facilitate their natural musical ability.

Conversely, **genotype-environment interactions** involve genetic susceptibility to the environment. Adoption studies provide evidence for genotype-environment interactions. For example, the Early Growth and Development Study followed 360 adopted children and their adopted and biological parents in a longitudinal study.¹⁰ Results revealed that children whose biological parents exhibited psychopathology, exhibited significantly fewer behavior problems when their adoptive parents used more structured parenting than unstructured. Additionally, elevated psychopathology in adoptive parents increased the risk for the children's development of behavior problems, but only when the biological parents' psychopathology was high. Consequently, the results demonstrate how environmental effects on behavior differ based on the genotype, especially stressful environments on genetically at-risk children.

Lastly, **epigenetics** studies modifications in DNA that affect gene expression and are passed on when the cells divide. Environmental factors, such as nutrition, stress, and teratogens are thought to change gene expression by switching genes on and off. These gene changes can then be inherited by daughter cells. This would explain why monozygotic or identical twins may increasingly differ in gene expression with age. For example, Fraga et al. (2005) found that when examining differences in DNA, a group of monozygotic twins were indistinguishable during the early years.¹¹ However, when the twins were older there were significant discrepancies in their gene expression, most likely due to different experiences. These differences included susceptibilities to disease and a range of personal characteristics.

10. Leve, L. D., Neiderhiser, J. M., Scaramella, L. V., & Reiss, D. (2010). The early growth and development study: using the prospective adoption design to examine genotype-environment interplay. 2008. *Behavior Genetics*, 40(3), 306–314. <https://doi.org/10.1007/s10519-010-9353-1>

11. Fraga, M. F., Ballestar, E., Paz, M. F., Ropero, S., Setien, F., Ballestar, M. L., Heine-Suñer, D., Cigudosa, J. C., Urioste, M., Benitez, J., Boix-Chornet, M., Sanchez-Aguilera, A., Ling, C., Carlsson, E., Poulsen, P., Vaag, A., Stephan, Z., Spector, T. D., Wu, Y.-Z., ... Esteller, M. (2005). Epigenetic differences arise during the lifetime of monozygotic twins. *Proceedings of the National Academy of Sciences of the United States of America*, 102(30), 10604–10609. <https://doi.org/10.1073/pnas.0500398102>

PRENATAL DEVELOPMENT

Diana Lang; Martha Lally; Suzanne Valentine-French; Alisa Beyer; Julie Lazzara; and Naomi H. Dan Karami

Now we turn our attention to the three periods of prenatal development: the germinal period, the embryonic period, and the fetal period. While medical practitioners refer to trimesters, the three periods of prenatal development are stage based and are not equally distributed as 13-weeks each. Here is an overview of some of the changes that take place during each period.¹

The Germinal Period (Weeks 0-3)



Figure 1. Conception

The germinal period begins from conception to the implementation of the zygote in the lining of the uterus, which lasts about 14 days. At ejaculation, a multitude of sperm are released into the vagina, and it only takes one sperm to fertilize the egg/ovum (Figure 1). When the egg

1. This chapter was adapted from select chapters in *Development through the Lifespan*, by Alisa Beyer & Julie Lazzara available under a Creative Commons Attribution-NonCommercial-ShareAlike license, Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sarah Carter and Sarah Hoiland for Lumen Learning and available under a Creative Commons Attribution license.

ripens, it is released from the ovaries into the fallopian tube, which travels down to the uterus within 3-4 days, where the fertilization happens.

Immediately after the single sperm penetrates through the wall of the egg, the egg becomes hard and blocks other sperm from entering it. Only the sperm head, which carries genetic information from the male, can fuse with the nucleus of the egg. From there, a new cell forms, also known as a zygote, which contains genetic information from the male and female. During this time, the organism begins cell division and growth. After the fourth doubling, differentiation of the cells begins to occur as well. It is estimated that about 60 percent of natural conceptions fail to implant in the uterus. The rate is higher for in vitro conceptions.

Throughout this process, the organism begins cell division through mitosis. After five days of mitosis, there are 100 cells, which is now called a blastocyst. The **blastocyst** consists of both an inner and an outer group of cells. The inner group of cells (or embryonic disk) will become the embryo, while the outer group of cells, or trophoblast, becomes the support system, which nourishes the developing organism. Other cells develop to form the **amniotic sac**. The amniotic sac fills with a clear liquid (amniotic fluid) and expands to envelop the developing embryo, which floats within it. This stage ends when the blastocyst fully implants into the uterine wall.²

2. United States National Library of Medicine. (2015). *Fetal development*. <https://www.nlm.nih.gov/medlineplus/ency/article/002398.htm>

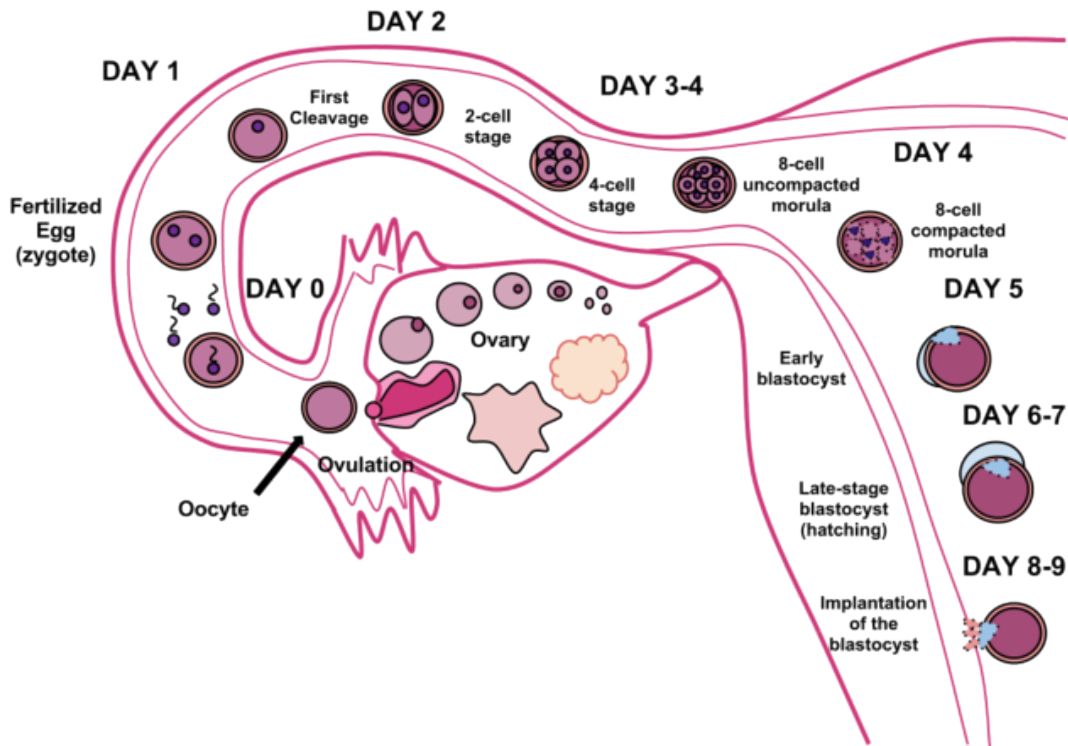


Figure 2. Human Fertilization. The sperm and ovum unite through fertilization, creating a zygote that (over the course of 8-9 days) will implant in the uterine wall, where it will reside over the course of 9 months. (Image Source: Human Fertilization by Ttrue on Wikimedia Commons, CC BY SA 3.0)

Less than one-half of all zygotes survive beyond the first two weeks.³ One reason for this is outcome is that the egg and sperm do not join properly. As a result, their genetic material does not combine, there is too little or damaged genetic material, the zygote does not replicate, or the blastocyst does not implant into the uterine wall. The figure (2) below illustrates the journey of the ova from its release to its fertilization, cell duplication, and implantation into the uterine lining.

3. Hall, D. W. (2004). Meiotic drive and sex chromosome cycling. *Evolution; International Journal of Organic Evolution*, 58(5), 925–931. <https://doi.org/10.1111/j.0014-3820.2004.tb00426.x>

Video Example

Watch this video on prenatal development:

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=417#oembed-1>

It explains many of the developmental milestones and changes that happen during each month of development for the embryo and fetus.

The Embryonic Period (Weeks 3-8)

The embryonic period begins once the zygote is implanted in the uterine wall. It lasts from the third through the eighth week after conception. Upon implantation, this multi-cellular organism is called an **embryo** (figure 3). Now blood vessels grow, forming the placenta. The placenta is a structure connected to the uterus that provides nourishment and oxygen from the mother to the developing embryo via the umbilical cord.

During this period, cells continue to differentiate. Basic structures of the embryo start to develop into areas that will become the head, chest, and abdomen. During the embryonic stage, the heart begins to beat and organs form and begin to function. At 22 days after conception, the neural tube forms along the back of the embryo, developing into the spinal cord and brain.

Growth during prenatal development occurs in two major directions: from head to tail (cephalocaudal development) and from the midline outward (proximodistal development). This means that those structures nearest the head develop before those nearest the feet and those structures nearest the torso develop before those away from the center of the body (such as hands and fingers).



Figure 3. Embryo (Image Source: “Human Embryo” by Ed Uthman on Flickr, CC BY 2.0)

The head develops in the fourth week and the precursor to the heart begins to pulse. In the early stages of the embryonic period, gills and a tail are apparent. But by the end of this stage, they disappear and the organism takes on a more human appearance. The embryo is approximately 1 inch in length and weighs about 4 grams at the end of this period. The embryo can move and respond to touch at this time.

About 20 percent of organisms fail during the embryonic period, usually due to gross chromosomal abnormalities. As in the case of the germinal period, often the mother does not yet know that she is pregnant. It is during this stage that the major structures of the body are taking form making the embryonic period the time when the organism is most vulnerable to the greatest amount of damage if exposed to harmful substances. Potential mothers are not often aware of the risks they introduce to the developing child during this time.

The Fetal Period (Weeks 9-40)



Figure 4. A fetus at 10 weeks of development. (Image Source: “Amniotic sac” by Suparna Sinha on Flickr, CC BY SA 2.0)

When the organism is about nine weeks old, the embryo is called a fetus. At this stage, the **fetus** is about the size of a kidney bean and begins to take on the recognizable form of a human being as the “tail” begins to disappear (Figure 4).

From 9–12 weeks, the sex organs begin to differentiate. By the 12th week, the fetus has all its body parts including external genitalia. In the following weeks, the fetus will develop hair, nails, teeth and the excretory and digestive systems will continue to develop. At the end of the 12th week, the fetus is about 3 inches long and weighs about 28 grams.

At about 16 weeks, the fetus is approximately 4.5 inches long. Fingers and toes are fully developed, and fingerprints are visible. During the 4–6th months, the eyes become more sensitive to light and hearing develops. The respiratory system continues to develop. Reflexes such as sucking, swallowing, and hiccupping develop during the 5th month. Cycles of sleep and wakefulness are present at that time as well. Throughout the fetal stage, the brain continues to grow and develop, nearly doubling in size from weeks 16 to 28. The majority of the neurons in the brain have developed by 24 weeks although they are still rudimentary and the glial or nurse cells that support neurons continue to grow. At 24 weeks the fetus can feel pain.⁴

The first chance of survival outside the womb, known as the **age of viability** is reached at about 22 to 26 weeks.⁵ By the time the fetus reaches the sixth month of development (24 weeks), it weighs up to 1.4 pounds. The hearing has developed, so the fetus can respond to sounds. The internal organs, such as the lungs, heart, stomach, and intestines, have formed enough that a fetus born prematurely at this point has a chance to survive outside of the mother's womb.

Between the seventh and ninth months, the fetus is primarily preparing for birth. It is exercising its muscles, its lungs begin to expand and contract. It is developing fat layers under the skin. The fetus gains about 5 pounds and 7 inches during this last trimester of pregnancy, which includes a layer of fat gained during the eighth month. This layer of fat serves as insulation and helps the baby regulate body temperature after birth.

Around 36 weeks, the fetus is almost ready for birth. It weighs about 6 pounds and is about 18.5 inches long, and by week 37 all of the fetus's organ systems are developed enough that it could survive outside the uterus without many of the risks associated with premature birth. The fetus continues to gain weight and grow in length until approximately 40 weeks. By then, the fetus has very little room to move around and birth becomes imminent (Figure 5).

4. Royal College of Obstetricians and Gynecologists. (1997). *Fetal Awareness: Report of a Working Party*. London: RCOG Press.

5. Moore, K. L., & Persaud, T. V. (1998). *Before we are born* (5th ed.). Philadelphia, PA: Saunders.



Figure 5. During the fetal stage, the brain develops and the body adds size and weight until the fetus reaches full-term development.

Prenatal Brain Development

Prenatal brain development begins in the third gestational week with the differentiation of stem cells, which are capable of producing all the different cells that make up the brain.⁶ *The location of these stem cells in the embryo is referred to as the **neural plate**.* By the end of the third week, two ridges appear along the neural plate first forming the neural groove and then the

6. Stiles, J., & Jernigan, T. L. (2010). The basics of brain development. *Neuropsychology Review*, 20(4), 327–348. <https://doi.org/10.1007/s11065-010-9148-4>

neural tube. The open region in the center of the neural tube forms the brain's ventricles and spinal canal. By the end of the embryonic period, or week eight, the neural tube has further differentiated into the forebrain, midbrain, and hindbrain.

Brain development during the fetal period involves neuron production, migration, and differentiation. From the early fetal period until midgestation, most of the 85 billion neurons have been generated and many have already migrated to their brain positions. **Neurogenesis**, or *the formation of neurons*, is largely completed after five months of gestation. One exception is in the hippocampus, which continues to develop neurons throughout life. Neurons that form the neocortex, or the layer of cells that lie on the surface of the brain, migrate to their location in an orderly way. Neural migration is mostly completed by 29 weeks. Once in position neurons begin to produce dendrites and axons that begin to form the neural networks responsible for information processing. Regions of the brain that contain the cell bodies are referred to as the **gray matter** because they look gray in appearance. The axons that form the neural pathways make up the **white matter** because they are covered in myelin, a fatty substance that is white in appearance. Myelin aids in both the insulation and efficiency of neural transmission. Although cell differentiation is complete at birth, the growth of dendrites, axons, and synapses continue for years.

Teratogens

Quality prenatal care is essential. The developing embryo and fetus is most at risk for some of the most severe problems during the first three months of development. Unfortunately, most females are unaware that they are pregnant at this time. It is estimated that 10% of all birth defects are caused by a *prenatal exposure* or **teratogen**. Teratogens are factors that can contribute to birth defects which include some maternal diseases, drugs, alcohol, and stress. These exposures can also include environmental and occupational exposures. Today, we know many of the factors that can jeopardize the health of the developing child. Teratogen-caused birth defects are potentially preventable.

The study of factors that contribute to birth defects is called teratology. Teratogens are usually discovered after an increased prevalence of a particular birth defect. For example, in the early 1960s, a drug known as thalidomide was used to treat morning sickness. Exposure of the fetus during this early stage of development resulted in cases of phocomelia, a congenital malformation in which the hands and feet are attached to abbreviated arms and legs.

Factors influencing prenatal risks

There are several considerations in determining the type and amount of damage that might result from exposure to a particular teratogen (Figure 6).⁷ These include:

- **The timing of the exposure:** Structures in the body are vulnerable to the most severe damage when they are forming. If a substance is introduced during a particular structure's critical period (time of development), the damage to that structure may be more significant. For example, the ears and arms reach their critical periods at about six weeks after conception. If a woman exposes the embryo to certain substances during this period, the arms and ears may be malformed.
- **The amount of exposure:** Some substances are not harmful unless the amounts reach a certain level. The critical level depends in part on the size and metabolism of the mother. Dose-response relation: The higher the exposure to the potential teratogen, the more likely it is that the fetus will suffer damage and the more severe the damage is likely to be with greater exposure.
- **Genetics:** Genetic makeup also plays a role in the impact a particular teratogen might have on the child. This is suggested by fraternal twin studies who are exposed to the same prenatal environment, yet do not experience the same teratogenic effects. The genetic makeup of the mother can also have an effect; some mothers may be more resistant to teratogenic effects than others.
- **Biological sex:** Males are more likely to experience damage due to teratogens than are females. It is believed that the Y chromosome, which contains fewer genes than the X, may have an impact.

7. Berger, K. S. (2005). *The developing person through the life span* (6th ed.). New York: Worth.

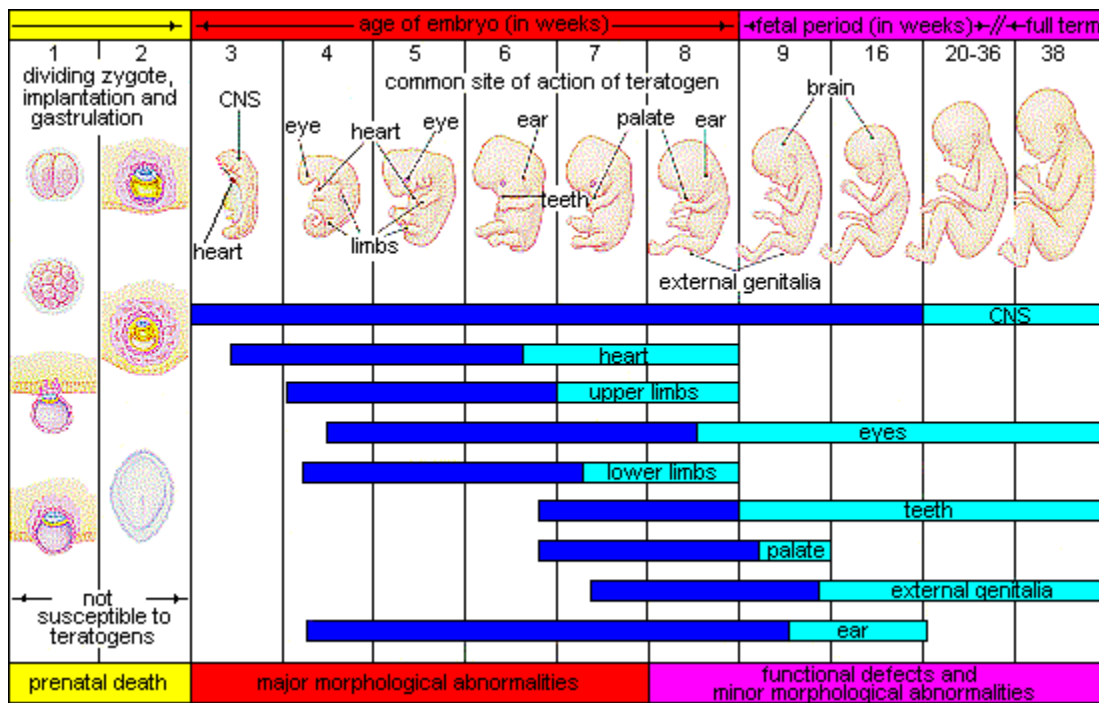


Figure 6. Critical Periods of Prenatal Development. This image summarizes the three developmental periods in prenatal development. The blue images indicate where major development is happening and the aqua indicate where refinement is happening. As shown, the majority of organs are particularly susceptible during the embryonic period. The central nervous system still continues to develop in major ways through the fetal period as well.

Paternal and Maternal Factors

Several factors can impact pregnancy and birth outcomes, such as paternal and maternal age, environmental teratogens, and the health conditions of both the male and female.

Paternal impact: The age of males at the time of conception is an important factor in health risks for children. According to Nippoldt,⁸ offspring of males older than 40 years of age tend to have an increased risk of miscarriages, autism, birth defects, achondroplasia (bone growth disorder), and schizophrenia. These health risks are thought to be due to accumulated chromosomal aberrations and mutations during the maturation of sperm cells in older men.⁹

8. Nippoldt, T.B. (2015). How does paternal age affect a baby's health? Mayo Clinic. <http://www.mayoclinic.org/healthy-lifestyle/getting-pregnant/expert-answers/paternal-age/faq-20057873>

9. Bray, I., Gunnell, D., & Davey Smith, G. (2006). Advanced paternal age: how old is too old? *Journal of Epidemiology and Community Health*, 60(10), 851-853. <https://doi.org/10.1136/jech.2005.045179>

Maternal impact: Women who become pregnant at 35 years or older generally have healthy pregnancies. However, according to March of Dimes,¹⁰ women older than 35 years of age are at greater risk of:

- Fertility problems
- High blood pressure
- Diabetes
- Miscarriages
- Placenta previa
- Cesarean section
- Premature birth
- Stillbirth
- A baby with a genetic disorder or other birth defects

Exposure to environmental teratogens can affect the quality of eggs as women age and the quality of sperm from males. Women's reproductive systems naturally age with time, which can have a significant negative impact on pregnancy, although a woman is born with all her eggs. For this reason, some women older than 35 years choose special prenatal screening such as blood screening to determine if there are any health risks for the baby.

Women who delay having children may live longer. Sun et al.¹¹ found that women who had their last child after the age of 33 years doubled their chances of living to age 95 or older when compared to women who had their last child before their 30th birthday. A woman's natural ability to have a child at a later age indicates that her reproductive system is aging slowly, and consequently so is the rest of her body.

Prenatal Assessment

A number of assessments are suggested to women as part of their routine prenatal care to find conditions that may increase the risk of complications for the mother and fetus.¹² These can include blood and urine analyses and screening and diagnostic tests for birth defects.

Ultrasound is one of the main screening tests done in combination with blood tests. The

10. March of Dimes. (2016). Pregnancy after age 35. <http://www.marchofdimes.org/pregnancy-after-age-35.aspx>

11. Sun, F., Sebastiani, P., Schupf, N., Bae, H., Andersen, S. L., McIntosh, A., Abel, H., Elo, I., & Perls, T. (2015). Extended maternal age at birth of last child and women's longevity in the Long Life Family Study. *Menopause: The Journal of the North American Menopause Society*, 22(1), 26-31.

12. Eisenberg, A., Murkoff, H. E., & Hathaway, S. E. (1996). *What to expect when you're expecting*. New York: Workman Publishing.

ultrasound is *a test in which sound waves are used to examine the fetus*. There are two general types. **Transvaginal ultrasounds** are used early pregnancy, while **transabdominal ultrasounds** are more common and used after 10 weeks of pregnancy (typically, 16 to 20 weeks). Ultrasounds are used to check the fetus for defects or problems. It can also find out the age of the fetus, location of the placenta, fetal position, movement, breathing and heart rate, amount of amniotic fluid in the uterus, and number of fetuses. Most women have at least one ultrasound during pregnancy, but if problems are noted, additional ultrasounds may be recommended.

When diagnosis of a birth defect is necessary, ultrasounds help guide the more invasive diagnostic tests of amniocentesis and chorionic villus sampling. **Amniocentesis** is *a procedure in which a needle is used to withdraw a small amount of amniotic fluid and cells from the sac surrounding the fetus and later tested*. **Chorionic villus sampling** is *a procedure in which a small sample of cells is taken from the placenta and tested*. Both amniocentesis and chorionic villus sampling have a risk of miscarriage, and consequently they are not done routinely.

Complications of Pregnancy

Minor Complications

There are a number of common side effects of pregnancy. Not everyone experiences all of these, nor to the same degree. And although they are considered “minor” this is not to say that these problems are not potentially very uncomfortable. These side effects include nausea (particularly during the first 3-4 months of pregnancy as a result of higher levels of estrogen in the system), heartburn, gas, hemorrhoids, backache, leg cramps, insomnia, constipation, shortness of breath, or varicose veins (as a result of carrying a heavy load on the abdomen).

Major Complications

The following are some serious complications of pregnancy which can pose health risks to the woman and child and that often require hospitalization.

Ectopic pregnancy occurs when the zygote becomes attached to the fallopian tube before reaching the uterus. Sometimes and ectopic pregnancy occurs in the ovary, abdominal cavity, or the lower part of the uterus (cervix), which connects to the vagina.¹³ Abdominal pain, vaginal bleeding, nausea, and fainting are typical symptoms of ectopic pregnancy.

13. Mayo Clinic. (n.d.). *Ectopic pregnancy*. <https://www.mayoclinic.org/diseases-conditions/ectopic-pregnancy/symptoms-causes/syc-20372088>

Preeclampsia, also known as toxemia, is characterized by a sharp rise in blood pressure, a leakage of protein into the urine as a result of kidney problems, and swelling of the hands, feet, and face during the third trimester of pregnancy. Preeclampsia is the most common complication of pregnancy. Preeclampsia occurs most frequently in first pregnancies, and it is more common in women who are obese, have diabetes, or are carrying twins. When preeclampsia causes seizures, the condition is known as **eclampsia**, which is the second leading cause of maternal death in the United States. Preeclampsia is also a leading cause of fetal complications, which include low birth weight, premature birth, and stillbirth. Treatment is typically bed rest and sometimes medication. If this treatment is ineffective, labor may be induced.

Maternal mortality. Approximately 295,000 women died during and following pregnancy and childbirth in 2017. The vast majority of these deaths occurred in low-resource settings, and many could have been prevented.¹⁴ Rates are highest in Sub-Saharan, Africa and South Asia, although there has been a substantial decrease in these rates. The campaign to make childbirth safe for everyone has led to the development of clinics accessible to those living in more isolated areas and training more midwives to assist in childbirth.

Spontaneous abortion is experienced in an estimated 20-40 percent of undiagnosed pregnancies and in another 10 percent of diagnosed pregnancies. Usually the body aborts due to chromosomal abnormalities, and this typically happens before the 12th week of pregnancy. Cramping and bleeding result and normal periods return after several months. Some women are more likely to have repeated miscarriages due to chromosomal, amniotic, or hormonal problems, but miscarriage can also be a result of defective sperm.¹⁵

14. World Health Organization. (2019). Maternal mortality. <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>

15. Carrell, D. T., Wilcox, A. L., Lowry, L., Peterson, C. M., Jones, K. P., & Erikson, L. (2003). Elevated sperm chromosome aneuploidy and apoptosis in patients with unexplained recurrent pregnancy loss. *Obstetrics and Gynecology*, 101(6), 1229-1235.

BIRTH

Diana Lang; Martha Lally; Suzanne Valentine-French; Laura Overstreet; Julie Lazzara; and Naomi H. Dan Karami

Preparation for Childbirth

Prepared childbirth refers to being in good physical condition to help provide a healthy environment for the fetus to develop, help individuals prepare to accept their new roles as parents. Additionally, parents can receive information and training that will assist them for delivery and life with the new addition to their family. Parents should learn about childbirth options and caring for a newborn before labor and delivery.¹

One of the most common methods for preparing for childbirth is the **Lamaze method**. This method originated in Russia and was brought to the United States in the 1950s by Fernand Lamaze. *The emphasis of this method is on teaching the woman to be in control in the process of delivery.* It includes learning muscle relaxation, breathing through contractions, having a focal point (usually a picture to look at) during contractions, and having a support person who goes through the training process with the pregnant woman and serves as a coach during delivery.²

Choices and decisions: There are numerous decisions and choices that can be made such as what type of a practitioner will oversee one's care, whether the delivery will occur at home or in a facility, vaginally or by Cesarean, and what, if any, pain management will be used.

Many women who give birth at hospitals use an epidural anesthesia during delivery.³ An **epidural block** is *a regional analgesic that can be used during labor and alleviates most pain in the lower body without slowing labor.* The epidural block can be used throughout labor and has little to no effect on the baby. Medication is injected into a small space outside the spinal cord in the lower back. It takes 10 to 20 minutes for the medication to take effect. An epidural block with stronger medications, such as anesthetics, can be used shortly before a C-section or if a

1. This chapter was adapted from select chapters in Lumen Learning's Lifespan Development, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and Waymaker Lifespan Development, authored by Julie Lazzara for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's Lifespan Psychology.

2. Eisenberg, A., Murkoff, H. E., & Hathaway, S. E. (1996). *What to expect when you're expecting*. New York: Workman Publishing.

3. American Pregnancy Association. (2015). Epidural anesthesia. <http://americanpregnancy.org/labor-and-birth/epidural/>

vaginal birth requires the use of forceps or vacuum extraction. A **Cesarean section** (C-section) is *surgery to deliver the baby by being removed through the mother's abdomen*. Most C-sections are done when problems occur during delivery unexpectedly. These can include:

- Health problems in the mother.
- Signs of distress in the baby.
- Not enough room for the baby to go through the vagina.
- The position of the baby, such as a breech presentation where the head is not in the downward position.

C-sections are also more common among women carrying more than one fetus. This surgery is relatively safe for mother and baby, but it is considered a major surgery and carries health risks. And, it typically takes longer to recover from a C-section than from a vaginal birth. After healing, the incision may leave a weak spot in the wall of the uterus. This could cause problems with an attempted vaginal birth later. However, many women who have a C-section deliver vaginally after a C-section. Click this link to learn more about options available for the preparation of childbirth: [ACOG Labor and Delivery](#)

Stages of Birth for Vaginal Delivery

The first stage of labor is typically the longest. It begins with uterine contractions that may initially last about 30 seconds and be spaced 15-20 minutes apart. These increase in duration and frequency to more than a minute in length and about 3 to 4 minutes apart. Typically, practitioners advise that they should be called when contractions are occurring about every five minutes. Some women experience false labor or Braxton-Hicks contractions, especially with the first child. These may come and go. They tend to diminish when the woman begins walking around. Real labor pains tend to increase with walking.

During this stage, the cervix or opening to the uterus dilates to 10 centimeters or just under four inches. This may take around 12-16 hours for first children, about 6-9 hours for women who have previously given birth, and it may take up to 24 hours for others. Labor may also begin with a discharge of blood or amniotic fluid. If the amniotic sack breaks, labor will be induced (if necessary) to reduce the risk of infection.

A baby's arrival may need to be **induced** or *delivered before labor begins* if there is concern for the health of the mother or baby. For example:

- The mother is approaching two weeks beyond her due date and labor has not started naturally.

- The mother's water has broken, but contractions have not begun.
- There is an infection in the mother's uterus.
- The fetus has stopped growing at the expected pace.
- There is not enough amniotic fluid surrounding the fetus.
- The placenta peels away, either partially or completely, from the inner wall of the uterus before delivery.
- The mother has a medical condition that might put her or her baby at risk, such as high blood pressure or diabetes.⁴

The second stage involves the passage of the baby through the birth canal. This stage takes about 10-40 minutes. Contractions usually occur about every two to three minutes. The woman pushes and relaxes as directed by the medical staff. Normally the head is delivered first. The baby is then rotated so that one shoulder can come through and then the other shoulder. The rest of the baby quickly passes through. The baby's mouth and nose are suctioned out. The umbilical cord is clamped and cut.

The third stage is generally less painful when compared to the other stages. During this stage, the placenta or afterbirth is delivered. This typically occurs within 20 minutes after the delivery of the baby. If tearing of the vagina occurred during birth, the tear may be stitched at this time.

Video Example

Watch "Life's Greatest Miracle"

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=426#oembed-1>

4. Mayo Clinic. (2014). Labor and delivery, postpartum care. <http://www.mayoclinic.org/healthy-lifestyle/labor-and-delivery/in-depth/inducing-labor/art-20047557>

Assessing the Neonate

APGAR

Test Scoring










	Score 0	Score 1	Score 2
A pppearance			
	Blue all over	Blue only at extremities	No blue coloration
P ulse	No pulse	<100 beats/min.	>100 beats/min.
G rimace			
	No response to stimulation	Grimace or feeble cry when stimulated	Sneezing, coughing, or pulling away when stimulated
A ctivity			
	No movement	Some movement	Active movement
R espiration	No breathing	Weak, slow, or irregular breathing	Strong cry

Figure 1. APGAR Scores

The **Apgar** assessment is conducted one minute and five minutes after birth by a medical professional (Figure 1). This is a very quick way to assess the newborn's overall condition. Five measures are assessed: Heart rate, respiration, muscle tone (assessed by touching the baby's palm), reflex response (the Babinski reflex is tested), and color. A score of 0 to 2 is given on each feature examined. An Apgar of 5 or less is cause for concern. The second Apgar should indicate improvement with a higher score.

Another way to assess the condition of the newborn is the Neonatal Behavioral Assessment Scale (NBAS). The baby's motor development, muscle tone, and stress response are assessed. This tool has been used around the world to further assess the newborn, especially those with low Apgar scores, and to make comparisons of infants in different cultures.⁵

Problems That May Exist with a Newborn

Anoxia: Anoxia is a temporary lack of oxygen to the brain. Difficulty during delivery may lead to anoxia which can result in brain damage or in severe cases, death. Babies who suffer both low birth weight and anoxia are more likely to suffer learning disabilities later in life as well.

Low birth weight: Children are considered low birth weight if they weigh less than 5 pounds 8 ounces (2500 grams). About 8.2 percent of babies born in the United States are of low birth weight.⁶ A low birth weight baby has difficulty maintaining adequate body temperature because it lacks the fat that would otherwise provide insulation. Such a baby is also at more risk for infection, and 67 percent of these babies are also preterm which can make them more at risk for respiratory infection. Very low birth weight babies (2 pounds or less) have an increased risk of developing cerebral palsy. Many causes of low birth weight are preventable with proper prenatal care.

Preterm: A newborn might also have a low birth weight if it is born at less than 37 weeks gestation, which qualifies it as a preterm baby.⁷ Early birth can be triggered by anything that disrupts the mother's system. For instance, vaginal infections can lead to premature birth because such infection causes the mother to release anti-inflammatory chemicals which, in turn, can trigger contractions. Smoking and the use of other teratogens can lead to preterm birth. A significant consequence of preterm birth includes **respiratory distress syndrome**, which is characterized by weak and irregular breathing.⁸

Small-for-date infants: Infants that have birth weights that are below expectation based on their gestational age are referred to as small-for-date. These infants may be full term or preterm, but still weigh less than 90 % of all babies of the same gestational age.

5. Brazelton, T. B., & Nugent, J. K. (1995). *Neonatal behavioral assessment scale*. London: Mac Keith Press.

6. Centers for Disease Control and Prevention. (2015). Birthweight and gestation. <http://www.cdc.gov/nchs/fastats/birthweight.htm>

7. Centers for Disease Control and Prevention. (2015c). Preterm birth. <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>

8. United States National Library of Medicine. (2015). Neonatal respiratory distress syndrome. <https://medlineplus.gov/ency/article/001563.htm>

ADOPTION

Diana Lang

Adoption of children is one of many ways in which families are formed. Adoption, the legal transfer of parental rights of a child to another person, can occur in many ways and elicit a wide variety of family types. In the United States, statistics for the total number of **all types** of adoptions are **not** compiled on a regular basis and statistics are not at all compiled for some adoption types. Adoption statistics and estimates are based on U.S. Census data and other sources. It is **estimated** that approximately 2-4% of all Americans are adopted.¹

While more than 100,000 youth (with an average age of 8 years) are waiting to be adopted from foster care, the majority of individuals wish to adopt an infant. According to research, millions of American women have expressed a desire to adopt an infant² and tens of thousands of families are waiting to adopt an infant.

However, it is also estimated that *fewer* than 20,000 babies are voluntarily placed for adoption each year in the United States. Certainly, there are thousands fewer infants placed for adoption than families waiting to adopt an infant. Research has shown that placing a baby for adoption can serve as a preventive option of child abuse and neglect for individuals who are not ready to parent, able to parent, or willing to parent.³⁴⁵

Thus, it is a best-practice approach that individuals experiencing unplanned or unwanted pregnancies be provided the most accurate information concerning their options for parenting, adoption, the processes associated with all options, etc.⁶

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1. Child Welfare Information Gateway. (2016). Trends in U.S. adoptions: 2008–12. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau. <https://www.childwelfare.gov/pubPDFs/adopted0812.pdf>
 2. Jones, J., & Placek, P. (2017). Adoption by the numbers: A comprehensive report of U.S. adoption statistics. <https://www.adoptioncouncil.org/publications/2017/02/adoption-by-the-numbers>
 3. van IJzendoorn, M.H., & Juffer, F. (2006). The Emanuel Miller Memorial Lecture 2006: Adoption as intervention. Meta-analytic evidence for massive catch-up and plasticity in physical, socio-emotional, and cognitive development. *Journal of Child Psychology and Psychiatry*, 47(12), 1228–1245 <https://doi.org/10.1111/j.1469-7610.2006.01675.x>
 4. van IJzendoorn, M. H., Juffer, F., & Poelhuis, C. W. K. (2005). Adoption and cognitive development: a meta-analytic comparison of adopted and nonadopted children's IQ and school performance. *Psychological Bulletin*, 131(2), 301–316. <https://doi.org/10.1037/0033-2909.131.2.301>
 5. Van IJzendoorn, M.H., & Juffer, F. (2005). Adoption is a successful natural intervention enhancing adopted children's IQ and school performance. *Current Directions in Psychological Science*, 14(6), 326–330 <https://doi.org/10.1111/j.0963-7214.2005.00391.x>
 6. Gallagher, J. R., & Rycraft, J. R. (2014). Evaluation of the infant adoption awareness trainings: Transforming training knowledge to adoption practice. *Adoption Quarterly*, 17(4), 253–279. <https://doi.org/10.1080/10926755.2014.891552>

In the U.S., it is common for birth parents to choose their baby's adoptive parents, and in some cases, adoptive and birth family members are able to maintain some contact with each other. It is important to note that infants who are voluntarily placed are typically taken home immediately from the birthing location by their adopting family. In conclusion, fewer children may end up in foster care if their parents were advised of their options for adoption and parenting. To learn how to educate parents about the option of placing their baby for adoption view this pdf, [Adoption: Considering Your Options and Making a Plan \[pdf\]](#)

Family Types

There are numerous adoptive family types. Below is a brief definition of each family type.

- **Infant/newborn/domestic:** A child who is born in a country and who is adopted shortly after birth (within the same country).
- **Transnational/Intercountry/International:** A child who is born in one country and is adopted by a family who lives in another country. Often, the child is orphaned. For statistics and information about intercountry adoptions visit this website.
- **Kin:** Children adopted by a relative such as an aunt, uncle, sister, brother, grandparent, or other relative.
- **Foster care:** Children who are no longer able to be cared for by their primary caregiver(s) who are adopted by another family member.
- **Stepparent:** Children adopted by one parent's spouse; the spouse agrees to take full responsibility for the child.

The following forms of adoption are a result of assisted reproductive technology (methods that utilize medical technology to achieve conception and birth). In most U.S. states, these forms require the legal transfer of parental rights to another parent(s).

- **Embryo:** Families can adopt an embryo produced from the sperm and egg of one couple. Clinics and agencies help match donating families and recipient/adopting families.
- **Surrogacy:** A surrogate mother carries a fertilized egg in utero. After the birth of the child, the intended parent(s) adopt(s) the child.

Below are some of the more commonly-used terms associated with adoption and the legal process.

- **Adoption Triad:** Birth parents, adoptive parents, and the adopted child(ren).

- **Disrupted Adoption:** An adoption agreement that ends before finalization.
- **Dissolution of Adoption:** An adoption that ends after finalization.
- **Interstate Compact on the Placement of Children:** A law that requires written notice and prior approval of the placement of a child for adoption or foster care from one state with a family in another state.
- **Kinship care:** The full-time nurturing of a child by someone related to the child by family ties or by prior relationship connection (fictive kin).
- **Reunification:** The returning of foster children to the custody of their parent(s) after placement outside the home.
- **Relinquishment/Termination of Parental Rights:** The legal step necessary for parents to voluntarily or involuntarily have their parental rights terminated to allow their child to be adopted by adoptive parents; sometimes referred to as a surrender or as making an adoption plan for one's child.
- **Special Needs:** Children with physical, behavioral, or mental impairments, children with siblings in need of adoption, and at-risk children.

Before and after the legal transfer of parental rights, families can decide how they may stay in contact after the child is no longer a legal member of the birth family. This decision is referred to as “levels of openness” or “degrees of contact.”

Levels of Openness/Degrees of Contact

Non-identifying information: Information that allows the members of the adoption triad to know about each other, but without identifying information. First names, physical descriptions, occupation, education, personality characteristics, hobbies, interests, religious affiliation, and medical information are examples of non-identifying information.

Semi-open adoption: An adoption in which a child's birth parents and adoptive parents may exchange primarily non-identifying information. After the child is placed in the adoptive home, contact with the birth family may involve letters or pictures or other communications sent through the intermediary of the adoption agency or the attorney who assisted in the placement.

Closed adoption: An adoption that involves total confidentiality and sealed records; contact does not exist between any members of either family.

Identifying information: Information concerning birth parents which discloses their identities.

Open adoption: An adoption that involves some amount of initial and/or ongoing contact

between birth and adoptive families, ranging from sending letters through the agency, to exchanging names, and/or scheduling visits.

Terminology

Using accurate adoption language can stop the spread of adoption-related misconceptions and educate others about adoption. For instance, the phrase “choosing to place your child for adoption” has a much more positive connotation than “giving up your baby.” “Choosing to place your child for adoption” focuses on the fact that parents most likely considered options and chose the option they felt was best for the child. It is important to use appropriate terms so that accurate language may someday be the norm. Below is a list of “accurate adoption terminology.”

Table 1: Adoption terminology, accurate and inaccurate language

Accurate Language	Inaccurate Language
Birthparent, first parent	Real parent, natural parent
My child	Adopted child
Choosing an adoption plan	Giving away/giving up your child
Finding a family to parent your child	Putting your child up for adoption
Deciding to parent the child	Keeping your baby
To parent	To keep
Child in need of a family/parent	Adoptable child; Available child
International or intercountry adoption	Foreign adoption
Child who has special needs	Handicapped child, hard to place
Child from another country	Foreign child
Was adopted	Is adopted

INFANCY AND TODDLERHOOD

PHYSICAL DEVELOPMENT IN INFANCY AND TODDLERHOOD

Diana Lang; Alisa Beyer; Julie Lazzara; Suzanne Valentine-French; Martha Lally; and Naomi H. Dan Karami

Learning Objectives

- Summarize overall physical growth during infancy. Compare gross and fine motor skills and give examples of each.
- Describe the growth of the brain during infancy.
- Discuss nutritional concerns of marasmus and kwashiorkor.
- Describe cognitive development in infancy and toddlerhood. Describe the six substages of sensorimotor intelligence, infant memory, and language development.
- Describe stages of language development during infancy. Define babbling, holophrastic speech, and overregularization.
- Contrast styles of attachment.
- Discuss the importance of temperament and goodness of fit.
- Describe self-awareness, stranger wariness, and separation anxiety.
- Use Erikson's theory to characterize psychosocial development during infancy.

We will now turn our attention to the physical, cognitive, and socioemotional development during the first two years. Researchers have given this part of the lifespan more attention than any other period, perhaps because changes during this time are so dramatic and so noticeable. We have also assumed that what happens during these years provides a foundation for one's life to come. However, it has been argued that the significance of development during these years has been overstated.¹

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and

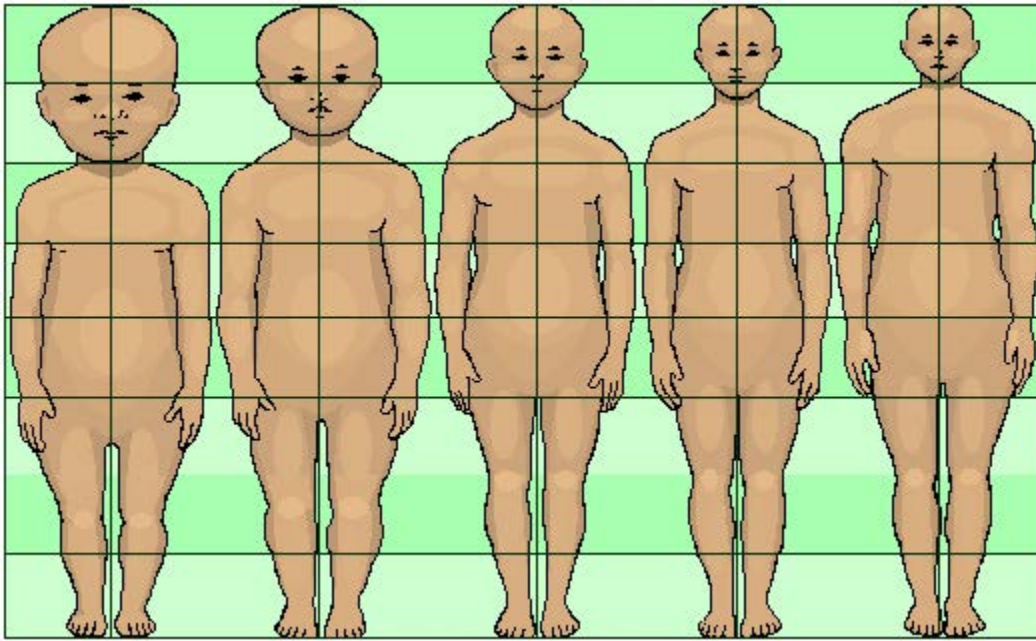


Figure 1. Changes in Proportions

Physical Growth and Development

The average newborn in the United States weighs about 7.5 pounds (between 5 and 10 pounds) and is about 20 inches in length. For the first few days of life, infants typically lose about 5 percent of their body weight as they eliminate waste and get used to feeding. This often goes unnoticed by most parents but can be cause for concern for those who have a smaller infant. This weight loss is temporary, however, and is followed by a rapid period of growth. By the time an infant is 4 months old, it usually doubles in weight and by one year has tripled the birth weight. By age 2, the weight has quadrupled, so we can expect that a 2-year-old should weigh between 20 and 40 pounds. The average length at one year is about 29.5 inches and at two years it is around 34.4 inches.

Body Proportions: Another dramatic physical change that takes place in the first several years of life is the change in body proportions. The head initially makes up about 50 percent of our entire length when we are developing in the womb. At birth, the head makes up about 25 percent of our length, and by age 25 it comprises about 20 percent our length (Figure 1).

The Brain in the First Two Years

Some of the most dramatic physical change that occurs during this period is in the brain. We are born with most of the brain cells that we will ever have; that is, about 85 billion neurons whose function is to store and transmit information.² While most of the brain's neurons are present at birth, they are not fully mature. During the next several years **dendrites**, or *branching extensions that collect information from other neurons*, will undergo a period of exuberance. Because of this proliferation of dendrites, by age two a single neuron might have thousands of dendrites. **Synaptogenesis**, or *the formation of connections between neurons*, continues from the prenatal period forming thousands of new connections during infancy and toddlerhood. This period of rapid neural growth is referred to as **synaptic blooming** (see Figure 2).

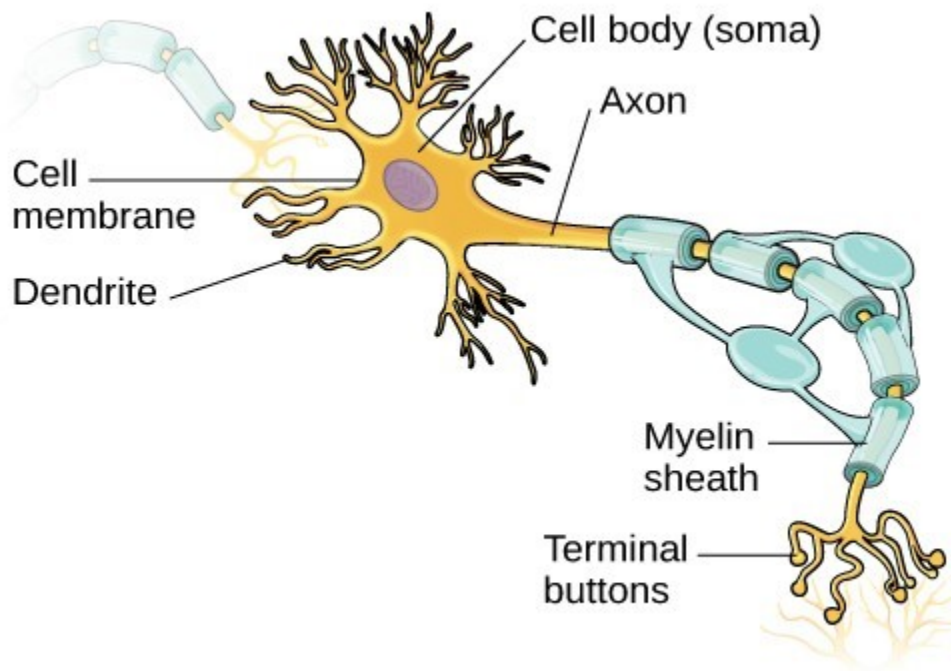


Figure 2: Drawing of neuron. (Image Source: OpenStax Psychology, CC BY 4.0)

The blooming period of neural growth is followed by a period of **synaptic pruning**, where *neural connections are reduced thereby making those that are used much stronger*. It is thought that pruning

2. Huttenlocher, P. R., & Dabholkar, A. S. (1997). Regional differences in synaptogenesis in human cerebral cortex. *The Journal of Comparative Neurology*, 387(2), 167-178.

causes the brain to function more efficiently, allowing for mastery of more complex skills.³ Experience will shape which of these connections are maintained and which of these are lost. Ultimately, about 40 percent of these connections will be lost.⁴ Blooming occurs during the first few years of life, and pruning continues through childhood and into adolescence in various areas of the brain.

Another major change occurring in the central nervous system is the development of **myelin**, *a coating of fatty tissues around the axon of the neuron*.⁵ Myelin helps insulate the nerve cell and speed the rate of transmission of impulses from one cell to another. This enhances the building of neural pathways and improves coordination, control of movement, and thought processes. The development of myelin continues into adolescence, but is most dramatic during the first several years of life.

At birth, the brain is about 25 percent its adult weight and by age two years it is at 75 percent its adult weight. Most of the neural activity is occurring in the **cortex** *or the thin outer covering of the brain involved in voluntary activity and thinking*. The cortex has two hemispheres and each hemisphere is divided into four lobes, each separated by folds known as fissures. If we look at the cortex starting at the front of the brain and moving over the top (see Figure 3), we see first the **frontal lobe** (behind the forehead), *which is responsible primarily for thinking, planning, memory, and judgment*. Following the frontal lobe is the **parietal lobe**, *which extends from the middle to the back of the skull and which is responsible primarily for processing information about touch*. Next is the **occipital lobe**, *at the very back of the skull, which processes visual information*. Finally, in front of the occipital lobe, between the ears, is the **temporal lobe**, *which is responsible for hearing and language*.

3. Kolb, B. & Whishaw, I. Q. (2011). *An introduction to brain and behavior* (3rd ed.). New York: Worth Publishers.

4. Webb, S. J., Monk, C. S., & Nelson, C. A. (2001). Mechanisms of postnatal neurobiological development: Implications for human development. *Developmental Neuropsychology*, 19, 147-171.

5. Carlson, N. (2014). *Foundations of behavioral neuroscience* (9th ed.). Boston, MA: Pearson.

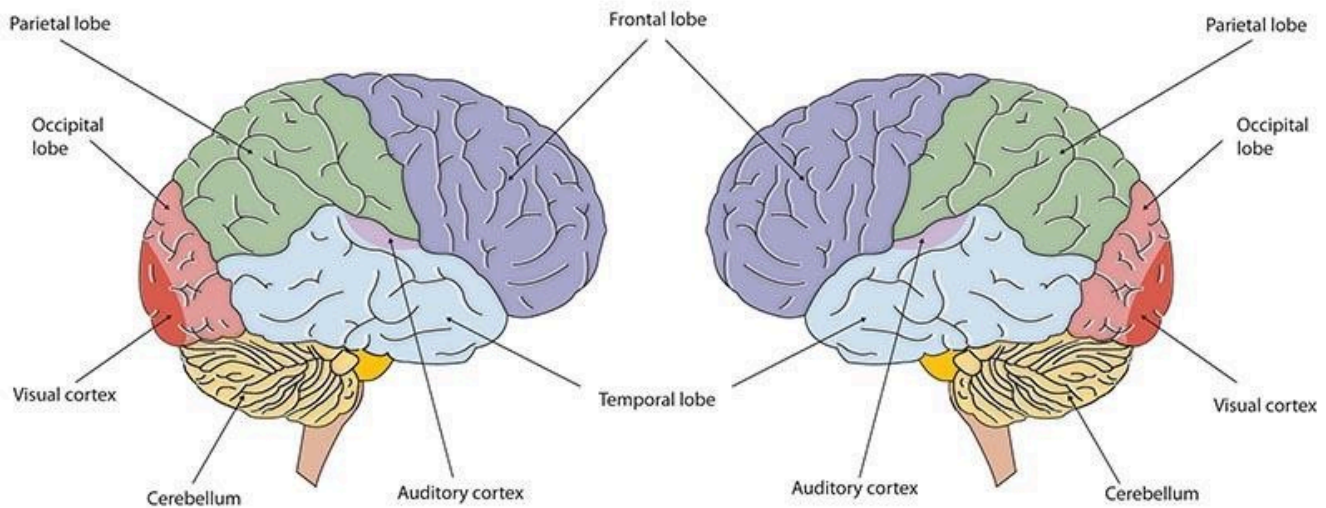


Figure 3: Sections of the brain.

Although the brain grows rapidly during infancy, specific brain regions do not mature at the same rate. Primary motor areas develop earlier than primary sensory areas, and the prefrontal cortex, that is located behind the forehead, is the least developed. As the prefrontal cortex matures, the child is increasingly able to regulate or control emotions, to plan activities, strategize, and have better judgment. This is not fully accomplished in infancy and toddlerhood, but continues throughout childhood, adolescence, and into adulthood.

Lateralization is the process in which different functions become localized primarily on one side of the brain. For example, in most adults the left hemisphere is more active than the right during language production, while the reverse pattern is observed during tasks involving visuospatial abilities⁶. This process develops over time, however, structural asymmetries between the hemispheres have been reported even in fetuses⁷⁸ and infants⁹.

Lastly, **neuroplasticity** refers to the brain's ability to change, both physically and chemically, to

6. Springer, S. P. & Deutsch, G. (1993). *Left brain, right brain* (4th ed.). New York: W. H. Freeman. Stork, F. &

7. Chi, J. G., Dooling, E. C., & Gilles, F. H. (1977). Left-right asymmetries of the temporal speech areas of the human fetus. *Archives of Neurology*, 34, 346–8.

8. Kasprian, G., Langs, G., Brugger, P. C., Bittner, M., Weber, M., Arantes, M., & Prayer, D. (2011). The prenatal origin of hemispheric asymmetry: an in utero neuroimaging study. *Cerebral Cortex*, 21, 1076–1083.

9. Dubois, J., Hertz-Pannier, L., Cachia, A., Mangin, J. F., Le Bihan, D., & Dehaene-Lambertz, G. (2009). Structural asymmetries in the infant language and sensori-motor networks. *Cerebral Cortex*, 19, 414–423.

enhance its adaptability to environmental change and compensate for injury. Both environmental experiences, such as stimulation, and events within a person's body, such as hormones and genes, affect the brain's plasticity. So too does age. Adult brains demonstrate neuroplasticity, but they are influenced more slowly and less extensively than those of youth.¹⁰

Infant Sleep

A newborn typically sleeps approximately 16.5 hours per 24-hour period. This is usually polyphasic sleep in that the infant is accumulating the 16.5 hours over several sleep periods throughout the day¹¹. The infant is averaging 15 hours per 24-hour period by one month, and 14 hours by 6 months. By the time children turn two, they are averaging closer to 10 hours per 24 hours.

Additionally, the average newborn will spend close to 50% of the sleep time in the Rapid Eye Movement (REM) phase, which decreases to 25% to 30% in childhood.

Sudden Unexpected Infant Deaths (SUID): Each year in the United States, there are about 3,400 Sudden Unexpected Infant Deaths (SUID).¹² These deaths occur among infants less than one year-old and have no immediately obvious cause. The three commonly reported types of SUID are:

Sudden Infant Death Syndrome (SIDS): *SIDS is identified when the death of a healthy infant occurs suddenly and unexpectedly, and medical and forensic investigation findings (including an autopsy) are inconclusive.* SIDS is the leading cause of death in infants 1 to 12 months old within the United States, and approximately 1,250 infants died of SIDS in 2019.¹³

Because SIDS is diagnosed when no other cause of death can be determined, possible causes of SIDS are regularly researched. One leading hypothesis suggests that infants who die from SIDS have abnormalities in the area of the brainstem responsible for regulating breathing (Weekes-Shackelford & Shackelford, 2005).

Unknown Cause: The sudden death of an infant less than one year of age that cannot be explained because a thorough investigation was not conducted and cause of death could not be determined.

Accidental Suffocation and Strangulation in Bed: Reasons for accidental suffocation

10. Kolb, B., & Gibb, R. (2011). Brain plasticity and behaviour in the developing brain. *Journal de l'Academie Canadienne de Psychiatrie de l'enfant et de l'adolescent [Journal of the Canadian Academy of Child and Adolescent Psychiatry]*, 20(4), 265–276.

11. Salkind, N. J. (2005). *Encyclopedia of human development*. New York: Sage Publications.

12. Centers for Disease Control and Prevention. (2021). About SUID and SIDS. <https://www.cdc.gov/sids/about/index.htm>

13. Centers for Disease Control and Prevention. (2021). Sudden Unexpected Infant Death and Sudden Infant Death Syndrome - Data and Statistics. <https://www.cdc.gov/sids/data.htm>

include: Suffocation by soft bedding, another person rolling on top of or against the infant while sleeping, an infant being wedged between two objects such as a mattress and wall, and strangulation such as when an infant's head and neck become caught between crib railings.

As can be seen in Figure 4, the combined SUID death rate declined considerably in the United States following the release of the American Academy of Pediatrics safe sleep recommendations in 1992, which advocated that infants be placed for sleep on their backs (nonprone position). These recommendations were followed by a major Back to Sleep Campaign in 1994.

Should infants share the bed with another person? Researchers analyzed a total of 8207 deaths from 24 states during 2004–2012 that were contained in the National Center for the Review and Prevention of Child Deaths Case Reporting System, a database of death reports from state child death review teams.¹⁴ The results indicated that younger victims (0–3 months) were more likely to die by bed-sharing and sleeping in an adult bed/on a person. A higher percentage of older victims (4 months to 364 days) rolled into objects in the sleep environment and changed position from side/back to prone. Investigators compared infants who died of SIDS with a matched control and found that infants younger than three months old who slept in bed with a parent were five times more likely to die of SIDS compared to babies who slept separately from the parents, but were still in the same room.¹⁵

They concluded that bed sharing, even when the parents do not smoke or take alcohol or drugs, increases the risk of SIDS. However, when combined with parental smoking and maternal alcohol consumption and/or drug use, risks associated with bed sharing greatly increased.

The two studies discussed above were based on American statistics. What about the rest of the world? Co-sleeping occurs in many cultures, primarily because of a more collectivist perspective that encourages a close parent-child bond and interdependent relationship (Morelli, Rogoff, Oppenheim, & Goldsmith, 1992). In countries where co-sleeping is common, however, parents and infants typically sleep on floor mats and other hard surfaces which minimize the suffocation that can occur with bedding and mattresses.¹⁶

14. Colvin, J.D., Collie-Akers, V., Schunn, C., & Moon, R.Y. (2014). Sleep environment risks for younger and older infants. *Pediatrics Online*. <http://pediatrics.aappublications.org/content/pediatrics/early/2014/07/09/peds.2014-0401.full.pdf>

15. Carpenter, R., McGarvey, C., Mitchell, E. A., Tappin, D. M., Vennemann, M. M., Smuk, M., & Carpenter, J. R. (2013). Bed sharing when parents do not smoke: is there a risk of SIDS? An individual level analysis of five major case-control studies. *BMJ Open*, 3(5), e002299. <https://doi.org/10.1136/bmjopen-2012-002299>

16. Nelson, E. A., Schiefelhoevel, W., & Haimerl, F. (2000). Child care practices in nonindustrialized societies. *Pediatrics*, 105(6), E75. <https://doi.org/10.1542/peds.105.6.e75>

Trends in Sudden Unexpected Infant Death by Cause, 1990–2019

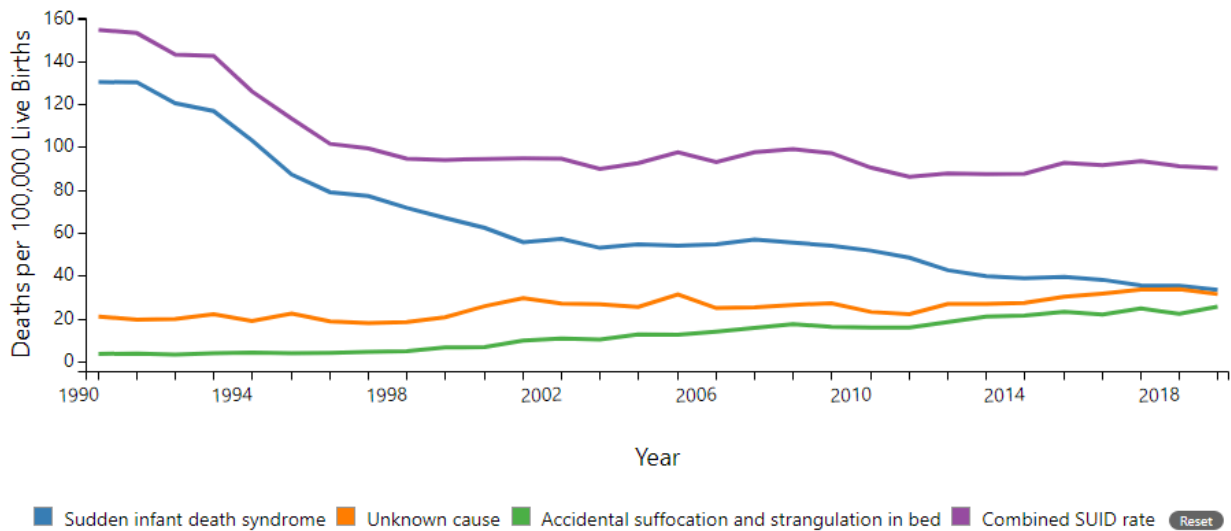


Figure 4: United States’ trends in SUID.

From Reflexes to Voluntary Movements

Newborns are equipped with a number of reflexes, which are involuntary movements in response to stimulation. These movements occur automatically and are signals that the infant is functioning well neurologically. Some of the more common reflexes, such as the sucking reflex (infants suck on objects that touch their lips automatically) and rooting reflex, are essential to feeding. The grasping and stepping reflexes are eventually replaced by more voluntary behaviors. Within the first few months of life, these reflexes disappear, while other reflexes, such as the eye-blink, swallowing, sneezing, gagging, and withdrawal reflex stays with us as they continue to serve essential functions. Reflexes offer insight into the maturation and health of the nervous system. Reflexes that persist too long may impede healthy development.^{17,18} In preterm infants and those with neurological impairments, some of these reflexes may be absent at birth. Once present, they may persist longer than in a neurologically healthy infant.¹⁹

17. Berne, S. A. (2006). The primitive reflexes: Considerations in the infant. *Optometry & Vision Development*, 37(3), 139-145.

18. Bloem, M. (2007). The 2006 WHO child growth standards. *BMJ: British Medical Journal*, 334(7596), 705–706.

19. El-Dib, M., Massaro, A. N., Glass, P., & Aly, H. (2012). Neurobehavioral assessment as a predictor of neurodevelopmental outcome in preterm infants. *Journal of Perinatology*, 32, 299-303.

Motor Development

Motor development occurs in an orderly sequence as infants move from reflexive reactions (e.g., sucking and rooting) to more advanced motor functioning. As mentioned during the prenatal section, development occurs according to the **cephalocaudal** (*from head to tail*) and **proximodistal** (*from the midline outward*) principles. For instance, babies first learn to hold their heads up, then to sit with assistance, then to sit unassisted, followed later by crawling, pulling up, cruising, and then walking. As motor skills develop, there are certain developmental milestones that young children should achieve. For each milestone there is an average age, as well as a range of ages in which the milestone should be reached. An example of a developmental milestone is a baby holding up its head. Babies on average are able to hold up their head at 6 weeks old, and 90% of babies achieve this between 3 weeks and 4 months old. When babies are not holding up their head by 4 months old, they are typically showing a delay. On average, most babies sit alone at 7 months old. Sitting involves both coordination and muscle strength, and 90% of babies achieve this milestone between 5 and 9 months old. If the child is displaying delays on several milestones, that is reason for concern, and the parent or caregiver should discuss this with the child's pediatrician. Some developmental delays can be identified and addressed through early intervention.

Motor Skills refer to our ability to move our bodies and manipulate objects. **Fine motor skills** focus on the muscles in our fingers, toes, and eyes, and enable coordination of small actions (e.g., grasping a toy, writing with a pencil, and using a spoon). Newborns cannot grasp objects voluntarily but do wave their arms toward objects of interest. At about 4 months of age, the infant is able to reach for an object, first with both arms and within a few weeks, with only one arm. At this age grasping an object involves the use of the fingers and palm, but no thumbs. This is known as the **palmar grasp**. The use of the thumb comes at about 9 months of age when the infant is able to grasp an object using the forefinger and thumb. Now the infant uses a **pincer grasp**, and this ability greatly enhances the ability to control and manipulate an object and infants take great delight in this newfound ability. They may spend hours picking up small objects from the floor and placing them in containers. By 9 months, an infant can also watch a moving object, reach for it as it approaches, and grab it.

Gross motor skills focus on large muscle groups that control our head, torso, arms and legs and involve larger movements (e.g., balancing, running, and jumping). These skills begin to develop first. Examples include moving to bring the chin up when lying on the stomach, moving the chest up, and rocking back and forth on hands and knees. However, it also includes exploring an object with one's feet as many babies do as early as 8 weeks of age if seated in a carrier or other device that frees the hips. This may be easier than reaching for an object with the hands,

which requires much more practice.²⁰ Sometimes an infant will try to move toward an object while crawling and surprisingly move backward because of the greater amount of strength in the arms than in the legs.

Sensory Capacities

Throughout much of history, the newborn was considered a passive, disorganized being who possessed minimal abilities. However, current research techniques have demonstrated just how developed the newborn is with especially organized sensory and perceptual abilities.

Vision

The womb is a dark environment void of visual stimulation. Consequently, vision is the most poorly developed sense at birth and time is needed to build those neural pathways between the eye and the brain. Newborns typically cannot see further than 8 to 16 inches away from their faces, and their visual acuity is about 20/400, which means that an infant can see something at 20 feet that an adult with normal vision could see at 400 feet. Thus, the world probably looks blurry to young infants. Because of their poor visual acuity, they look longer at checkerboards with fewer large squares than with many small squares. Infants' thresholds for seeing a visual pattern are higher than adults. Thus, toys for infants are sometimes manufactured with black and white patterns rather than pastel colors because the higher contrast between black and white makes the pattern more visible to the immature visual system. By about 6 months, infants' visual acuity improves and approximates adult 20/25 acuity.

When viewing a person's face, newborns do not look at the eyes the way adults do; rather, they tend to look at the chin a less detailed part of the face. However, by 2 or 3 months, they will seek more detail when exploring an object visually and begin showing preferences for unusual images over familiar ones, for patterns over solids, for faces over patterns, and for three-dimensional objects over flat images. Newborns have difficulty distinguishing between colors, but within a few months they are able to discriminate between colors as well as adults. Sensitivity to binocular depth cues, which require inputs from both eyes, is evident by about 3 months and continues to develop during the first 6 months. By 6 months, the infant can perceive depth perception in pictures as well.²¹ Infants who have experience crawling

20. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

21. Sen, M. G., Yonas, A., & Knill, D. C. (2001). Development of infants' sensitivity to surface contour information for spatial layout. *Perception*, 30, 167-176.

and exploring will pay greater attention to visual cues of depth and modify their actions accordingly.²²

Hearing

The infant's sense of hearing is very keen at birth, and the ability to hear is evidenced as soon as the 7th month of prenatal development. In fact, an infant can distinguish between very similar sounds as early as one month after birth and can distinguish between a familiar and non-familiar voice even earlier. Infants are especially sensitive to the frequencies of sounds in human speech and prefer the exaggeration of infant-directed speech, which will be discussed later. Additionally, infants are innately ready to respond to the sounds of any language, but some of this ability will be lost by 7 or 8 months as the infant becomes familiar with the sounds of a particular language and less sensitive to sounds that are part of an unfamiliar language.

Touch and Pain

Immediately after birth, a newborn is sensitive to touch and temperature, and is also highly sensitive to pain, responding with crying and cardiovascular responses.²³ Newborns who are **circumcised**, *which is the surgical removal of the foreskin of the penis*, without anesthesia experience pain as demonstrated by increased blood pressure, increased heart rate, decreased oxygen in the blood, and a surge of stress hormones.²⁴

Taste and Smell

Studies of taste and smell demonstrate that babies respond with different facial expressions, suggesting that certain preferences are innate. Newborns can distinguish between sour, bitter, sweet, and salty flavors and show a preference for sweet flavors.

Infants seem to be born with the ability to perceive the world in an intermodal way; that is, through stimulation from more than one sensory modality. For example, infants who sucked on a pacifier with either a smooth or textured surface preferred to look at a corresponding (smooth or textured) visual model of the pacifier. By 4 months, many infants can match lip movements with speech sounds and can match other audiovisual events. Although sensory development

22. Berk, L. E. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

23. Balaban, M. T. & Reisenauer, C. D. (2013). Sensory development. In N. J. Salkind (Ed.), *Encyclopedia of human development* (pp. 1144-1147). New, York: Sage Publications.

24. United States National Library of Medicine. (2016). Circumcision. <https://medlineplus.gov/circumcision.html>

emphasizes the afferent processes used to take in information from the environment, these sensory processes can be affected by the infant's developing motor abilities. Reaching, crawling, and other actions allow the infant to see, touch, and organize his or her experiences in new ways.

How Infants are Tested

Habituation procedures, *that is measuring decreased responsiveness to a stimulus after repeated presentations*, have increasingly been used to evaluate infants to study the development of perceptual and memory skills. Phelps (2005) describes a habituation procedure used when measuring the rate of the sucking reflex.²⁵ Researchers first measure the initial baseline rate of sucking to a pacifier equipped with transducers that measure muscle contractions. Next, an auditory stimulus is presented, such as a human voice uttering a speech sound such as “da.” The rate of sucking will typically increase with the new sound, but then decrease to baseline levels as “da” is repeatedly presented, showing habituation. If the sound “ma” was then presented, the rate of sucking would again increase, demonstrating that the infant can discriminate between these two stimuli.

Additionally, the speed or efficiency with which infants show habituation has been shown to predict outcomes in behaviors such as language acquisition and verbal and nonverbal intelligence. Infants who show difficulty during habituation, or habituate at slower than normal rates, have been found to be at an increased risk for significant developmental delays. Infants with Down syndrome, teratogen-exposed infants, malnourished infants, and premature infants have all been studied. Researchers have found that at the age of 16 months, high-risk infants show rates of habituation comparable to newborn infants²⁶.

25. Phelps, B. J. (2005). Habituation. In N. J. Salkind (Ed.), *Encyclopedia of human development* (pp. 597-600). New York: Sage Publications.

26. Phelps, B. J. (2005). Habituation. In N. J. Salkind (Ed.), *Encyclopedia of human development* (pp. 597-600). New York: Sage Publications.

NUTRITION IN INFANCY AND TODDLERHOOD

Naomi H. Dan Karami; Diana Lang; Martha Lally; and Suzanne Valentine-French

Proper nutrition in a supportive environment is vital for an infant's healthy growth and development. From birth to 1 year, infants triple their weight and increase their height by half, and this growth requires proper nutrition. Breast milk is typically considered the ideal diet for newborns due to the nutritional makeup of colostrum and subsequent breastmilk production. The American Academy of Pediatrics (AAP) recommends that infants be fed breast milk for the first 6 months of life and to introduce foods with breast milk until a child is 12 months old or older.¹ The World Health Organization² recommends:

- initiation of breastfeeding within one hour of birth,
- exclusive breastfeeding for the first six months of life, and
- introduction of solid foods at six months together with continued breast milk up to two years of age or beyond.

“Breastfeeding” or “being fed breast milk?” Many options and interpretations

Recommendations for “breastfeeding” can have different meanings. For instance, historically, breastfeeding has been defined as an infant snuggled on a mother's breast and drinking milk directly from her breast. However, many options exist for feeding breast milk to an infant. A woman who has given birth can feed an infant directly from her breast, milk can be expressed

1. Centers for Disease Control and Prevention. (2022a). Breastfeeding: Frequently asked questions (FAQS). <https://www.cdc.gov/breastfeeding/faq/#howlong>

2. World Health Organization. (2018) Breastfeeding. <https://www.who.int/news-room/facts-in-pictures/detail/breastfeeding>

from a breast and fed through a bottle,³ breast milk can be purchased from a bank⁴, and people can take hormones to stimulate lactation to produce breast milk.⁵

When “breastfeeding” or “feeding breast milk” may not be an option

There are occasions when caregivers may be unable to breastfeed or provide breast milk for a variety of health, social, and emotional reasons. For example, breastfeeding may not be an option:

- when the nursing mother has a transmissible disease such as active, untreated tuberculosis or HIV,
- when the nursing mother is receiving chemotherapy or radiation therapy,
- when the nursing mother is addicted to drugs or taking any medication that may be harmful to the baby (including some types of birth control),
- when there are attachment issues between the primary caregiver and baby,
- when the mother or the baby is in the Intensive Care Unit (ICU) after the delivery process, or
- when the nursing mother does not produce enough breast-milk⁶
- However, as we learned above, breast milk can be purchased from a bank, which can remediate some of these complications.

3. Centers for Disease Control and Prevention. (2021a). Nutrition. <https://www.cdc.gov/nutrition/InfantandToddlerNutrition/breastfeeding/pumping-breast-milk.html>

4. Human Milk Banking: Association of North America. (2022). Milk banking frequent questions. <https://www.hmbana.org/about-us/frequent-questions.html>

5. Mayo Clinic. (2021). Infant and toddler health. <https://www.mayoclinic.org/healthy-lifestyle/infant-and-toddler-health/expert-answers/induced-lactation/faq-20058403>

6. Centers for Disease Control and Prevention. (2022). Breastfeeding: Breastfeeding and special circumstances. <https://www.cdc.gov/breastfeeding/breastfeeding-special-circumstances/Contraindications-to-breastfeeding.html>

Benefits of breast milk

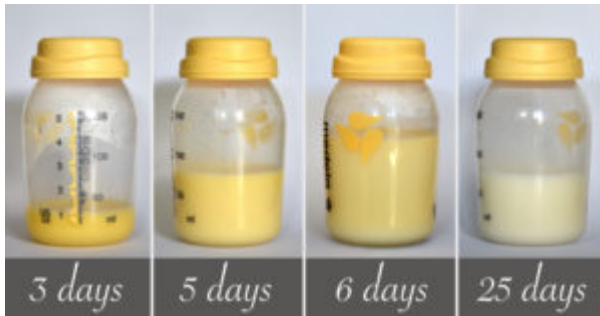


Figure 1: Breast milk changes in composition with a newborn's development and needs.

Colostrum, the milk produced during pregnancy and just after birth, has been described as “liquid gold” (Figure 1). Colostrum is packed with nutrients and other important substances that help the infant build up his or her immune system. Babies will typically get all the nutrition they need through colostrum during the first few days of life.⁷ Breast milk changes by the third to fifth day after birth, becoming much thinner, but containing just the right amount of fat, sugar,

water, and proteins to support overall physical and neurological development.

Breast milk also provides a source of iron more easily absorbed in the body than the iron found in dietary supplements, it typically provides resistance against many diseases, infants typically more easily digest it than formula, and it helps babies make a transition to solid foods more easily. Infants need high fat content due to the process of myelination, which requires fat to insulate the neurons.

Benefits of feeding from the breast

One early argument given to promote the practice of feeding from the breast (when health issues are not an issue) is that it promotes bonding and healthy emotional development for infants. However, research shows that breastfed and bottle-fed infants can adjust equally well emotionally.⁸ Skin-to-skin contact is important for bonding and emotional development regardless of how infants receive their milk.

Research also demonstrates that infants who were fed breast milk **tend to have lower rates of childhood leukemia, asthma, obesity, type 1 and 2 diabetes, and SIDS. In addition, mothers who breast feed tend to have lower rates of breast and ovarian cancer, type 2**

7. Centers for Disease Control and Prevention. (2021b). What to expect while breastfeeding. <https://www.cdc.gov/nutrition/InfantandToddlerNutrition/breastfeeding/what-to-expect.html>

8. Fergusson, & Woodward. (1999). Breast feeding and later psychosocial adjustment. *Paediatric and Perinatal Epidemiology*, 13(2), 144–157. <https://doi.org/10.1046/j.1365-3016.1999.00167.x>

diabetes, and high blood pressure.⁹ And, breastfeeding stimulates contractions in the uterus of the woman who gave birth which helps it regain its normal size.

Video Example

Watch this video from the Psych SciShow “Bad Science: Breastmilk and Formula” to learn about research related to both breastfeeding and formula-feeding.

To learn more about breastfeeding, visit this resource from the U.S. Department of Health and Human Resources: Your Guide to Breastfeeding.

Visit Kids Health on Breastfeeding vs. Formula Feeding to learn more about the benefits and challenges of each. Click on the speaker icon to listen to the narration of the article if you would like.

Meta-analyses have revealed that breastfeeding is connected to advantages with cognitive development.¹⁰ Low birth weight infants had greater benefits from breastfeeding than did normal-weight infants in a meta-analysis of twenty controlled studies examining the overall impact of breastfeeding.¹¹ This meta-analysis showed that breastfeeding may provide nutrients required for rapid development of the immature brain and be connected to more rapid or better development of neurologic function. The studies also showed that a longer duration of breastfeeding was accompanied by greater differences in cognitive development between breastfed and formula-fed children. Whereas normal-weight infants showed a 2.66-point difference, low-birth-weight infants showed a 5.18-point difference in IQ compared with weight-matched, formula-fed infants.¹² These studies suggest that nutrients present in breast milk may have a significant effect on neurologic development in both premature and full-term infants. Starting good nutrition practices early on can help children develop healthy

9. Centers for Disease Control and Prevention. (2021c). Division of Nutrition, Physical Activity, and Obesity. <https://www.cdc.gov/nccdphp/dnpao/features/breastfeeding-benefits/index.html>

10. Anderson, J. W., Johnstone, B. M., & Remley, D. T. (1999). Breast-feeding and cognitive development: a meta-analysis. *The American Journal of Clinical Nutrition*, 70(4), 525–535. <https://doi.org/10.1093/ajcn/70.4.525>

11. Anderson, J. W., Johnstone, B. M., & Remley, D. T. (1999). Breast-feeding and cognitive development: a meta-analysis. *The American Journal of Clinical Nutrition*, 70(4), 525–535. <https://doi.org/10.1093/ajcn/70.4.525>

12. Anderson, J. W., Johnstone, B. M., & Remley, D. T. (1999). Breast-feeding and cognitive development: a meta-analysis. *The American Journal of Clinical Nutrition*, 70(4), 525–535. <https://doi.org/10.1093/ajcn/70.4.525>

dietary patterns and infants need proper nutrients to fuel their rapid physical growth. Without proper nutrition, infants are at risk for **malnutrition**, which can result in physical, cognitive, emotional, and social consequences.

A Historic Look at Breastfeeding

The use of wet nurses, or lactating women, hired to nurse others' infants, during the middle ages eventually declined, and mothers increasingly breastfed their own infants in the late 1800s. In the early part of the 20th century, breastfeeding began to go through another decline, and by the 1950s it was practiced less frequently by middle class, more affluent mothers as formula began to be viewed as superior to breast milk. In the late 1960s and 1970s, there was again a greater emphasis placed on natural childbirth and breastfeeding and the benefits of breastfeeding were more widely publicized. Gradually, rates of breastfeeding began to climb, particularly among middle-class educated mothers who received the strongest messages to breastfeed. In the 1960s, formula companies led campaigns in developing countries to encourage mothers to feed their babies infant formula. Many mothers felt that formula would be superior to breast milk and began using formula. The use of formula can be healthy under conditions in which there is adequate, clean water with which to mix the formula and adequately sanitize bottles and nipples. However, in many countries, such conditions were not available and babies often were given diluted, contaminated formula that made them sick with diarrhea and leading to dehydration. These conditions continue today in some developing countries and hospitals in those developing countries prohibit the distribution of formula samples to new mothers in efforts to get them to rely on breastfeeding. Many of mothers in these countries do not understand the benefits of breastfeeding and have to be encouraged and supported to promote this practice.

Global Considerations and Malnutrition

According to WHO, **malnutrition** is defined as the low intake of nutrients or the excessive intake of nutrients, which can cause undernutrition or overweight/obesity respectively. Malnutrition is classified into four categories: wasting, stunting, underweight, and micronutrient deficiencies(Figure 2).¹³

13. World Health Organization. (2021). Malnutrition. https://www.who.int/health-topics/malnutrition#tab=tab_2



Figure 2: These children are showing the extended abdomen characteristic of kwashiorkor (Photo Courtesy Centers for Disease Control and Prevention).

Wasting occurs when a person has limited food intake with limited nutrients. A child who experiences wasting has a higher risk of dying if left untreated. It is often measured when the child has a lower weight for their height. Stunting, on the other hand, is measured when there is low height for age. It causes by the lack of enough and properly balanced diet for a long period due to poverty, maternal health and nutrition, frequent illnesses, inappropriate feeding, and care from a younger age. An underweight child is a child that has a low weight for their age. They often can be stunted, wasted, or both.¹⁴

Malnutrition is a significant public health problem in several developing countries. In Niger, a country in West Africa with the youngest population, malnutrition persists across the country. It is reported that about 15.0% of children were classified as acutely malnourished in 2018. About 47.8% of children are stunted due to malnutrition. Stunting negatively affects cognitive and physical development, which also harms the country's economy. It is projected that stunting will increase by 44 % by 2025 as the population in Niger continues to grow.¹⁵

Links to Learning

Find out more statistics and recommendations for breastfeeding at the WHO's 10 facts on breastfeeding. You can also learn about efforts to promote breastfeeding in Peru: "Protecting Breastfeeding in Peru".

Breastfeeding could save the lives of millions of infants each year, according to the WHO, yet fewer than 40 percent of infants across the world are breastfed exclusively for the first 6 months of life. Because of the great benefits of breastfeeding, WHO, United Nations Children's

14. World Health Organization. (2021). Malnutrition. https://www.who.int/health-topics/malnutrition#tab=tab_2

15. UNICEF NIGER (2021). Nutrition. <https://www.unicef.org/niger/nutrition>

Fund, formerly United Nations International Children's Emergency Fund (UNICEF), and other national organizations are working together to step up support for breastfeeding across the world.

Children in developing countries and countries experiencing the harsh conditions of war are at risk for two major types of malnutrition. **Infantile marasmus** refers to starvation due to a lack of calories and protein. Children who do not receive adequate nutrition lose fat and muscle until their bodies can no longer function. Babies who are breastfed are much less at risk of malnutrition than those who are bottle-fed. After weaning, children who have diets deficient in protein may experience **kwashiorkor**, or the “disease of the displaced child,” often occurring after another child has been born and taken over breastfeeding. This results in a loss of appetite and swelling of the abdomen as the body begins to break down the vital organs as a source of protein.

Milk Anemia in the United States

Many infants suffer from **milk anemia**, a condition in which milk consumption leads to a lack of iron in the diet. The body gets iron through certain foods. Toddlers who drink too much cow's milk may also become anemic if they are not eating other healthy foods that have iron. This can be due to the practice of giving toddlers milk as a pacifier when resting, riding, walking, and so on. Appetite declines somewhat during toddlerhood and a small amount of milk (especially with added chocolate syrup) can easily satisfy a child's appetite for many hours. The calcium in milk interferes with the absorption of iron in the diet as well. There is also a link between iron deficiency anemia and diminished mental, motor, and behavioral development. In the second year of life, iron deficiency can be prevented by the use of a diversified diet that is rich in sources of iron and vitamin C, limiting cow's milk consumption to less than 24 ounces per day, and providing a daily iron-fortified vitamin.¹⁶

Introducing Solid Foods

Breast milk or formula is the only food a newborn needs, and the American Academy of Pediatrics recommends exclusive breastfeeding for the first six months after birth. Solid foods can be introduced from around six months onward when babies develop stable sitting and oral feeding skills but should be used only as a supplement to breast milk or formula. By six

16. Centers for Disease Control and Prevention. (1998). Recommendations to prevent and control iron deficiency in the United States. <https://www.cdc.gov/mmwr/preview/mmwrhtml/00051880.htm>

months, the gastrointestinal tract has matured, solids can be digested more easily, and allergic responses are less likely. The infant is also likely to develop teeth around this time, which aids in chewing solid food. Iron-fortified infant cereal, made of rice, barley, or oatmeal, is typically the first solid introduced due to its high iron content. Cereals can be made of rice, barley, or oatmeal (Figure 3). Generally, salt, sugar, processed meat, juices, and canned foods should be avoided.

Though infants usually start eating solid foods between 4 and 6 months of age, more and more solid foods are consumed by a growing toddler. Pediatricians recommended introducing foods one at a time, and for a few days, in order to identify any potential food allergies. Toddlers may be picky at times, but it remains important to introduce a variety of foods and offer food with essential vitamins and nutrients, including iron, calcium, and vitamin D.



Figure 3: Most children are introduced to solid foods around six months old, like this girl who is having her first taste of rice.

Nutrition

Breast milk is considered the ideal diet for newborns **if/when** the milk is free from drug and disease exposure (see above, When “breastfeeding” or “feeding breast milk” may not be an option). Colostrum, the first breast milk produced during pregnancy and just after birth has been described as “liquid gold.”¹⁷ It is very rich in nutrients and antibodies. Breast milk changes by the third to fifth day after birth, becoming much thinner, but containing just the right amount of fat, sugar, water and proteins to support overall physical and neurological development. For most babies, breast milk is also easier to digest than formula. Formula fed infants experience more diarrhea and upset stomachs. The absence of antibodies in formula often results in a higher rate of ear infections and respiratory infections. Children who are breastfed have lower rates of childhood leukemia, asthma, obesity, type 1 and 2 diabetes, and a lower risk of SIDS. The USDHHS recommends that mothers breast feed their infants until at least 6 months of age and that breast milk be used in the diet throughout the first year or two.

Several recent studies have reported that it is not just babies that benefit from breastfeeding. Breastfeeding stimulates contractions in the uterus to help it regain its normal size, and women who breastfeed are more likely to space their pregnancies further apart. Mothers who

17. United States Department of Health and Human Services. (2012). A profile of older Americans: 2012. http://www.aoa.gov/Aging_Statistics/Profile/2012/docs/2012profile.pdf

breastfeed are at lower risk of developing breast cancer,¹⁸ especially among higher risk racial and ethnic groups.^{19,20} Women who breastfeed have lower rates of ovarian cancer,²¹ reduced risk for developing Type 2 diabetes,^{22,23} and rheumatoid arthritis.²⁴ In most studies these benefits have been seen in women who breastfeed longer than 6 months.

Mothers can certainly continue to provide breast milk to their babies by expressing and freezing the milk to be bottle fed at a later time or by being available to their infants at feeding time. However, some mothers find that after the initial encouragement they receive in the hospital to breastfeed, the outside world is less supportive of such efforts. Some workplaces support breastfeeding mothers by providing flexible schedules and welcoming infants, but many do not. In addition, not all women may be able to breastfeed. Women with HIV are routinely discouraged from breastfeeding as the infection may pass to the infant. Similarly, women who are taking certain medications or undergoing radiation treatment may be told not to breastfeed.²⁵

In addition to the nutritional benefits of breastfeeding, breast milk is free. Anyone who has priced formula recently can appreciate this added incentive to breastfeeding. One early argument given to promote the practice of breastfeeding was that it promoted bonding and healthy emotional development for infants. However, this does not seem to be the case. Breastfed and bottle-fed infants adjust equally well emotionally.²⁶ This is good news

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18. Islami, F., Liu, Y., Jemal, A., Zhou, J., Weiderpass, E., Colditz, G., Weiss, M. (2015). Breastfeeding and breast cancer risk by receptor status – a systematic review and meta-analysis. *Annals of Oncology*, 26, 2398-2407.
 19. Islami, F., Liu, Y., Jemal, A., Zhou, J., Weiderpass, E., Colditz, G., Weiss, M. (2015). Breastfeeding and breast cancer risk by receptor status – a systematic review and meta-analysis. *Annals of Oncology*, 26, 2398-2407.
 20. Redondo, C. M., Gago-Domínguez, M., Ponte, S. M., Castelo, M. E., Jiang, X., García, A. A., Fernández, M. P., Tomé, M. A., Fraga, M., Gude, F., Martínez, M. E., Garzón, V. M., Carracedo, Á., & Castelao, J. E. (2012). Breast feeding, parity and breast cancer subtypes in a Spanish cohort. *PloS One*, 7(7), e40543. <https://doi.org/10.1371/journal.pone.0040543>
 21. Titus-Ernstoff, L., Rees, J. R., Terry, K. L., & Cramer, D. W. (2010). Breast-feeding the last born child and risk of ovarian cancer. *Cancer Causes & Control: CCC*, 21(2), 201–207. <https://doi.org/10.1007/s10552-009-9450-8>
 22. Schwarz, E. B., Brown, J. S., Creasman, J. M., Stuebe, A., McClure, C. K., Van Den Eeden, S. K., & Thom, D. (2010). Lactation and maternal risk of type 2 diabetes: a population-based study. *The American Journal of Medicine*, 123(9), 863.e1-6. <https://doi.org/10.1016/j.amjmed.2010.03.016>
 23. Gunderson, E. P., Hurston, S. R., Ning, X., Lo, J. C., Crites, Y., Walton, D., Dewey, K. G., Azevedo, R. A., Young, S., Fox, G., Elmasian, C. C., Salvador, N., Lum, M., Sternfeld, B., Quesenberry, C. P., Jr, & Study of Women, Infant Feeding and Type 2 Diabetes After GDM Pregnancy Investigators. (2015). Lactation and progression to type 2 diabetes mellitus after gestational diabetes mellitus: A prospective cohort Study. *Annals of Internal Medicine*, 163(12), 889–898. <https://doi.org/10.7326/M15-0807>
 24. Karlson, E.W., Mandl, L.A., Hankison, S. E., & Grodstein, F. (2004). Do breast-feeding and other reproductive factors influence future risk of rheumatoid arthritis? *Arthritis & Rheumatism*, 50 (11), 3458-3467.
 25. United States Department of Health and Human Services, Office of Women's Health (2011). *Your guide to breast feeding*. Washington D.C.
 26. [footnote]Fergusson, & Woodward. (1999). Breast feeding and later psychosocial adjustment. *Paediatric and Perinatal Epidemiology*, 13(2), 144–157. <https://doi.org/10.1046/j.1365-3016.1999.00167.x>

for mothers who may be unable to breastfeed for a variety of reasons and for fathers who might feel left out.

When to Introduce More Solid Foods: Solid foods should not be introduced until the infant is ready. According to The Clemson University Cooperative Extension,²⁷ some things to look for include that the infant:

- can sit up without needing support,
- can hold its head up without wobbling,
- shows interest in foods others are eating,
- is still hungry after being breastfed or formula fed,
- is able to move foods from the front to the back of the mouth, and
- is able to turn away when they have had enough.

For many infants who are 4 to 6 months of age, breast milk or formula can be supplemented with more solid foods. The first semi-solid foods that are introduced are iron-fortified infant cereals mixed with breast milk or formula. Typically rice, oatmeal, and barley cereals are offered as a number of infants are sensitive to more wheat based cereals. Finger foods such as toast squares, cooked vegetable strips, or peeled soft fruit can be introduced by 10-12 months. New foods should be introduced one at a time, and the new food should be fed for a few days in a row to allow the baby time to adjust to the new food. This also allows parents time to assess if the child has a food allergy. Foods that have multiple ingredients should be avoided until parents have assessed how the child responds to each ingredient separately. Foods that are sticky (such as peanut butter or taffy), cut into large chunks (such as cheese and harder meats), and firm and round (such as hard candies, grapes, or cherry tomatoes) should be avoided as they are a choking hazard. Honey and Corn syrup should be avoided as these often contain botulism spores. In children under 12 months this can lead to death.²⁸

27. Clemson University Cooperative Extension. (2014). Introducing Solid Foods to Infants. http://www.clemson.edu/extension/hgic/food/nutrition/nutrition/life_stages/hgic4102.html

28. Clemson University Cooperative Extension. (2014). Introducing Solid Foods to Infants. http://www.clemson.edu/extension/hgic/food/nutrition/nutrition/life_stages/hgic4102.html

COGNITIVE DEVELOPMENT IN INFANCY AND TODDLERHOOD

Diana Lang; Martha Lally; Suzanne Valentine-French; Laura Overstreet; Lumen Learning; Tera Jones; and Naomi H. Dan Karami

How do infants connect and make sense of what they are learning? Remember that Piaget believed that we are continuously trying to maintain cognitive equilibrium, or balance, between what we see and what we know¹. Children have much more of a challenge in maintaining this balance because they are constantly being confronted with new situations, new words, new objects, etc. All this new information needs to be organized, and a framework for organizing information is referred to as a **schema**. Children develop schemas through the processes of **assimilation** and **accommodation**.

1. Piaget, J. (1954). *The construction of reality in the child*. New York: Basic Books.

For example, 2-year-old Deja learned the schema for dogs because her family has a Poodle. When Deja sees other dogs in her picture books, she says, “Look mommy, dog!” Thus, she has assimilated them into her schema for dogs. One day, Deja sees a sheep for the first time and says, “Look mommy, dog!” Having a basic schema that a dog is an animal with four legs and fur, Deja thinks all furry, four-legged creatures are dogs. When Deja’s mom tells her that the animal she sees is a sheep, not a dog, Deja must accommodate her schema for dogs to include more information based on her new experiences. Deja’s schema for dog was too broad since not all furry, four-legged creatures are dogs. She now modifies her schema for dogs and forms a new one for sheep.

Let’s examine the transition that infants make from responding to the external world reflexively as newborns, to solving problems using mental strategies as two-year-olds. Piaget called this first stage of cognitive development **sensorimotor intelligence** (the sensorimotor period) because infants learn through their senses and motor skills. He subdivided this period into six substages:



Toddlers happily explore the world, engaged in purposeful goal-directed behavior. (Image Source: Khats Cassim on Pexels)

Table 1. Sensorimotor substages

Stage	Age
Stage 1 – Reflexes	Birth to 6 weeks
Stage 2 – Primary Circular Reactions	6 weeks to 4 months
Stage 3 – Secondary Circular Reactions	4 months to 8 months
Stage 4 – Coordination of Secondary Circular Reactions	8 months to 12 months
Stage 5 – Tertiary Circular Reactions	12 months to 18 months
Stage 6 – Mental Representation	18 months to 24 months

Substages of Sensorimotor Intelligence

For an overview of the substages of sensorimotor thought, it helps to group the six substages into pairs. The first two substages involve the infant's responses to its own body, call **primary circular reactions**. During the first month first (substage one), the infant's senses, as well motor reflexes are the foundation of thought.

Substage One: Reflexive Action (Birth through 1st month)

This active learning begins with automatic movements or reflexes (sucking, grasping, staring, listening). A ball comes into contact with an infant's cheek and is automatically sucked on and licked. But this is also what happens with a sour lemon, much to the infant's surprise! The baby's first challenge is to learn to adapt the sucking reflex to bottles or breasts, pacifiers or fingers, each acquiring specific types of tongue movements to latch, suck, breathe, and repeat. This adaptation demonstrates that infants have begun to make sense of sensations. Eventually, the use of these reflexes becomes more deliberate and purposeful as they move onto substage two.

Substage Two: First Adaptations to the Environment (1st through 4th months)

Fortunately, within a few days or weeks, the infant begins to discriminate between objects and adjust responses accordingly as reflexes are replaced with voluntary movements. An infant may accidentally engage in a behavior and find it interesting, such as making a vocalization. This

interest motivates trying to do it again and helps the infant learn a new behavior that originally occurred by chance. The behavior is identified as circular and primary because it centers on the infant's own body. At first, most actions have to do with the body, but in months to come, will be directed more toward objects. For example, the infant may have different sucking motions for hunger and others for comfort (i.e. sucking a pacifier differently from a nipple or attempting to hold a bottle to suck it).

The next two substages (3 and 4), involve the infant's responses to objects and people, called **secondary circular reactions**. Reactions are no longer confined to the infant's body and are now interactions between the baby and something else.

Substage Three: Repetition (4th through 8th months)



(Image Source: Avraham Nacher on Pexels)

During the next few months, the infant becomes more and more actively engaged in the outside world and takes delight in being able to make things happen by responding to people and objects. Babies try to continue any pleasing event. Repeated motion brings particular interest as the infant is able to bang two lids together or shake a rattle and laugh. Another example might be to clap their hands when a caregiver says “patty-cake.” Any sight of something delightful will trigger efforts for interaction.

Substage Four: New Adaptations and Goal-Directed Behavior (8th through 12th months)

Now the infant becomes more deliberate and purposeful in responding to people and objects and can engage in behaviors that others perform and anticipate upcoming events. Babies may ask for help by fussing, pointing, or reaching up to accomplish tasks, and work hard to get what they want. Perhaps because of continued maturation of the prefrontal cortex, the infant becomes capable of having a thought and carrying out a planned, goal-directed activity such as seeking a toy that has rolled under the couch or indicating that they are hungry. The infant is coordinating both internal and external activities to achieve a planned goal and begins to get a sense of social understanding. Piaget believed that at about 8 months (during substage 4), babies first understood the concept of **object permanence**, which is the realization that objects or people continue to exist when they are no longer in sight.

The last two stages (5 and 6), called **tertiary circular reactions**, consist of actions (stage 5) and ideas (stage 6) where infants become more creative in their thinking.

Substage Five: Active Experimentation of “Little Scientists” (12th through 18th months)

The toddler is considered a “little scientist” and begins exploring the world in a trial-and-error manner, using motor skills and planning abilities. For example, the child might throw their ball down the stairs to see what happens or delight in squeezing all of the toothpaste out of the tube. The toddler’s active engagement in experimentation helps them learn about their world. Gravity is learned by pouring water from a cup or pushing bowls from high chairs. The caregiver tries to help the child by picking it up again and placing it on the tray. And what happens? Another experiment! The child pushes it off the tray again causing it to fall and the caregiver to pick it up again! A closer examination of this stage causes us to really appreciate how much learning is going on at this time and how many things we come to take for granted must actually be learned. This is a wonderful and messy time of experimentation and most learning occurs by trial and error.

The child is now able to solve problems using mental strategies, to remember something heard days before and repeat it, to engage in pretend play, and to find objects that have been moved even when out of sight. Take, for instance, the child who is upstairs in a room with the door closed, supposedly taking a nap. The doorknob has a safety device on it that makes it impossible for the child to turn the knob. After trying several times to push the door or turn the doorknob, the child carries out a mental strategy to get the door opened – he knocks on the door! Obviously, this is a technique learned from the past experience of hearing a knock on the door and observing someone opening the door. The child is now better equipped with mental strategies for problem-solving. Part of this stage also involves learning to use language. This initial movement from the “hands-on” approach to knowing about the world to the more mental world of stage six marked the transition to preoperational thinking, which you’ll learn more about in a later module.

Infant Memory

Memory requires a certain degree of brain maturation, so it should not be surprising that infant memory is rather fleeting and fragile. As a result, older children and adults experience **infantile amnesia**, *the inability to recall memories from the first few years of life*. Several hypotheses have been proposed for this amnesia. From the biological perspective, it has been suggested that infantile amnesia is due to the immaturity of the infant brain, especially those areas that

are crucial to the formation of autobiographical memory, such as the hippocampus. From the cognitive perspective, it has been suggested that the lack of linguistic skills of babies and toddlers limit their ability to mentally represent events; thereby, reducing their ability to encode memory. Moreover, even if infants do form such early memories, older children and adults may not be able to access them because they may be employing very different, more linguistically based, retrieval cues than infants used when forming the memory. Finally, social theorists argue that episodic memories of personal experiences may hinge on an understanding of “self”, something that is clearly lacking in infants and young toddlers.

However, in a series of clever studies Carolyn Rovee-Collier and her colleagues have demonstrated that infants can remember events from their life, even if these memories are short-lived. Three-month-old infants were taught that they could make a mobile hung over their crib shake by kicking their legs. The infants were placed in their crib, on their backs. A ribbon was tied to one foot and the other end to a mobile. At first infants made random movements, but then came to realize that by kicking they could make the mobile shake. After two 9 minute sessions with the mobile, the mobile was removed. One week later the mobile was reintroduced to one group of infants and most of the babies immediately started kicking their legs, indicating that they remembered their prior experience with the mobile. A second group of infants was shown the mobile two weeks later and the babies made only random movements. The memory had faded²³. Rovee-Collier and Hayne (1987) found that 3-month-olds could remember the mobile after two weeks if they were shown the mobile and watched it move, even though they were not tied to it.⁴ This reminder helped most infants to remember the connection between their kicking and the movement of the mobile. Like many researchers of infant memory, Rovee-Collier (1990) found infant memory to be very context dependent⁵. In other words, the sessions with the mobile and the later retrieval sessions had to be conducted under very similar circumstances or else the babies would not remember their prior experiences with the mobile. For instance, if the first mobile had had yellow blocks with blue letters, but at the later retrieval session the blocks were blue with yellow letters, the babies would not kick.

Infants older than 6 months of age can retain information for longer periods of time; they

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2. Rovee-Collier, C. (1987). Learning and memory in infancy. In J. D. Osofsky (Ed.), *Handbook of infant development*, (2nd, ed., pp.98-148). New York: Wiley.
 3. Giles, A., & Rovee-Collier, C. (2011). Infant long-term memory for associations formed during mere exposure. *Infant Behavior and Development*, 34(2), 327-338.
 4. Rovee-Collier, C., & Hayne, H. (1987). Reactivation of infant memory: Implications for cognitive development. In H. W. Reese (Ed.), *Advances in child development and behavior*. (Vol. 20, pp. 185-238). London, UK: Academic Press.
 5. Rovee-Collier, C. (1990). The “memory system” of prelinguistic infants. *Annals of the New York Academy of Sciences*, 608, 517-542. <https://doi.org/10.1111/j.1749-6623.1990.tb48908>.

also need less reminding to retrieve information in memory. Studies of **deferred imitation**, that is, *the imitation of actions after a time delay*, can occur as early as six-months of age⁶, but only if infants are allowed to practice the behavior they were shown. By 12 months of age, infants no longer need to practice the behavior in order to retain the memory for four weeks⁷.

Language

Our vast intelligence also allows us to have **language**, *a system of communication that uses symbols in a regular way to create meaning*. Language gives us the ability to communicate our intelligence to others by talking, reading, and writing. There are many components of language that will now be reviewed.

Components of Language

Phoneme: A **phoneme** is *the smallest unit of sound that makes a meaningful difference in a language*. The word “bit” has three phonemes. In spoken languages, phonemes are produced by the positions and movements of the vocal tract, including our lips, teeth, tongue, vocal cords, and throat, whereas in sign languages phonemes are defined by the shapes and movement of the hands.

There are hundreds of unique phonemes that can be made by human speakers, but most languages only use a small subset of the possibilities. English contains about 45 phonemes, whereas other languages have as few as 15 and others more than 60. The Hawaiian language contains less phonemes as it includes only 5 vowels (a, e, i, o, and u) and 7 consonants (h, k, l, m, n, p, and w).

Infants are born able to detect all phonemes, but they lose their ability to do so as they get older; by 10 months of age a child’s ability to recognize phonemes becomes very similar to that of the adult speakers of the native language. Phonemes that were initially differentiated come to be treated as equivalent⁸.

Morpheme: Whereas phonemes are the smallest units of sound in language, a **morpheme** is *a string of one or more phonemes that makes up the smallest units of meaning in a language*. Some morphemes are prefixes and suffixes used to modify other words. For example, the syllable

6. Campanella, J., & Rovee-Collier, C. (2005). Latent learning and deferred imitation at 3 months. *Infancy*, 7(3), 243-262.

7. Klein, P. J., & Meltzoff, A. N. (1999). Long-term memory, forgetting, and deferred imitation in 12-month-old infants. *Developmental Science*, 2(1), 102-113.

8. Werker, J. F., & Tees, R. C. (2002). Cross-language speech perception: Evidence for perceptual reorganization during the first year of life. *Infant Behavior and Development*, 25, 121-133.

“re-” as in “rewrite” or “repay” means “to do again,” and the suffix “-est” as in “happiest” or “coolest” means “to the maximum.”

Semantics: **Semantics** refers to *the set of rules we use to obtain meaning from morphemes*. For example, adding “ed” to the end of a verb makes it past tense.

Syntax: **Syntax** is *the set of rules of a language by which we construct sentences*. Each language has a different syntax. The syntax of the English language requires that each sentence have a noun and a verb, each of which may be modified by adjectives and adverbs. Some syntaxes make use of the order in which words appear. For example, in English “The man bites the dog” is different from “The dog bites the man.”

Pragmatics: The social side of language is expressed through **pragmatics**, or *how we communicate effectively and appropriately with others*. Examples of pragmatics include turn-taking, staying on topic, volume and tone of voice, and appropriate eye contact.

Lastly, words do not possess fixed meanings but change their interpretation as a function of the context in which they are spoken. We use **contextual information**, *the information surrounding language*, to help us interpret it. Examples of contextual information include our knowledge and nonverbal expressions such as facial expressions, postures, and gestures. Misunderstandings can easily arise if people are not attentive to contextual information or if some of it is missing, such as it may be in newspaper headlines or in text messages.

Language Development Progression

An important aspect of cognitive development is language acquisition. The order in which children learn language structures is consistent across children and cultures.⁹ Starting before birth, babies begin to develop language and communication skills.

Do newborns communicate? Of course they do. They do not, however, communicate with the use of oral language. Instead, they communicate their thoughts and needs with body posture (being relaxed or still), gestures, cries, and facial expressions. A person who spends adequate time with an infant can learn which cries indicate pain and which ones indicate hunger, discomfort, or frustration.

Intentional Vocalizations: In terms of producing spoken language, babies begin to coo almost immediately. **Cooing** is *a one-syllable combination of a consonant and a vowel sound* (e.g., coo or ba). Interestingly, babies replicate sounds from their own languages. A baby whose parents speak French will coo in a different tone than a baby whose parents speak Spanish or Urdu. These gurgling, musical vocalizations can serve as a source of entertainment to an infant

9. Hatch, E. M. (1983). *Psycholinguistics: A second language perspective*. Rowley, MA: Newbury House Publishers.

who has been laid down for a nap or seated in a carrier on a car ride. Cooing serves as practice for vocalization, as well as the infant hears the sound of his or her own voice and tries to repeat sounds that are entertaining. Infants also begin to learn the pace and pause of conversation as they alternate their vocalization with that of someone else and then take their turn again when the other person's vocalization has stopped.

At about four to six months of age, infants begin making even more elaborate vocalizations that include the sounds required for any language. Guttural sounds, clicks, consonants, and vowel sounds stand ready to equip the child with the ability to repeat whatever sounds are characteristic of the language heard. Eventually, these sounds will no longer be used as the infant grows more accustomed to a particular language.

At about 7 months, infants begin **babbling**, engaging in *intentional vocalizations that lack specific meaning and comprise a consonant-vowel repeated sequence, such as ma-ma-ma, da-da-da*. Children babble as practice in creating specific sounds, and by the time they are 1 year old, the babbling uses primarily the sounds of the language that they are learning.¹⁰ These vocalizations have a conversational tone that sounds meaningful even though it isn't. Babbling also helps children understand the social, communicative function of language. Children who are exposed to sign language babble in sign by making hand movements that represent real language.¹¹

Gesturing: Children communicate information through gesturing long before they speak, and there is some evidence that gesture usage predicts subsequent language development.¹² Deaf babies also use gestures to communicate wants, reactions, and feelings. Because gesturing seems to be easier than vocalization for some toddlers, sign language is sometimes taught to enhance one's ability to communicate by making use of the ease of gesturing. The rhythm and pattern of language is used when deaf babies sign just as it is when hearing babies babble.

Understanding: At around ten months of age, infants *can understand more than they can say, which is referred to as receptive language*. You may have experienced this phenomenon as well if you have ever tried to learn a second language. You may have been able to follow a conversation more easily than contribute to it. One of the first words that children understand is their own

10. de Boysson-Bardies, B., Sagart, L., & Durand, C. (1984). Discernible differences in the babbling of infants according to target language. *Journal of Child Language*, 11(1), 1-15.

11. Petitto, L. A., & Marentette, P. F. (1991). Babbling in the manual mode: Evidence for the ontogeny of language. *Science*, 251(5000), 1493-1496.

12. verson, J. M., & Goldin-Meadow, S. (2005). Gesture paves the way for language development. *Psychological science*, 16(5), 367-371.

name, usually by about 6 months, followed by commonly used words like “bottle,” “mama,” and “doggie” by 10 to 12 months.¹³

Infants shake their head “no” around 6–9 months, and they respond to verbal requests to do things like “wave bye-bye” or “blow a kiss” around 9–12 months. Children also use contextual information, particularly the cues that parents provide, to help them learn language. Children learn that people are usually referring to things that they are looking at when they are speaking,¹⁴ and that the speaker’s emotional expressions are related to the content of their speech.

Holophrasic Speech: Children begin using their first words at about 12 or 13 months of age and may use partial words to convey thoughts at even younger ages. *These one word expressions are referred to as holophrasic speech.* For example, the child may say “ju” for the word “juice” and use this sound when referring to a bottle. The listener must interpret the meaning of the holophrase, and when this is someone who has spent time with the child, interpretation is not too difficult. But, someone who has not been around the child will have trouble knowing what is meant. Imagine the parent who to a friend exclaims, “Ezra’s talking all the time now!” The friend hears only “ju da ga” to which the parent explains means, “I want some milk when I go with Daddy.”

Language Errors: The early utterances of children contain many errors, for instance, confusing /b/ and /d/, or /c/ and /z/. The words children create are often simplified, in part because they are not yet able to make the more complex sounds of the real language¹⁵. Children may say “keekee” for kitty, “nana” for banana, and “vesketti” for spaghetti because it is easier. Often these early words are accompanied by gestures that may also be easier to produce than the words themselves. Children’s pronunciations become increasingly accurate between 1 and 3 years, but some problems may persist until school age.

A child who learns that a word stands for an object may initially think that the word *can be used for only that particular object*, which is referred to as **underextension**. Only the family’s Irish Setter is a “doggie”, for example. More often, however, a child may think that *a label applies to all objects that are similar to the original object*, which is called **overextension**. For example, all animals become “doggies”.

First Words and Cultural Influences: First words if the child is using English tend to be

13. Mandel, D. R., Jusczyk, P. W., & Pisoni, D. B. (1995). Infants’ recognition of the sound patterns of their own names. *Psychological Science*, 6(5), 314–317.

14. Baldwin, D. A. (1993). Early referential understanding: Infants’ ability to recognize referential acts for what they are. *Developmental Psychology*, 29(5), 832–843.

15. Dobrich, W., & Scarborough, H. S. (1992). Phonological characteristics of words young children try to say. *Journal of Child Language*, 19(3), 597–616.

nouns. The child labels objects such as cup, ball, or other items that they regularly interact with. In a verb-friendly language such as Chinese, however, children may learn more verbs. This may also be due to the different emphasis given to objects based on culture. Chinese children may be taught to notice action and relationships between objects, while children from the United States may be taught to name an object and its qualities (color, texture, size, etc.). These differences can be seen when comparing interpretations of art by older students from China and the United States.

Telegraphic (Text Message) Speech: By the time they become toddlers, children have a vocabulary of about 50-200 words and begin putting those words together in telegraphic speech, such as “baby bye-bye” or “doggie pretty”. Words needed to convey messages are used, but the articles and other parts of speech necessary for grammatical correctness are not yet used. These expressions sound like a telegraph, or perhaps a better analogy today would be that they read like a text message. **Telegraphic speech/text message speech** occurs when unnecessary words are not used, typically thought of as using only two words together. “Give ball” is used rather than “Give the baby the ball.”

Infant-directed Speech: Have you ever wondered why adults tend to use that sing-song type of intonation and exaggeration used when talking to children? This represents a universal tendency and is known as **infant-directed speech**. *It involves exaggerating the vowel and consonant sounds, using a high-pitched voice, and delivering the phrase with great facial expression.*¹⁶ Why is this done? Infants are frequently more attuned to the tone of voice of the person speaking than to the content of the words themselves, and are aware of the target of speech.

Theories of Language Development

Psychological theories of language learning differ in terms of the importance they place on nature and nurture. Remember that we are a product of both nature and nurture. Researchers now believe that language acquisition is partially inborn and partially learned through our interactions with our linguistic environment.^{17,18}

Learning Theory: Perhaps the most straightforward explanation of language development is that it occurs through the principles of learning, including association and reinforcement.¹⁹

16. Clark, E. V. (2009). What shapes children's language? Child-directed speech and the process of acquisition. In V. C. M. Gathercole (Ed.), *Routes to language: Essays in honor of Melissa Bowerman*. NY: Psychology Press.

17. Gleitman, L. R., & Newport, E. L. (1995). The invention of language by children: Environmental and biological influences on the acquisition of language. *An invitation to cognitive science*, 1, 1-24.

18. Stork, F. & Widdowson, J. (1974). *Learning About Linguistics*. London: Hutchinson.

19. Skinner, B. F. (1953). *Science and human behavior*. NY: Free Press.

Additionally, Bandura (1977) described the importance of observation and imitation of others in learning language²⁰. There must be at least some truth to the idea that language is learned through environmental interactions or nurture. Children learn the language that they hear spoken around them rather than some other language. Also supporting this idea is the gradual improvement of language skills with time. It seems that children modify their language through imitation and reinforcement, such as parental praise and being understood. For example, when a two-year-old child asks for juice, he might say, “me juice,” to which his mother might respond by giving him a cup of apple juice.

However, language cannot be entirely learned. For one, children learn words too fast for them to be learned through reinforcement. Between the ages of 18 months and 5 years, children learn up to 10 new words every day.²¹ More importantly, language is more *generative* than it is imitative. Language is not a predefined set of ideas and sentences that we choose when we need them, but rather a system of rules and procedures that allows us to create an infinite number of statements, thoughts, and ideas, including those that have never previously occurred. When a child says that she “swimmied” in the pool, for instance, she is showing generativity because it easily generated from the normal system of producing language.

Other evidence that refutes the idea that all language is learned through experience comes from the observation that children may learn languages better than they ever hear them. Children who are deaf whose parents do not speak American Sign Language very well nevertheless are able to learn it perfectly on their own, and may even make up their own language if they need to.²² A group of children who could not hear in a school in Nicaragua, whose teachers could not sign, invented a way to communicate through made-up signs.²³ The development of this new Nicaraguan Sign Language has continued and changed as new generations of students have come to the school and started using the language. Although the original system was not a real language, it is becoming closer and closer every year, showing the development of a new language in modern times.

Chomsky and Nativism: The linguist Noam Chomsky is a believer in the nature approach to language, arguing that human brains contain a **language acquisition device** that includes

20. Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

21. Anglin, J. M. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development*, 58(10), v–165.

22. Goldin-Meadow, S., & Mylander, C. (1998). Spontaneous sign systems created by deaf children in two cultures. *Nature*, 391(6664), 279–281.

23. Senghas, R. J., Senghas, A., & Pyers, J. E. (2005). The emergence of Nicaraguan Sign Language: Questions of development, acquisition, and evolution. In S. T. Parker, J. Langer, & C. Milbrath (Eds.), *Biology and knowledge revisited: From neurogenesis to psychogenesis* (pp. 287–306). Mahwah, NJ: Lawrence Erlbaum Associates.

a *universal grammar* that underlies all human language.^{24,25} According to this approach, each of the many languages spoken around the world (there are between 6,000 and 8,000) is an individual example of the same underlying set of procedures that are hardwired into human brains. Chomsky's account proposes that children are born with a knowledge of general rules of syntax that determine how sentences are constructed. Language develops as long as the infant is exposed to it. No teaching, training, or reinforcement is required for language to develop as proposed by Skinner.

Critical Periods: Anyone who has tried to master a second language as an adult knows the difficulty of language learning. Yet children learn languages easily and naturally. Children who are not exposed to language early in their lives will likely never learn one. Case studies, including Victor the “Wild Child,” who was abandoned as a baby in France and not discovered until he was 12 year old, and Genie, a child whose parents kept her locked in a closet from 18 months until 13 years of age, are two examples of the child deprivation. Both of these children made some progress in socialization after they were rescued, but neither of them ever developed language.²⁶ This is also why it is important to determine quickly if a child is deaf, and to communicate in sign language immediately. Children who cannot hear who are not exposed to sign language during their early years may never learn it.²⁷ The concept of critical periods highlights the importance of both nature and nurture for language development.

Critical Period vs. Sensitive Period

A sensitive period (as seen in Chapter 1) is similar to a critical period in which the brain is relatively more plastic and more sensitive to the influence of experience in forming new synapses. New synapses can still form for an extended period of time outside of this optimal period despite being more difficult. Critical or sensitive periods in the life of an organism during which certain experiences or conditions may exert disproportionate influence (either for harm or benefit) on long-term developmental outcomes have been the subject of investigation for over a century.²⁸

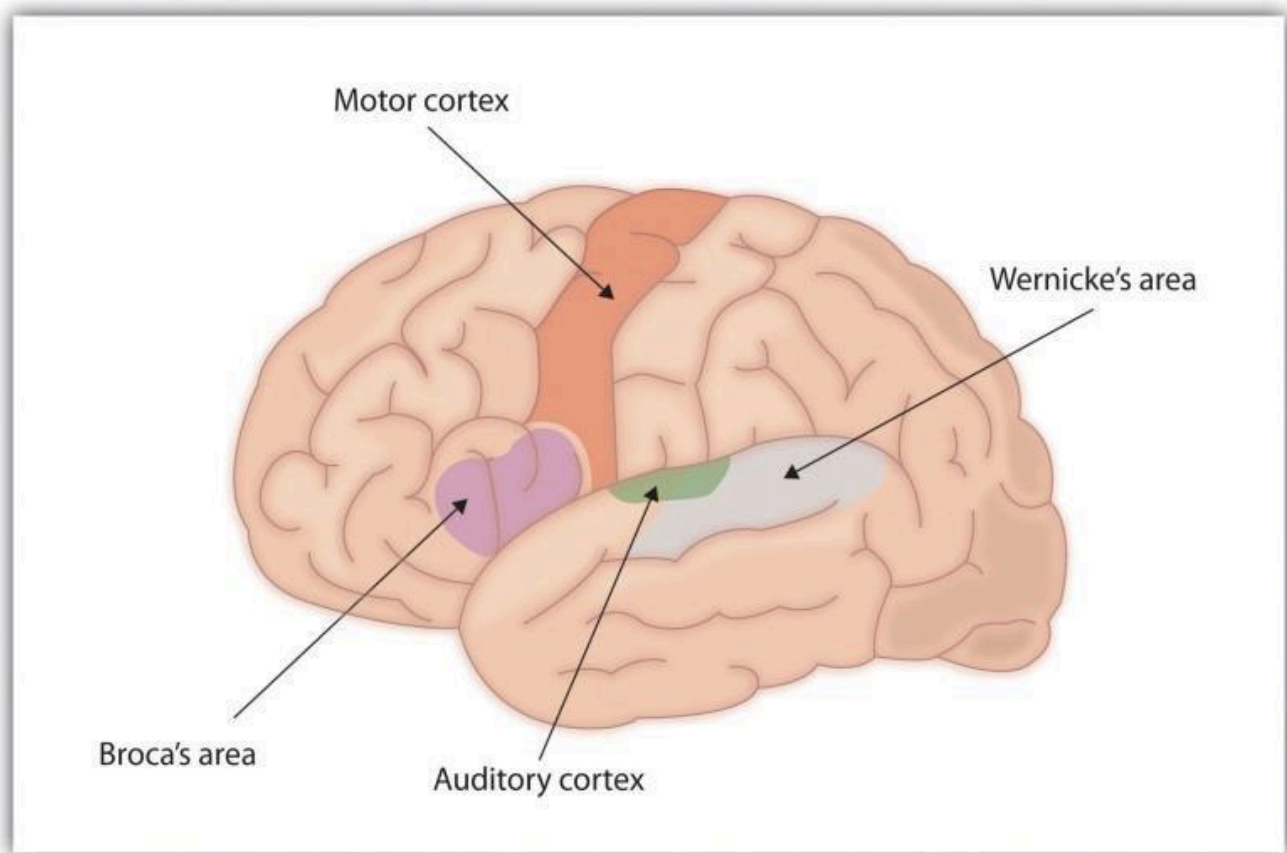
24. Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

25. Chomsky, N. (1972). *Language and mind*. NY: Harcourt Brace.

26. Rymer, R. (1993). *Genie: A scientific tragedy*. Harmondsworth: Penguin.

27. Mayberry, R. I., Lock, E., & Kazmi, H. (2002). Development: Linguistic ability and early language exposure. *Nature*, 417(6884), 38.

28. Colombo, J., Gustafson, K. M., & Carlson, S. E. (2019). Critical and sensitive periods in development and nutrition. *Annals of Nutrition & Metabolism*, 75 Suppl 1(1), 34–42. <https://doi.org/10.1159/000508053>



For most people, the left hemisphere is specialized for language. Broca's area, near the motor cortex, is involved in language production, whereas Wernicke's area, near the auditory cortex, is specialized for language comprehension.

Brain Areas for Language: For the 90% of people who are right-handed, language is stored and controlled by the left cerebral cortex, although for some left-handers this pattern is reversed. These differences can easily be seen in the results of neuroimaging studies that show that listening to and producing language creates greater activity in the left hemisphere than in the right. **Broca's area**, an area in front of the left hemisphere near the motor cortex, is responsible for language production (Figure 1). This area was first localized in the 1860s by the French physician Paul Broca, who studied patients with lesions to various parts of the brain. **Wernicke's area**, an area of the brain next to the auditory cortex, is responsible for language comprehension.

SOCIAL AND EMOTIONAL DEVELOPMENT IN INFANCY AND TODDLERHOOD

Diana Lang; Martha Lally; Suzanne Valentine-French; and Naomi H. Dan Karami

Perhaps you have spent time with a number of infants. How were they alike? How did they differ? How do you compare with your siblings or other children you have known well. You may have noticed that some seemed to be in a better mood than others and that some were more sensitive to noise or more easily distracted than others. These differences may be attributed to temperament. **Temperament** is the innate characteristics of the infant, including mood, activity level, and emotional reactivity, noticeable soon after birth.

In a 1956 landmark study, Chess and Thomas¹ evaluated 141 children's temperament based on parental interviews. Referred to as the New York Longitudinal Study, infants were assessed on 9 dimensions of temperament including: Activity level, rhythmicity (regularity of biological functions), approach/withdrawal (how children deal with new things), adaptability to situations, intensity of reactions, threshold of responsiveness (how intense a stimulus has to be for the child to react), quality of mood, distractibility, attention span, and persistence. Based on the infants' behavioral profiles, they were categorized into three general types of temperament:

- **Easy Child:** who is able to quickly adapt to routine and new situations, remains calm, is easy to soothe, and usually is in a positive mood.
- **Difficult Child:** who reacts negatively to new situations, has trouble adapting to routine, is usually negative in mood, and cries frequently.
- **Slow-to-Warm-Up Child:** who has a low activity level, adjusts slowly to new situations and is often negative in mood.

Think about how you might approach each type of child in order to improve your interactions with them. An easy child will not need much extra attention, while a slow to warm up child may need to be given advance warning if new people or situations are going to be introduced. A difficult child may need to be given extra time to burn off their energy. A caregiver's ability to

1. Chess, S., & Thomas, A. (1996). *Temperament: Theory and practice*. New York: Brunner/Mazel.

work well and accurately read the child will enjoy a **goodness-of-fit**, meaning their styles match and communication and interaction can flow. Parents who recognize each child's temperament and accept it, will nurture more effective interactions with the child and encourage more adaptive functioning. For example, an adventurous child whose parents regularly take her outside on hikes would provide a good "fit" to her temperament.

Parenting is bidirectional: Not only do parents affect their children, children influence their parents. Child characteristics, such as temperament, affect parenting behaviors and roles. For example, an infant with an easy temperament may enable parents to feel more effective, as they are easily able to soothe the child and elicit smiling and cooing. On the other hand, a cranky or fussy infant elicits fewer positive reactions from his or her parents and may result in parents feeling less effective in the parenting role². Over time, parents of more difficult children may become more punitive and less patient with their children.³⁴⁵ Parents who have a fussy, difficult child are less satisfied with their marriages and have greater challenges in balancing work and family roles.⁶ Thus, child temperament is one of the child characteristics that influences how parents behave with their children.

Temperament does not change dramatically as we grow up, but we may learn how to work around and manage our temperamental qualities. Temperament may be one of the things about us that stays the same throughout development. In contrast, **personality**, defined as an individual's consistent pattern of feeling, thinking, and behaving, is the result of the continuous interplay between biological disposition and experience.

Personality also develops from temperament in other ways.⁷ As children mature biologically, temperamental characteristics emerge and change over time. A newborn is not capable of much self-control, but as brain-based capacities for self-control advance, temperamental changes in self-regulation become more apparent. For example, a newborn who cries

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2. Eisenberg, N., Hofer, C., Spinrad, T., Gershoff, E., Valiente, C., Losoya, S. L., Zhou, Q., Cumberland, A., Liew, J., Reiser, M., & Maxon, E. (2008). Understanding parent-adolescent conflict discussions: Concurrent and across-time prediction from youths' dispositions and parenting. *Monographs of the Society for Research in Child Development*, 73, (Serial No. 290, No. 2), 1-160.
 3. Clark, L. A., Kochanska, G., & Ready, R. (2000). Mothers' personality and its interaction with child temperament as predictors of parenting behavior. *Journal of Personality and Social Psychology*, 79, 274-285.
 4. Eisenberg, N., Fabes, R. A., Shepard, S. A., Guthrie, I.K., Murphy, B.C., & Reiser, M. (1999). Parental reactions to children's negative emotions: Longitudinal relations to quality of children's social functioning. *Child Development*, 70, 513-534.
 5. Kiff, C. J., Lengua, L. J., & Zalewski, M. (2011). Nature and nurturing: Parenting in the context of child temperament. *Clinical Child and Family Psychology Review*, 14, 251-301. <https://doi.org/10.1007/s10567-011-0093-4>
 6. Hyde, J. S., Else-Quest, N. M., & Goldsmith, H. H. (2004). Children's temperament and behavior problems predict their employed mothers' work functioning. *Child Development*, 75, 580-594.
 7. Thompson, R. A., & Goodvin, R. (2007). Taming the tempest in the teapot. In C. A. Brownell & C. B. Kopp (Eds.). *Socioemotional development in the toddler years: Transitions and transformations* (pp. 320-342). New York: Guilford.

frequently doesn't necessarily have a grumpy personality; over time, with sufficient parental support and increased sense of security, the child might be less likely to cry.

In addition, personality is made up of many other features besides temperament. Children's developing self-concept, their motivations to achieve or to socialize, their values and goals, their coping styles, their sense of responsibility and conscientiousness, and many other qualities are encompassed into personality. These qualities are influenced by biological dispositions, but even more by the child's experiences with others, particularly in close relationships, that guide the growth of individual characteristics. Indeed, personality development begins with the biological foundations of temperament but becomes increasingly elaborated, extended, and refined over time. The newborn that parents gazed upon thus becomes an adult with a personality of depth and nuance.

Infant Emotions

At birth, infants exhibit two emotional responses: Attraction and withdrawal. They show attraction to pleasant situations that bring comfort, stimulation, and pleasure, and they withdraw from unpleasant stimulation such as bitter flavors or physical discomfort. At around two months, infants exhibit social engagement in the form of social smiling as they respond with smiles to those who engage their positive attention.⁸

Social smiling becomes more stable and organized as infants learn to use their smiles to engage their parents in interactions. Pleasure is expressed as laughter at 3 to 5 months of age, and displeasure becomes more specific as fear, sadness, or anger between ages 6 and 8 months. Anger is often the reaction to being prevented from obtaining a goal,



(Image Source: Public domain)

8. Lavelli, M., & Fogel, A. (2005). Developmental changes in the relationships between infant attention and emotion during early face-to-face communications: The 2 month transition. *Developmental Psychology*, 41, 265-280.

such as a toy being removed.⁹ In contrast, sadness is typically the response when infants are deprived of a caregiver.¹⁰ *Fear is often associated with the presence of a stranger, known as **stranger wariness**, or the departure of significant others known as **separation anxiety**.* Both appear sometime between 6 and 15 months after object permanence has been acquired. Further, there is some indication that infants may experience jealousy as young as 6 months of age.¹¹

Emotions are often divided into two general categories: **Basic emotions**, such as *interest, happiness, anger, fear, surprise, sadness and disgust*, which appear first, and **self-conscious emotions**, such as *envy, pride, shame, guilt, doubt, and embarrassment*. Unlike primary emotions, secondary emotions appear as children start to develop a self-concept, and require social instruction on when to feel such emotions. The situations in which children learn self-conscious emotions varies from culture to culture. Individualistic cultures teach us to feel pride in personal accomplishments, while in more collective cultures children are taught to not call attention to themselves, unless you wish to feel embarrassed for doing so¹².

Facial expressions of emotion are important regulators of social interaction. In the developmental literature, this concept has been investigated under the concept of **social referencing**; that is, *the process whereby infants seek out information from others to clarify a situation and then use that information to act.*¹³ To date, the strongest demonstration of social referencing comes from work on the visual cliff. In the first study to investigate this concept, Campos and colleagues.¹⁴ placed mothers on the far end of the “cliff” from the infant. Mothers first smiled to the infants and placed a toy on top of the safety glass to attract them; infants invariably began crawling to their mothers. When the infants were in the center of the table, however, the mother then posed an expression of fear, sadness, anger, interest, or joy. The results were clearly different for the different faces; no infant crossed the table when the mother showed fear; only 6% did when the mother posed anger, 33% crossed when the mother posed sadness, and approximately 75% of the infants crossed when the mother posed joy or interest.

Other studies provide similar support for facial expressions as regulators of social

9. Braungart-Rieker, J. M., Hill-Soderlund, A. L., & Karrass, J. (2010). Fear, anger reactivity trajectories from 4 to 16 months: The roles of temperament, regulation, and maternal sensitivity. *Developmental Psychology*, 46, 791-804.

10. Papousek, M. (2007). Communication in early infancy: An arena of intersubjective learning. *Infant Behavior and Development*, 30, 258-266.

11. Hart, S., & Carrington, H. (2002). Jealousy in 6-month-old infants. *Infancy*, 3(3), 395-402.

12. Akimoto, S. A., & Sanbinmatsu, D. M. (1999). Differences in self-effacing behavior between European and Japanese Americans: Effect on competence evaluations. *Journal of Cross-Cultural Psychology*, 30, 159-177.

13. Klinnert, M. D., Campos, J. J., & Sorce, J. F. (1983). Emotions as behavior regulators: Social referencing in infancy. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (pp. 57-86). New York, NY: Academic Press.

14. Sorce, J. F., Emde, J. J., Campos, J. J., & Klinnert, M. D. (1985). Maternal emotional signaling: Its effect on the visual cliff behavior of 1-year-olds. *Developmental Psychology*, 21, 195-200.

interaction. Experimenters posed facial expressions of neutral, anger, or disgust toward babies as they moved toward an object and measured the amount of inhibition the babies showed in touching the object.¹⁵ The results for 10- and 15-month olds were the same: Anger produced the greatest inhibition, followed by disgust, with neutral the least. This study was later replicated using joy and disgust expressions, altering the method so that the infants were not allowed to touch the toy (compared with a distractor object) until one hour after exposure to the expression.¹⁶ At 14 months of age, significantly more infants touched the toy when they saw joyful expressions, but fewer touched the toy when the infants saw disgust.

A final emotional change is in self-regulation. **Emotional self-regulation** refers to strategies we use to control our emotional states so that we can attain goals.¹⁷ This requires effortful control of emotions and initially requires assistance from caregivers.¹⁸ Young infants have very limited capacity to adjust their emotional states and depend on their caregivers to help soothe themselves. Caregivers can offer distractions to redirect the infant's attention and comfort to reduce the emotional distress. As areas of the infant's prefrontal cortex continue to develop, infants can tolerate more stimulation. By 4 to 6 months, babies can begin to shift their attention away from upsetting stimuli.¹⁹ Older infants and toddlers can more effectively communicate their need for help and can crawl or walk toward or away from various situations.²⁰ This aids in their ability to self-regulate. Temperament also plays a role in children's ability to control their emotional states, and individual differences have been noted in the emotional self-regulation of infants and toddlers^{21,22}

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15. Bradshaw, D. (1986). Immediate and prolonged effectiveness of negative emotion expressions in inhibiting infants' actions (Unpublished doctoral dissertation). Berkeley, CA: University of California, Berkeley.
 16. Hertenstein, M. J., & Campos, J. J. (2004). The retention effects of an adult's emotional displays on infant behavior. *Child Development*, 75(2), 595–613.
 17. Thompson, R. A., & Goodvin, R. (2007). Taming the tempest in the teapot. In C. A. Brownell & C. B. Kopp (Eds.). *Socioemotional development in the toddler years: Transitions and transformations* (pp. 320–342). New York: Guilford.
 18. Rothbart, M. K., Posner, M. I., & Kieras, J. (2006). Temperament, attention, and the development of self-regulation. In M. McCartney & D. Phillips (Eds.) *Blackwell handbook of early childhood development* (pp. 3338–357). Malden, MA: Blackwell.
 19. Rothbart, M. K., Posner, M. I., & Kieras, J. (2008). Temperament, attention, and the development of self-regulation. In *Blackwell Handbook of Early Childhood Development* (pp. 338–357). Blackwell Publishing Ltd.
 20. Cole, P. M., Armstrong, L. M., & Pemberton, C. K. (2010). The role of language in the development of emotional regulation. In S. D. Calkins & M. A. Bell (Eds.). *Child development at intersection of emotion and cognition* (pp. 59–77). Washington D.C.: American Psychological Association.
 21. Richardson, B. D. (1980). Malnutrition and nutritional anthropometry. *Journal of Tropical Pediatrics*, 26(3), 80–84.
 22. Rothbart, M. K., & Bates, J. E. (2006). Temperament. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 99–166). John Wiley & Sons, Inc.



(Image Source: roseoftimothywoods/Flickr, CC BY 2.0)

empathy.

Development of sense of self: During the second year of life, children begin to recognize themselves as they gain a sense of self as object. In a classic experiment by Lewis and Brooks²³ children 9 to 24 months of age were placed in front of a mirror after a spot of rouge was placed on their nose as their mothers pretended to wipe something off the child's face. If the child reacted by touching his or her own nose rather than that of the "baby" in the mirror, it was taken to suggest that the child recognized the reflection as him- or herself. Lewis and Brooks found that somewhere between 15 and 24 months most infants developed a sense of self-awareness. **Self-awareness** is the realization that you are separate from others.²⁴

Once a child has achieved self-awareness, the child is moving toward understanding social emotions such as guilt, shame or embarrassment, as well as, sympathy or

23. Lewis, M., & Brooks, J. (1978). Self-knowledge and emotional development. In M. Lewis & L. A. Rosenblum (Eds.), *Genesis of behavior* (Vol. 1, pp. 205-226). New York: Plenum Press.

24. Kopp, C. B. (2011). Development in the early years: Socialization, motor development, and consciousness. *Annual Review of Psychology*, 62, 165-187.

Forming attachments

Attachment is the close bond with a caregiver from which the infant derives a sense of security. The formation of attachments in infancy has been the subject of considerable research as attachments have been viewed as foundations for future relationships. Additionally, attachments form the basis for confidence and curiosity as toddlers, and as important influences on self- concept.

Freud's Psychoanalytic Theory: According to Freud²⁵ infants are oral creatures who obtain pleasure from sucking and mouthing objects. Freud believed an infant will become attached to a person or object that provides this pleasure. Consequently, infants were believed to become attached to their mother because she was the one who satisfied their oral needs and provided pleasure. Freud further believed that the infants will become attached to their mothers "if the mother is relaxed and generous in her feeding practices, thereby allowing the child a lot of oral pleasure."²⁶ Was Freud correct in his explanation for why infants became attached?

Harlow's Research: In one classic study showing if nursing was the most important factor to attachment, Wisconsin University psychologists Harry and Margaret Harlow investigated the responses of young monkeys. The infants were separated from their biological mothers, and two surrogate mothers were introduced to their cages. One, the wire mother, consisted of a round wooden head, a mesh of cold metal wires, and a bottle of milk from which the baby monkey could drink. The second mother was a foam-rubber form wrapped in a heated terry-cloth blanket. The infant monkeys went to the wire mother for food, but they overwhelmingly preferred and spent significantly more time with the warm terry-cloth mother. The warm terry-cloth mother provided no food but did provide comfort²⁷. *The infant's need for physical closeness and touching is referred to as **contact comfort**.* Contact comfort is believed to be the foundation for attachment. The Harlows' studies confirmed that babies have social as well as physical



(Image Source: Peter Shanks on Flickr)

25. Freud, S. (1938). *The Basic Writings of Sigmund Freud*. Modern Library.

26. Shaffer, D. R. (1985). *Developmental psychology: Theory, research, and applications*. p. 435. Belmont, CA: Wadsworth, Inc.

27. Harlow, H. F. (1958). The nature of love. *American Psychologist*, 13, 673-685.

needs. Both monkeys and human babies need a secure base that allows them to feel safe. From this base, they can gain the confidence they need to venture out and explore their worlds.

Bowlby's Theory: Building on the work of Harlow and others, John Bowlby developed the concept of attachment theory. He defined attachment as the affectional bond or tie that an infant forms with the mother.²⁸ An infant must form this bond with a primary caregiver in order to have normal social and emotional development. In addition, Bowlby proposed that this attachment bond is very powerful and continues throughout life. He used the concept of secure base to define a healthy attachment between parent and child.²⁹ A **secure base** is a *parental presence that gives the child a sense of safety as the child explores the surroundings*.

Bowlby said that two things are needed for a healthy attachment: The caregiver must be consistently and lovingly responsive to the child's physical, social, and emotional needs; and the caregiver and child must engage in mutually enjoyable interactions.³⁰ Additionally, Bowlby observed that infants would go to extraordinary lengths to prevent separation from their parents, such as crying, refusing to be comforted, and waiting for the caregiver to return. He observed that these same expressions were common to many other mammals, and consequently argued that these negative responses to separation serve an evolutionary function. Because mammalian infants cannot feed or protect themselves, they are dependent upon the care and protection of adults for survival. Thus, those infants who were able to maintain proximity to an attachment figure were more likely to survive and reproduce.

Psychosocial Development

As previously discussed in chapter 1, Erikson formulated an eight stage theory of psychosocial development. Erikson was in agreement on the importance of a secure base, arguing that the most important goal of infancy was the development of a basic sense of trust in one's caregivers. Consequently, the first stage, trust vs. mistrust, highlights the importance of attachment. Erikson maintained that the first year to year and a half of life involves the establishment of a sense of trust.³¹ Infants are dependent and must rely on others to meet their basic physical needs as well as their needs for stimulation and comfort. A caregiver who consistently meets these needs instills a sense of trust or the belief that the world is a

28. Bowlby, J. (1969). *Attachment and loss*. London: Hogarth Press.

29. Bowlby, J. (1982). *Attachment* (2nd ed.). New York: Basic Books.

30. Bowlby, J. (1969). *Attachment and loss*. London: Hogarth Press.

31. Erikson, E. (1982). *The life cycle completed*. NY: Norton & Company.

trustworthy place. The caregiver should not worry about overly indulging a child's need for comfort, contact or stimulation.

Problems establishing trust: Erikson³² believed that mistrust could contaminate all aspects of one's life and deprive the individual of love and fellowship with others. Consider the implications for establishing trust if a caregiver is unavailable or is upset and ill-prepared to care for their children. Or when children are born prematurely, are unwanted, or have physical problems that make them less desirable to their parent. Under these circumstances, we cannot assume that the parent/caregiver is going to provide the child with a feeling of trust.

Mary Ainsworth and the Strange Situation Technique

Developmental psychologist Mary Ainsworth, a student of John Bowlby, continued studying the development of attachment in infants. Ainsworth and her colleagues created a laboratory test that measured an infant's attachment to his or her parent. The test is called **The Strange Situation technique** because it is *conducted in a context that is unfamiliar to children and therefore likely to heighten children's needs for their parent*.³³

During the procedure, that lasts about 20 minutes, the parent and the infant are first left alone, while the infant explores the room full of toys. Then a strange adult enters the room and talks for a minute to the parent, after which the parent leaves the room. The stranger stays with the infant for a few minutes, and then the parent again enters and the stranger leaves the room. During the entire session, a video camera records the child's behaviors, which are later coded by trained coders. The investigators were especially interested in how the child responded to the caregiver leaving and returning to the room, referred to as the "reunion." On the basis of their behaviors, the children are categorized into one of four groups where each group reflects a different kind of attachment relationship with the caregiver. One style is secure and the other three styles are referred to as insecure.

- A child with a **secure attachment style** usually explores freely while the caregiver is present and may engage with the stranger. The child will typically play with the toys and bring one to the caregiver to show and describe from time to time. The child may be upset when the caregiver departs, but is also happy to see the caregiver return.
- A child with an **ambivalent** (sometimes called resistant) **attachment style** is wary about the situation in general, particularly the stranger, and stays close or even clings to the

32. Erikson, E. (1982). *The life cycle completed*. NY: Norton & Company.

33. Ainsworth, M. (1979). Infant-mother attachment. *American Psychologist*, 34(10), 932-937.

caregiver rather than exploring the toys. When the caregiver leaves, the child is extremely distressed and is ambivalent when the caregiver returns. The child may rush to the caregiver, but then fails to be comforted when picked up. The child may still be angry and even resist attempts to be soothed.

- A child with an **avoidant attachment style** will avoid or ignore the mother, showing little emotion when the mother departs or returns. The child may run away from the mother when she approaches. The child will not explore very much, regardless of who is there, and the stranger will not be treated much differently from the mother (or primary caregiver).
- A child with a **disorganized/disoriented attachment style** seems to have an inconsistent way of coping with the stress of the strange situation. The child may cry during the separation, but avoid the mother (or primary caregiver) when she returns, or the child may approach the mother but then freeze or fall to the floor.

In the United States, it is estimated that more than 65% percent of children are securely attached. Some cultural differences in attachment styles have been found.³⁴ For example, German parents value independence and Japanese mothers are typically by their children's sides. As a result, the rate of insecure-avoidant attachments tends to be higher in Germany and insecure-resistant attachments tend to be higher in Japan. These differences reflect cultural variation rather than true insecurity.³⁵

Keep in mind that methods for measuring attachment styles have been based on a model that reflects middle-class, U.S. values and interpretation. Newer methods for assessing attachment styles involve using a **Q-sort technique** in which a large number of behaviors are recorded on cards and the observer sorts the cards in a way that reflects the type of behavior that occurs within the situation.³⁶ There are 90 items in the third version of the Q-sort technique, and examples of the behaviors assessed include:

- When child returns to mother (or primary caregiver) after playing, the child is sometimes fussy for no clear reason.
- When the child is upset or injured, the child will accept comforting from adults other than mother (or primary caregiver).

34. Rothbaum, F., Weisz, J., Pott, M., Miyake, K., & Morelli, G. (2010). Attachment and culture: Security in the United States and Japan. *American Psychologist*, 55, 1093-1104.

35. van Ijzendoorn, M. H., & Sagi, A. (1999). Cross-cultural patterns of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 713-734). New York: Guilford.

36. Waters, E. (1987). Attachment Q-set (Version 3). <http://www.johnbowlby.com>.

- Child often hugs or cuddles against mother (or primary caregiver), without her asking or inviting the child to do so
- When the child is upset by mother's leaving, the child continues to cry or even gets angry after she (or the primary caregiver) is gone.

At least two researchers observe the child and parent in the home for 1.5-2 hours per visit. Usually two visits are sufficient to gather adequate information. The parent is asked if the behaviors observed are typical for the child. This information is used to test the validity of the Strange Situation classifications across age, cultures, and with clinical populations.

Caregiver Interactions and the Formation of Attachment

Most developmental psychologists argue that a child becomes **securely attached** when there is consistent contact from one or more caregivers who meet the physical and emotional needs of the child in a consistently nurturing, responsive, loving, permanent, safe, secure, and appropriate manner. However, even in cultures where caregivers do not talk, cuddle, and play with their infants, secure attachments can develop.³⁷

The **insecure ambivalent style** occurs when parents are insensitive and respond inconsistently to their child's needs. Consequently, these infants are never sure that the world is a trustworthy place or that they can rely on others without some anxiety. Caregivers who are unavailable, perhaps because of marital tension, substance abuse, or preoccupation with work, may send a message to their infant that they cannot rely on having needs met. An infant who receives only sporadic attention when experiencing discomfort may not learn how to calm down. The child may cry if separated from the caregiver and also cry upon their return. They seek constant reassurance that never seems to satisfy their doubt. Keep in mind that clingy behavior can also just be part of a child's natural disposition or temperament and does not necessarily reflect some kind of parental neglect. Additionally, a caregiver that attends to a child's frustration can help teach them to be calm and to relax.

The **insecure avoidant style** is marked by insecurity, but this style is also characterized by a tendency to avoid contact with the caregiver and with others. This child may have learned that needs typically go unmet and learns that the caregiver does not provide care and cannot be relied upon for comfort, even sporadically. An insecure avoidant child learns to be more independent and disengaged.

37. LeVine, R. A., Dixon, S., LeVine, S., Richman, A., Leiderman, P. H., Keefer, C. H., & Brazelton, T. B. (1994). *Child care and culture: Lessons from Africa*. New York: Cambridge University Press.

The **insecure disorganized/disoriented style** represents the most insecure style of attachment and occurs when the child is given mixed, confused, and inappropriate responses from the caregiver. For example, a parent who suffers from schizophrenia may laugh when a child is hurting or cry when a child exhibits joy. The child does not learn how to interpret emotions or to connect with the unpredictable caregiver. This type of attachment is also often seen in children who have been abused. Research has shown that abuse can disrupt a child's ability to regulate their emotions.³⁸

Caregiver Consistency

Having a consistent caregiver may be jeopardized if the infant is cared for by multiple people, such as in a day care setting with a high turn-over of staff or if institutionalized and given little more than basic physical care. Infants who, perhaps because of being in orphanages with inadequate care, have not had the opportunity to attach in infancy may still form initial secure attachments several years later. However, they may have more emotional problems of depression, anger, or be overly friendly as they interact with others³⁹.

Social Deprivation

Severe deprivation of parental attachment can lead to serious problems. According to studies of children who have not been given warm, nurturing care, they may show developmental delays, failure to thrive, and attachment disorders.⁴⁰ **Non-organic failure to thrive** is the *diagnosis for an infant who does not grow, develop, or gain weight on schedule*. In addition, postpartum depression can cause even a well-intentioned mother to neglect her infant.

Reactive Attachment Disorder (RAD)

Children who experience social neglect or deprivation, repeatedly change primary caregivers that limit opportunities to form stable attachments, or are reared in unusual settings (such as institutions) that limit opportunities to form stable attachments can certainly have difficulty

38. Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the Preschool Years* (pp.121–160).Chicago,IL:University of Chicago Press.

39. O'Connor, T. G., Marvin, R. S., Rotter, M., Olrich, J. T., Britner, P. A., & The English and Romanian Adoptees Study Team. (2003). Child-parent attachment following early institutional deprivation. *Development and Psychopathology*, 15, 19- 38.

40. Bowlby, J. (1982). *Attachment* (2nd ed.). New York: Basic Books.

forming attachments. According to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition,⁴¹ *those children experiencing neglectful situations and also displaying markedly disturbed and developmentally inappropriate attachment behavior, such as being inhibited and withdrawn, minimal social and emotional responsiveness to others, and limited positive affect, may be diagnosed with RAD.* This disorder often occurs with developmental delays, especially in cognitive and language areas. Fortunately, the majority of severely neglected children do not develop RAD. The quality of the caregiving environment after serious neglect affects the development of this disorder.

Resiliency

Being able to overcome challenges and successfully adapt is **resiliency**. Even young children can exhibit strong resiliency to harsh circumstances. Resiliency can be attributed to certain personality factors, such as an easy-going temperament. Some children are warm, friendly, and responsive, whereas others tend to be more irritable, less manageable, and difficult to console, and these differences play a role in attachment.^{42,43} It seems safe to say that attachment, like most other developmental processes, is affected by an interplay of genetic and socialization influences.

Receiving support from others also leads to resiliency. A positive and strong support group can help a parent and child build a strong foundation by offering assistance and positive attitudes toward the newborn and parent. In a direct test of this idea, Dutch researcher van den Boom⁴⁴ randomly assigned some babies' mothers to a training session in which they learned to better respond to their children's needs. The research found that these mothers' babies were more likely to show a secure attachment style in comparison to the mothers in a control group that did not receive training.

41. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, 5th edition (DSM-V). Washington, DC: Author.

42. Gillath, O., Shaver, P. R., Baek, J. M., & Chun, D. S. (2008). Genetic correlates of adult attachment style. *Personality & Social Psychology Bulletin*, 34, 1396–1405.

43. Seifer, R., Schiller, M., Sameroff, A., Resnick, S., & Riordan, K. (1996). Attachment, maternal sensitivity, and infant temperament during the first year of life. *Developmental Psychology*, 32, 12–25.

44. van den Boom, D. C. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development*, 65, 1457–1477.

Erikson: Autonomy vs Shame and Doubt

As children begin to walk and talk, an interest in independence or autonomy replaces their concern for trust. The toddler tests the limits of what can be touched, said, and explored. Erikson believed that toddlers should be allowed to explore their environment as freely as safety allows and, in doing so, will develop a sense of independence that will later grow to self-esteem, initiative, and overall confidence. If a caregiver is overly anxious about the toddler's actions for fear that the child will get hurt or violate others' expectations, the caregiver can give the child the message that they should be ashamed of their behavior and instill a sense of doubt in their abilities. Parenting advice based on these ideas would be to keep your toddler safe but let them learn by doing. A sense of pride seems to rely on doing rather than being told how capable one is.⁴⁵

Measuring Infant Development

The Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III) comprehensively assess children within the age range of 1 to 42 months.⁴⁶ Children are evaluated in five key developmental domains, including cognition, language, social-emotional, motor, and adaptive behavior. By identifying developmental delays in the very young, the Bayley Scales can highlight which early intervention techniques might be most beneficial. Detailed information is even able to be obtained from non-verbal children.

Conclusion

We have explored the dramatic story of the first two years of life. Rapid physical, cognitive, social and emotional growth, neurological development, language acquisition, the movement from hands-on to mental learning, an expanding emotional repertoire, and the initial conceptions of self and others make this period of life very exciting. These abilities are shaped into more sophisticated mental processes, self-concepts, and social relationships during the years of early childhood.

Babies begin to learn about the world around them from a very early age. Children's early

45. Berger, K. S. (2005). *The developing person through the life span* (6th ed.). New York: Worth.

46. Pearson Education. (2016). Bayley Scales of Infant Development, Third Edition. New York: Pearson.

<http://www.pearsonclinical.com/childhood/products/100000123/bayley-scales-of-infant-and-toddler-development-third-edition-bayley-iii.html#tab-details>

experiences, meaning the bonds they form with their parents and primary caregivers, their first learning experiences, affect their future physical, cognitive, emotional and social development. Various organizations and agencies are dedicated to helping parents (and other caregivers), educators, and health care providers understand the importance of early healthy development. Healthy development means that children of all abilities, including those with special health care needs, are able to grow up where their social, emotional, and educational needs are met. Having a safe and loving home and spending time with family—playing, singing, reading, and talking—are very important. Proper nutrition, exercise, and sleep can also make a big difference; and effective parenting practices are key to supporting healthy development⁴⁷. The need to invest in very young children is important to maximize their future well-being.

47. CDC. (2021, September 23). Child development basics. Centers for Disease Control and Prevention. <https://www.cdc.gov/ncbddd/childdevelopment/facts.html>

EARLY CHILDHOOD

PHYSICAL DEVELOPMENT IN EARLY CHILDHOOD

Diana Lang; Nick Cone; Laura Overstreet; Stephanie Loalada; Suzanne Valentine-French; Martha Lally; Julie Lazzara; and Jamie Skow

Learning Objectives

- Summarize physical growth during early childhood. Identify examples of gross and fine motor skill development in early childhood.
- Describe the growth of structures in the brain during early childhood.
- Identify nutritional concerns for children in early childhood.
- Describe sexual development in early childhood.
- Identify animism, egocentrism, and centration.
- Describe changes to attention and memory in early childhood.
- Apply Vygotsky theory to early childhood. Illustrate scaffolding. Explain private speech. Explain theory of mind.
- Describe language development in early childhood.
- Explain Erikson's stages of psychosocial development for toddlers and children in early childhood.
- Contrast models of parenting styles.
- Examine concerns about childcare.
- Explain theory of self from Mead.
- Summarize theories of gender role development.
- Examine concerns about childhood stress and development.

The time between a child's second and sixth birthday is a time of rich development as children grow rapidly in physical, cognitive, and social ways. Language skills continue to develop and improve that help children navigate their world and prepare to enter school. In fact, a child will go from producing approximately 50 words at age 2 to producing over 2000 words at age 6!

Children in early childhood are changing from intuitive problem solvers into more sophisticated logical problem solvers. Their cognitive skills are increasing at a rapid rate, despite their brain beginning to lose neurons through the process of synaptic pruning.

Children are also learning to navigate the social world around them. They are learning about themselves and beginning to develop their own self-concept, while at the same time becoming aware that other people have feelings, too. The development that happens in these four years greatly impacts the rest of the child's life in many aspects.

Children in early childhood are physically growing at a rapid pace. A fun way to observe physical changes is to ask a child at the beginning of the early childhood period to take their left hand and use it to go over their head to touch their right ear. They cannot do it. Their body proportions are still built very much like an infant with a very large head and short appendages. By the time the child is five years old, their arms will have stretched, and their head is becoming smaller in proportion to the rest of their growing bodies. They can now accomplish the task easily.



(Image Source: World Bank Photo Collection, CC BY NC SA 2.0)

Growth in early childhood

Children between the ages of 2 and 6 years tend to grow about 3 inches in height each year and gain about 4 to 5 pounds in weight each year. The average 6-year-old weighs about 46 pounds and is about 46 inches in height. Three-year-olds are very physically similar to toddlers with a large head, large stomach, short arms, and short legs. However, around age 3, children typically have all 20 of their primary teeth, and by around age 4, may have 20/20 vision. Many children take a daytime nap until around age 4 or 5, then sleep between 11 and 13 hours at night.

During early childhood, children start to lose some of their baby fat, making them appear less like a baby, and more like a child as they progress through this stage. By the time children reach age 6, their torsos have lengthened and body proportions have become more like those

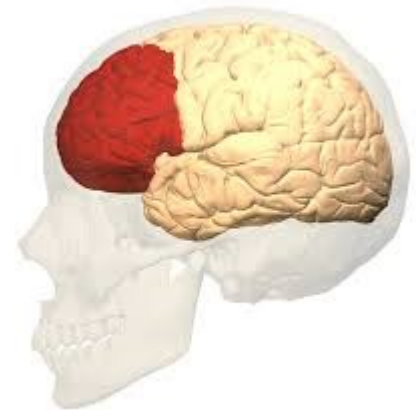
of adults. This is the growth pattern for children who receive adequate nutrition. Studies from many countries support the assertion that children tend to grow more slowly in low socioeconomic status areas, and thus are smaller.¹²³

The growth rate between the ages of 2 and 6 is slower than that of infancy and is accompanied by a reduced appetite. This change can sometimes be surprising to parents and lead to the development of poor eating habits.

Brain Maturation

By two years of age the brain is about 75 percent of its adult weight. By age 6, it is at 95 percent of its adult weight. The development of myelin (**myelination**) and the development of new synapses (through the process of synaptic pruning) continues to occur in the cortex. As it occurs, we see a corresponding change in what the child is capable of doing. Remember that myelin is the coating around the axon that facilitates neural transmission. **Synaptic pruning** refers to the loss of synapses that are unused. As myelination and pruning increase during this stage of development, neural processes become quicker and more complex.

Greater development in the prefrontal cortex, the area of the brain behind the forehead that helps us to think, strategize, and control emotions, makes it increasingly possible to control emotional outbursts and to understand how to play games. Consider 4- or 5-year-old children and how they might approach a game of soccer. Chances are every move would be a response to the commands of a coach standing nearby calling out, “Run this way! Now, stop. Look at the ball. Kick the ball!” And when children are not being told what to do, they will likely be looking at the clover on the ground or a dog on the other side of the fence! Understanding the game, thinking ahead,



Visualization of the brain. The shaded area is the prefrontal cortex. (Image Source: Wikimedia Commons, CC BY SA)

1. Van Rossem, R., & Pannecoucke, I. (2019). Poverty and a child's height development during early childhood: A double disadvantage? A study of the 2006-2009 birth cohorts in Flanders. *PloS One*, 14(1), e0209170. <https://doi.org/10.1371/journal.pone.0209170>
2. Neumann, J. (September 2015). Small height differences among kids may reflect economic disparities. *Reuters, Health News*. <https://www.reuters.com/article/us-health-children-height-poverty/small-height-differences-among-kids-may-reflect-economic-disparities-idUSKCN0RR11720150927>.
3. Kerr, G. R., Lee, E. S., Lorimor, R. J., Mueller, W. H., & Lam, M. M. (1982). Height distributions of U.S. children: associations with race, poverty status and parental size. *Growth*, 46(2), 135-149.

and coordinating movement improves with practice and myelination. Demonstrating resilience and recovering from a loss, hopefully, does as well.



(Image Source: Lukas on Pexels)

Growth in the hemispheres and corpus callosum

Between ages 3 and 6, the left hemisphere of the brain, which tends to lag behind in terms of activity during the first 3 years of life, increases in activity, which correlates with the burst in language skills during this time period. Activity in the right hemisphere grows steadily throughout early childhood and is especially involved in tasks that require spatial skills such as recognizing shapes and patterns. Both sides of the brain work together. There is no such thing as a person being either left-brained or right-brained. The corpus callosum, which connects the two hemispheres of the brain, undergoes a growth spurt between ages 3 and 6 as well resulting in improved coordination between right and left hemisphere tasks.

I once saw a 5-year-old hopping on one foot, rubbing his stomach and patting his head all at the same time. I asked him what he was doing and he replied, “My teacher said this would help my corpus callosum!” Apparently, his kindergarten teacher had explained the process!

Visual Pathways



(Image Source: Pixabay)

Have you ever examined the drawings of young children? If you look closely, you can almost see the development of visual pathways reflected in the way these images change as pathways become more mature. Early scribbles and dots illustrate the use of simple motor skills. No real connection is made between an image being visualized and what is created on paper.

At age 3, the child begins to draw wispy

creatures with heads and not much other detail. Gradually pictures begin to have more detail and incorporate more parts of the body. Arm buds become arms and faces take on noses, lips, and eventually eyelashes.



(Image Source: Pixabay)

Motor Skill Development

Remember that **gross motor skills** are voluntary movements involving the use of large muscle groups while **fine motor skills** are more exact movements of the hands and fingers and include the ability to reach and grasp an object. Early childhood is a time of development of both gross and fine motor skills.

Early childhood is a time when children are especially attracted to motion and song. Days are filled with moving, jumping, running, swinging and clapping, and every place becomes a playground. Even the booth at a restaurant affords the opportunity to slide around in the seat or disappear underneath and imagine being a sea creature in a cave! Children may frequently ask their caregivers to “look at me”. Songs are often accompanied by arm and leg movements or cues to turn around or move from left to right. Running, jumping, dancing movements, etc. help to improve children’s gross motor skills.



(Image Source: Brum Brum Bikes on Wikimedia Commons, CC BY SA 4.0)

Fine motor skills are also being refined in activities such as pouring water into a container, drawing, coloring, and using scissors. Some children’s songs promote fine motor skills as well (“itsy, bitsy, spider” song). Mastering the fine art of cutting one’s own fingernails or tying their shoes will take a lot of practice and maturation. Fine motor skills continue to develop through middle childhood.

Table 1. Examples of Motor skill Milestones for children 2 to 5 years old ⁴

Age	Gross Motor Skills	Fine Motor Skills
Age 2	Can kick a ball without losing balance Can pick up objects while standing, without losing balance (<i>This often occurs by 15 months. It is a cause for concern if not seen by 2 years.</i>) Can run with better coordination. (<i>May still have a wide stance.</i>)	Able to turn a doorknob Can look through a book turning one page at a time Can build a tower of six to seven cubes Able to put on simple clothes without help (<i>The child is often better at removing clothes than putting them on</i>)
Age 3	Can briefly balance and hop on one foot May walk on stairs with alternating feet (without holding onto rail) Can pedal a tricycle	Can build a block tower of more than nine cubes Can easily place small objects in a small opening Can copy a circle Drawing a person with 3 parts Feeds self easily
Age 4	Shows improved balance Hops on one foot without losing balance Throws a ball overhead with coordination	Can cut out a picture using scissors Drawing a square Managing a spoon and fork neatly while eating Putting on clothes properly
Age 5	Has better coordination (getting the arms, legs, and body to work together) Skips, jumps and hops with good balance Stays balanced while standing on one foot with eyes closed	Shows more skills with simple tools and writing utensils Can copy a triangle Can use a knife to spread soft foods

4. Table adapted from NIH (2018) <https://open.maricopa.edu/psy240mm/chapter/chapter-5-early-childhood/>

Nutrition



(Image Source: Liz West on Wikimedia Commons, CC BY)

According to the Centers for Disease Control and Prevention (CDC), 1 in 5 American children between the ages of 2 and 5 are overweight or obese. The American Academy of Pediatrics (AAP) recommends a number of steps to help reduce the chances of obesity in young children. Removing high-calorie low-nutrition foods from the diet, offering whole fruits and vegetables instead of just juices, and getting kids active are just some of the recommendations that they make. Replacing sugar sweetened beverages with water helps to reduce the accumulation of body fat in school-aged children.⁵ This increase in water consumption reduces the risk of obesity by 31%. Finally, the AAP suggests that parents can begin offering milk with a lower fat percentage (2%, 1%, or skim milk) to 2-year-olds. The switch to lower fat milk may help avoid some of the obesity issues discussed above. Parents should avoid giving the child too much milk as calcium interferes with the absorption of iron in the diet as well.

Caregivers need to keep in mind that they are influencing taste preferences at this age. Young children who grow accustomed to high-fat, very sweet, and salty flavors may have

5. Franse, C. B., Wang, L., Constant, F., Fries, L. R., & Raat, H. (2019, August 13). Factors associated with water consumption among children: A systematic review - international journal of behavioral nutrition and physical activity. BioMed Central. Retrieved February 25, 2022, from <https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-019-0827-0#citeas>

trouble eating foods that have more subtle flavors such as fruits and vegetables. Offering a diet of diverse food options, limiting foods with high calories but low nutritional value, and limiting high-calorie drink options can all contribute greatly to a child's health and risk of obesity during this stage of life and future stages.

Caregivers who have established a feeding routine with a child can find the normal reduction in appetite a bit frustrating and become concerned that the child is going to starve. However, by providing adequate, sound nutrition, and limiting sugary snacks and drinks, the caregiver can be assured that the child will not starve, and the child will receive adequate nutrition. Well-balanced nutrition is vital in preventing iron deficiencies.

Tips for establishing healthy eating patterns

Consider the following advice about establishing eating patterns for years to come.⁶ Notice that keeping mealtime pleasant, providing sound nutrition, and not engaging in power struggles over food are the main goals.

1. Don't try to force your child to eat or fight over food. Of course, it is impossible to force someone to eat. But the real advice here is to avoid turning food into some kind of ammunition during a fight. Do not teach your child to eat to or refuse to eat in order to gain favor or express anger toward someone else.
2. Recognize that appetite varies. Children may eat well at one meal and have no appetite at another. Rather than seeing this as a problem, it may help to realize that appetites do vary. Continue to provide good nutrition, but do not worry excessively if the child does not eat.
3. Keep it pleasant. This tip is designed to help caregivers create a positive atmosphere during mealtime. Mealtimes should not be the time for arguments or expressing tensions. You do not want the child to have painful memories of mealtimes together or have nervous stomachs and problems eating and digesting food due to stress.
4. No short order chefs. While it is fine to prepare foods that children enjoy, preparing a different meal for each child or family member sets up an unrealistic expectation from others. Children probably do best when they are hungry and a meal is ready. Limiting snacks rather than allowing children to "graze" continuously can help create an appetite for whatever is being served.
5. Limit choices. If you give your preschool-aged child choices, make sure that you give them one or two specific choices rather than asking "What would you like for lunch?" If given an open choice, children may change their minds or choose whatever their sibling does not choose!
6. Serve balanced meals. This tip encourages caregivers to serve balanced meals. A box of macaroni and cheese is not a balanced meal. Meals prepared at home tend to have better nutritional value than fast food or frozen dinners. Prepared foods tend to be higher in fat and sugar content as these ingredients enhance taste and profit margin because fresh food is often more costly and less profitable. However, preparing fresh food at home is not as costly. But it does require more activity and planning. Preparing meals and including the children in kitchen chores can provide fun and memorable experiences.
7. Don't bribe. Bribing a child to eat vegetables by promising dessert is not a good idea. For

one reason, the child will likely find a way to get the dessert without eating the vegetables (by whining or fidgeting, perhaps, until the caregiver gives in), and for another reason, because it teaches the child that some foods are better than others. Children tend to naturally enjoy a variety of foods until they are taught that some are considered less desirable than others. A child, for example, may learn the broccoli they have enjoyed is seen as yucky by others unless it's smothered in cheese sauce!

Sexual Health Development in Early Childhood

Historically, children have been thought of as innocent or incapable of sexual arousal.⁷ A more modern approach to sexuality suggests that the physical dimension of sexual arousal is present from birth. That said, it seems to be the case that the elements of seduction, power, love, or lust that are part of the adult meanings of sexuality are not present in sexual arousal at this stage. In contrast, sexuality begins in childhood as a response to physical states and sensations and cannot be interpreted as similar to that of adults in any way.⁸

Infancy

Children are capable of erections and vaginal lubrication even before birth.⁹ Arousal can signal overall physical contentment and stimulation that accompanies feeding or warmth. Infants begin to explore their bodies and touch their genitals as soon as they have sufficient motor skills. This stimulation is for comfort or to relieve tension rather than to reach orgasm.¹⁰

Early Childhood

Self-stimulation is common in early childhood for both boys and girls. Curiosity about the body and about others' bodies is a natural part of early childhood as well. Consider this example. A

6. Rice, F. P. (1997). *Human development: A life-span approach*. Upper Saddle River, NJ: Prentice Hall.

7. Aries, P. (1987). *Centuries of Childhood*. Penguin Books.

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mother is asked by her young daughter: “So it’s okay to see a boy’s privates as long as it’s the boy’s mother or a doctor?” The mother hesitates a bit and then responds, “Yes. I think that’s alright.” “Hmmm,” the girl begins, “When I grow up, I want to be a doctor!” Hopefully, this subject is approached in a way that teaches children to be safe and know what is appropriate without frightening them or causing shame.

As children grow, they are more likely to show their genitals to siblings or peers, and to take off their clothes and touch each other.¹¹ Masturbation is common among this age group.¹²

Hopefully, parents respond to this without undue alarm and without making the children feel guilty about their bodies. Instead, messages about what is going on and the appropriate time and place for such activities help the child learn.

Parents should take the time to speak with their children about when it is appropriate for other people to see or touch them. Many experts suggest that this should occur as early as age 3, and of course the discussion should be developmentally-appropriate for the child’s age and abilities. One way to help a young child understand inappropriate touching is to discuss “bathing suit areas.” Kids First, Inc. suggests discussing the following: “No one should touch you anywhere your bathing suit covers. No one should ask you to touch them somewhere that their bathing suit covers. No one should show you a part of their or someone else’s bodies that their bathing suit covers.” Further, instead of talking about good or bad touching, talk about safe and unsafe touching.¹³

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COGNITIVE DEVELOPMENT IN EARLY CHILDHOOD

Diana Lang; Nick Cone; Laura Overstreet; Stephanie Loalada; Julie Lazzara; Jessica Traylor; and Jamie Skow

Early childhood is a time of pretending, blending fact and fiction, and learning to think of the world using language. Young children move away from needing to touch, feel, and hear about the world toward learning basic principles about how the world works, they hold some pretty interesting initial ideas. For example, a three-year-old child might worry about whether or not they will go down the drain with the water in the bathtub. A child might protest if told that something will happen “tomorrow” but be willing to accept an explanation that an event will occur “today after we sleep.” Concepts such as tomorrow, time, size, fact, fiction, and distance are all tasks typically part of cognitive development during the preschool years.

Piaget’s Second Stage: The Preoperational Stage

Piaget’s second stage of cognitive development following the sensorimotor stage is called the **preoperational stage** and typically coincides with ages 2-7. The word *operation* refers to the use of logical rules, so sometimes this stage is misinterpreted as implying that children are illogical. While it is true that children at the beginning of the preoperational stage tend to answer questions intuitively as opposed to logically, children in this stage are learning to use language and how to think about the world symbolically. These advances in symbolic thought help build foundations for future stages.

Piaget believed that we are continuously trying to maintain balance in how we understand the world. With rapid increases in motor skill and language development, young children are constantly encountering new experiences, objects, and words. When faced with something new, a child may either **assimilate** (bringing in new information) it into an existing schema by



Young children enjoy pretending to “play school.”
(Image Source: Maxpixel, CC0)

matching it with something they already know or expand their knowledge structure to **accommodate** (change the new learning) the new situation. During the preoperational stage, many of the child's existing schemas will be challenged, expanded, and rearranged. Their whole view of the world may shift.

Pretend Play

Pretend play is typically a favorite activity at this time. For a child in the preoperational stage, a toy has qualities beyond the way it was designed to function and can now be used to stand for a character or object unlike anything originally intended. A laundry basket, for example, can be a boat or flip it over to be the shell of a turtle or hermit crab!

Piaget believed that children's pretend play and experimentation helped them solidify the new schemas they were developing cognitively. This involves both assimilation and accommodation, which results in changes in their conceptions or thoughts for future logical operations.

Egocentrism

Egocentrism in early childhood refers to the tendency of young children to think that everyone shares the same feelings, knowledge, and views of the world. Piaget's classic experiment on egocentrism involved showing children a three-dimensional model of a mountain and asking them to describe what a doll that is looking at the mountain from a different angle might see. Children tend to choose a picture that represents their own, rather than the doll's view. Children tend to display an inability to take on another person's point of view and perspective. However, when children are speaking to others, they tend to use different sentence structures and vocabulary when addressing a younger child or an older adult.

Video Examples

The children in this interview display egocentrism by believing that the researcher sees the same thing as they do, even after switching positions.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1000#oembed-1>

You can view the transcript for “Piaget – Egocentrism and Perspective Taking (Preoperational and Concrete Operational Stages)” here (opens in new window).

This video demonstrates that older children are able to look at the mountain from different viewpoints and no longer fall prey to egocentrism.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1000#oembed-2>

You can view the transcript for “Piaget’s Mountains Task” here (opens in new window).

Precausal Thinking

Similar to preoperational children’s egocentric thinking is their structuring of cause-and-effect relationships based on their limited view of the world. Piaget coined the term “**precausal thinking**” to describe the way in which preoperational children use their own existing ideas or views, like in egocentrism, to explain cause-and-effect relationships. Three main concepts of causality, as displayed by children in the preoperational stage, include animism, artificialism, and transductive reasoning.

Animism is the belief that inanimate objects are capable of actions and have lifelike qualities. An example could be a child believing that the sidewalk was mad and made them fall down, or that the stars twinkle in the sky because they are happy. To an imaginative child, the cup may be alive, the chair that falls down and hits the child’s ankle is mean, and the toys need to stay home because they are tired. They may believe that stuffed animals and objects have feelings just as they do. Young children do seem to think that objects that move may be alive, but after age three, they seldom refer to objects as being alive (Berk, 2007). Many children’s stories and movies capitalize on animistic thinking. Do you remember some of the classic stories that make use of the idea of objects being alive and engaging in lifelike actions?



The story of the Velveteen Rabbit exhibits animism for the stuffed animal to come alive.
(Image Source: Alyssa Miller on Flickr, CC BY)

Artificialism refers to the belief that environmental characteristics can be attributed to human actions or interventions. For example, a child might say that it is windy outside because someone is blowing very hard, or the clouds are white because someone painted them that color.

Finally, precausal thinking is categorized by transductive reasoning. **Transductive reasoning** is when a child fails to understand the true relationships between cause and effect. Unlike deductive or inductive reasoning (general to specific, or specific to general), transductive reasoning refers to when a child reasons from

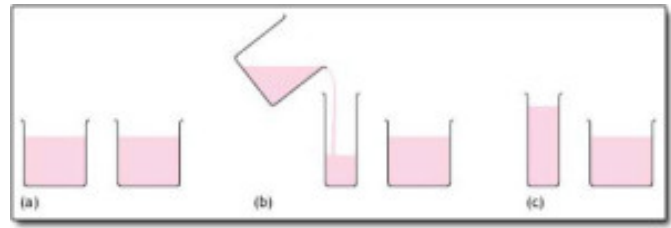
specific to specific, drawing a relationship between two separate events that are otherwise unrelated. For example, if a child hears a dog bark and then a balloon pop, the child would conclude that because the dog barked, the balloon popped.

Cognition Errors

Between about the ages of four and seven, children tend to become very curious and ask many questions, beginning the use of primitive reasoning. There is an increase in curiosity in the interest of reasoning and wanting to know why things are the way they are. Piaget called it the “intuitive substage” because children realize they have a vast amount of knowledge, but they are unaware of how they acquired it.

Centration and conservation are characteristic of preoperative thought. **Centration** is the act of focusing all attention on one characteristic or dimension of a situation while disregarding all others. An example of centration is a child focusing on the *number* of pieces of cake that each person has, regardless of the size of the pieces. Centration is one of the reasons that young children have difficulty understanding the concept of conservation. **Conservation** is the awareness that altering a substance’s appearance does not change its basic properties. Children at this stage are unaware of conservation and exhibit centration. Imagine a 2-year-old and 4-year-old eating lunch. The 4-year-old has a whole peanut butter and jelly sandwich. He notices, however, that his younger sister’s sandwich is cut in half and protests, “She has more!” He is exhibiting centration by focusing on the number of pieces, which results in a conservation error.

In Piaget's famous conservation task, a child is presented with two identical beakers containing the same amount of liquid. The child usually notes that the beakers do contain the same amount of liquid. When one of the beakers is poured into a taller and thinner container, children who are younger than seven or eight years old typically say that the two beakers no longer contain the same amount of liquid, and that the taller container holds the larger quantity (centration), without taking into consideration the fact that both beakers were previously noted to contain the same amount of liquid.



A demonstration of the conservation of liquid. Does pouring liquid in a tall, narrow container make it have more?

Irreversibility is also demonstrated during this stage and is closely related to the ideas of centration and conservation. **Irreversibility** refers to the young child's difficulty mentally reversing a sequence of events. In the beaker situation, the child does not realize that, if the liquid was poured back into the original beaker, then the same amount of liquid would exist.

Centration, conservation errors, and irreversibility are indications that young children are reliant on visual representations. Another example of children's reliance on visual representations is their misunderstanding of "less than" or "more than". When two rows containing equal amounts of blocks are placed in front of a child with one row spread farther apart than the other, the child will think that the row spread farther contains more blocks. When something takes up more space it is seen as having more.

Video Example

This clip shows how younger children struggle with the concept of conservation and demonstrate irreversibility.

One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1000#oembed-3>

You can **view the transcript for "Piaget – Stage 2 – Preoperational – Lack of Conservation" here (opens in new window).**

Class inclusion refers to a kind of conceptual thinking that children in the preoperational stage

cannot yet grasp. Children's inability to focus on two aspects of a situation at once (centration) inhibits them from understanding the principle that one category or class can contain several different subcategories or classes. Preoperational children also have difficulty understanding that an object can be classified in more than one way. For example, a four-year-old girl may be shown a picture of eight dogs and three cats. The girl knows what cats and dogs are, and she is aware that they are both animals. However, when asked, "Are there more dogs or more animals?" she is likely to answer "more dogs." This is due to her difficulty focusing on the two subclasses and the larger class all at the same time. She may have been able to view the dogs as dogs or animals, but struggled when trying to classify them as both, simultaneously. Similar to this is a concept relating to intuitive thought, known as "transitive inference."

Transitive inference is using previous knowledge to determine the missing piece, using basic logic. Children in the preoperational stage lack this logic. An example of transitive inference would be when a child is presented with the information "A" is greater than "B" and "B" is greater than "C." The young child may have difficulty understanding that "A" is also greater than "C" unless clearly defined.

As the child's vocabulary improves and more schemes are developed, they are more able to think logically, demonstrate an understanding of conservation, and classify objects.

Was Piaget Right?

It certainly seems that children in the preoperational stage make the mistakes in logic that Piaget suggests that they will make. That said, it is important to remember that there is variability in terms of the ages at which children reach and exit each stage. Further, there is some evidence that children can be taught to think in more logical ways far before the end of the preoperational period. For example, as soon as a child can reliably count, they may be able to learn conservation of number. For many children, this is around age five. More complex conservation tasks, however, may not be mastered until closer to the end of the stage around age seven.

Theory of Mind

How do we come to understand how our mind works? The **theory of mind** is the understanding that the mind holds people's beliefs, desires, emotions, and intentions. One component of this is understanding that the mind can be tricked or that the mind is not always accurate.

A two-year-old child does not understand very much about how their mind works. They learn through imitation, they start to understand that people do not always agree on things

they like, and they have a basic understanding of cause and effect (although they often fall prey to transitive reasoning). By the time a child is four, their theory of the mind allows them to understand that people think differently, have different preferences, and even mask their true feelings by putting on a different face that differs from how they truly feel inside.

To think about what this might look like in the real world, imagine showing a three-year-old child a bandaid box and asking the child what is in the box. Chances are, the child will reply, “bandaids.” Now imagine that you open the box and pour out crayons. If you now ask the child what they thought was in the box before it was opened, they may respond, “crayons.” If you ask what a friend would have thought was in the box, the response would still be “crayons.” Why?

Before about four years of age, a child does not recognize that the mind can hold ideas that are not accurate, so this three-year-old changes their response once shown that the box contains crayons. The child’s response can also be explained in terms of egocentrism and irreversibility. The child’s response is based on their current view rather than seeing the situation from another person’s perspective (egocentrism) or thinking about how they arrived at their conclusion (irreversibility). At around age four, the child would likely reply, “bandaids” when asked after seeing the crayons because by this age a child is beginning to understand that thoughts and realities do not always match.

Theory of Mind and Social Intelligence

This awareness of the existence of mind is part of social intelligence and the ability to recognize that others can think differently about situations. It helps us to be self-conscious or aware that others can think of us in different ways, and it helps us to be able to be understanding or empathic toward others. This developing social intelligence helps us to anticipate and predict the actions of others. The awareness of the mental states of others is important for communication and social skills. A child who demonstrates this skill is able to anticipate the needs of others.

Autism and Impaired Theory of Mind

People with autism or an autism spectrum disorder (ASD) typically show an impaired ability to recognize other people’s minds. **Autism** is characterized by persistent deficits in social communication and interaction across multiple contexts, as well as restricted, repetitive patterns of behavior, interests, or activities. Children with this disorder typically show signs of significant disturbances in three main areas: (a) deficits in social interaction, (b) deficits in communication, and (c) repetitive patterns of behavior or interests. These disturbances tend to be present in early childhood, typically before age three, and may lead to clinically significant

functional impairment. Symptoms may include lack of social or emotional reciprocity, stereotyped and repetitive use of language or idiosyncratic language, and persistent preoccupation with unusual objects.

About half of parents of children with ASD notice their child's unique behaviors by age 18 months, and about four-fifths notice by age 24 months, but often a diagnoses comes later, and individual cases vary significantly. Typical early signs of autism include:

- No babbling by 12 months.
- No gesturing (pointing, waving, etc.) by 12 months.
- No single words by 16 months.
- No two-word (spontaneous, not just echolalic) phrases by 24 months.
- Loss of any language or social skills, at any age.

Communication deficits can range from a complete lack of speech to one-word responses (e.g., saying “Yes” or “No” when replying to questions or statements that require additional elaboration), to echoed speech (e.g., parroting what another person says, either immediately or several hours or even days later), to difficulty maintaining a conversation because of an inability to reciprocate others' comments. These deficits can also include problems in using and understanding nonverbal cues (e.g., facial expressions, gestures, and postures) that facilitate normal communication.

Repetitive patterns of behavior or interests can be exhibited in a number of ways. The child might engage in stereotyped, repetitive movements (rocking, head-banging, or repeatedly dropping an object and then picking it up), or she might show great distress at small changes in routine or the environment. For example, the child might throw a temper tantrum if an object is not in its proper place or if a regularly- scheduled activity is rescheduled. In some cases, the person with an autism spectrum disorder might show highly restricted and fixated interests that appear to be abnormal in their intensity. For instance, the child might learn and memorize every detail about something even though doing so serves no apparent purpose. Importantly, autism spectrum disorder is not the same thing as intellectual disability, although these two conditions can occur together.

The qualifier “spectrum” in autism spectrum disorder is used to indicate that individuals with the disorder can show a range, or spectrum, of symptoms that vary in their magnitude and severity: Some severe, others less severe. Some individuals with an autism spectrum disorder, particularly those with better language and intellectual skills, can live and work independently

as adults. However, most do not because the symptoms remain sufficient to cause serious impairment in many realms of life.¹

Causes of Autism

Estimates indicate that nearly 1 in 88 children in the United States has autism spectrum disorder; the disorder is 5 times more common in boys (1 out of 54) than girls (1 out of 252).² The exact causes of autism spectrum disorder remain unknown despite massive research efforts over the last two decades.³ Autism appears to be strongly influenced by genetics, as identical twins show concordance rates of 60%–90%, whereas concordance rates for fraternal twins and siblings are 5%–10%.⁴ Many different genes and gene mutations have been implicated in autism.⁵ Among the genes involved are those important in the formation of synaptic circuits that facilitate communication between different areas of the brain (Gauthier et al., 2011). A number of environmental factors are also thought to be associated with increased risk for autism spectrum disorder, at least in part, because they contribute to new mutations. These factors include exposure to pollutants, such as plant emissions and mercury, urban versus rural residence, and vitamin D deficiency.⁶

There is no scientific evidence that a link exists between autism and vaccinations.⁷ Indeed, a recent study compared the vaccination histories of 256 children with autism spectrum disorder with that of 752 control children across three time periods during their first 2 years of life (birth to 3 months, birth to 7 months, and birth to 2 years).⁸ At the time of the study, the children were between 6 and 13 years old, and their prior vaccination records were obtained. Because

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1. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, 5th edition (DSM-V). Washington, DC: Author.
 2. Centers for Disease Control and Prevention. (2012). Prevalence of autism spectrum disorders, autism and developmental disabilities monitoring network, 14 sites, United States, 2008. *Morbidity and Mortality Weekly Report: Surveillance Summaries*, 61(3), 1–19. <http://www.cdc.gov/mmwr/pdf/ss/ss6103.pdf>
 3. Meek, S. E., Lemery-Chalfant, K., Jahromi, L. D., & Valiente, C. (2013). A review of gene-environment correlations and their implications for autism: A conceptual model. *Psychological Review*, 120, 497–521.
 4. Autism Genome Project Consortium. (2007). Mapping autism risk loci using genetic linkage and chromosomal rearrangements. *Nature Genetics*, 39, 319–328.
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 6. Kimmel, M. S. (2008). *The gendered society* (3rd ed.). Oxford: Oxford University Press. Kinney, D. K., Barch, D. H., Chayka, B., Napoleon, S., & Munir, K. M. (2009). Environmental risk factors for autism: Do they help or cause de novo genetic mutations that contribute to the disorder? *Medical Hypotheses*, 74, 102–106.
 7. Hughes, V. (2007). Mercury rising. *Nature Medicine*, 13, 896–897.
 8. DeStefano, F., Price, C. S., & Weintraub, E. S. (2013). Increasing exposures to antibody-stimulating proteins and polysaccharides in vaccines is not associated with risk of autism. *The Journal of Pediatrics*, 163, 561–567.

vaccines contain immunogens (substances that fight infections), the investigators examined medical records to see how many immunogens children received to determine if those children who received more immunogens were at greater risk for developing autism spectrum disorder. The results of this study clearly demonstrated that the number of immunogens from vaccines received during the first 2 years of life was not at all related to the development of autism spectrum disorder.

Language Development



Reading to young children helps them develop language skills by hearing and using new vocabulary words.

A child's vocabulary expands between the ages of two to six from about 200 words to over 10,000 words through a process called **fast-mapping**. Words are easily learned by making connections between new words and concepts already known. The parts of speech that are learned depend on the language and what is emphasized. Children speaking verb-friendly languages such as Chinese and Japanese tend to learn verbs more readily, but those learning less verb-friendly languages such as English seem to need assistance in grammar to master the

use of verbs.⁹ Children are also very creative in creating their own words to use as labels such as a “take-care-of” when referring to John, the character on the cartoon Garfield, who takes care of the cat.

Children can repeat words and phrases after having heard them only once or twice, but they do not always understand the meaning of the words or phrases. Figures of speech and expressions are often taken literally instead of figuratively. For example, two preschool-aged girls began to laugh loudly while listening to a tape-recording of Disney’s “Sleeping Beauty” when the narrator reports, “Prince Phillip lost his head!” They imagine his head popping off and rolling down the hill as he runs and searches for it. Or a classroom full of preschoolers hears the teacher say, “Wow! That was a piece of cake!” The children began asking “Cake? Where is my cake? I want cake!”

Overregularization

Children learn the rules of grammar as they learn the language. Some of these rules are not taught explicitly, and others are. Often when learning language intuitively children apply rules inappropriately at first. But even after successfully navigating the rule for a while, at times, explicitly teaching a child a grammar rule may cause them to make mistakes they had previously not been making. For instance, two- to three-year-old children may say “I goed there” or “I doed that” as they understand intuitively that adding “ed” to a word makes it mean “something I did in the past.” As the child hears the correct grammar rule applied by the people around them, they correctly begin to say “I went there” and “I did that.” It would seem that the child has solidly learned the grammar rule, but it is actually common for the developing child to revert back to their original mistake. This happens as they **overregulate** the rule. This can happen because they intuitively discover the rule and overgeneralize it or because they are explicitly taught to add “ed” to the end of a word to indicate past tense in school. A child who had previously produced correct sentences may start to form incorrect sentences such as, “I goed there. I doed that.” These children are able to quickly re-learn the correct exceptions to the -ed rule.

Vygotsky and Language Development

Lev Vygotsky hypothesized that children had a **zone of proximal development (ZPD)**. The

9. Imai, M., Li, L., Haryu, E., Hirsh-Pasek, K., Golinkoff, R. M., & Shigematsu, J. (2008). Novel noun and verb learning in Chinese, English, and Japanese children: Universality and language-specificity in novel noun and verb learning. *Child Development*, 79, 979-1000.

ZPD is the range of material that a child is ready to learn if proper support and guidance are given from either a peer who understands the material or by an adult. We can see the benefit of this sort of guidance when we think about the acquisition of language. Children can be assisted in learning language by others who listen attentively, model more accurate pronunciations and encourage elaboration. For example, if the child exclaims, “I’m goed there!” then the adult responds, “You went there?”

Children may be hard-wired for language development, as Noam Chomsky suggested in his theory of universal grammar, but active participation is also important for language development. The process of **scaffolding** is one in which the guide provides needed assistance to the child as a new skill is learned. Repeating what a child has said, but in a grammatically correct way, is scaffolding for a child who is struggling with the rules of language production. Scaffolding is a process of integrating new information to solve problems and adapt to the environment.

Private Speech

When you are struggling with a problem, trying to remember something, or feel very emotional about a situation, we may talk to ourselves. Children talk to themselves too. Piaget interpreted this as egocentric speech, or speech engaged in because of a child’s inability to see things from other points of view. Vygotsky, however, believed that children talk to themselves in order to solve problems or clarify thoughts. As children learn to think in words, they do so aloud before eventually closing their lips and engaging in **private speech** or inner speech. Thinking out loud eventually becomes thought accompanied by internal speech, and talking to oneself becomes a practice only engaged in when we are trying to learn something or remember something, etc. This inner speech is not as elaborate as the speech we use when communicating with others.¹⁰

30 Million Word Gap

To accomplish the tremendous rate of word learning that needs to occur during early childhood, it is important that children are learning new words each day. Research by Betty Hart and Todd Risley in the late 1990s and early 2000s indicated that children from less advantaged backgrounds tend to be exposed to millions of fewer words in their first three years of life than children who come from more privileged socioeconomic backgrounds. In their research, families were classified by socioeconomic status (SES), into “high” (professional),

10. Vygotsky, L. S. (1962). *Thought and language*. Cambridge: M.I.T. Press, Massachusetts Institute of Technology.

“middle” (working class), and “low” (welfare) SES. They found that the average child in a professional family hears 2,153 words per waking hour, the average child in a working-class family hears 1,251 words per hour, and an average child in a welfare family only 616 words per hour. Extrapolating, they stated that, “in four years, an average child in a professional family would accumulate experience with almost 45 million words, an average child in a working-class family 26 million words, and an average child in a welfare family 13 million words.” The line of thinking following their study is that children from more affluent households would enter school knowing more words, which would give them advantage in school.

Hart and Risley’s research has been criticized by scholars. Critics theorize that the language and achievement gaps are not a result of the number of words a child is exposed to, but rather alternative theories suggest it could reflect the disconnect of linguistic practices between home and school. Thus, judging academic success and linguistic capabilities from socioeconomic status may ignore bigger societal issues. A recent replication of Hart and Risley’s study with found that the “word gap” may be closer to 5 million words, not the oft-cited 30 million words previously proposed. The ongoing word gap research is evidence of the importance of language development in early childhood.

What do you think about this “word gap” notion?

Psychodynamic and Psychosocial Theories of Early Childhood

Freud’s Psychodynamic Theory

Consistent with the sexual development we learned about in the health section, Freud asserted that children pass through two stages of his theory during early childhood: stage 2 (anal stage) and stage 3 (phallic stage).

The **anal stage** begins around 18 months of age and lasts until the child is three years old. During the anal stage, Freud believed that the libido source shifted from the mouth (in stage 1) to the anus. The child, then, receives pleasure from defecating. The child, at this point, understands that they have some amount of control over their lives, including control of when and where they defecate. This can lead to difficulties during potty training. What matters, in terms of Freud’s theory, is how the parent reacts to inevitable difficulties in potty training. Parental reactions during potty training may set-up their child to react in one of two ways: (1) parents who are harsh or who ridicule the child for mistakes may have children who stubbornly hold on to their feces in an effort to not have an accident – these children may become anal retentive or (2) parents who are too easy going may have a child who reacts by purposefully

making a mess – these children may become anal expulsive. Adults who are anal retentive tend to be stubborn, very neat, rigid, and stingy. Adults who are anal expulsive tend to be messy, wasteful, and harsh.

The phallic stage of psychosexual development occurs from ages three to six. According to Freud, during the **phallic stage**, the child develops an attraction to the opposite sex parent, which is called the Oedipus Complex for boys and the Electra Complex for girls. When the child recognizes that the opposite sex parent is unavailable, the child learns to model their own behavior after the same-sex parent. The child develops their own sense of masculinity or femininity from this resolution.

Erikson's Psychosocial Theory: Initiative vs. Guilt



(Image Source: Seattle City Council via Wikimedia Commons, CC0)

While Erik Erikson was influenced by Freud, he believed that the relationships that people have, not psychosexual stages, are what influence personality development. At the beginning of early childhood, the child is still in the autonomy versus shame and doubt stage (stage 2).

By age three, the child begins stage 3: initiative versus guilt. The trust and autonomy of previous stages develop into a desire to take initiative or to think of ideas and initiate action. Children are curious at this age and start to ask questions so that

they can learn about the world. Parents should try to answer those questions without making the child feel like a burden or implying that the child's question is not worth asking.

These children are also beginning to use their imagination. Children may want to build a fort with the cushions from the living room couch, open a lemonade stand in the driveway, or make a zoo with their stuffed animals and issue tickets to those who want to come. Children are more assertive in social interactions and activities. Another way that children may express autonomy is in wanting to get themselves ready for bed without any assistance. To reinforce taking initiative, caregivers should offer praise for the child's efforts and avoid being overly critical of messes or mistakes. Soggy washrags and toothpaste left in the sink pale in comparison to the smiling face of a five-year-old emerging from the bathroom with clean teeth and pajamas!

That said, it is important that caregivers do their best to kindly guide the child to the right actions. Remember that according to Freud and Kohlberg, children are developing a sense of morality during this time. Erikson agrees. If the child does leave those soggy washrags in the sink, have the child help clean them up. It is possible that the child will not be happy with

helping to clean, and the child may even become aggressive or angry, but it is important to remember that children are still learning how to navigate their world. They are trying to build a sense of autonomy, and they may not react well when they are asked to do something that they had not planned. Parents should be aware of this, and try to be understanding, but also firm. The use of gentle parenting, positive discipline, and related consequence will help guide children to positive behaviors. Guilt for a situation where a child did not do their best allows a child to understand their responsibilities and helps the child learn to exercise self-control (remember the marshmallow test). The goal is to find a balance between initiative and guilt, not a free-for-all where the parent allows the child to do anything they want to. Caregivers must guide children if they are to have a successful resolution in this stage.

Video Example

Movies, television, and media, in general, provide many examples of psychosocial development. The movie clips in this video demonstrate Erikson's third stage of development, initiative versus guilt. What other examples can you think of to demonstrate young children developing a sense of autonomy?

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1000#oembed-4>

You can **view the transcript for “initiative vs guilt wlmv 2” here** (opens in new window).

Social Development: The Importance of Play

Three types she labeled as non-social (unoccupied, solitary, and onlooker) and three types were categorized as social play (parallel, associative, and cooperative). Younger children engage in non-social play more than those older; by age five associative and cooperative play are the most common forms of play.¹¹

The development of play is an important milestone in early childhood. Play holds a crucial role in providing a safe, caring, protective, confidential, and containing space where children can recreate themselves and their experiences through an exploratory process.^{12,13} Freud, Vygotsky, and Piaget all viewed play as providing positive outcomes for children.

Further, Parten¹⁴ observed 2 to 5-year-old children and noted six types of play. During this stage, pretend play allows children to express their thoughts, emotions, fears, and anxieties. Early childhood play can be understood by observing the elements of fantasy, organization, and comfort. Fantasy, the process of make-believe, is an essential behavior the child engages in during pretend play; organization helps the child to structure pretend play into a story and to utilize cause-and-effect thinking; and comfort is used to assess the ease and pleasure in the engagement in play.¹⁵

As children progress through the stage of early childhood, they also progress through several stages of non-social and social play. Stages of play is a theory and classification of participation in play developed by Mildred Parten Newhall in 1929.¹⁶ Parten observed American children at free play. She recognized six different types of play:



(Image Source: Skitter photo on Pixabay)

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11. Dyer, S., & Moneta, G. B. (2006). Frequency of parallel, associative, and cooperative play in British children of different socio-economic status. *Social Behavior and Personality*, 34(5), 587-592.
 12. Winnicott, D. W. (2016). *Why children play*. Oxford University Press.
 13. Erikson, E. H. (1963). *Childhood and society* (2nd Ed.). New York: Norton.
 14. Parten, M. B. (1932). Social participation among pre-school children. *The Journal of Abnormal and Social Psychology*, 27(3), 243-269. <https://doi.org/10.1037/h0074524>
 15. Salcuni Silvia, Di Riso Daniela, Mabilia Diana, Lis Adriana (2017). "Psychotherapy with a 3-Year-Old Child: The Role of Play in the Unfolding Process". *Frontiers in Psychology*. Retrieved from <https://www.frontiersin.org/articles/10.3389/fpsyg.2016.02021/full>
 16. Hughes, F. P. (2009). *Children, play, and development* (4th ed.). SAGE Publications.

Parten's Classification of Types of Play in Preschool Children¹⁷

Unoccupied Play	Children's behavior seems more random and without a specific goal. This is the least common form of play.
Solitary Play	Children play by themselves, do not interact with others, nor are they engaging in similar activities as the children around them.
Onlooker Play	Children are observing other children playing. They may comment on the activities and even make suggestions, but will not directly join the play.
Parallel Play	Children play alongside each other, using similar toys, but do not directly act with each other.
Associative Play	Children will interact with each other and share toys, but are not working toward a common goal.
Cooperative Play	Children are interacting to achieve a common goal. Children may take on different tasks to reach that goal.

17. Table 1 Source: *Development through the Lifespan* by Alisa Beyer and Julie Lazzara, licensed CC BY NC SA,

PSYCHOSOCIAL DEVELOPMENT IN EARLY CHILDHOOD

Diana Lang; Nick Cone; Stephanie Loalada; Laura Overstreet; Lumen Learning; Ross Thompson; Joel A Muraco; Wendy Ruiz; Rebecca Laff; and Jamie Skow

The time between a child's second and sixth birthday is full of new social experiences and development. At the beginning of this stage, a child selfishly engages in the world—the goal is to please the self. As children get older, they realize that relationships are built on give-and-take. They typically start to learn to empathize with others and make friends.

While children are learning about their place in various relationships, they are also developing an understanding of emotion. Two-year-olds do not have a good grasp on their emotions, but by the time they are six, most understand their emotions better. They also understand how to control and mask their emotions—even to the point that they may put on a different emotion than they are actually feeling. By the time children reach six years old, they tend to understand that other people have emotions. They typically develop an understanding that all emotions involved in a situation (theirs and other people's) should be taken into consideration. That said, although most six-year-olds understands these things, they are not always good at putting the knowledge into action. We'll examine some of these issues in this section.

Self-Concept

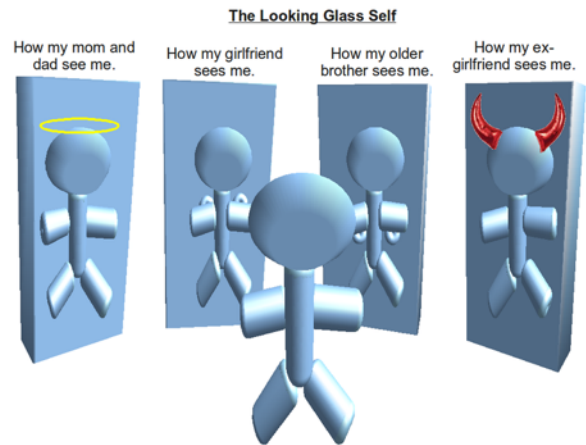
Early childhood is a time of forming an initial sense of self. A **self-concept** or idea of who we are, what we are capable of doing, and how we think and feel is a social process that involves taking into consideration how others view us. It might be said, then, that in order to develop a sense of self, you must have interaction with others. Interactionist theorists, Cooley and Mead, offer two interesting explanations of how a sense of self develops.

Cooley's Looking-Glass Self

Charles Horton Cooley¹ suggested that our self-concept comes from looking at how others respond to us. This process, known as the **looking-glass self** involves looking at how others seem to view us and interpreting this as we make judgments about whether we are good or bad, strong or weak, beautiful or ugly, and so on. Of course, we do not always interpret their responses accurately so our self-concept is not simply a mirror reflection of the views of others. After forming an initial self-concept, we may use our existing self-concept as a mental filter screening out those responses that do not seem to fit our ideas of who we are. So compliments may be negated, for example.

Think of times in your life when you felt more self-conscious. The process of the looking-glass self is pronounced when we are preschoolers. Later in life, we also experience this process when we are in a new school, new job, or are taking on a new role in our personal lives and are trying to gauge our own performance. When we feel more positive about who we are we focus less on how we appear to others.

In summary, self-concept is our self-description according to various categories, such as our external and internal qualities. In contrast, **self-esteem** is an evaluative judgment about who we are. The emergence of cognitive skills in this age group typically results in improved perceptions of oneself.



According to Cooley's concept of the looking glass self, we view ourselves according to how we think others perceive us. (Image Source: via Wikimedia Commons, CC BY 3.0)

1. Cooley, C.H. (1964) Human nature and the social order. Schocken, New York.

Video Example

Watch this Khan Academy video to learn more about Charles Cooley's looking-glass self.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-1>

You can **view the transcript for “Introduction to Sociology: Charles Cooley: Looking glass self” here** (opens in new window).

Mead's I and Me

George Herbert Mead² offered an explanation of how we develop a social sense of self by being able to see ourselves through the eyes of others. There are two parts of the self: the “I” which is the part of the self that is spontaneous, creative, innate, and is not concerned with how others view us, and the “me” or the social definition of who we are.

When we are born, we are all “I” and act without concern about how others view us. But the socialized self begins when we are able to consider how one important person views us. This initial stage is called, “taking the role of the significant other.” For example, a child may pull a cat's tail and be told by his mother, “No! Don't do that, that's bad” while receiving a slight slap (spanking or slightly slapping is not a recommended child-rearing practice) on the hand. Later, the child may mimic the same behavior toward the self and say aloud, “No, that's bad” while patting his own hand. What has happened? The child is able to see himself through the eyes of the mother. As the child grows and is exposed to many situations and rules of culture, he begins to view the self in the eyes of many others through these cultural norms or rules. This is referred to as “taking the role of the generalized other” and results in a sense of self with many dimensions. The child comes to have a sense of self as a student, as a friend, as a son, and so on.

2. Mead, G. H. (1967). *Mind, self, and society: from the standpoint of a social behaviorist*. USA: University of Chicago.

Exaggerated Sense of Self

One of the ways to gain a clearer sense of self is to exaggerate those qualities that are to be incorporated into the self. Preschoolers often like to exaggerate their own qualities and seek validation from adults and/or peers. They seek validation such as if they are the biggest or smartest child or the child who can jump the highest. Much of this may be due to the simple fact that children typically do not understand their own limits. Young children may really believe that they can pick up the refrigerator or win a running race with an Olympic athlete.

This exaggeration tends to be replaced by a more realistic sense of self in middle childhood as children realize that they do have limitations. Part of this process includes having caregivers who allow children to explore their capabilities and give the child authentic feedback. Another important part of this process involves children learning that other people have capabilities, too, and that their own capabilities may differ from those of others.

Self-Control

One important aspect of self-concept is how we understand our ability to exhibit self-control and delay gratification. Self-control involves both response inhibition and delayed gratification. Response inhibition involves the ability to recognize a potential behavior before it occurs and stop the initiation of behaviors that could result in undesired consequences. Delayed gratification refers to the process of forgoing immediate or short-term rewards to achieve more valuable goals in the longer term. The ability to delay gratification was traditionally assessed in young children with the “Marshmallow Test.” During this experiment, participants were presented with a marshmallow (or another small treat) and were given a choice to eat it or wait for a certain period of time without eating it, so that they could have two marshmallows.³

While self-control takes many years to develop, we typically see the beginnings of this skill during early childhood. This ability to delay gratification in young children has been shown to predict many positive outcomes. For instance, preschoolers who were able to delay gratification for a longer period of time had higher levels of resilience, better academic and social competence, and greater planning ability in their adolescence.⁴ Recent research has

3. Mischel, W., Ayduk, O., Berman, M. G., Casey, B. J., Gotlib, I. H., Jonides, J., Kross, E., Teslovich, T., Wilson, N. L., Zayas, V., & Shoda, Y. (2011). “Willpower” over the life span: decomposing self-regulation. *Social Cognitive and Affective Neuroscience*, 6(2), 252–256. <https://doi.org/10.1093/scan/nsq081>

4. Mischel, W., Shoda, Y., & Peake, P. K. (1988). The nature of adolescent competencies predicted by preschool delay of gratification. *Journal of Personality and Social Psychology*, 54(4), 687–696. <https://doi.org/10.1037//0022-3514.54.4.687>

linked poor delayed gratification in young children to poor eating self-regulation, specifically regarding eating when not hungry and behavioral problems.⁵

Video Example

This video explains Mead's understanding of the "I" and the "me," and compares it to other concepts you've already learned about, like egocentrism.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-2>

You can view the transcript for "George Herbert Mead- The I and the Me | Individuals and Society | MCAT | Khan Academy" here (opens in new window).

Gender Identity, Gender Constancy, and Gender Roles

Another important dimension of the self is the sense of self as male or female. Preschool aged children become increasingly interested in finding out the differences between boys and girls both physically and in terms of what activities are acceptable for each. While two-year-olds can identify some differences and learn whether they are boys or girls, preschoolers become more interested in what it means to be male or female. This self-identification, or gender identity, is followed sometime later with gender constancy, or the understanding that superficial changes do not mean that gender has actually changed. For example, if you are playing with a two-year-old boy and put barrettes in his hair, he may protest saying that he doesn't want to be a girl. By the time a child is four-years-old, they have a solid understanding that putting barrettes in their hair does not change their gender.

Children learn at a young age that there are distinct expectations for boys and girls. Cross-cultural studies reveal that children are aware of gender roles by age two or three. At four or five, most children are firmly entrenched in culturally appropriate gender roles (Kane 1996). Children acquire these roles through socialization, a process in which people learn to behave in a particular way as dictated by societal values, beliefs, and attitudes.

5. Giuliani, N. R., & Kelly, N. R. (2021). Delay of gratification predicts eating in the absence of hunger in preschool-aged children. *Frontiers in Psychology*, 12, 650046. <https://doi.org/10.3389/fpsyg.2021.650046>

Children may also use gender stereotyping readily. Gender stereotyping involves overgeneralizing about the attitudes, traits, or behavior patterns of women or men. A recent research study examined four- and five-year-old children's predictions concerning the sex of the persons carrying out a variety of common activities and occupations on television. The children's responses revealed strong gender-stereotyped expectations. They also found that children's estimates of their own future competence indicated stereotypical beliefs, with the females more likely to reject masculine activities.

Children who are allowed to explore different toys, who are exposed to non-traditional gender roles, and whose parents and caregivers are open to allowing the child to take part in non-traditional play (allowing a boy to nurture a doll, or allowing a girl to play doctor) tend to have broader definitions of what is gender appropriate, and may do less gender stereotyping.

Video Example

This clip from Upworthy shows how some children were surprised to meet women in traditionally male occupations.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-3>

You can view the transcript for “A Class That Turned Around Kids’ Assumptions of Gender Roles!” [here](#) (opens in new window).

Link to Learning – Dig Deeper: Gender Identity Development

The National Center on Parent, Family, and Community Engagement identified several stages of gender identity development, as outlined below. You can see more of their resources and tips for healthy gender development by reading *Healthy Gender Development and Young Children*.

- **Infancy.** Children observe messages about gender from adults' appearances, activities, and behaviors. Most parents' interactions with their infants are shaped by the child's gender, and this in turn also shapes the child's understanding of gender.⁶⁷⁸
- **18–24 months.** Toddlers begin to define gender, using messages from many sources. As they develop a sense of self, toddlers look for patterns in their homes and early care settings. Gender is one way to understand group belonging, which is important for secure development.⁹¹⁰¹¹¹²¹³¹⁴¹⁵
- **Ages 3–4.** Gender identity takes on more meaning as children begin to focus on all kinds of differences. Children begin to connect the concept “girl” or “boy” to specific attributes. They form stronger rules or expectations for how each gender behaves and looks.¹⁶¹⁷¹⁸
- **Ages 5–6.** At these ages, children's thinking may be rigid in many ways. For example, 5- and 6-year-olds are very aware of rules and of the pressure to comply with them. They do so rigidly because they are not yet developmentally ready to think more deeply about the beliefs and values that many rules are based on. For example, as early educators and parents know, the use of “white lies” is still hard for them to understand. Researchers call these ages the most “rigid” period of gender identity.¹⁹²⁰²¹ A child who wants to do or wear things that are not typical of his gender is probably aware that other children find it strange. The persistence of these choices, despite the negative reactions of others, show that these are strong feelings. Gender rigidity typically declines as children age.²²²³ With this change, children develop stronger moral impulses about what is “fair” for themselves and other children.²⁴

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6. Fagot, B. I., & Leinbach, M. D. (1989). The young child's gender schema: Environmental input, internal organization. *Child Development*, 60(3), 663–672.
7. Witt, S. (1997). Parental Influence on Children's Socialization to Gender Roles. *Adolescence*, 32(126), 253–259.
8. Zosuls, K. M., Miller, C. F., Ruble, D. N., Martin, C. L., & Fabes, R. A. (2011). Gender Development Research in Sex Roles: Historical Trends and Future Directions. *Sex Roles*, 64(1112),
9. Kuhn, D., Nash, S. C., & Bruckner, L. (1978). Sex role concepts of two-and three-year-olds. *Child Development*, 49(2), 445–451

It is important to understand these typical and normal attempts for children to understand the world around them. It is helpful to encourage children and support them as individuals, instead of emphasizing or playing into gender roles and expectations. You can foster self-esteem in children of any gender by giving all children positive feedback about their unique skills and qualities. For example, you might say to a child, “I noticed how kind you were to your friend when she fell down” or “You were very helpful with clean-up today—you are such a great helper” or “You were such a strong runner on the playground today.”

Learning Through Reinforcement and Modeling

Learning theorists suggest that gender role socialization is a result of the ways in which parents, teachers, friends, schools, religious institutions, media, and others send messages

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10. Langlois, J. H., & Downs, A. C. (1980). Mothers, fathers, and peers as socialization agents of sex-typed play behaviors in young children. *Child Development*, 51(4), 1237–1247.
 11. Fagot, B. I., & Leinbach, M. D. (1989). The young child's gender schema: Environmental input, internal organization. *Child Development*, 60(3), 663–672.
 12. Baldwin, D., & Moses, L. (1996). The ontogeny of social information gathering. *Child Development*, 67(5), 1915–1939.
 13. Witt, S. (1997). Parental Influence on Children's Socialization to Gender Roles. *Adolescence*, 32(126), 253–259.
 14. Antill, J. K., Cunningham, J. D., Cotton, S. (2003). Gender-role attitudes in middle school: In what ways do parents influence their children? *Australian Journal of Psychology*, 55, 148–153.
 15. Zosuls, K. M., Ruble, D. N., Tamis-LeMonda, C. S., Shrout, P. E., Bornstein, M. H., & Greulich, F. K. (2009). The acquisition of gender labels in infancy: Implications for gender-typed play. *Developmental Psychology*, 45(3), 688.
 16. Kuhn, D., Nash, S. C., & Bruckner, L. (1978). Sex role concepts of two-and three-year-olds. *Child Development*, 49(2), 445–451.
 17. Martin, C. L., Ruble, D. N., & Szkrybalo, J. (2004). Recognizing the centrality of gender identity and stereotype knowledge in gender development and moving toward theoretical integration: reply to Bandura and Bussey. *Psychological Bulletin*, 130(5), 702–710.
 18. Halim, M. L., & Ruble, D. (2010). Gender identity and stereotyping in early and middle childhood. In *Handbook of Gender Research in Psychology* (pp. 495–525). Springer: New York.
 19. Weinraub, M., Clemens, L. P., Sockloff, A., Ethridge, T., Gracely, E., & Myers, B. (1984). The development of sex role stereotypes in the third year: Relationships to gender labeling, gender identity, sex-typed toy preference, and family characteristics. *Child Development*, 55(4), 1493–1503.
 20. Egan, S., Perry, D., G. & Dannemiller, J.L. (2001). Gender Identity: A multidimensional analysis with implications for psychosocial adjustment. *Developmental Psychology*, 37(4), 451–463.
 21. Miller, C. F., Lurye, L. E., Zosuls, K. M., & Ruble, D. N. (2009). Accessibility of gender stereotype domains: Developmental and gender differences in children. *Sex Roles*, 60(11-12), 870–881.
 22. Trautner, H. M., Ruble, D. N., Cyphers, L., Kirsten, B., Behrendt, R., & Hartmann, P. (2005). Rigidity and flexibility of gender stereotypes in childhood: developmental or differential? *Infant and Child Development*, 14(4), 365–381.
 23. Halim, M., Ruble, D., Tamis-Lemonda, C., & Shrout, P. (2013). Rigidity in gender-typed behaviors in early childhood: A longitudinal study of ethnic minority children. *Child Development*, 84(4), 1269–1284.
 24. Killen, M., & Stangor, C. (2001). Children's social reasoning about inclusion and exclusion in gender and race peer group contexts. *Child Development*, 72(1), 174–186.

about what is acceptable or desirable behavior for males or females. This socialization begins early—in fact, it may even begin the moment a parent learns that a child is on the way. Knowing the sex of the child can conjure up images of the child’s behavior, appearance, and potential on the part of a parent. And this stereotyping continues to guide perception through life. Consider parents of newborns. Shown a 7-pound, 20-inch baby, wrapped in blue (a color designating males) describe the child as tough, strong, and angry when crying. Shown the same infant in pink (a color used in the United States for baby girls), these parents are likely to describe the baby as pretty, delicate, and frustrated when crying.²⁵ Female infants are held more, talked to more frequently and given direct eye contact, while male infants’ play is often mediated through a toy or activity.

One way children learn gender roles is through play. Parents typically supply boys with trucks, toy guns, and superhero paraphernalia, which are active toys that promote motor skills, aggression, and solitary play. Daughters are often given dolls and dress-up apparel that foster nurturing, social proximity, and role play. Studies have shown that children will most likely choose to play with “gender appropriate” toys (or same-gender toys) even when cross-gender toys are available because parents give children positive feedback (in the form of praise, involvement, and physical closeness) for gender normative behavior.²⁶



Little girls are often encouraged to play with toys that support female stereotypes of being nurturing. (Image Source: Nenad Stojkovic on Flickr, CC BY 2.0)

Sons are given tasks that take them outside the house and that have to be performed only on occasion, while girls are more likely to be given chores inside the home, such as cleaning or cooking, that are performed daily. Sons are encouraged to think for themselves when they encounter problems, and daughters are more likely to be given assistance even when they are working on an answer. This impatience is reflected in teachers waiting less time when asking a female student for an answer than when asking for a reply from a male student.²⁷ Girls

25. Maccoby, E., & Jacklin, C. (1987). Gender segregation in childhood. *Advances in Child Development and Behavior*, 20, 239-287.

26. Caldera, Y. M., Huston, A. C., & O'Brien, M. (1989). Social interactions and play patterns of parents and toddlers with feminine, masculine, and neutral toys. *Child Development*, 60(1), 70-76. <https://doi.org/10.1111/j.1467-8624.1989.tb02696.x>

27. Sadker, M., & Sadker, D. M. (1994). *Failing at fairness: How America's schools cheat girls*. New York: C. Scribner's Sons.

are given the message from teachers that they must try harder and endure in order to succeed while boys successes are attributed to their intelligence. Of course, the stereotypes of advisors can also influence which kinds of courses or vocational choices girls and boys are encouraged to make.

Friends discuss what is acceptable for boys and girls, and popularity may be based on modeling what is considered ideal behavior or appearance for the sexes. Girls tend to tell one another secrets to validate others as best friends, while boys compete for position by emphasizing their knowledge, strength or accomplishments. This focus on accomplishments can even give rise to exaggerating accomplishments in boys, but girls are discouraged from showing off and may learn to minimize their accomplishments as a result.

Gender messages abound in our environment. But does this mean that each of us receives and interprets these messages in the same way? Probably not. In addition to being recipients of these cultural expectations, we are individuals who also modify these roles.²⁸

One interesting recent finding is that girls may have an easier time breaking gender norms than boys.²⁹ Girls who play with masculine toys often do not face the same ridicule from adults or peers that boys face when they want to play with feminine toys. Girls also face less ridicule when playing a masculine role (like doctor) as opposed to a boy who wants to take a feminine role (like caregiver).

Video Example

This video provides an overview of common toy commercials and how they can be analyzed based on recent research on gender stereotypes. What gender roles or gender stereotypes have you noticed in toy commercials? How do you think toy commercials have changed over the past few years?

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-4>

You can view the transcript for “Toy Commercials: Playing with Gender” here (opens in new window).

28. Kimmel, M. S. (2008). *The gendered society* (3rd ed.). Oxford: Oxford University Press.

29. Strauss, E. (April 2018). "Why girls can be boyish but boys can't be girlish". CNN. <https://www.cnn.com/2018/04/12/health/boys-girls-gender-norms-parenting-strauss/index.html>.

The Impact of Gender Discrimination

How much does gender matter? In the United States, gender differences are found in school experiences. Even into college and professional school, girls are less vocal in class and much more at risk for sexual harassment from teachers, coaches, classmates, and professors. These gender differences are also found in social interactions and in media messages. The stereotypes that boys should be strong, forceful, active, dominant, and rational, and that girls should be pretty, subordinate, unintelligent, emotional, and talkative are portrayed in children's toys, books, commercials, video games, movies, television shows, and music. In adulthood, these differences are reflected in income gaps between men and women (women working full-time earn about 74 percent the income of men), in higher rates of women suffering rape and domestic violence, higher rates of eating disorders for females, and in higher rates of violent death for men in young adulthood.

Gender differences in India can be a matter of life and death as preferences for male children have been historically strong and are still held, especially in rural areas.³⁰ Male children are given preference for receiving food, breast milk, medical care, and other resources. In some countries, it is no longer legal to give parents information on the sex of their developing child for fear that they will abort a female fetus. Clearly, gender socialization and discrimination still impact development in a variety of ways across the globe. Gender discrimination generally persists throughout the lifespan in the form of obstacles to education, or lack of access to political, financial, and social power.

Family Factors: Parenting Styles

Diana Baumrind's Parenting Styles

The parenting style used to rear a child will likely impact that child's future success in romantic, peer and parenting relationships. Diana Baumrind, a clinical and developmental psychologist, coined the following parenting styles: authoritative, authoritarian, and permissive/indulgent. Later, Maccoby and Martin added the uninvolved/neglectful style.³¹

30. World Health Organization (2011). Gender and genetics: Sex selection and the law. <http://www.who.int/genomics/gender/en/index4.html>

31. *Baumrind's Parenting Styles* is an adaptation of *Child, Family, and Community (Chapter 6: A Closer Look at Parenting)* by Laff & Ruiz (2019), licensed CC BY 4.0 and *Social and Personality Development in Childhood* by Ross Thompson, licensed CC BY NC SA.



Like effective teaching, effective parenting requires a mix of authoritative and considerate responses to a child's needs. This balance can lead to more appreciative child behavior. (Image Source: Pixabay, CC0)

It is beneficial to evaluate the support and demandingness of a caregiver in order to determine which style is being used and how to effectively use it. Support refers to the amount of affection, acceptance, and warmth a parent provides to a child. Demandingness refers to the degree a parent controls a child's behavior.

Authoritative Parenting

In general, children tend to develop greater competence and self-confidence when parents have high-but reasonable and consistent- expectations for children's behavior, communicate well with them, are

warm and responsive, and use reasoning rather than coercion to guide children's behaviors. This kind of parenting style has been described as **authoritative**.³² Parents who use this style are supportive and show interest in their kids' activities but are not overbearing and allow children to make constructive mistakes. This "tender teacher" approach deemed the most optimal parenting style to use in western cultures. Children whose parents use the authoritative style are generally happy, capable, and successful.³³

32. Baumrind, D. (2013). Authoritative parenting revisited: History and current status. In R. E. Larzelere, A. Sheffield, & A. W. Harrist (Eds.), *Authoritative parenting: Synthesizing nurturance and discipline for optimal child development*. Washington, DC: American Psychological Association.

33. Maccoby, E. E. (1992). The role of parents in the socialization of children: An historical overview. *Developmental Psychology*, 28(6), 1006–1017.

Authoritarian Parenting

Parents using the **authoritarian** (“rigid ruler”) approach are low in support and high in demandingness. These parents expect and demand obedience because they are “in charge” and they do not provide any explanations for their orders.³⁴ Parents also provide well-ordered and structured environments with clearly stated rules.

Many would conclude that this is the parenting style used by Harry Potter’s harsh aunt and uncle, and Cinderella’s vindictive stepmother. Children reared in environments using the authoritarian approach are more likely to be obedient and proficient, but score lower in happiness, social competence, and self-esteem.



Authoritarian parenting called “rigid ruler” in part because wooden rulers were often used for capital punishment in the 20th century. (Image Source: PxFuel)

Permissive Parenting

Parents who are high in support and low in demandingness are likely using the **permissive**—also called the indulgent-style. Their children tend to rank low in happiness and self-regulation, and are more likely to have problems with authority. Parents using this approach are lenient, do not expect their children to adhere to boundaries or rules, and avoid confrontation.³⁵

Uninvolved Parenting

Children reared by parents who are low in both support and demandingness tend to rank lowest across all life domains, lack self-control, have low self-esteem, and are less competent than their peers. Parents using the **uninvolved** (or sometimes referred to as indifferent or neglectful) approach are neglectful or rejecting of their children and do not provide most, if any, necessary parenting responsibilities.

34. Baumrind, D. (1991). Parenting styles and adolescent development. In J. Brooks-Gunn, R. M. Lerner, & A. C. Petersen (Eds.), *The encyclopedia on adolescence* (pp. 746-758). New York: Garland Publishing.

35. Baumrind, D. (1991). Parenting styles and adolescent development. In J. Brooks-Gunn, R. M. Lerner, & A. C. Petersen (Eds.), *The Encyclopedia on Adolescence* (pp. 746-758). New York: Garland Publishing.

Video Example

Watch about Baumrind's parenting styles

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-5>

Parenting Styles and Outcomes for Children

Parenting style has been found to predict child well-being in the domains of social competence, academic performance, psychosocial development, and problem behavior. Research in the United States, based on parent interviews, child reports, and parent observations consistently finds:

- Children and adolescents whose parents use the authoritative style typically rate themselves and are rated by objective measures as more socially and instrumentally competent than those whose parents do not use the authoritative style.^{36 37 38}
- Children and adolescents whose parents are uninvolved typically perform most poorly in all domains.

In general, parental responsiveness tends to predict social competence and psychosocial functioning, while parental demandingness is typically associated with instrumental competence and behavioral control (e.g., academic performance and deviance). These findings indicate:

- Children and adolescents reared in households using the authoritarian style (high in demandingness, but low in responsiveness) tend to perform moderately well in school

36. Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence*, 11(1), 56-95.

37. Weiss, L. H., & Schwarz, J. C. (1996). The relationship between parenting types and older adolescents' personality, academic achievement, adjustment, and substance use. *Child Development*, 67(5), 2101-2114. EJ 539 840.

38. Miller, N. B., Cowan, P. A., Cowan, C. P., & Hetherington, E. M. (1993). Externalizing in preschoolers and early adolescents: A cross-study replication of a family model. *Developmental Psychology*, 29(1), 3-18. EJ 461 700.

and be uninvolved in problem behavior, but tend to have poorer social skills, lower self-esteem, and higher levels of depression when compared to their peers who are reared in households using the authoritative approach.

- Children and adolescents reared in homes using the indulgent style (high in responsiveness, low in demandingness) tend to be more involved in problem behavior and perform less well in school, but they have been shown to have higher self-esteem, better social skills, and lower levels of depression when compared to their peers who are not reared using the indulgent style.³⁹

Table 1. Four parenting styles. Other, less advantageous parenting styles include authoritarian (in contrast to authoritative), permissive, and uninvolved.

	Support (Low)	Support (High)
Demand (Low)	Uninvolved	Permissive
Demand (High)	Authoritarian	Authoritative

In reviewing the literature on parenting styles, it is apparent that using the authoritative parenting style is associated with both instrumental and social competence and lower levels of problem behavior at all developmental stages for youth in the United States. The benefits of using the authoritative parenting style and the detrimental effects of the uninvolved parenting style are evident as early as the preschool years and continue throughout adolescence and into early adulthood.

Support for Baumrind's Authoritative Parenting

Support for the benefits of authoritative parenting has been found in countries as diverse as

39. Darling, N. (1999). Parenting style and its correlates. *ERIC digest*. Retrieved from <https://www.ericdigests.org/1999-4/parenting.htm>

the Czech Republic,⁴⁰ India,⁴¹ China,⁴² Israel,⁴³ and Palestine.⁴⁴ In fact, authoritative parenting appears to be superior in Western, individualistic societies—so much so that some people have argued that there is no longer a need to study it.⁴⁵

Other researchers are less certain about authoritative parenting and point to differences in cultural values and beliefs. For example, while many children reared in European-American cultures fare poorly with too much strictness (authoritarian parenting), children reared in Chinese cultures often perform well, especially academically. The reason for this likely stems from Chinese culture viewing strictness in parenting as related to training, which is not central to American parenting beliefs.⁴⁶

As children mature, parent-child relationships should naturally adapt to accommodate developmental changes. Parent-child relationships that do not adapt to a child's abilities can lead to high parent-child conflict and ultimately a reduced parent-child relationship quality.⁴⁷

Stress in Early Childhood

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- 40. Dmitrieva, J., Chen, C., Greenberger, E., & Gil-Rivas, V. (2004). Family relationships and adolescent psychosocial outcomes: Converging findings from Eastern and Western cultures. *Journal of Research on Adolescence*, 14, 425-447.
 - 41. Carson, D., Chowdhury, A., Perry, C., & Pati, C. (1999). Family characteristics and adolescent competence in India: Investigation of youth in southern Orissa. *Journal of Youth and Adolescence*, 28, 211-233.
 - 42. Pilgrim, C., Luo, Q., Urberg, K.A., & Fang, X. (1999). Influence of peers, parents, and individual characteristics on adolescent drug use in two cultures. *Merrill-Palmer Quarterly*, 45, 85-107.
 - 43. Mayseless, O., Scharf, M., & Sholt, M. (2003). From authoritative parenting practices to an authoritarian context: Exploring the person-environment fit. *Journal of Research on Adolescence*, 17, 23-50.
 - 44. Punamaki, R., Qouta, S., & Sarraj, E. (1997). Models of traumatic experiences and children's psychological adjustment: The roles of perceived parenting and the children's own resources and activity. *Child Development*, 68, 718-728.
 - 45. Steinberg, L. (2001). We know some things: Adolescent-parent relationships in retrospect and prospect. *Journal of Research on Adolescence*, 11, 1-19.
 - 46. Chao, R. K. (1994). Beyond parental control and authoritarian parenting style: Understanding Chinese parenting through the cultural notion of training. *Child Development*, 65, 1111-1119.
 - 47. Support for Baumrind's Authoritative Parenting is taken from *The Family* by Joel A Muraco, licensed CC BY NC SA.

What is the impact of stress on child development? The answer to that question is complex and depends on several factors including the number of stressors, the duration of stress, and the child's ability to cope with stress.

Children experience different types of stressors that could be manifest in various ways. Normal, everyday stress can provide an opportunity for young children to build coping skills and poses little risk to development. Even long-lasting stressful events, such as changing schools or losing a loved one, can be managed fairly well.

Some experts have theorized that there is a point where prolonged or excessive stress becomes harmful and can lead to serious health effects. When stress builds up in early childhood, neurobiological factors are affected; in turn, levels of the stress hormone cortisol exceed normal ranges. Due in part to the biological consequences of excessive cortisol, children can develop physical, emotional, and social symptoms. Physical conditions include cardiovascular problems, skin conditions, susceptibility to viruses, headaches, or stomach aches in young children. Emotionally, children may become anxious or depressed, violent, or feel overwhelmed. Socially, they may become withdrawn and act out towards others, or develop new behavioral ticks such as biting nails or picking at skin.



Young children exposed to toxic stress are at risk of developing physical, emotional, and social symptoms.

Types of Stress

Researchers have proposed three distinct types of responses to stress in young children: positive, tolerable, and toxic. Positive stress (also called eustress) is necessary and promotes resilience, or the ability to function competently under threat. Such stress arises from brief, mild to moderate stressful experiences, buffered by the presence of a caring adult who can help the child cope with the stressor. This type of stress causes minor, temporary physiological and hormonal changes in the young child such as an increase in heart rate and a change in hormone cortisol levels. The first day of school, a family wedding or making new friends are all examples of positive stressors. Tolerable stress comes from adverse experiences that are more intense in nature but short-lived and can usually be overcome. Some examples of tolerable stressors are family disruptions, accidents or the death of a loved one. The body's stress response is more intensely activated due to severe stressors; however, the response is still adaptive and temporary.

Toxic stress is a term coined by pediatrician Jack P. Shonkoff of the Center on the Developing Child at Harvard University to refer to chronic, excessive stress that exceeds a child's ability to cope, especially in the absence of supportive caregiving from adults. Extreme, long-lasting stress in the absence of supportive relationships to buffer the effects of a heightened stress response can produce damage and weakening of bodily and brain systems, which can lead to diminished physical and mental health throughout a person's lifetime. Exposure to such toxic stress can result in the stress response system becoming more highly sensitized to stressful events, producing increased wear and tear on physical systems through over-activation of the body's stress response. This wear and tear increases the later risk of various physical and mental illnesses.

Consequences of Toxic Stress

Children who experience toxic stress or who live in extremely stressful situations of abuse over long periods of time can suffer long-lasting effects. The structures in the midbrain or limbic system, such as the hippocampus and amygdala, can be vulnerable to prolonged stress.⁴⁸ High levels of the stress hormone cortisol can reduce the size of the hippocampus and affect a child's memory abilities. Stress hormones can also reduce immunity to disease. If the brain is exposed to long periods of severe stress, it can develop a low threshold, making a child hypersensitive to stress in the future.

With chronic toxic stress, children undergo long term hyper-arousal of brain stem activity. This includes an increase in heart rate, blood pressure, and arousal states. These children may experience a change in brain chemistry, which leads to hyperactivity and anxiety. Therefore, it is evident that chronic stress in a young child's life can create significant physical, emotional, psychological, social and behavioral changes; however, the effects of stress can be minimized if the child has the support of caring adults.

48. Middlebrooks, J. S., & Audage, N. C. (2008). The effects of childhood stress on health across the lifespan. (United States, Center for Disease Control, National Center for Injury Prevention and Control). Atlanta, GA.

Video Example

This short video explains some of the biological changes that accompany toxic stress.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-6>

You can view the transcript for “3. Toxic Stress Derails Healthy Development” here (opens in new window).

Coping with Stress

Stress is encountered in four different stages. In the first stage, stress usually causes alarm. Next, in the second or appraisal stage, the child attempts to find meaning from the event. Stage three consists of children seeking out coping strategies. Lastly, in stage four, children execute one or more of the coping strategies. However, children with a lower tolerance for stressors are more susceptible to alarm and find a broader array of events to be stressful. These children often experience chronic or toxic stress.

Some recommendations to help children manage stressful situations include:

- Preparing children for everyday stressful situations, such as traveling to new places or going to the doctor. For example, talk to children about the experience to help them understand that it is okay to be stressed and scared.
- Keeping communication open. This includes making sure that the child feels comfortable talking to a person. This may include being in a comfortable space, such as their bedroom, where they feel safe. The comfort level of the child is important because if a child is not comfortable, or feels forced to speak, they may not open up at all.
- Spending time together as a family so that no one’s feelings go unseen; ensuring that a child knows that their feelings are valued, and should be expressed in healthy ways.
- Modeling healthy and successful coping mechanisms (such as going for a walk).
- Encouraging children to express themselves creatively (as an outlet or to help others to understand what is stressing the child). Some healthy outlets of stress relief include sports or running, writing, reading, art, as well as playing musical instruments.
- Teaching children to act and think positively when they are faced with a situation to manage the stress before it becomes overwhelming.

- Providing a safe and healthy home and environment for children.
- Providing children with proper nutrition and attention.
- Ensuring children are not exposed to substance abuse or violence. When a healthy environment is provided, children are more likely to be emotionally and physically healthy.

Examples

This video describes a variety of factors involved in the development of resilience.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-7>

You can view the transcript for “InBrief: The Science of Resilience” here (opens in new window).

Trauma in Childhood

Childhood trauma is referred to in academic literature as **adverse childhood experiences** (ACEs). Children may go through a range of experiences that classify as psychological trauma, these might include neglect, abandonment, sexual abuse, physical abuse, parent or sibling treated violently, separation or incarceration of parents, or having a parent with a mental illness. These events have profound psychological, physiological, and sociological impacts and can have negative, lasting effects on health and well-being.

Kaiser Permanente and the Centers for Disease Control and Prevention’s 1998 study on adverse childhood experiences determined that traumatic experiences during childhood are a root cause of many social, emotional, and cognitive impairments that lead to increased risk of unhealthy self-destructive behaviors, risk of violence or re-victimization, chronic health conditions, low life potential, and premature mortality. As the number of adverse experiences increases, the risk of problems from childhood through adulthood also rises. Nearly 30 years of study following the initial study has confirmed this. Many states, health providers, and other groups now routinely screen parents and children for ACEs.

Video Example

Watch this Ted talk from pediatrician Nadine Burke Harris as she explains the impact of childhood trauma across the lifespan.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=1002#oembed-8>

You can view the transcript for “How childhood trauma affects health across a lifetime | Nadine Burke Harris” here (opens in new window).

EDUCATION AND MEDIA IN EARLY CHILDHOOD

Diana Lang; Nick Cone; Stephanie Loalada; Laura Overstreet; Martha Lally; Suzanne Valentine-French; and Jamie Skow

Childcare

High-quality childcare programs can enhance a child's social skills and can provide rich learning experiences. However, poor quality childcare can have negative consequences for young children in particular. What determines the quality of childcare? One very important consideration is the teacher/child ratio. States specify the maximum number of children that can be supervised by one teacher. In general, the younger the children, the more teachers required for a given number of children. A lower teacher-to-child ratio should afford teachers to have more involvement with the children and less stress so teacher interactions can be more relaxed, stimulating, and positive.

The physical environment of high-quality childcare should be colorful, stimulating, clean, developmentally-appropriate, and safe. The philosophy of the organization and the curriculum available should be child-centered, positive, and stimulating. Providers should be trained in early childhood education as well. A majority of states do not require training for their childcare providers. All childcare providers should provide a warm, loving relationship to children and possess knowledge of child development to address children's social, emotional, and cognitive needs in an effective way. By working toward improving the quality of childcare and increasing family-friendly workplace policies, such as more flexible scheduling and perhaps childcare facilities at places of employment, we can accommodate families with younger children and relieve parents of the stress sometimes associated with managing work and family life.

Preschool

Providing universal preschool has become an important lobbying point for federal, state, and local leaders throughout our country. To set criteria for designation as a high quality

preschool, the National Association for the Education of Young Children (NAEYC) identifies 10 standards.¹ These include:

- Positive relationships among all children and adults are promoted.
- A curriculum that supports learning and development in social, emotional, physical, language, and cognitive areas.
- Teaching approaches that are developmentally, culturally, and linguistically appropriate.
- Assessment of children's progress to provide information on learning and development.
- The health and nutrition of children are promoted, while they are protected from illness and injury.
- Teachers possess the educational qualifications, knowledge, and commitment to promote children's learning.
- Collaborative relationships with families are established and maintained.
- Relationships with agencies and institutions in the children's communities are established to support the program's goals.
- Indoor and outdoor physical environments are safe and well-maintained.
- Leadership and management personnel are well qualified, effective, and maintain licensure status with the applicable state agency.

Primary caregivers should review preschool programs using the NAEYC criteria as a guide and template for asking questions that will assist them in choosing the best program for their child. Selecting the right preschool is also difficult because there are so many types of preschools available. Zachry (2013) identified Montessori, Waldorf, Reggio Emilia, High Scope, Parent Co-Ops, and Bank Street as types of preschool programs that focus on children learning through discovery. Teachers act as guides and create activities based on the child's developmental level.²

1. National Association for the Education of Young Children. (2016). *The 10 NAEYC program standards*. <http://families.naeyc.org/accredited-article/10-naeyc-program-standards>

2. Zachry, A. (2013). *6 Types of Preschool Programs*. Retrieved from <http://www.parents.com/toddlers-preschoolers/starting-preschool/preparing/types-of-preschool-programs/>

Head Start

For children who live in poverty, Head Start has been providing preschool education since 1965 when it was begun by President Lyndon Johnson as part of his war on poverty. In 2013, research revealed that Head Start served nearly one million children and annually costs approximately 7.5 billion dollars.³

However, concerns about the effectiveness of Head Start have been ongoing since the program began. Armor (2015) reviewed existing research on Head Start and found there were no lasting gains, and the average child in Head Start had not learned more than children who did not receive preschool education.⁴

A recent report dated July 2015 evaluating the effectiveness of Head Start comes from the What Works Clearinghouse. The What Works Clearinghouse identifies research that provides reliable evidence of the effectiveness of programs and practices in education and is managed by the Institute of Education Services for the United States Department of Education. After reviewing 90 studies on the effectiveness of Head Start, only one study was deemed scientifically acceptable and this study showed disappointing results.⁵ This study showed that 3 and 4-year-old children in Head Start received “potentially positive effects” on general reading achievement, but no noticeable effects on math achievement and social-emotional development.

Nonexperimental designs are a significant problem in determining the effectiveness of Head Start programs because a control group is needed to show group differences that would demonstrate educational benefits. Because of ethical reasons, low-income children are usually provided with some type of preschool programming in an alternative setting. Additionally,



Head Start students learning in class. (Image Source: HHS gov via Wikimedia Commons)

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3. United States Department of Health and Human Services. (2015). *Head start program facts fiscal year 2013*. Retrieved from <http://eclkc.ohs.acf.hhs.gov/hslc/data/factsheets/docs/hs-program-fact-sheet-2013.pdf>
 4. Armor, D. J. (2015). Head start or false start. *USA Today Magazine*. Retrieved from <https://www.questia.com/magazine/1G1-429736352/head-start-or-false-start>
 5. Barshay, J. (2015). Report: Scant scientific evidence for Head Start programs' effectiveness. *U.S. News and World Report*. Retrieved from <http://www.usnews.com/news/articles/2015/08/03/report-scant-scientific-evidence-for-head-start- programs-effectiveness>

head Start programs are different depending on the location, and these differences include the length of the day or qualification of the teachers. Lastly, testing young children is difficult and strongly dependent on their language skills and comfort level with an evaluator.⁶

Children and Media

Media is more present in children's lives than in the past. Research has consistently shown that too much television or use of electronic devices adversely affects children's behavior, health, and achievement.⁷⁸ Young children are less able to focus on active, hands-on play while the television is on, and background TV can negatively affect cognitive and language development as well as be linked to attention problems later in childhood.⁹¹⁰

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6. Barshay, J. (2015). Report: Scant scientific evidence for Head Start programs' effectiveness. *U.S. News and World Report*. Retrieved from <http://www.usnews.com/news/articles/2015/08/03/report-scant-scientific-evidence-for-head-start-programs-effectiveness>
 7. Gentile, D. A., & Walsh, D. A. (2002). A normative study of family media habits. *Applied Developmental Psychology*, 23, 157-178.
 8. Robinson, T. N., Wilde, M. L., & Navracruz, L. C. (2001). Effects of reducing children's television and video game use on aggressive behavior: a randomized controlled trial. *Archives of Pediatrics and Adolescent Medicine*, 155, 17-23.
 9. Schmidt, M.E., Pempek, T. A., & Kirkorian, H. L. (2008). The effects of background television on the toy play behavior of very young children. *Child Development*, 79, 1137-1151.
 10. Courage, M. L., Murphy, A. N., & Goulding, S. (2010). When the television is on: The impact of infant-directed video on 6- and 18-month-olds' attention during toy play and on parent-infant interaction. *Infant Behavior and Development*, 33, 176-188.

MIDDLE TO LATE CHILDHOOD

PHYSICAL DEVELOPMENT IN MIDDLE TO LATE CHILDHOOD

Suzanne Valentine-French; Martha Lally; Stephanie Loalada; Laura Overstreet; Julie Lazzara; Alisa Beyer; Diana Lang; and Naomi H. Dan Karami

Learning Objectives

1. Describe physical growth during middle childhood.
2. Prepare recommendations to avoid health risks in school-aged children.
3. Define and apply conservation, reversibility, and identity in concrete operational intelligence.
4. Explain changes in processing during middle childhood according to information processing theory of memory.
5. Characterize language development in middle childhood.
6. Compare preconventional, conventional, and postconventional moral development.
7. Define and describe communication disorders and learning disabilities.
8. Evaluate the impact of labeling on children's self-concept and social relationships.
9. Apply the ecological systems model to explore children's experiences in schools.
10. Examine social relationships in middle childhood.

Middle and late childhood



(Image Source: Rain Rannu on Flickr, CC BY)



(Image Source: World Photo Bank, CC BY NC SA)

Middle and late childhood spans the ages between early childhood and adolescence, approximately ages 6 to 11. Children gain greater control over the movement of their bodies, mastering many gross and fine motor skills that eluded the younger child. Changes in the brain during this age enable not only physical development, but contributes to greater reasoning and flexibility of thought. School becomes a big part of middle and late childhood, and it expands their world beyond the boundaries of their own family. Peers start to take center-stage, often prompting changes in the parent-child relationship. Peer acceptance also influences children's perception of self and may have consequences for emotional development beyond these years.

Overall Physical Growth

Rates of growth generally slow during these years. Typically, a child will gain about 4-6 pounds a year and grow about 2-3 inches per year.¹ They also tend to slim down and gain muscle strength and lung capacity making it possible to engage in strenuous physical activity for long periods of time. The beginning of the growth spurt, which occurs prior to puberty, tends to begin two years earlier for females than males. In the U.S., the mean age for the beginning of growth spurts for females is nine, while for males it is eleven. Children of this age tend to sharpen their abilities to perform both gross motor skills, such as riding a bike, and fine motor skills, such as cutting their fingernails. In gross motor skills (involving large muscles)

1. Johns Hopkins Medicine (2022). *The growing child: 3-year-olds*. <https://www.hopkinsmedicine.org/health/wellness-and-prevention/the-growing-child-3yearolds>

males typically outperform females, while females tend outperform males in fine motor skills (small muscles). These improvements in motor skills are related to brain growth and experience during this developmental period.

Brain Growth

Two major brain growth spurts occur during middle/late childhood.² Between ages 6 and 8, significant improvements in fine motor skills and eye-hand coordination are noted. Then between 10 and 12 years of age, the frontal lobes become more developed and improvements in logic, planning, and memory are evident.³ Myelination is one factor responsible for these growths. From age 6 to 12, the nerve cells in the association areas of the brain, that is those areas where sensory, motor, and intellectual functioning connect, become almost completely myelinated.⁴ This myelination contributes to increases in information processing speed and reaction time. The hippocampus, responsible for transferring information from the short-term to long-term memory, also show increases in myelination resulting in improvements in memory functioning.⁵ Children in middle to late childhood are also better able to plan, coordinate activity using both left and right hemispheres of the brain, and control emotional outbursts. Paying attention is also typically improved as the prefrontal cortex matures.⁶

2. Spreen, O., Rissler, A., & Edgell, D. (1995). *Developmental neuropsychology*. New York: Oxford University Press.

3. van der Molen, M., & Molenaar, P. (1994). Cognitive psychophysiology: A window to cognitive development and brain maturation. In G. Dawson & K. Fischer (Eds.), *Human behavior and the developing brain*. New York: Guilford.

4. Johnson, M. (2005). Developmental neuroscience, psychophysiology, and genetics. In M. Bornstein & M. Lamb (Eds.), *Developmental science: An advanced textbook* (5th ed., pp. 187-222). Hillsdale, NJ: Erlbaum

5. Rolls, E. T. (2000). Memory systems in the brain. *Annual Review of Psychology*, 51(1), 599-630. <https://doi.org/10.1146/annurev.psych.51.1.599>

6. Markant, J. C., & Thomas, K. M. (2013). Postnatal brain development. In P. D. Zelazo (Ed.), *Oxford handbook of developmental psychology*. New York: Oxford University Press.

Sports



Youths using their gross motor skills while playing soccer. (Image Source: USAG Humphreys on Flickr, CC BY 2.0)

Middle childhood seems to be a great time to introduce children to organized sports, and in fact, many parents do. However, it has been suggested that the emphasis on competition and athletic skill can be counterproductive and lead children to grow tired of the game and want to quit. In many respects, children's activities are no longer children's activities once some adults become overly involved and approach games as adults rather than children.

Sports are important for children. Children's participation in sports has been linked to:

- Higher levels of satisfaction with family and overall quality of life in children,
- Improved physical and emotional development, and
- Better academic performance.

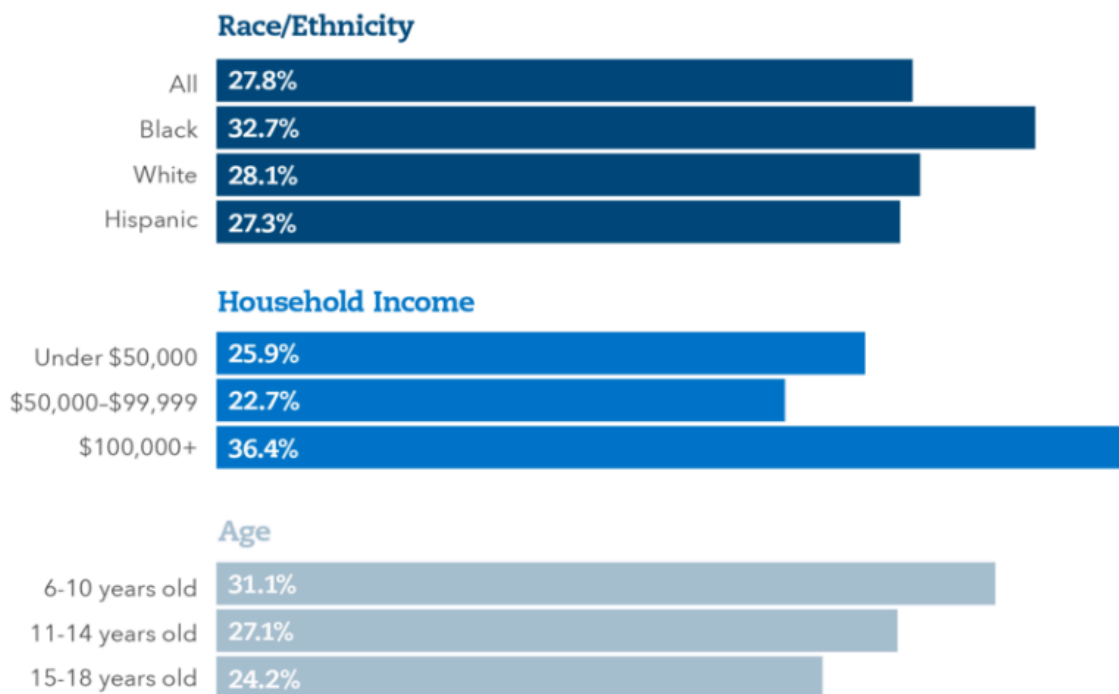
Studies have identified barriers to engaging in sports among children. Some of the barriers included enormous amounts of interaction with technology, cost, including traveling expenses,

equity (limited access to minority children and children with special needs), and concerns about injuries from parents and untrained coaches.⁷

Many youth lost interest in sports even before the COVID pandemic. Figure 1 denotes disparities among children who have lost interest in sports. We also notice in Figure 2 that there is a decrease in the total sports participation rates in regards to team sports on a regular basis.⁸

Youth Who Have Lost Interest in Sports

Percentage of parents whose child played organized sports before COVID-19 who say their child has since lost interest



Sports and Society Aspen Institute, 2022.

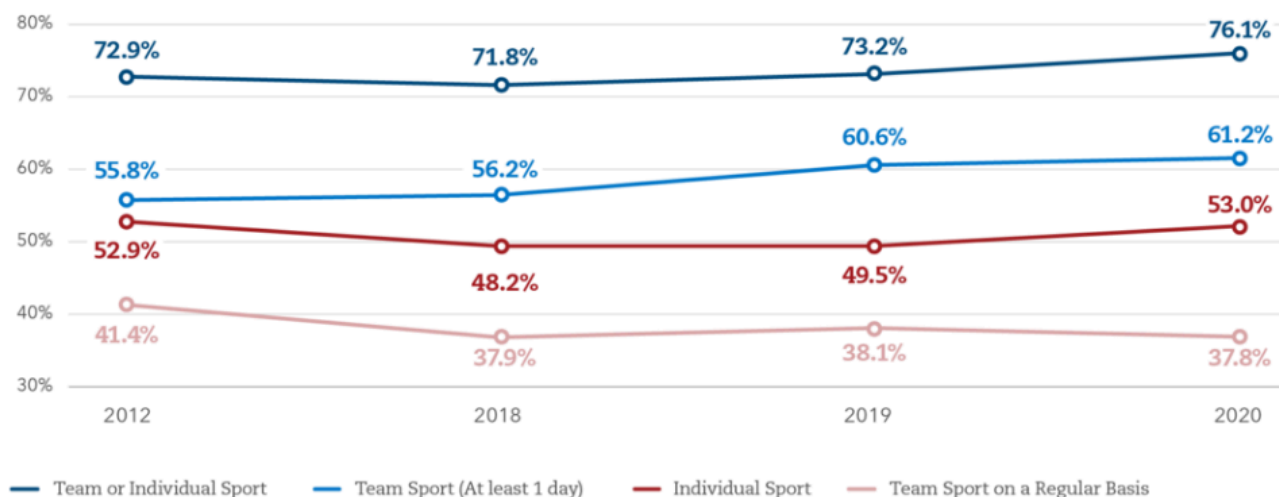
7. Sports and Fitness Industry Association (SFIA). (2018, June 15). *Soccer participation in the United States*. Medium.

<https://sfia.medium.com/soccer-participation-in-the-united-states-92f8393f6469>

8. The Aspen Institute Project Play. (n.d.). *Youth Sports Facts: Participation rates*. <https://www.aspenprojectplay.org/youth-sports/facts/participation-rates>

Total Sport Participation Rates

Percentage of children ages 6-12



Sports and Society Aspen Institute, 2022

Welcome to the world of e-sports

The recent Sport Policy and Research Collaborative (SPARC)⁹ report on the “State of Play” in the United States highlights a disturbing trend. One in four children between the ages of 5 and 16 rate playing computer games with their friends as a form of exercise. In addition, **e-sports**, which as SPARC writes is about as much a sport as poker, *involves children watching other children play video games*.

Since 2008 there has also been a downward trend in the number of sports children are engaged in, despite a body of research evidence that suggests specializing in only one activity can increase the chances of injury, while playing multiple sports can be more protective.¹⁰ A University of Wisconsin study found that 49% of athletes who specialized in a sport experienced an injury compared with 23% of those who played multiple sports.¹¹

Physical Education: For many children, physical education in school is a key component

9. Sport Policy and Research Collaborative (2016). State of play 2016: Trends and developments. The Aspen Institute. <https://www.aspeninstitute.org/publications/state-play-2016-trends-developments/>

10. Sport Policy and Research Collaborative (2016). State of play 2016: Trends and developments. The Aspen Institute. <https://www.aspeninstitute.org/publications/state-play-2016-trends-developments/>

11. McGuine, T. A. (2016). The association of sport specialization and the history of lower extremity injury in high school athletes. *Medicine and Science in Sports and Exercise*, 48, 866. <https://doi.org/10.1249/01.mss.0000487597.82416.4d>

in introducing children to sports. After years of schools cutting back on physical education programs, there has been a turn around, prompted by concerns over childhood obesity and related health issues.

Health Risks: Childhood Obesity

In the U.S., nearly 20 percent of children and adolescents were considered obese in 2017-2018.¹² This is defined as being at least 20 percent over their ideal weight.¹³ The percentage of obesity in school-aged children has increased substantially since the 1960s, and it continues to increase. This is true in part because of the introduction of a steady diet of television and other sedentary activities. In the U.S., many have come to emphasize high fat, fast foods as a culture. Pizza, hamburgers, chicken nuggets, and prepackaged meals with soda have replaced more nutritious foods as staples.

One consequence of childhood obesity is that children run the risk of suffering orthopedic problems such as knee injuries and an increased risk of heart disease and stroke in adulthood. In addition, the number of cases of pediatric diabetes has risen dramatically in recent years.

Dieting is not really the solution to childhood obesity. If you diet, your basal metabolic rate tends to decrease thereby making the body burn even fewer calories in order to maintain the weight. Increased activity is much more effective in lowering weight and improving children's health and psychological well-being. Exercise reduces stress; therefore, caregivers should take caution against emphasizing diet alone to avoid the development of any dieting obsession that can lead to disordered eating patterns. Again, increasing a child's activity level is most helpful.



(Image Source: Pixabay on Pexels)

Behavioral interventions, including training children to overcome impulsive behavior, are being researched to help curtail childhood obesity.¹⁴ Practicing inhibition has been shown to strengthen the ability to resist unhealthy foods. Caregivers can help children the best when

12. Centers for Disease Control and Prevention. (2021, April 5). *Childhood obesity facts*. Centers for Disease Control and Prevention. <https://www.cdc.gov/obesity/data/childhood.html>

13. Harvard School of Public Health. (n.d.) *Child Obesity*. <https://www.hsph.harvard.edu/obesity-prevention-source/obesity-trends/global-obesity-trends-in-children/>.

14. Lu, S. (2016). Obesity and the growing brain. *Monitor on Psychology*, 47(6), 40-43.

they are warm and supportive without using shame or guilt. Caregivers can also act like the child's frontal lobe until it is developed by helping them make correct food choices and praising their efforts.¹⁵

Sexual Development

Once children enter grade school (approximately ages 7–12), their awareness of social rules increases and they may become more modest and want more privacy, particularly around adults. Curiosity about adult sexual behavior also tends to increase—particularly as puberty approaches—and children may begin to seek out sexual content in television, movies, the internet, and printed material. Children approaching puberty may also start displaying romantic and sexual interest in their peers.

15. Liang, J., Matheson, B. E., Kaye, W. H., & Boutelle, K. N. (2014). Neurocognitive correlates of obesity and obesity-related behaviors in children and adolescents. *International Journal of Obesity* (2005), 38(4), 494–506. <https://doi.org/10.1038/ijo.2013.142>

COGNITIVE DEVELOPMENT IN MIDDLE TO LATE CHILDHOOD

Suzanne Valentine-French; Martha Lally; Laura Overstreet; Julie Lazzara; Alisa Beyer; Diana Lang; and Naomi H. Dan Karami

Piaget's Concrete Operational Stage

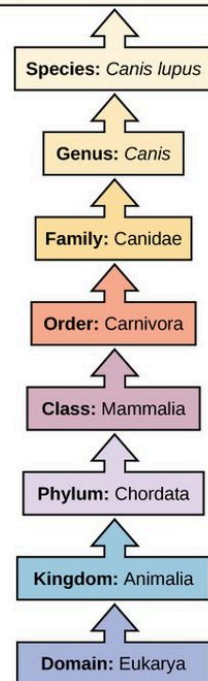
From ages 7 to 11, children are in what Piaget referred to as the Concrete Operational Stage of cognitive development.¹ This involves mastering the use of logic in concrete ways. The word concrete refers to that which is tangible; that which can be seen, touched, or experienced directly. Children in the **concrete operational stage** are able to make use of logical principles in solving problems involving the physical world. For example, children can better understand principles of cause and effect, size, and distance.

During this stage, children use logic to solve problems tied to their own direct experiences, but have trouble solving hypothetical problems or considering more abstract problems. Children in this stage also use **inductive reasoning**, which is a logical process in which multiple premises believed to be true are combined to obtain a specific conclusion. For example, a child has one friend who is rude, another friend who is also rude, and the same is true for a third friend. The child may conclude that friends are rude. We will see that this way of thinking tends to change during adolescence and is typically replaced with deductive reasoning. We will now explore some of the major abilities that children exhibit during the concrete operational stage.

- **Classification:** As children's experiences and vocabularies grow, *they build schemata and are able to organize objects in many*



Subspecies: *Canis lupus familiaris*



Children in the concrete operational stage can classify organisms. (Image Source: “Dog,” modification by Janneke Vreugdenhil, CC BY)

different ways. They also understand classification hierarchies and can arrange objects into a variety of classes and subclasses.

- **Identity:** One feature of concrete operational thought is the understanding *that objects have qualities that do not change even if the object is altered in some way.* For instance, mass of an object does not change by rearranging it. A piece of chalk is still chalk even when the piece is broken in two.
- **Reversibility:** *The child learns that some things that have been changed can be returned to their original state.* Water can be frozen and then thawed to become liquid again. But eggs cannot be unscrambled. Arithmetic operations are reversible as well: $2 + 3 = 5$ and $5 - 3 = 2$. Many of these cognitive skills are incorporated into the school's curriculum through mathematical problems and in worksheets about which situations are reversible or irreversible.
- **Conservation:** Children in the concrete operational stage can now understand the concept of conservation, *which means that changing one quality (height or water level) can be compensated for by changes in another quality (width).* Consequently, there is the same amount of water in each container, although one is taller and narrower and the other is shorter and wider.
- **Decentration:** Children in this stage *no longer focus on only one dimension of any object (such as the height of the glass) and instead consider the changes in other dimensions too (such as the width of the glass).* This allows for conservation to occur.
- **Seriation:** *Arranging items along a quantitative dimension, such as length or weight, in a methodical way* can also be demonstrated by children in this stage. For example, they can methodically arrange a series of different-sized sticks in order by length, while younger children approach a similar task in a haphazard way.

These new cognitive skills increase the child's understanding of the physical world, however according to Piaget, they still cannot think in abstract ways. Additionally, they do not think in systematic scientific ways. For example, when asked which variables influence the period that a pendulum takes to complete its arc, and given weights they can attach to strings in order to do experiments, most children younger than 12 perform biased experiments from which no conclusions can be drawn.²

2. Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence*. New York: Basic Books

Information Processing

Children differ in their memory abilities, and these differences predict both their readiness for school and academic performance in school.³ During middle and late childhood children make strides in several areas of cognitive function including the capacity of working memory, their ability to pay attention, and their use of memory strategies. Both changes in the brain and experiences foster these abilities.

Working Memory

The capacity of working memory expands during middle and late childhood, and research has suggested that both an increase in processing speed and the ability to inhibit irrelevant information from entering memory are contributing to the greater efficiency of working memory during this age.⁴ Changes in myelination and synaptic pruning in the cortex are likely behind the increase in processing speed and ability to filter out irrelevant stimuli.⁵

Children with learning disabilities in math and reading often have difficulties with working memory.⁶ They may struggle with following the directions of an assignment. When a task calls for multiple steps, children with poor working memory may miss steps because they may lose track of where they are in the task. Adults working with children who have learning variations may need to communicate by using more familiar vocabulary, using shorter sentences, repeating task instructions more frequently, and breaking more complex tasks into smaller more manageable steps. Some studies have also shown that more intensive training of working memory strategies, such as chunking, aid in improving the capacity of working memory in children with poor working memory.⁷

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3. Preßler, A.-L., Krajewski, K., & Hasselhorn, M. (2013). Working memory capacity in preschool children contributes to the acquisition of school relevant precursor skills. *Learning and Individual Differences*, 23, 138–144. <https://doi.org/10.1016/j.lindif.2012.10.005>
 4. de Ribaupierre, A. (2002). Working memory and attentional processes across the lifespan. In P. Graf & N. Ohta (Eds.), *Lifespan of development of human memory* (pp. 59–80). Cambridge, MA: The MIT Press.
 5. Kail, R. V., McBride-Chang, C., Ferrer, E., Cho, J.-R., & Shu, H. (2013). Cultural differences in the development of processing speed. *Developmental Science*, 16(3), 476–483. <https://doi.org/10.1111/desc.12039>
 6. Alloway, T. P. (2009). Working memory, but not IQ, predicts subsequent learning in children with learning difficulties. *European Journal of Psychological Assessment*, 25(2), 92–98. <https://doi.org/10.1027/1015-5759.25.2.92>
 7. Alloway, T. P., Bibile, V., & Lau, G. (2013). Computerized working memory training: Can it lead to gains in cognitive skills in students? *Computers in Human Behavior*, 29(3), 632–638. <https://doi.org/10.1016/j.chb.2012.10.023>

Attention

The ability to inhibit irrelevant information improves during this age group, with there being a sharp improvement in selective attention from age six into adolescence.⁸ Children also tend to improve in their ability to shift their attention between tasks or different features of a task.⁹ A younger child who is asked to sort objects into piles based on type of object, car versus animal, or color of object, red versus blue, may have difficulty if you switch from asking them to sort based on type to now having them sort based on color. This requires them to suppress the prior sorting rule. An older child typically has less difficulty making the switch, meaning there is greater flexibility in their attentional skills. These changes in attention and working memory contribute to children having more strategic approaches to challenging tasks.

Memory Strategies

Bjorklund¹⁰ describes a developmental progression in the acquisition and use of memory strategies.

Table 1. Percent of children who did not use any memory strategies by age.

Age	Percentage
6	55
7	44
8	25
9	17
10	13

Such strategies are often lacking in younger children, but increase in frequency as most children progress through elementary school. Examples of memory strategies include rehearsing information you wish to recall, visualizing and organizing information, creating

8. Vakil, E., Blachstein, H., Sheinman, M., & Greenstein, Y. (2009). Developmental changes in attention tests norms: implications for the structure of attention. *Child Neuropsychology: A Journal on Normal and Abnormal Development in Childhood and Adolescence*, 15(1), 21–39. <https://doi.org/10.1080/09297040801947069>

9. Carlson, S. M., & Zelazo, P. D., & Faja, S. (2013). Executive function. In P. D. Zelazo (Ed.), *The Oxford handbook of developmental psychology, Vol. 1: Body and mind* (pp. 706–743). New York: Oxford University Press

10. Bjorklund, D. F. (2005). *Children's thinking: Developmental function and individual differences* (4th ed.). Belmont, CA: Wadsworth

rhymes, such “i” before “e” except after “c”, or inventing acronyms, such as “roygbiv” to remember the colors of the rainbow. Schneider et al.¹¹ reported a steady increase in the use of memory strategies from ages six to ten in their longitudinal study (see Table 1). Moreover, by age ten many children were using two or more memory strategies to help them recall information. Schneider and colleagues found that there were considerable individual differences at each age in the use of strategies, and that children who utilized more strategies had better memory performance than their same aged peers.

Metacognition

Children in middle and late childhood also have a better understanding of how well they are performing a task, and the level of difficulty of a task. As they become more realistic about their abilities, they can adapt studying strategies to meet those needs. Young children spend as much time on an unimportant aspect of a problem as they do on the main point, while older children start to learn to prioritize and gauge what is significant and what is not. As a result, they develop metacognition. **Metacognition** refers to the knowledge we have about our own thinking and our ability to use this awareness to regulate our own cognitive processes.¹²

Critical Thinking



(Image Source: RawPixel, CC 0)

According to Bruning et al.,¹³ there is a debate in the U.S. education as to whether schools should teach students what to think or how to think. **Critical thinking**, or a detailed examination of beliefs, courses of action, and evidence, involves teaching children how to think. The purpose of critical thinking is to evaluate information in ways that help us make informed decisions. Critical thinking involves better understanding a problem through gathering,

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11. Schneider, W., Kron-Sperl, V., & Hünnerkopf, M. (2009). The development of young children's memory strategies: Evidence from the Würzburg Longitudinal Memory Study. *The European Journal of Developmental Psychology*, 6(1), 70–99. <https://doi.org/10.1080/17405620701336802>
 12. Bruning, R. H., Schraw, G. J., Norby, M. M., & Ronning, R. R. (2004). *Cognitive psychology and instruction*. Upper Saddle River, NJ: Pearson.
 13. Bruning, R. H., Schraw, G. J., Norby, M. M., & Ronning, R. R. (2004). *Cognitive psychology and instruction*. Upper Saddle River, NJ: Pearson.

evaluating, and selecting information, and by considering many possible solutions. Ennis¹⁴ identified these skills useful in critical thinking: analyzing arguments, clarifying information, judging the credibility of a source, making value judgements, and deciding on an action. Metacognition is essential to critical thinking because it allows us to reflect on the information as we make decisions.

Language Development

Vocabulary

One of the reasons that children around this age can classify objects in so many ways is that they have acquired a vocabulary to do so. By fifth grade, a child's vocabulary has grown to 40,000 words. It grows at a rate that exceeds that of those in early childhood. This language explosion, however, differs from that of younger children because it is facilitated by being able to associate new words with those already known, and because it is accompanied by a more sophisticated understanding of the meanings of a word.



Children in their classroom in El Renacimiento school, in Villa Nueva, Guatemala. (Image Source: Maria Fleischmann / World Bank, CC BY NC SA)

New Understanding

Those in middle and late childhood are also able to think of objects in less literal ways. For example, if asked for the first word that comes to mind when one hears the word “pizza”, the younger child is likely to say, “eat” or some word that describes what is done with a pizza. However, the older child is more likely to place pizza in the appropriate category and say “food”. This sophistication of vocabulary is also evidenced by the fact that older children tell jokes and delight in doing so. They may use jokes that involve plays on words such as “knock-

14. Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. Baron & R. Sternberg (Eds.), *Teaching thinking skills: Theory and practice* (pp. 9-26). New York: Freeman.

knock” jokes or jokes with punch lines. Young children do not understand play on words and tell “jokes” that are literal or slapstick, such as “A man fell down in the mud! Isn’t that funny?”

Grammar and Flexibility

Older children are typically able to learn new rules of grammar with more flexibility. While younger children are likely to be reluctant to give up saying “I goed there” (an example of overregularization), older children tend to learn this rather quickly along with other rules of grammar.

Bilingualism

Although monolingual speakers often do not realize it, the majority of children around the world are **Bilingual**, meaning that they understand and use two languages.¹⁵ Even in the U.S., which is a relatively monolingual society, more than 60 million people speak a language other than English at home in 2018¹⁶ and about 23% of children and youth spoke a language other than English in 2019.¹⁷ A large majority of students who are bilingual (75%) are Hispanic, but the rest represent more than 100 different language groups from around the world. In larger communities throughout the U.S., it is common for a single classroom to contain students from several language backgrounds at once.

Cultural Variations in the Classroom

Cultures and ethnic groups differ not only in languages, but also in how languages are used. Since some of the patterns differ from those typical of modern classrooms, they can create misunderstandings between teachers and students.^{18,19} Consider these examples:

15. Meyers-Sutton, C. (2005). *Multiple voices: An introduction to bilingualism*. Malden, MA: Blackwell Publishers

16. Camarota, S. A., & Zeigler, K. (2015). *One in five U. S. residents speaks foreign language at home*. <https://cis.org/sites/default/files/camarota-language-15.pdf>

17. Forum on Child and Family Statistics. (2021). *Language Spoken at Home and Difficulty Speaking English*. <https://www.childstats.gov/americaschildren/family5.asp>

18. Cazden, C. (2001). *Classroom discourse* (2nd ed.). Portsmouth, NH: Heineman Publishers.

19. Rogers, R., Malancharuvil-Berkes, E., Mosely, M., Hui, D., & O'Garro, G. (2005). Critical discourse analysis in education: A review of the literature. *Review of Educational Research*, 75(3), 365-416

- In some cultures, it is polite or even intelligent not to speak unless you have something truly important to say. Chitchat, or talk that simply affirms a personal tie between people, is considered immature or intrusive.²⁰ In a classroom, this habit can make it easier for a child to learn not to interrupt others, but it can also make the child seem unfriendly.



How do classrooms accommodate a variety of cultures? (Image Source: PxHere, CC0)

- Eye contact varies by culture. In many African American and Latin American communities, it is considered appropriate and respectful for a child not to look directly at an adult who is speaking to them.²¹ In classrooms, however, teachers often expect a lot of eye contact (as in “I want all eyes on me!”) and may be tempted to construe lack of eye contact as a sign of indifference or disrespect.
- Social distance varies by culture. In some cultures, it is common to stand relatively close when having a conversation; in others, it is more customary to stand relatively far apart.²² Problems may happen when a teacher and a student prefer different social distances. A student who expects a closer distance than does the teacher may seem overly familiar or intrusive, whereas one who expects a longer distance may seem overly formal or hesitant.

Wait time can vary by culture. Wait time is the gap between the end of one person’s comment or question and the next person’s reply or answer. In some cultures, wait time is relatively long, as long as three or four seconds.²³ In others, it is a negative gap, meaning that it is acceptable, even expected, for a person to interrupt before the end of the previous comment.

20. Minami, M. (2002). *Culture-specific language styles: The development of oral narrative and literacy*. Clevedon, UK: Multilingual Matters.

21. Torres-Guzman, M. (1998). Language culture, and literacy in Puerto Rican communities. In B. Perez (Ed.), *Sociocultural contexts of language and literacy*. Mahwah, NJ: Erlbaum.

22. Beaulieu, C. (2004). Intercultural study of personal space: A case study. *Journal of Applied Social Psychology*, 34(4), 794-805.

23. Tharp, R. & Gallimore, R. (1989). *Rousing minds to life*. New York: Cambridge University Press.



Friends are important during this stage of childhood. (Image Source, “Girls at a New Day Cambodia,” The Documentary Group on Flickr, CC BY NC ND)

In most non-Anglo cultures, questions are intended to gain information, and it is assumed that a person asking the question truly does not have the information requested.²⁴ In most U.S. classrooms, however, teachers regularly ask questions, which are questions to which the teacher already knows the answer and that simply assess whether a student knows the answer as well.²⁵ The question: “How much is $2 + 2$?” for example, is a test question. If children are not aware of this purpose, they may become confused, or think that the teacher is surprisingly ignorant. Worse yet, students may feel that the teacher is trying deliberately shame students by revealing the students’ ignorance or incompetence to

others.

Children with Disabilities

A Learning Disability (or LD) is a specific impairment of academic learning that interferes with a specific aspect of schoolwork and that reduces a student’s academic performance significantly. A LD shows itself as a major discrepancy between a student’s ability and some feature of achievement: The student may be delayed in reading, writing, listening, speaking, or doing mathematics, but not in all of these at once. A learning problem is not considered a learning disability if it stems from physical, sensory, or motor handicaps,

or from generalized intellectual impairment. It is also not an LD if the learning problem really reflects the challenges of learning English as a second language. Genuine LDs are the learning problems left over after these other possibilities are accounted for or excluded. Most



(Image Source: “Dyslexia,” by Tim Kwee, CC BY NC)

24. Rogoff, B. (2003). *The culture of human development*. New York: Oxford University Press.

25. Macbeth, D. (2003). Hugh Mehan’s Learning Lessons reconsidered: On the differences between naturalistic and critical analysis of classroom discourse. *American Educational Research Journal*, 40(1), 239-280.

importantly, though, an LD relates to a fairly specific area of academic learning. A student may be able to read and compute well enough, for example, but not be able to write. LDs are by far the most common form of special educational need, accounting for half of all students with special needs in the United States and anywhere from 5 to 20 per cent of all students, depending on how the numbers are estimated.^{26,27}

These difficulties are typically identified in school because this is when children's academic abilities are being tested, compared, and measured. Consequently, once academic testing is no longer essential in that person's life (as when they are working rather than going to school) these disabilities may no longer be noticed or relevant, depending on the person's job and the extent of the disability.

Dyslexia

Dyslexia is one of the most commonly diagnosed disabilities and *involves having difficulty in the area of reading*. This diagnosis is used for a number of reading difficulties. Common characteristics are difficulty with phonological processing, which includes the manipulation of sounds, spelling, and rapid visual/verbal processing. Additionally, the child may reverse letters, have difficulty reading from left to right, or may have problems associating letters with sounds. It appears to be rooted in neurological problems involving the parts of the brain active in recognizing letters, verbally responding, or being able to manipulate sounds. Recent studies have identified a number of genes linked to developing dyslexia.²⁸ Treatment typically involves altering teaching methods to accommodate the person's particular problematic area.

26. United States Department of Education. (2005). *27th Annual Report to Congress on the implementation of the Individuals with Disabilities Education Act*. Washington, D.C.: Author.

27. Ysseldyke, J. & Bielinski, J. (2002). Effect of different methods of reporting and reclassification on trends in test scores for students with disabilities. *Exceptional Children*, 68(2), 189-201.

28. National Institute of Neurological Disorders and Stroke. (2016). *Dyslexia Information Page*. <https://www.ninds.nih.gov/Disorders/All-Disorders/Dyslexia-Information-Page>

ADHD

A child with **Attention Deficit Hyperactivity Disorder** (ADHD) shows a constant pattern of inattention and/or hyperactive and impulsive behavior that interferes with normal functioning.²⁹ Some signs of inattention include great difficulty with, and avoidance of, tasks that require sustained attention (such as conversations or reading), failure to follow instructions (often resulting in failure to complete school work and other duties), disorganization (difficulty keeping things in order, poor time management, sloppy and messy work), lack of attention to detail, becoming easily distracted, and forgetfulness. Hyperactivity is characterized by excessive movement, and includes fidgeting or squirming, leaving one's seat in situations when remaining seated is expected, having trouble sitting still (e.g., in a restaurant), running about and climbing on things, blurting out responses before another person's question or statement has been completed, difficulty waiting one's turn for something, and interrupting and intruding on others. The child's behavior may be hasty, impulsive, and seems to occur without much forethought; these characteristics may explain why adolescents and young adults diagnosed with ADHD receive more traffic tickets and have more automobile accidents than do others their age.³⁰



Youth receiving additional support. (Image Source: (c) John Fensterwald/EdSource Today)

29. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, 5th edition (DSM-V). Washington, DC: Author.

30. Thompson, A., Molina, B. S. G., Pelham, W., & Gnagy, E. M. (2007). Risky driving in adolescents and young adults with childhood ADHD. *Journal of Pediatric Psychology*, 32, 745–759.



Exercise may reduce overactive behaviors.
(Image Source: Mikhail Nilov via Pexels,
cropped)

In the U.S., ADHD occurs in about 9.4% of children.³¹ On the average, males (12.9%) are more likely to have ADHD than are females (5.6%); however, such findings might reflect the greater propensity of males to engage in aggressive and antisocial behavior and thus incur a greater likelihood of being referred to psychological clinics.³² Children with ADHD may experience severe academic and social challenges. Compared to their non-ADHD counterparts, children with ADHD tend to have lower grades and standardized test scores, and higher rates of expulsion, grade retention, and

dropping out.³³

Causes of ADHD

Family and twin studies indicate that genetics play a significant role in the development of ADHD. Burt,³⁴ in a review of 26 studies, reported that the median rate of concordance for identical twins was .66, whereas the median concordance rate for fraternal twins was .20. The specific genes involved in ADHD are thought to include at least two that are important in the regulation of the neurotransmitter dopamine,³⁵ suggesting that dopamine may be important in ADHD. Indeed, medications used in the treatment of ADHD, such as methylphenidate (Ritalin) and amphetamine with dextroamphetamine (Adderall), have stimulant qualities and elevate dopamine activity. People with ADHD show less dopamine activity in key regions of the brain,

31. Centers for Disease Control and Prevention. (2021, September 23). *Data and statistics about ADHD*. Centers for Disease Control and Prevention. <https://www.cdc.gov/ncbddd/adhd/data.html>

32. Centers for Disease Control and Prevention. (2021, September 23). *Data and statistics about ADHD*. Centers for Disease Control and Prevention. <https://www.cdc.gov/ncbddd/adhd/data.html>

33. Loe, I. M., & Feldman, H. M. (2007). Academic and educational outcomes of children with ADHD. *Journal of Pediatric Psychology*, 32, 643–654.

34. Burt, S. A. (2009). Rethinking environmental contributions to child and adolescent psychopathology: A meta-analysis of shared environmental influences. *Psychological Bulletin*, 135, 608–637.

35. Gizer, I. R., Ficks, C., & Waldman, I. D. (2009). Candidate gene studies of ADHD: A meta-analytic review. *Human Genetics*, 126, 51–90.

especially those associated with motivation and reward,³⁶ which provides support to the theory that dopamine deficits may be a vital factor in the development this disorder.³⁷

Treatment for ADHD

Recommended treatment for ADHD includes behavioral interventions, cognitive behavioral therapy, parent and teacher education, recreational programs, and lifestyle changes, such as getting more sleep³⁸ and more exercise. For some children medication is prescribed. Caregivers are often concerned that stimulant medication may result in their child acquiring a substance use disorder.

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36. Volkow, N. D., Fowler, J. S., Logan, J., Alexoff, D., Zhu, W., Telang, F., Wang, G.-J., Jayne, M., Hooker, J. M., Wong, C., Hubbard, B., Carter, P., Warner, D., King, P., Shea, C., Xu, Y., Muench, L., & Apelskog-Torres, K. (2009). Effects of modafinil on dopamine and dopamine transporters in the male human brain: Clinical implications. *JAMA: The Journal of the American Medical Association*, 301(11), 1148. <https://doi.org/10.1001/jama.2009.351>
 37. Swanson, J. M., Kinsbourne, M., Nigg, J., Lanphear, B., Stefanatos, G. A., Volkow, N., Taylor, E., Casey, B. J., Castellanos, F. X., & Wadhwa, P. D. (2007). Etiologic subtypes of attention-deficit/hyperactivity disorder: brain imaging, molecular genetic and environmental factors and the dopamine hypothesis. *Neuropsychology Review*, 17(1), 39–59. <https://doi.org/10.1007/s11065-007-9019-9>
 38. Clay, R. A. (2013). Psychologists are using research-backed behavioral interventions that effectively treat children with ADHD. *Monitor on Psychology*, 44(2), 45–47.

PSYCHOSOCIAL DEVELOPMENT IN MIDDLE TO LATE CHILDHOOD

Martha Lally; Suzanne Valentine-French; Julie Lazzara; Laura Overstreet; Alisa Beyer; Diana Lang; and Naomi H. Dan Karami

Erikson: Industry vs. Inferiority

According to Erikson, children in middle and late childhood are very busy or industrious.¹ They are constantly doing, planning, playing, getting together with friends, and achieving. This is a very active time, and a time when they are gaining a sense of how they measure up when compared with their peers. Erikson believed that if these industrious children can be successful in their endeavors, they will get a sense of confidence for future challenges. If not, a sense of inferiority may develop during middle and late childhood.

Self-Understanding

Self-concept refers to beliefs about general personal identity.² These beliefs include personal attributes, such as one's age, physical characteristics, behaviors, and competencies. Children in middle and late childhood have a more realistic sense of self than do children in early childhood, and they better understand their strengths and weaknesses. This can be attributed to greater experience in comparing their own performance with that of others, and to greater cognitive flexibility. Children in middle and late childhood are also able to include other peoples' appraisals of them into their self-concept, including parents, teachers, peers, culture, and media. Internalizing others' appraisals and creating social comparison affect children's **self-esteem**, which is defined as an overall evaluation of one's identity. Children can have individual assessments of how well they perform a variety of activities and also develop an overall global self-assessment. If there is a discrepancy between how children view themselves and what they consider as their ideal selves, their self-esteem can be negatively affected.

1. Erikson, E. (1982). *The life cycle completed*. NY: Norton & Company.

2. Seifert, K. (2011). Educational psychology. Houston, TX: Rice University

Another important development in self-understanding is **self-efficacy**, which is the belief that you are capable of carrying out a specific task or of reaching a specific goal.³⁴⁵ Large discrepancies between self-efficacy and ability can create motivational problems for the individual.⁶ If students believe that they can solve mathematical problems, then they are more likely to attempt the mathematics homework that the teacher assigns. Unfortunately, the converse is also true. Students who believe that they are incapable of accurately completing math assignments are less likely to attempt their math homework regardless of their actual ability in math. Since self-efficacy is self-constructed, it is possible for students to miscalculate or misperceive their true skill, and these misperceptions can have complex effects on students' motivations. It is possible to have either too much or too little self-efficacy, and according to Bandura⁷ the optimum level seems to be either at, or slightly above, true ability.



Children developing self-efficacy while playing the violin. (Image Source: Stilfehler via Wikimedia Commons, GNU Free Documentation License).

Kohlberg's Stages of Moral Development

Kohlberg⁸ built on the work of Piaget and was interested in finding out how our moral reasoning changes as we get older. He wanted to find out how people decide what is right and wrong. Just as Piaget believed that children's cognitive development follows specific patterns, Kohlberg⁹ argued that we learn our moral values through active thinking and reasoning, and that moral development follows a series of stages. Kohlberg's six stages are generally organized into three levels of moral reasons. To study moral development, Kohlberg posed moral dilemmas to children, teenagers, and adults, such as the following:

A man's wife is dying of cancer and there is only one drug that can save her.

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3. Bandura, A. (1977). *Social learning theory*. New York: General Learning Press.
 4. Bandura, A. (1986). *Social foundations of thought and action; A social-cognitive theory*. Upper Saddle River, NJ: Prentice Hall.
 5. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
 6. Seifert, K. (2011). *Educational psychology*. Houston, TX: Rice University
 7. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
 8. Kohlberg, L. (1963). The development of children's orientations toward a moral order: Sequence in the development of moral thought. *Vita Humana*, 16, 11-36.
 9. Kohlberg, L. (1984). *The psychology of moral development: Essays on moral development* (Vol. 2, p. 200). San Francisco, CA: Harper & Row.

The only place to get the drug is at the store of a pharmacist who is known to overcharge people for drugs. The man can only pay \$1,000, but the pharmacist wants \$2,000, and refuses to sell it to him for less, or to let him pay later. Desperate, the man later breaks into the pharmacy and steals the medicine. Should he have done that? Was it right or wrong?

Why?¹⁰

Level One-Preconventional Morality

In stage one, moral reasoning is based on concepts of punishment. A child believes that if the consequence for an action is punishment, then the action was wrong. In the second stage, children base their thinking on self-interest and reward. “You scratch my back, I’ll scratch yours.” The youngest children seemed to answer based on what would happen to the man because of the act. For example, they might say the man should not break into the pharmacy because the pharmacist might find him and hurt him. Or they might say that the man should break in and steal the drug and his wife will give him a big kiss. Right or wrong, both decisions were based on what would physically happen to the man because of the act. This is a self-centered approach to moral decision-making. Kohlberg called this most superficial understanding of right and wrong **preconventional morality**. *Preconventional morality focuses on self-interest. Punishment is avoided and rewards are sought.* Adults can also fall into these stages, particularly when they are under pressure.

Level Two-Conventional Morality

Children who based their answers on what other people would think of the man as a result of his act, were placed in the Conventional Morality stage. For instance, they might say he should break into the store, and then everyone would think he was a good husband, or he should not because it is against the law. In either case, right and wrong are determined by what other people think. In stage three within conventional morality, the person wants to please others. At stage four, the person acknowledges the importance of social norms or laws and wants to be a good member of the group or society. A good decision is one that gains the approval of others or one that complies with the law. Kohlberg called this **conventional morality**, wherein

10. Kohlberg, L. (1984). *The psychology of moral development: Essays on moral development* (Vol. 2, p. 200). San Francisco, CA: Harper & Row.

people care about the effect of their actions on others. Some older children, adolescents, and adults use this reasoning.

Level Three-Postconventional Morality

Right and wrong are typically based on social contracts established for the good of everyone and that can transcend the self and social convention. For example, the man should break into the store because, even if it is against the law, his wife needs the drug and her life is more important than the consequences the man might face for breaking the law. Alternatively, the man should not violate the principle of the right of property because this rule is essential for social order. In either case, the person's judgment goes beyond what happens to the self. It is based on a concern for others; for society as a whole, or for an ethical standard rather than a legal standard. This level is **postconventional moral development** *because it goes beyond convention or what other people think to a higher, universal ethical principle of conduct that may or may not be reflected in the law.* Notice that such thinking is similar to what Supreme Court justices do all day when deliberating whether a law is moral or ethical, which requires being able to think abstractly. Often this is not accomplished until a person reaches adolescence or adulthood. In the fifth stage (of postconventional moral development), laws are recognized as social contracts. The reasons for the laws, like justice, equality, and dignity, are used to evaluate decisions and interpret laws. In the sixth stage, individually determined universal ethical principles are weighed to make moral decisions. Kohlberg said that few people ever reach this stage. All six stages and three levels are shown in Table 2.

Table 2.: Lawrence Kohlberg's Levels of Moral Reasoning¹¹

Age	Moral Level	Description
Young children- usually prior to age 9	Preconventional morality	Stage 1: Focus is on self-interest and punishment is avoided. The man shouldn't steal the drug, as he may get caught and go to jail. Stage 2: Rewards are sought. A person at this level will argue that the man should steal the drug because he does not want to lose his wife who takes care of him.
Older children, adolescents, and most adults	Conventional morality	Stage 3: Focus is on how situational outcomes impact others and wanting to please and be accepted. The man should steal the drug because that is what good husbands do. Stage 4: People make decisions based on laws or formalized rules. The man should obey the law because stealing is a crime.
Rare with adolescents and few adults	Postconventional morality	Stage 5: Individuals employ abstract reasoning to justify behaviors. The man should steal the drug because laws can be unjust and you have to consider the whole situation. Stage 6: Moral behavior is based on self-chosen ethical principles. The man should steal the drug because life is more important than property.

Although research has supported Kohlberg's idea that moral reasoning changes from an early emphasis on punishment and social rules and regulations to an emphasis on more general ethical principles, similar to Piaget's approach, Kohlberg's stage model is probably too simple. For one, people may use higher levels of reasoning for some types of problems, but revert to lower levels in situations where doing so is more consistent with their goals or beliefs.¹² Second, it has been argued that the stage model is particularly appropriate for Western, rather than non- Western, populations in which allegiance to social norms, such as respect for authority, may be particularly important.¹³ In addition, there is frequently little correlation between how we score on the moral stages and how we behave in real life.

Perhaps the most important critique of Kohlberg's theory is that it may describe the moral development of males better than it describes that of females. Gilligan¹⁴ has argued that, because of differences in their socialization, many males tend to value principles of justice and

11. Kohlberg, L. (1984). *The psychology of moral development: Essays on moral development* (Vol. 2, p. 200). San Francisco, CA: Harper & Row.

12. Rest, J. (1979). *Development in judging moral issues*. Minneapolis: University of Minnesota Press.

13. Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, 108(4), 814–834.

14. Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.

rights, whereas many females tend to value caring for and helping others. Although there is little evidence for a gender difference in Kohlberg's stages of moral development,¹⁵ research has consistently shown that many females tend to focus more on issues of caring, helping, and connecting with others than do most males.¹⁶

Social Development in Middle and Late Childhood: Friends and Peers

Friendships typically take on new importance as judges of one's worth, competence, and attractiveness in middle and late childhood. Friendships provide the opportunity for learning social skills, such as how to communicate with others and how to negotiate differences. Children get ideas from one another about how to perform certain tasks, how to gain popularity, what to wear or say, and how to act. This group of children tend to mark transitions from a life focused on the family to a life more concerned with peers. During middle and late childhood, peers increasingly play an important role. For example, peers play a key role in a child's self-esteem at this age, as any parent who has tried to console a rejected child will tell you. No matter how complimentary and encouraging a caregiver may be, being rejected by peers is typically only remedied by renewed acceptance. Children's conceptualization of what makes someone a "friend" changes from a more egocentric understanding to one based on mutual trust and commitment. Both Bigelow¹⁷ and Selman¹⁸ believe that these changes are linked to advances in cognitive development.

Most children want to be liked and accepted by their peers. Some popular children are nice and have good social skills. These **popular-prosocial** children *tend to do well in school and*



Friends and peers are extremely important during this stage. (Image Source: Pixabay, CC 0)

15. Turiel, E. (1998). The development of morality. In W. Damon (Ed.), *Handbook of child psychology: Socialization* (5th ed., Vol. 3, pp. 863–932). New York, NY: John Wiley & Sons.

16. Jaffee, S., & Hyde, J. S. (2000). Gender differences in moral orientation: A meta-analysis. *Psychological Bulletin*, 126(5), 703–726.

17. Bigelow, B. J. (1977). Children's friendship expectations: A cognitive developmental study. *Child Development*, 48, 246–253.

18. Selman, Robert L. (1980). *The growth of interpersonal understanding*. London: Academic Press

are cooperative and friendly. **Popular-antisocial** children may gain popularity by acting tough or spreading rumors about others.¹⁹ Children who are not accepted by their peers may be more likely to experience conflict, lack confidence, and have trouble adjusting.^{20,21}

Bullying



Withdrawn children are often targets for bullies. (Image Source: Mikhail Nilov on Pexels, CC0)

According to Stopbullying.gov, a federal government website managed by the U.S. Department of Health & Human Services, **Bullying** is defined as unwanted, aggressive behavior among school-aged children that involves a real or perceived power imbalance. Further, aggressive behavior happens more than once or has the potential to be repeated. There are different types of bullying, including verbal bullying, which is saying or writing mean things, teasing, name calling, taunting, threatening, or making inappropriate sexual comments. **Social bullying**, also referred to as relational bullying, involves spreading rumors, purposefully excluding someone from a group, or embarrassing someone on purpose. Physical Bullying involves hurting a person's body or possessions.

A more recent form of bullying is **Cyberbullying**, which involves electronic technology. Examples of cyberbullying include sending mean text messages or emails, creating fake profiles, and posting embarrassing pictures, videos, or rumors on social networking sites. Children who experience cyberbullying have a harder time getting away from the behavior because it can occur at any time of day and without being in the presence of others. Additional concerns of cyberbullying include that messages and images can be posted anonymously, distributed quickly, and be difficult to trace or delete. Children who are cyberbullied are more likely to experience in-

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19. Cillessen, A. H., & Mayeaux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development*, 75, 147-163.
 20. Klima, T., & Repetti, R. L. (2008). Children's peer relations and their psychological adjustment: Differences between close friends and the larger peer group. *Merrill-Palmer Quarterly*, 54, 151-178.
 21. Schwartz, D., Lansford, J. E., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2014). Peer victimization during middle childhood as a lead indicator of internalizing problems and diagnostic outcomes in late adolescence. *Journal of Clinical Child and Adolescent Psychology*, 44, 393-404.

person bullying, be unwilling to attend school, receive poor grades, use alcohol and drugs, skip school, have lower self-esteem, and have more health problems.²²

Bullying can happen to anyone, but some students are at an increased risk for being bullied including lesbian, gay, bisexual, transgendered (LGBT) youth, those with disabilities, and those who are socially isolated. Additionally, those who are perceived as different, weak, less popular, overweight, or having low self-esteem, have a higher likelihood of being bullied.

Bullies are often thought of as having low self-esteem, and then bully others to feel better about themselves. Although this can occur, many bullies in fact have high levels of self-esteem. They possess considerable popularity and social power and have well-connected peer relationships. They do not lack self-esteem, and instead lack empathy for others. They like to dominate or be in charge of others.

Unfortunately, most children do not let adults know that they are being bullied. Some fear retaliation from the bully, while others are too embarrassed to ask for help. Those who are socially isolated may not know who to ask for help or believe that no one would care or assist them if they did ask for assistance. Consequently, it is important for parents and teachers to know the warning signs that may indicate a child is being bullied. These include unexplainable injuries, lost or destroyed possessions, changes in eating or sleeping patterns, declining school grades, not wanting to go to school, loss of friends, decreased self-esteem and/or self-destructive behaviors.

Emotions

Emotional regulation tends to advance during middle childhood connecting to maturation in the prefrontal lobe. Middle childhood is a good time to develop more coping strategies due to the heightened development of cognitive thinking, interpersonal understanding, and complex problem solving when compared to their younger years.^{23,24}

Many 7 to 10-year-olds are able to implement different coping strategies when they are upset. Many also have an awareness and understanding that they can have multiple emotions towards the same person.²⁵ As children gain more maturity, many become better able to

22. U.S. Department of Health and Human Services. (2021, November 5). *Effects of Bullying*. stopbullying.gov. <https://www.stopbullying.gov/bullying/effects>

23. Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin*, 127(1), 87–127. <https://doi.org/10.1037/0033-2909.127.1.87>

24. Hampel, P., & Petermann, F. (2005). Age and Gender Effects on Coping in Children and Adolescents. *Journal of Youth and Adolescence*, 34(2), 73–83. <https://doi.org/10.1007/s10964-005-3207-9>

25. Saarni, C. (1999). *The development of emotional competence*. New York: Guilford Press.

appraise how well they can control emotions in stressful or upsetting events and generate multiple strategies to deal with their emotions.²⁶ Many learn to manage displaying their emotions (e.g., may feel upset but smile) and to determine if someone close to them has an emotional expression that is genuine or not. Most also become more aware of expectations for the display of emotions that may be culturally defined (e.g., when culturally acceptable to cry).²⁷ Children's perspective-taking abilities and empathy skills tend to also increase during this stage.

26. Saarni, C. (1999). *The development of emotional competence*. New York: Guilford Press.

27. Saarni, C. (1999). *The development of emotional competence*. New York: Guilford Press.

ADOLESCENCE

ADOLESCENCE: PHYSICAL, COGNITIVE, SOCIAL, AND EMOTIONAL CHANGES

Diana Lang; Nick Cone; Tera Jones; and Lumen Learning

Learning Objectives

- Define Adolescence
- Describe major features of physical, cognitive and social development during adolescence
- Be able to explain sources of diversity in adolescent development
- Summarize the overall physical growth
- Describe the changes that occur during puberty
- Describe the changes in brain maturation
- Compare adolescent formal operational thinking to childhood concrete operational (Piaget's theory)
- Describe the changes in sleep
- Contrast theories of identity development in adolescence
- Compare aggression and anxiety in adolescence
- Describe eating disorders
- Explain the prevalence, risk factors and consequences of adolescent pregnancy



(Image Source: Skateboarders on Unsplash)

Adolescence is a developmental stage that begins with puberty and ends with the transition to emerging adulthood (young adulthood); the typical age span is from approximately 10 to 20 years. Adolescence has evolved historically, with evidence indicating that this stage is lengthening as individuals start puberty earlier and transition to adulthood later than in the past.

This chapter will outline changes that occur during adolescence in three domains: physical, cognitive, and socioemotional/psychosocial. Physical changes associated with puberty are triggered by hormones. Cognitive changes include improvements in complex and abstract thought, as well as development that happens at different rates in distinct parts of the brain and increases adolescents' propensity for risky behavior because increases in sensation-seeking and reward motivation precede increases in cognitive control. Within the psychosocial domain, changes in relationships with parents, peers, and romantic partners will be considered. Finally, the chapter summarizes sources of diversity in adolescents' experiences and development.



(Image Source: Teenagers at Play on Flickr)

Adolescence has frequently been portrayed as a negative stage of life—a period of storm and stress to be survived or endured in professional literature and in the media.¹ Adolescents are often characterized as impulsive, reckless, and emotionally unstable. This tends to be attributed to “raging hormones” or what is now known as the “teen brain.”

With so many negative images of adolescents, the positive aspects of adolescence can be overlooked.² Most adolescents in fact succeed in school, are engaged with their families and communities, and emerge from their teen years without experiencing serious problems such as substance abuse or involvement with violence. Recent research suggests that it may be time to lay the stereotype of the “wild teenage brain” to rest. This research posits that brain deficits do not make teens do risky things; lack of experience and a drive to explore the world are the real factors. Evidence supports that risky behavior during adolescence is a normal part of development and reflects a biologically driven need for exploration – a process aimed at acquiring experience and preparing teens for the complex decisions they will need to make

1. Arnett, J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist*, 54(5), 317-326.

2. American Psychological Association (2002). Developing adolescent: A reference for professionals. <https://www.apa.org/pubs/info/brochures/develop>

as adults.³ Furthermore, McNeely & Blanchard⁴ described the adolescent years as a “time of opportunity, not turmoil.”

Second only to infant development, adolescents experience rapid development in a short period of time. During adolescence, youth typically gain 50% of their adult body weight, experience puberty and become capable of reproducing, and experience an astounding transformation in their brains. All of these changes occur in the context of rapidly expanding social spheres. Adolescent physical development is often completed by age 18, but brain development requires many more years to reach maturity. Thus, it is imperative for adults and adolescents to understand these vast changes to enjoy this second decade of life.

3. Romer, D., Reyna, R.F., & Satterthwaite, T.D. (2017). Beyond stereotypes of adolescent risk taking: Placing the adolescent brain in developmental context. *Developmental Cognitive Neuroscience*, 27, 19-34.

4. McNeely, Clea and Jayne Blanchard. A Guide to Healthy Adolescent Development. Johns Hopkins Bloomberg School of Public Health. https://www.jhsph.edu/research/centers-and-institutes/center-for-adolescent-health/_docs/TTYE-Guide.pdf.

PHYSICAL DEVELOPMENT IN ADOLESCENCE

Diana Lang; Nick Cone; Tera Jones; Lumen Learning; OpenStax College; Martha Lally; and Suzanne Valentine-French

Physical changes of puberty mark the onset of adolescence.¹ These changes include a growth spurt in height, growth of pubic and underarm hair, and skin changes (e.g., pimples). Males experience growth in facial hair and a deepening of their voice. Females experience breast development and begin menstruating. These pubertal changes are driven by hormones, particularly an increase in testosterone for males and estrogen for females.

In the United States, puberty typically begins, on average, at age 10–11 years for females and 11–12 years for males. Pubertal changes take around three to four years to complete. While the sequence of physical changes in puberty is predictable, the onset and pace of puberty vary widely. Every person's individual timetable for puberty is different and is primarily influenced by heredity; however, environmental factors—such as diet and exercise—also exert some influence.

Physical Growth Spurt

Adolescents experience an overall physical growth spurt. The growth proceeds from the extremities toward the torso. This is referred to as **distal proximal development**. First the hands grow, then the arms, and finally the torso. The overall physical growth spurt results in 10–11 inches of added height and 50 to 75 pounds of increased weight. The head begins to grow sometime after the feet have gone through their period of growth. Growth of the head is preceded by growth of the ears, nose, and lips. The difference in these patterns of growth result in adolescents appearing awkward and out-of-proportion. As the torso grows, so does the internal organs. The heart and lungs experience dramatic growth during this period.

During this stage, children are quite similar in height and weight. However, gender differences become apparent during adolescence. From approximately age 10 to 14, the average

1. Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 74–103). New York, NY: Wiley.

female is taller but not heavier than the average male. For females the growth spurt begins between 8 and 13 years old (average 10-11), with adult height reached between 10 and 16 years old. After that, the average male becomes both taller and heavier, although individual differences are certainly noted. Males tend to begin their growth spurt slightly later, usually between 10 and 16 years old (average 12-13), and typically reach their adult height between 13 and 17 years old. As adolescents physically mature, weight differences are more noteworthy than height differences. At eighteen years of age, those that are heaviest weigh almost twice as much as the lightest, but the tallest teens are only about 10% taller than the shortest.² Both nature (i.e., genes) and nurture (e.g., nutrition, medications, and medical conditions) can influence both height and weight.

Both height and weight can certainly be sensitive issues for some teenagers. Yet, neither socially preferred height nor thinness is the destiny for many individuals. Being overweight, in particular, has become a common, serious problem in modern society due to the prevalence of diets high in fat and lifestyles low in activity.³

Average height and weight are also related somewhat to racial and ethnic background. In general, children of Asian background tend to be slightly shorter than children of European and North American background. The latter in turn tend to be shorter than children from African societies.⁴ Body shape differs slightly as well, though the differences are not always visible until after puberty. Asian background youth tend to have arms and legs that are a bit short relative to their torsos, and African background youth tend to have relatively long arms and legs. The differences are only averages as there are large individual differences as well.

Puberty is a period of rapid growth and sexual maturation. These changes begin sometime between 8 and 14. Puberty occurs over two distinct phases, and the first phase, **adrenarche**, begins at 6 to 8 years of age and involves increased production of adrenal androgens that contribute to a number of pubertal changes—such as skeletal growth.

Hormonal Changes

The second phase of puberty, **gonadarche**, begins several years later and involves increased production of hormones governing physical and sexual maturation. Puberty involves distinctive physiological changes in an individual's height, weight, body composition, and

2. Seifert, K. (2012). Educational Psychology. <http://cnx.org/content/col11302/1.2>

3. Tartamella, L., Herscher, E., Woolston, C. (2004). *Generation extra large: Rescuing our children from the obesity epidemic*. New York: Basic Books.

4. Eveleth, P. & Tanner, J. (1990). *Worldwide variation in human growth* (2nd edition). New York: Cambridge University Press.

circulatory and respiratory systems, and during this time, both the adrenal glands and sex glands mature. These changes are largely influenced by hormonal activity. Many hormones contribute to the beginning of puberty, but most notably a major rush of **estrogen** for females and **testosterone** for males. Hormones play an *organizational role* (priming the body to behave in a certain way once puberty begins) and an *activational role* (triggering certain behavioral and physical changes). During puberty, the adolescent's hormonal balance shifts strongly towards an adult state; the process is triggered by the pituitary gland, which secretes a surge of hormonal agents into the blood stream and initiates a chain reaction.

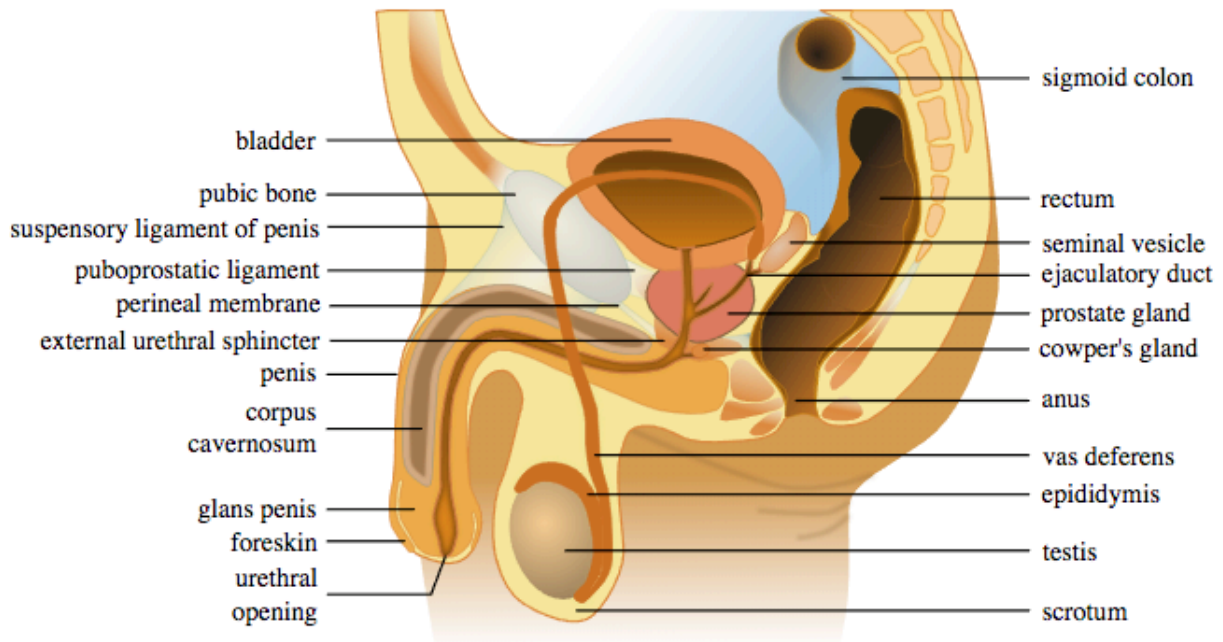
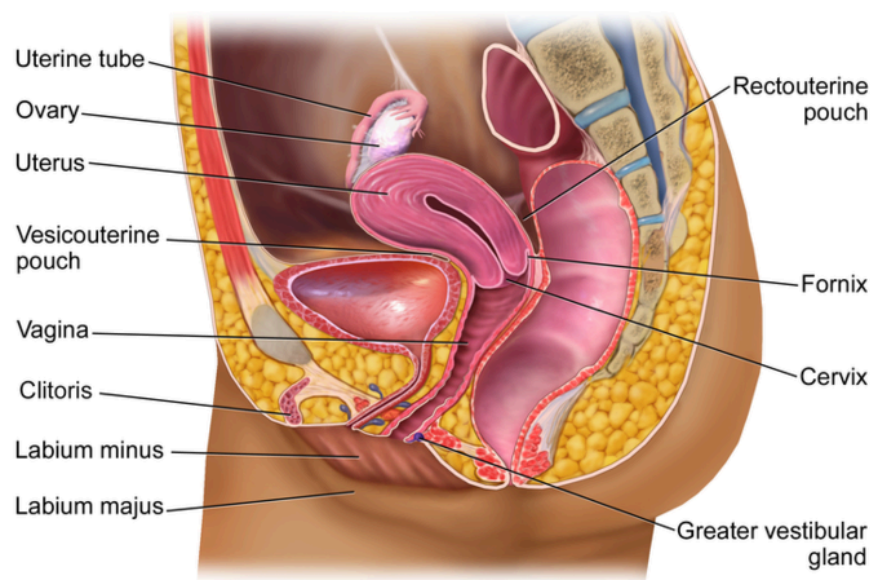


Figure 1 Anatomy of penis and sex organs



The Female Reproductive System

Figure 2 Anatomy of internal sex organs

Sexual Development

Typically, the growth spurt is followed by the development of sexual maturity. Sexual changes are divided into two categories: Primary sexual characteristics and secondary sexual characteristics. **Primary sexual characteristics** are changes in the reproductive organs. For males, this includes growth of the testes, penis, scrotum, and spermarche or first ejaculation of semen. This occurs between 11 and 15 years of age. Males produce their sperm on a cycle, and unlike the female's ovulation cycle, the male sperm production cycle is constantly producing millions of sperm daily. The main sex organs for those assigned male at birth are the penis and the testicles, the latter of which produce semen and sperm (see Figure 1). For those assigned female at birth, primary characteristics include growth of the uterus and menarche or the first menstrual period. The female gametes, which are stored in the ovaries, are present at birth but are immature (see Figure 2). Each ovary contains about 400,000 gametes, but only 500 will become mature eggs.⁵ Beginning at puberty, one ovum ripens and is released about

5. Crooks, K. L., & Baur, K. (2007). *Our sexuality* (10th ed.). Belmont, CA: Wadsworth.

every 28 days during the menstrual cycle. Stress and a higher percentage of body fat can bring menstruation at younger ages.

Secondary sexual characteristics are visible physical changes not directly linked to reproduction, but signal sexual maturity. For those assigned male at birth, this includes broader shoulders and a lower voice as the larynx grows. Hair becomes coarser and darker, and hair growth occurs in the pubic area, under the arms, and on the face (see Figure 3). For those assigned female at birth, breast development occurs around age 10, although full development takes several years. Hips broaden and pubic and underarm hair develops and also becomes darker and coarser (See Figure 4).

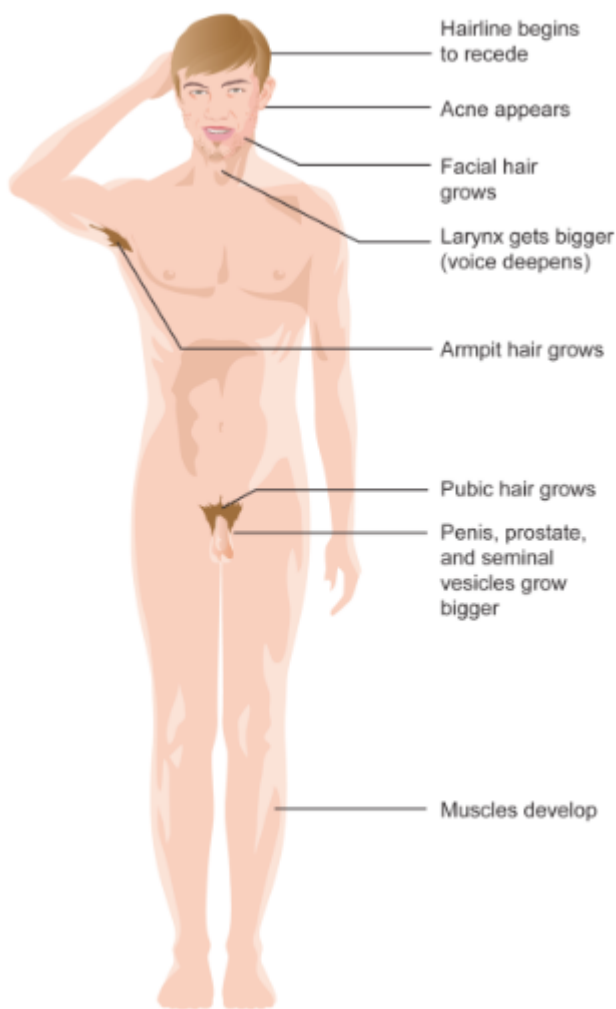


Figure 3 Major physical changes during puberty

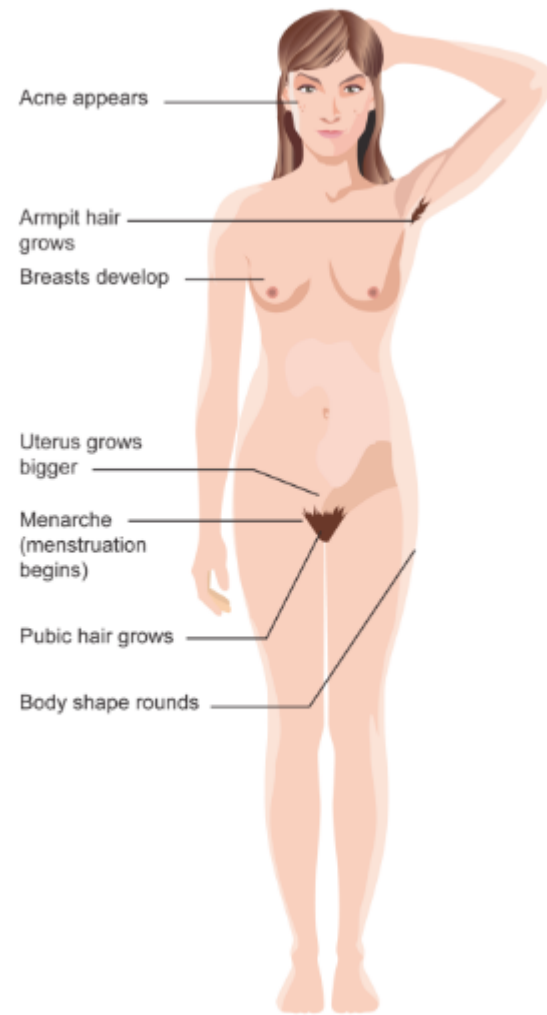


Figure 4 Major physical changes during puberty

Acne: An unpleasant consequence of the hormonal changes in puberty is **acne**, defined as

pimples on the skin due to overactive sebaceous (oil-producing) glands.⁶ These glands develop at a greater speed than the skin ducts that discharges the oil. Consequently, the ducts can become blocked with dead skin and acne will develop. Experiencing acne can lead the adolescent to withdraw socially, especially if they are self-conscious about their skin or teased.⁷

Effects of Pubertal Age

The age of puberty is getting younger for children throughout most of the world. According to Euling et al.,⁸ data are sufficient to suggest a trend toward an earlier breast development onset and menarche in those with female internal sex organs. A century ago the average age of someone with female internal sex organs to experience their first period (in the United States and Europe) was 16, while today it is around 13. Because there is no clear marker of puberty for those with male internal sex organs, it is harder to determine if males assigned at birth are maturing earlier too. In addition to better nutrition, less positive reasons associated with early puberty for those with internal female sex organs include increased stress, obesity, and endocrine disrupting chemicals.

Cultural differences are noted with Asian-American females, on average, developing last, while African American females tend to enter puberty the earliest. Hispanic females start puberty the second earliest, while European-American females tend to rank third in their age of starting puberty. Although African American females are typically the first to develop, they are less likely to experience negative consequences of early puberty when compared to European-American females.⁹ Research has demonstrated mental health problems can be linked to children who begin puberty earlier than their peers. For females, early puberty is associated with depression, substance use, eating disorders, disruptive behavior disorders, and early sexual behavior.¹⁰ Some early maturing females demonstrate more anxiety and less confidence in their relationships with family and friends and they compare themselves more negatively to their peers.¹¹

6. Dolgin, K. G. (2011). *The adolescent: Development, relationships, and culture* (13th ed.). Boston, MA: Pearson.

7. Goodman, G. (2006). Acne and acne scarring: The case for active and early intervention. *Australia Family Physicians*, 35, 503-504.

8. Euling, S. Y., Herman-Giddens, M.E., Lee, P.A., Selevan, S. G., Juul, A., Sorensen, T. I., Dunkel, L., Himes, J.H., Teilmann, G., & Swan, S.H. (2008). Examination of US puberty-timing data from 1940 to 1994 for secular trends: panel findings. *Pediatrics*, 121, S172-91. <https://doi.org/10.1542/peds.2007-1813D>.

9. Weir, K. (2016). The risks of earlier puberty. *Monitor on Psychology*, 47(3), 41-44.

10. Graber, J. A. (2013). Pubertal timing and the development of psychopathology in adolescence and beyond. *Hormones and Behavior*, 64, 262-289.

11. Weir, K. (2016). The risks of earlier puberty. *Monitor on Psychology*, 47(3), 41-44.

Additionally, mental health problems are more likely to occur when a child is among the first in their peer group to develop. Because the preadolescent time is one of not wanting to appear different, early developing children stand out among their peer group and gravitate toward those who are older. For females, this results in them interacting with older peers who engage in risky behaviors such as substance use and early sexual behavior.¹² Males also see changes in their emotional functioning at puberty. According to Mendle, Harden, Brooks-Gunn, and Graber,¹³ while most males experienced a decrease in depressive symptoms during puberty, males who began puberty earlier and exhibited a rapid tempo, or a fast rate of change, actually increased in depressive symptoms. The researchers concluded that the transition in peer relationships might be especially challenging for males whose pattern of pubertal maturation differs significantly from those of others their age. Consequences for males attaining early puberty was increased odds of cigarette, alcohol, or other drug use.¹⁴

Brain and Cognitive Changes

The human brain is not fully developed by the time a person reaches puberty. Between the ages of 10 and 25, the brain undergoes significant changes that have important implications for behavior. The brain reaches 90% of its adult size by the time a person is six or seven years of age. Thus, the brain does not grow in size much during adolescence. However, the creases in the brain continue to become more complex until the late teens. The biggest changes in the folds of the brain during this time occur in the parts of the cortex that process cognitive and emotional information. During adolescence, myelination and synaptic pruning in the prefrontal cortex increase, improving the efficiency of information processing, and neural connections between the prefrontal cortex and other regions of the brain are strengthened. However, this growth takes time and the growth is uneven. Additionally, changes in both the levels of the neurotransmitters dopamine and serotonin in the limbic system tend to make adolescents more emotional and more responsive to rewards and stress. In the next section, we will learn about changes in the brain and why teenagers sometimes engage in increased risk-taking behaviors and have varied emotions.

12. Weir, K. (2016). The risks of earlier puberty. *Monitor on Psychology*, 47(3), 41-44.

13. Mendle, J., Harden, K. P., Brooks-Gunn, J., & Graber, J. A. (2010). Development's tortoise and hare: Pubertal timing, pubertal tempo, and depressive symptoms in boys and girls. *Developmental Psychology*, 46, 1341-1353. <https://doi.org/10.1037/a0020205>

14. Dudovitz, R.N., Chung, P.J., Elliott, M.N., Davies, S.L., Tortolero, S.,... Baumler, E. (2015). Relationship of Age for Grade and Pubertal Stage to Early Initiation of Substance Use. *Preventing Chronic Disease*, 12:150234. <http://dx.doi.org/10.5888/pcd12.150234>.



Figure 5. Risky behavior in action: rock climbing. (Image Source: Climbing Man Adventure on Pixabay)

The Adolescent Brain: 7 Key Points to Understand

As you learn about brain development during adolescence, consider these key points¹⁵:

1. The brain reaches its biggest size in early adolescence (see Figure 5).
2. The brain continues to mature even after it is done growing; it does not finish developing and maturing until the mid- to late 20s (see Figure 5). The front part of the brain, called the prefrontal cortex, is one of the last brain regions to mature. This area is responsible for skills like planning, prioritizing, and controlling impulses. Because these skills are still developing, teens are more likely to engage in risky behaviors without considering the potential results of their decisions.
3. The teen brain is very plastic and ready to learn and adapt.
4. Many mental disorders may begin to appear during adolescence due to the vast changes (e.g., brain, physical, emotional, and social) that tend to occur during this stage. Mental disorders such as schizophrenia, anxiety, depression, bipolar disorder, and eating disorders tend to be diagnosed during this developmental period.
5. Teen brains may be more vulnerable to stress because many teens respond to stress differently than adults, thus leading to stress-related mental health issues such as anxiety and depression. Mindfulness, which is a psychological process of actively paying

15. National Institute of Mental Health (NIMH). (2020). The teen brain: 7 things to know. <https://www.nimh.nih.gov/health/publications/the-teen-brain-7-things-to-know>

attention to the present moment, may help teens cope with and reduce stress. More information on managing stress is available in the National Institute of Mental Health's fact sheet, *I'm So Stressed Out*.¹⁶

6. Teens need more sleep than children and adults. Research shows that melatonin (the “sleep hormone”) levels in the blood are naturally higher later at night and drop later in the morning in teens than in most children and adults. This difference may explain why many teens stay up late and struggle with getting up in the morning. Teens should get about 9 to 10 hours of sleep a night, but most teens do not get enough sleep. A lack of sleep at any age can make it difficult to pay attention, may increase impulsivity, and may increase the risk for irritability or depression.
7. The teen brain is resilient.

The **limbic system** is linked to the hormonal changes that occur during puberty and it develops years ahead of the front part of the brain, the prefrontal cortex (see Figure 6). Pubertal hormones target the **amygdala** (part of the limbic system) directly and powerful sensations become compelling.¹⁷ Hormonal changes and the early development of the limbic system relates to novelty seeking, regulating emotions, determining rewards and punishments, and processing emotional experiences.

16. National Institute of Mental Health (NIMH). *I'm so stressed out! Fact sheet*. <https://www.nimh.nih.gov/health/publications/so-stressed-out-fact-sheet>

17. Romeo, R.D. (2013). The teenage brain: The stress response and the adolescent brain. *Current Directions in Psychological Science*, 22(2), 140-145.

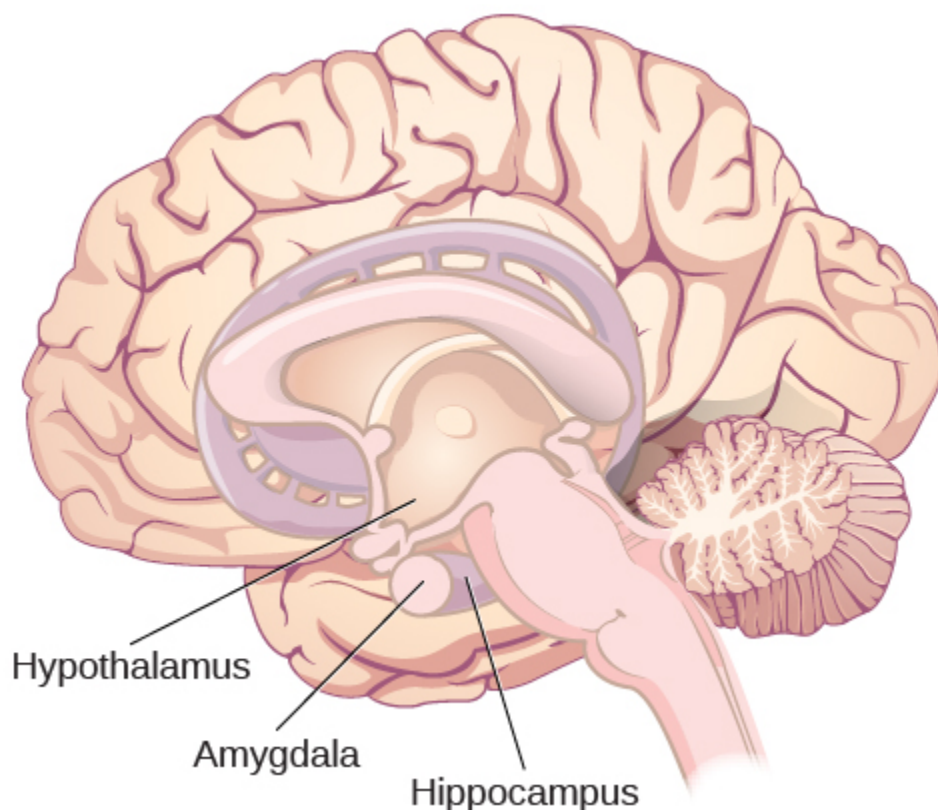


Figure 6 The limbic system is part of the midbrain. The limbic system growth spurt is connected to dopamine pathways and sensation seeking in adolescence. (Image Source: OpenStax Psychology, CC BY. Access for free at OpenStax Psychology)

Changes in levels of neurotransmitters (**dopamine** and **serotonin**) in the limbic system can make adolescents more emotional and more responsive to rewards and stress compared to when they were younger. Dopamine is a neurotransmitter in the brain associated with pleasure and attuning to the environment during decision-making while **serotonin**, the “calming chemical,” eases tension and stress. During adolescence, dopamine levels in the limbic system (see Figure 7) increase and input of dopamine to the prefrontal cortex increases. This increased dopamine activity may have implications for adolescent risk-taking and vulnerability to boredom. Serotonin also puts a brake on the excitement and sometimes recklessness that dopamine can produce. If there is a defect in the serotonin processing in the brain, impulsive or violent behavior can result.

When the overall brain chemical system is working well, these chemicals tend to interact to balance out extreme behaviors. However, when stress, arousal, or sensations become extreme, the adolescent brain can be flooded with impulses that overwhelm the prefrontal cortex. As a result, adolescents may engage in increased risk-taking behaviors and emotional outbursts possibly because the frontal lobes of their brains are still developing. In addition to dopamine,

the adolescent brain is affected by oxytocin, which facilitates bonding and makes social connections more rewarding.

The **prefrontal cortex** is one of the last brain regions to mature (see Figure 8). It is the area responsible for planning, prioritizing and controlling impulses and it is still maturing into early adulthood.¹⁸ Brain scans confirm that cognitive control, revealed by fMRI studies, is not fully developed until adulthood because the prefrontal cortex is limited in connections and engagement.¹⁹

One of the world's leading experts on adolescent development, Laurence Steinberg, likens this to engaging a powerful engine before the braking system is in place. The result is that many adolescents are more prone to risky behaviors than are children or adults.²⁰

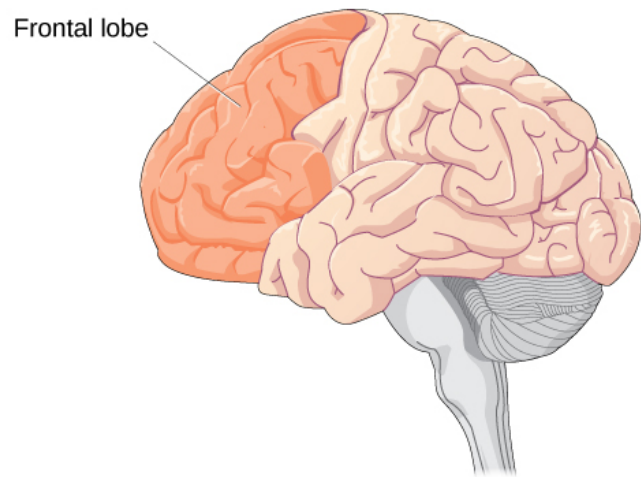


Figure 7 The prefrontal cortex is one of the last parts of the brain to mature. (Image Source: OpenStax Psychology, CC BY. Access for free at OpenStax Psychology)

Video Example

Dr. Dan Siegel explains and highlights some of the key developments in the brain during adolescence:

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=764#oembed-1>

18. Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: what have we learned about cognitive development? *Trends in Cognitive Sciences*, 9(3), 104–110. <https://doi.org/10.1016/j.tics.2005.01.011>
19. Hartley, C.A. & Somerville, L.H. (2015). The neuroscience of adolescent decision-making. *Current Opinion in Behavioral Sciences*, 5, 108–115.
20. Steinberg, L. (2008) A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, 28:78–106.

Many changes in the teen brain

In a digital world that is constantly changing, the adolescent brain is well prepared to adapt to new technology—and is shaped in return by experience. All the big changes the brain is experiencing may explain why adolescence is the time when many mental health issues—such as schizophrenia, anxiety, depression, bipolar disorder, and eating disorders—emerge. Although adolescence is a vulnerable time for the brain and for teenagers in general, most teens become healthy adults. Some changes in the brain during this important phase of development actually may help protect against long-term mental health issues.

Although the brain does not get larger during adolescence, it matures and becomes more interconnected and specialized.²¹ The myelination and development of connections between neurons continue. This results in an increase in the white matter of the brain and allows adolescents to make significant improvements in their thinking and processing skills. Different brain areas become myelinated at different times. For example, the brain's language areas undergo myelination during the first 13 years. With greater myelination, however, comes diminished plasticity as a myelin coating inhibits the growth of new connections.²² Even as the connections between neurons are strengthened, synaptic pruning occurs more than during childhood as the brain adapts to changes in the environment. Further, the corpus callosum (see Figure 6.6), which connects the two hemispheres, continues to thicken allowing for stronger connections between brain areas. And, the hippocampus becomes more strongly connected to the frontal lobes, allowing for greater integration of memory and experiences into our decision making.

As mentioned in the introduction to adolescence, too many who have read the research on the teenage brain come to quick conclusions about adolescents as irrational loose cannons. However, adolescents are actually making choices influenced by a very different set of chemical influences than their adult counterparts—a hopped up reward system that can drown out warning signals about risk. Adolescent decisions are not always defined by impulsivity because of lack of brakes, but because of planned and enjoyable pressure to the accelerator. It is helpful to put all of these brain processes in developmental context.

21. Giedd, J. N. (2015). The amazing teen brain. *Scientific American*, 312(6), 32-37.

22. Dobbs, D. (2012). Beautiful brains. *National Geographic*, 220(4), 36.

Video Example

To learn more, watch this video about adolescent brain research and more about how these changes in brain development also result in behavioral changes.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=764#oembed-2>

Additionally, the adolescent brain is especially vulnerable to damage from drug exposure. Consequently, adolescents are more sensitive to the effects of repeated marijuana exposure.²³ However, researchers have also focused on the highly adaptive qualities of the adolescent brain which allow the adolescent to move away from the family towards the outside world.^{24,25} Novelty seeking and risk-taking can generate positive outcomes including meeting new people and seeking out new situations. Separating from the family and moving into new relationships and different experiences are actually quite adaptive for society.

Major changes in the structure and functioning of the brain occur during adolescence and result in cognitive and behavioral developments.²⁶ Cognitive changes during adolescence include a shift from concrete to more abstract and complex thinking. Such changes are fostered by improvements during early adolescence in attention, memory, processing speed, and *metacognition* (ability to think about thinking and therefore make better use of strategies like mnemonic devices that can improve thinking). As explained before, early in adolescence, changes in the brain's limbic system contribute to increases in adolescents' sensation-seeking and reward motivation. Later in adolescence, the brain's cognitive control centers in the prefrontal cortex develop, increasing adolescents' self-regulation and future orientation. In sum, the adolescent years are a time of intense brain changes, which typically result in enhanced cognitive functioning.

23. Weir, K. (2015). Marijuana and the developing brain. *Monitor on Psychology*, 46(10), 49-52.

24. Dobbs, D. (2012). Beautiful brains. *National Geographic*, 220(4), 36.

25. Giedd, J. N. (2015). The amazing teen brain. *Scientific American*, 312(6), 32-37.

26. Steinberg, L. (2008) A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, 28:78-106.

COGNITIVE DEVELOPMENT IN ADOLESCENCE

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Tera Jones; and Lumen Learning

Cognitive changes during adolescence include a shift from concrete to more abstract and complex thinking. Such changes are fostered by improvements during early adolescence in attention, memory, processing speed, and *metacognition* (ability to think about thinking and therefore make better use of strategies like mnemonic devices that can improve thinking). As explained before, early in adolescence, changes in the brain's limbic system contribute to increases in adolescents' sensation-seeking and reward motivation. Later in adolescence, the brain's cognitive control centers in the prefrontal cortex develop, increasing adolescents' self-regulation and future orientation.

Piaget's Formal Operational Stage of Cognitive Development

During the formal operational stage, many adolescents are able to understand abstract principles which have no physical reference. Most can now contemplate abstract constructs such as beauty, love, freedom, and morality. Most adolescents are no longer limited by what can be directly seen or heard. Additionally, while younger children solve problems through trial and error, adolescents demonstrate hypothetical-deductive reasoning, which is developing hypotheses based on what might logically occur. They are able to think about all the possibilities in a situation beforehand, and then test them systematically.¹ During this stage of cognitive development, individuals are typically able to engage in true scientific thinking. Formal operational thinking involves accepting hypothetical situations. Individuals in this stage can understand the concept of transitivity, which means that a relationship between two elements is carried over to other elements logically related to the first two, such as if $A < B$ and $B < C$, then $A < C$.² For example, when asked: If Maria is shorter than Alicia and Alicia is shorter than Caitlyn, who is the shortest?

1. Crain, W. (2005). *Theories of development concepts and applications* (5th ed.). New Jersey: Pearson.

2. Thomas, R. M. (1979). *Comparing theories of child development*. Santa Barbara, CA: Wadsworth.

Not everyone reaches the formal operational stage. Many adults do not regularly demonstrate formal operational thought, and in small villages and tribal communities, it is barely used at all. A possible explanation is that some individuals' thinking have not been sufficiently challenged to demonstrate formal operational thought in all areas.

Adolescent Egocentrism

Once adolescents can understand abstract thoughts, they enter a world of hypothetical possibilities and demonstrate egocentrism or a heightened self-focus. David Elkind³ expanded on the concept of Piaget's adolescent egocentricity. Elkind theorized that the physiological changes that occur during adolescence result in many adolescents being primarily concerned with themselves. Additionally, since adolescents fail to differentiate between what others are thinking and their own thoughts, they believe that others are just as fascinated with their behavior and appearance. This belief results in the adolescent anticipating the reactions of others, and consequently constructing an **imaginary audience**. "The imaginary audience is the adolescent's belief that those around them are as concerned and focused on their appearance as they themselves are" (p. 441).⁴ Elkind thought that the imaginary audience contributed to the self-consciousness that occurs during early adolescence.⁵

The desire for privacy and reluctance to share personal information may be a further reaction to feeling under constant observation by others. Another important consequence of adolescent egocentrism is the **personal fable** or belief that one is unique, special, and invulnerable to harm. Elkind⁶ explains that because adolescents feel so important to others (imaginary audience) they regard themselves and their feelings as being special and unique. Adolescents believe that only they have experienced strong and diverse emotions, and therefore others could never understand how they feel. This uniqueness in one's emotional experiences reinforces the adolescent's belief that "nothing can happen to them", especially to death. Many adolescents will engage in risky behaviors, such as drinking and driving or having unprotected sex, and believe they will not suffer any negative consequences.

3. Elkind, D. (1967). Egocentrism in adolescence. *Child Development*, 38, 1025-1034.

4. Schwartz, P. D., Maynard, A. M., & Uzelac, S. M. (2008). Adolescent egocentrism: A contemporary view. *Adolescence*, 43, 441-447.

5. Elkind, D. (1967). Egocentrism in adolescence. *Child Development*, 38, 1025-1034.

6. Elkind, D. (1967). Egocentrism in adolescence. *Child Development*, 38, 1025-1034.

Consequences of Formal Operational Thought

As adolescents become able to think abstractly and hypothetically, they exhibit many new ways of reflecting on information.⁷ For example, they can demonstrate greater introspection or thinking about one's thoughts and feelings. They can begin to imagine how the world could be which leads them to become idealistic or insisting upon high standards of behavior. Because of their idealism, they may become critical of others, especially adults in their life. Additionally, adolescents can demonstrate hypocrisy, or pretend to be what they are not. Since they are able to recognize

what others expect of them, they will conform to those expectations for their emotions and behavior seemingly hypocritical to themselves.

Information Processing Theory of Cognitive Development

Cognitive control

Executive functions, such as attention, increases in working memory, and cognitive flexibility steadily improve from early childhood onward. Studies have found that executive function is very well-developed in adolescence. However, self-regulation, or the ability to control impulses, may still fail. A failure in self-regulation is especially true when there is high stress or high demand on mental functions.⁸ While high stress or demand may tax even an adult's self-regulatory abilities, neurological changes in the adolescent brain may make teens particularly prone to more risky decision making under these conditions.

Inductive and Deductive Reasoning

Inductive reasoning tends to emerge in childhood, and is a type of reasoning that is sometimes characterized as “bottom-up processing” in which specific observations, or specific comments from those in authority, may be used to draw general conclusions (e.g., child having two friends who are rude makes a conclusion all friends are rude). However, in inductive reasoning, the veracity of the information that created the general conclusion does not guarantee the accuracy of that conclusion. For instance, a child who has only observed thunder on summer days may

7. Dolgin, K. G. (2011). *The adolescent: Development, relationships, and culture* (13th ed.). Boston, MA: Pearson.

8. Luciano, M., & Collins, P. F. (2012). Incentive motivation, cognitive control, and the adolescent brain: Is it time for a paradigm shift. *Child Development Perspectives*, 6(4), 394-399.

conclude that it only thunders in the summer. In contrast, **deductive reasoning**, sometimes called “top-down-processing,” should emerge in adolescence. This type of reasoning starts with some overarching (general) principle and based on this propose specific conclusions. For example, if a general theory maintains that all trees are green and then asked what color do you expect a particular tree to be, deduction would say the tree should be green. Or, if an adolescent was given the following information: if Jesse is shorter than Matt and Matt is shorter than Tyler, then who is the tallest and the shortest? Deductive reasoning tells us that Tyler is the tallest and Jesse is the shortest. Deductive reasoning guarantees a truthful conclusion if the premises on which it is based are accurate (see Figure 1)

Moral Reasoning in Adolescence

As adolescents become increasingly independent, they also develop more nuanced thinking about morality, or what is right or wrong. We all make moral judgments on a daily basis. As adolescents’ cognitive, emotional, and social development continue to mature, their understanding of morality expands and their behavior becomes more closely aligned with their values and beliefs. Therefore, moral development describes the evolution of these guiding principles and is demonstrated by the ability to apply these guidelines in daily life. Understanding moral development is important in this stage where individuals make so many important decisions and gain more and more legal responsibility.

If you recall from the module on Middle Childhood, Lawrence Kohlberg⁹ argued that moral development moves through a series of stages, and reasoning about morality becomes increasingly complex (somewhat in line with increasing cognitive skills, as per Piaget’s stages of cognitive development). As children develop intellectually, they pass through three stages of moral thinking: the *preconventional level*, the *conventional level*, and the *postconventional level*. In middle childhood into early adolescence, many youth begin to care about how situational outcomes impact others and wants to please and be accepted (conventional morality). At this developmental phase, people are able to value the good that can be derived from holding to social norms in the form of laws or less formalized rules. From adolescence and beyond, many

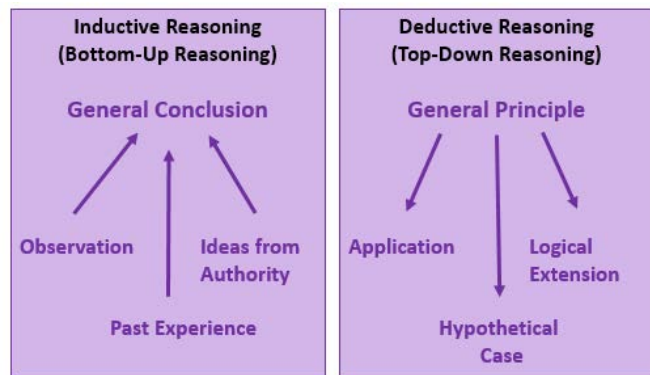


Figure 1 Inductive and Deductive Reasoning (Image Source: *Lifespan Development* by Martha Lally and Suzanne Valentine-French, CC BY NC SA)

9. Kohlberg, L. (1984). *Psychology of moral development*. Joanna Cotler Books.

adolescents begin to employ abstract reasoning to justify behaviors. Moral behavior is based on self-chosen ethical principles that are generally comprehensive and universal, such as justice, dignity, and equality, which is postconventional morality.



Figure 2 Girls drinking at a party. (Image Source: Girls holding drinks on pxhere)

Influences on Moral Development

Adolescents are receptive to their culture, to the models they see at home, in school and in the mass media. These observations influence moral reasoning and moral behavior. When children are younger, their family, culture, and religion greatly influence their moral decision-making. During the early adolescent period, peers have a much greater influence. Peer pressure can exert a powerful influence because friends play a more significant role in teens' lives. Furthermore, the new ability to think abstractly enables teens to begin to question the absolute authority of parents, schools, government, and other traditional institutions.¹⁰ By late

10. Vera-Estay, E. Dooley, J. J. & Beauchamp, M. H. (2014). Cognitive underpinnings of moral reasoning in adolescence: The contribution of executive functions. *Journal of Moral Education*, 44(1), 17-33.

adolescence, most teens are less rebellious as they have begun to establish their own identity, their own belief system, and their own place in the world.

Unfortunately, some adolescents have life experiences that may interfere with their moral development. Traumatic experiences may cause them to view the world as unjust and unfair. Additionally, social learning also impacts moral development. Adolescents may have observed the adults in their lives making immoral decisions that disregarded the rights and welfare of others, leading these youth to develop beliefs and values that are contrary to the rest of society. That being said, adults have opportunities to support moral development by modeling the moral character that we want to see in our children. Parents are particularly important because they are generally the original source of moral guidance. Authoritative parenting facilitates children's moral growth better than other parenting styles and one of the most influential things a parent can do is to encourage the right kind of peer relations.¹¹ While caregivers may find this process of moral development difficult or challenging, it is important to remember that this developmental step is essential to a youth's well-being and ultimate success in life.

Link to Learning

Parenting has the largest impact on adolescent moral development. Read more here in this article, "Building Character: Moral Development in Adolescence" from the Center for Parent and Teen Communication.

11. McDevitt, T. M. & Ormrod, J. E. (2004). *Child development: Educating and working with children and adolescents*. Upper Saddle River, NJ: Pearson Prentice Hall.

SOCIAL AND EMOTIONAL DEVELOPMENT IN ADOLESCENCE

Diana Lang; Nick Cone; Alisa Beyer; Julie Lazzara; Martha Lally; Suzanne Valentine-French; and OpenStax College

Caregivers and Teens: Autonomy and Attachment

One of the key changes during adolescence involves a renegotiation of parent-child relationships. As adolescents strive for more independence and autonomy during this time, different aspects of parenting become more common. For example, parents' distal supervision and monitoring become more important as adolescents spend more time away from parents and in the presence of peers. Parental monitoring encompasses a wide range of behaviors such as parents' attempts to set rules and know their adolescents' friends, activities, and whereabouts, in addition to adolescents' willingness to disclose information to their parents.¹ Interestingly, the association between the CHRM2 genotype and adolescent externalizing behavior (aggression and delinquency) has been found in adolescents whose caregivers engage in low monitoring behaviors.²

While most adolescents tend to get along with their parents or primary caregivers, many tend to spend less time with them.³ This decrease in the time spent with families may be a reflection of a teenager's greater desire for independence or **autonomy**. It can be difficult for many parents to deal with this desire for autonomy. However, it is likely adaptive for teenagers to increasingly distance themselves and establish relationships outside of their families in preparation for adulthood. This means that both parents and teenagers need to strike a balance between autonomy, while still maintaining close and supportive familial relationships.

Children in middle and late childhood are increasingly granted greater freedom regarding moment-to-moment decision making. This continues in adolescence, as teens are demanding greater control in decisions that affect their daily lives. This can increase conflict between

1. Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, 71, 1072–1085.

2. Dick, D. M., Meyers, J. L., Latendresse, S. J., Creemers, H. E., Lansford, J. E., ... Huizink, A. C. (2011). CHRM2, parental monitoring, and adolescent externalizing behavior: Evidence for gene-environment interaction. *Psychological Science*, 22, 481–489.

3. Smetana, J. G. (2011). *Adolescents, families, and social development*. Chichester, UK: Wiley-Blackwell.

parents and their teenagers. For many adolescents, this conflict centers on chores, homework, curfew, dating, and personal appearance. These are all things many teens believe they should manage that parents previously had considerable control over. Not surprisingly, culture and ethnicity can play a role in how restrictive parents/caregivers are with the daily lives of their children.⁴

Research shows that teens whose caregivers use effective monitoring practices are less likely to make poor decisions, such as engaging in sexual intercourse at an early age, smoking cigarettes, drinking alcohol, being physically aggressive, or skipping school.⁵⁶⁷⁸⁹ Clear communication about expectations is especially important. Research shows that teens who believe their parents/caregivers disapprove of risky behaviors are less likely to choose those behaviors¹⁰

Having supportive, less conflict-ridden relationships with primary caregivers also benefits teenagers. Research on attachment in adolescence find that teens who are still securely attached to their parents/caregivers have less emotional problems,¹¹ are less likely to engage in drug abuse and other criminal behaviors,¹² and have more positive peer relationships.¹³

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4. Chen, B., Vansteenkiste, M., Beyers, W., Soenens, B., & Van Petegem, S. (2013). Autonomy in family decision making for Chinese adolescents: Disentangling the dual meaning of autonomy. *Journal of Cross-Cultural Psychology*, 44, 1184- 1209.
 5. Brendgen, M., Vitaro, R., Tremblay, R. E., & Lavoie, F. (2001). Reactive and proactive aggression: predictions to physical violence in different contexts and moderating effects of parental monitoring and caregiving behavior. *Journal of Abnormal Child Psychology*, 29(4), 293-304.
 6. Choquet, M., Hassler, C., Morin, D., Falissard, B., & Chau, N. (2008). Perceived parenting styles and tobacco, alcohol and cannabis use among French adolescents: gender and family structure differentials. *Alcohol and Alcoholism (Oxford, Oxfordshire)*, 43(1), 73-80. <https://doi.org/10.1093/alcalc/agm060>
 7. Cota-Robles, S., & Gamble, W. (2006). Parent-adolescent processes and reduced risk for delinquency: The effect of gender for Mexican American adolescents. *Youth & Society*, 37(4), 375-392. <https://doi.org/10.1177/0044118x05282362>
 8. Li, X., Feigelman, S., & Stanton, B. (2000). Perceived parental monitoring and health risk behaviors among urban low-income African-American children and adolescents. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, 27(1), 43-48. [https://doi.org/10.1016/s1054-139x\(99\)00077-4](https://doi.org/10.1016/s1054-139x(99)00077-4)
 9. Markham, C. M., Lormand, D., Gloppen, K. M., Peskin, M. F., Flores, B., Low, B., & House, L. D. (2010). Connectedness as a predictor of sexual and reproductive health outcomes for youth. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, 46(3 Suppl), S23-41. <https://doi.org/10.1016/j.jadohealth.2009.11.214>
 10. Guilamo-Ramos, V., Jaccard, J., & Dittus, P. (Eds.). (2010). *Parental monitoring of adolescents: Current perspectives for researchers and practitioners*. Columbia University Press.
 11. Rawatlal, N., Kliever, W., & Pillay, B. J. (2015). Adolescent attachment, family functioning and depressive symptoms. *South African Journal of Psychiatry*, 21(3), 80-85. <https://doi.org/10.7196/SAJP.8252>
 12. Meeus, W., Branje, S., & Overbeek, G. J. (2004). Parents and partners in crime: a six-year longitudinal study on changes in supportive relationships and delinquency in adolescence and young adulthood. *Journal of Child Psychology & Psychiatry*, 45(7), 1288-1298. <https://doi.org/10.1111/j.1469-7610.2004.00312.x>
 13. Shomaker, L. B., & Furman, W. (2009). Parent-adolescent relationship qualities, internal working models, and attachment styles as predictors of adolescents' interactions with friends. *Journal of Social and Personal Relationships*, 2, 579-603.

Links to Learning

Click here to learn more about parental monitoring: https://www.cdc.gov/healthyyouth/protective/factsheets/parental_monitoring_factsheet.htm

Click here to learn more about parenting adolescents: <https://www.cdc.gov/parents/teens/index.html>

Peers

Peer relationships are a big part of adolescent development. The influence of peers can be both positive and negative as adolescents' experiment together with identity formation and new experiences. As children become adolescents, they usually begin spending more time with their peers and less time with their families, and these peer interactions are typically increasingly unsupervised by adults. Children's notions of friendship often focus on shared activities, whereas adolescents' notions of friendship increasingly focus on intimate exchanges of thoughts and feelings.

Adolescents within a peer group tend to be similar to one another in behavior and attitudes, which has been explained as being a function of **homophily** (adolescents who are similar to one another choose to spend time together in a “birds of a feather flock together” way) and influence (adolescents who spend time together shape each others' behavior and attitudes). One of the most widely studied aspects of adolescent peer influence is known as deviant peer contagion,¹⁴ which is the process by which



(Image Source: Three teenage girls on Pixabay)

14. Dishion, T. J., & Tipsord, J. M. (2011). Peer contagion in child and adolescent social and emotional development. *Annual Review of Psychology*, 62, 189–214.

peers reinforce problem behavior by laughing or showing other signs of approval that then increase the likelihood of future problem behavior.

Peers can serve both positive and negative functions during adolescence. Negative peer pressure can lead adolescents to make riskier decisions or engage in more problematic behavior than they would alone or in the presence of their family. For example, adolescents are much more likely to drink alcohol, use drugs, and commit crimes when they are with their friends than when they are alone or with their family. However, peers also serve as an important source of social support and companionship during adolescence, and adolescents with positive peer relationships are happier and better adjusted than those who are socially isolated or have conflictual peer relationships.

Crowds are an emerging level of peer relationships in adolescence. In contrast to **friendships** (which are reciprocal dyadic relationships) and **cliques** (which refer to groups of individuals who interact frequently), **crowds** are characterized more by shared reputations or images than actual interactions.¹⁵ These crowds reflect different prototypic identities (such as jocks or brains) and are often linked with adolescents' social status and peers' perceptions of their values or behaviors.

Romantic Relationships

Adolescence is the developmental period during which romantic relationships typically first emerge. Although romantic relationships during adolescence are often short-lived rather than long-term committed partnerships, their importance should not be minimized. Many adolescents spend a great deal of time focused on romantic relationships, and their positive and negative emotions are more tied to romantic relationships (or lack thereof) than to friendships, family relationships, or school.¹⁶ Romantic relationships contribute to adolescents' identity formation, changes in family and peer relationships, and adolescents' emotional and behavioral adjustment.

Furthermore, romantic relationships are centrally connected to adolescents' emerging sexuality. Parents, policymakers, and researchers have devoted a great deal of attention to adolescents' sexuality, in large part because of concerns related to sexual intercourse, contraception, and preventing teen pregnancies. However, sexuality involves more than this

15. Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 74–103). New York, NY: Wiley.

16. Furman, W., & Shaffer, L. (2003). The role of romantic relationships in adolescent development. In P. Florsheim (Ed.), *Adolescent romantic relations and sexual behavior: Theory, research, and practical implications* (pp. 3–22). Mahwah, NJ: Erlbaum.

narrow focus. For example, adolescence is often when individuals who are lesbian, gay, bisexual, transgender, etc., come to perceive themselves as such.¹⁷ Thus, romantic relationships are a domain in which adolescents' experiment with new behaviors and identities.

Social and Emotional Changes in Adolescence

Self-concept and Self-esteem

In adolescence, teens continue to develop their self-concept. Their ability to think of the possibilities and to reason more abstractly may explain the further differentiation of the self during adolescence. However, the teen's understanding of self is often full of contradictions. Young teens may see themselves as outgoing but also withdrawn, happy yet often moody, and both smart and completely clueless (Harter, 2012). These contradictions, along with the teen's growing recognition that their personality and behavior seems to change depending on who they are with or where they are, can lead the young teen to feel like a fraud. With their parents they may seem angrier and sullen, with their friends they are more outgoing and goofier, and at work they are quiet and cautious. "Which one is really me?" may be the refrain of the young teenager. Harter¹⁸ found that adolescents emphasize traits such as being friendly and considerate more than do children, highlighting their increasing concern about how others may see them. Harter also found that older teens add values and moral standards to their self-descriptions. As self-concept differentiates, so too does self-esteem. In addition to the academic, social, appearance, and physical/athletic dimensions of self-esteem in middle and late childhood, teens also add perceptions of their competency in romantic relationships, on the job, and in close friendships.¹⁹ Self-esteem often drops when children transition from one school setting to another, such as shifting from elementary to middle school, or junior high to high school.²⁰ These drops are usually temporary unless there are additional stressors such as parental conflict, or other family disruptions.²¹ Self-esteem tends to increase from mid to late

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17. Russell, S. T., Clarke, T. J., & Clary, J. (2009). Are teens "post-gay"? Contemporary adolescents' sexual identity labels. *Journal of Youth and Adolescence*, 38, 884-890.
 18. Harter, S. (2012). Emerging self-processes during childhood and adolescence. In M. R. Leary & J. P. Tangney, (Eds.), *Handbook of self and identity* (2nd ed., pp. 680-715). New York: Guilford.
 19. Harter, S. (2006). The self. In N. Eisenberg (Ed.), *Handbook of child psychology: Vol. 3 Social, emotional, and personality development* (6th ed., pp. 505-570). Hoboken, NJ: Wiley.
 20. Ryan, A. M., Shim, S. S., & Makara, K. A. (2013). Changes in academic adjustment and relational self-worth across the transition to middle school. *Journal of Youth and Adolescence*, 42, 1372-1384.
 21. De Wit, D. J., Karioja, K., Rye, B. J., & Shain, M. (2011). Perceptions of declining classmate and teacher support following the

adolescence for most teenagers, especially if they feel competent in their peer relationships, their appearance, athletic, and other abilities.²²

Erikson's Psychosocial Theory: Identity vs. Role Confusion

Erikson believed that the primary psychosocial task of adolescence was establishing an identity. Many teens may struggle with the question, “Who am I?” This includes questions regarding their appearance, vocational choices and career aspirations, education, relationships, sexuality, political and social views, personality, and interests. Erikson saw this as a period of confusion and experimentation regarding identity and one's life path. During adolescence, we tend to experience psychological moratorium, where teens put on hold commitment to an identity while exploring options. The culmination of this exploration is a more coherent view of oneself. Those who are unsuccessful at resolving this stage may either withdraw further into social isolation or become lost in the crowd. However, more recent research suggests that few leave this age period with identity achievement, and that most identity formation occurs during young adulthood.²³ Identity formation also occurs as adolescents explore and commit to different roles and ideological positions. Nationality, gender, ethnicity, socioeconomic status, religious background, sexual orientation, and genetic factors shape how adolescents behave and how others respond to them and are sources of diversity in adolescence. Despite these generalizations, factors such as country of residence, gender, ethnicity, and sexual orientation shape development in ways that lead to a diversity of experiences across adolescence.

During high school and the college years, teens and young adults move from identity diffusion and foreclosure toward the biggest gains in the development of identity are after high school. Those who attend college tend to be exposed to a greater variety of career choices, lifestyles, and beliefs. This is likely to spur on questions regarding identity. A great deal of the identity work we do in adolescence and young adulthood is about values and goals, as we strive to articulate a personal vision or dream for what we hope to accomplish in the future.²⁴

transition to high school: Potential correlates of increasing student mental health difficulties. *Psychology in the Schools*, 48, 556-572.

22. Birkeland, M. S., Melkivik, O., Holsen, I., & Wold, B. (2012). Trajectories of global self-esteem during adolescence. *Journal of Adolescence*, 35, 43-54.
23. Côté, J. E. (2006). Emerging adulthood as an institutionalized moratorium: Risks and benefits to identity formation. In J. J. Arnett & J. T. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century*, (pp. 85-116). Washington D.C.: American Psychological Association Press.
24. McAdams, D. P. (2013). Self and Identity. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. <http://www.nobaproject.com>.

Gender identity

A person's sex, as determined by one's biology, does not always correspond with one's gender. **Sex** refers to the biological differences such as genitalia and genetic differences. **Gender** refers to the socially constructed characteristics of people, such as norms, roles, and relationships. Many adolescents use their analytic, hypothetical thinking to question traditional gender roles and expression. If their genetically assigned sex does not line up with their gender identity, they may refer to themselves as transgender, non-binary, or gender-nonconforming.

Gender identity refers to a person's self-perception as male, female, both, genderqueer, or neither (Figure 1). **Cisgender** is an umbrella term used to describe people whose sense of personal identity and gender corresponds with their birth sex, while **transgender** is a term used to describe people whose sense of personal identity does not correspond with their birth sex. **Gender expression**, or how one demonstrates gender (based on traditional gender role norms related to clothing, behavior, and interactions) can be feminine, masculine, androgynous, or somewhere along a spectrum.

Fluidity and uncertainty regarding sex and gender tend to appear during early adolescence, when hormones increase and fluctuate creating difficulty of self-acceptance and identity achievement.²⁵ Gender identity, like vocational identity, is becoming an increasingly prolonged task as attitudes and norms regarding gender keep changing. The roles appropriate for people are evolving and some adolescents may foreclose on a gender identity as a way of dealing with this uncertainty by adopting more stereotypic roles.²⁶ The next section, emerging adulthood, will outline additional information about identity development and intimacy.

25. Reisner, S. L., Katz-Wise, S. L., Gordon, A. R., Corliss, H. L., & Austin, S. B. (2016). Social epidemiology of depression and anxiety by gender identity. *Journal of Adolescent Health, 59*(2), 203-208.

26. Sinclair, S. & Carlsson, R. (2013). What will I be when I grow up? The impact of gender identity threat on adolescents' occupational preferences. *Journal of Adolescence, 36*(3), 465-474.



THE IDENTITY SPECTRUM

This graph is a fun exercise to help one understand that Sex, Gender Identity, Gender Expression and Sexual Orientation does not have to be black and white as both the Heteronormative/Cisgender Society around us (AKA Straight People) and the LGBT Community ascribe them to be -- find your own identity with this exercise and sincerely explore who YOU are and challenge the stereotypes of Gender and Sexual Orientation. Simply draw a line that best identifies along these spectrums.

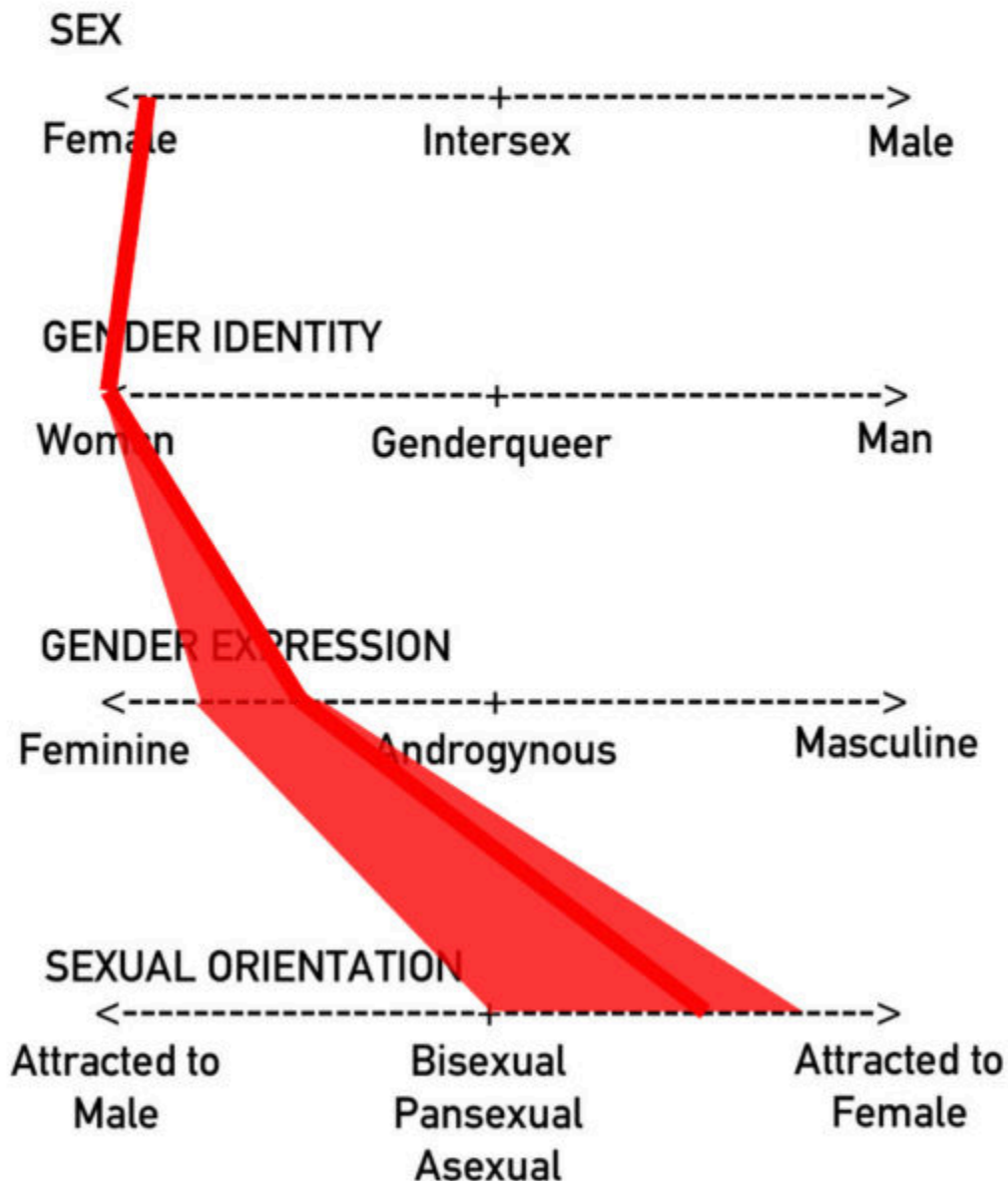


Figure 1 The identity spectrum includes various aspects of one's identity, including sex, gender identity, gender expression, and sexual orientation. These various aspects may be combined and aligned in unique ways. (Image Source: [translategender.org](https://www.translategender.org) and Ahuviya Harel, CC BY NC SA 3.0)

Aggression and Antisocial Behavior

Bullying

According to the CDC,²⁷ bullying is any unwanted, repeated aggressive behavior(s) by another person or group (who are not siblings or dating partners) that involves an observed or perceived power imbalance. A person can be a perpetrator, a victim, or both (also known as “bully/victim”). Bullying can elicit physical, psychological, social, and educational harm on the victim.²⁸

Common types of bullying include:

- Physical (hitting, kicking, tripping, etc.),
- Verbal (name-calling, teasing, etc.),
- Relational/social (spreading rumors, failing to include, etc.),
- Damage to the victim's property, and
- Electronic bullying or cyberbullying.

Anxiety and Depression

Developmental models of anxiety and depression also treat adolescence as an important period, especially in terms of the emergence of gender differences in prevalence rates that persist through adulthood.²⁹ Although the rates vary across specific anxiety and depression diagnoses, rates for some disorders are markedly higher in adolescence than in childhood or adulthood. Anxiety and depression are particularly concerning because suicide is one of the leading causes of death during adolescence.

27. Centers for Disease Control (CDC). (2021). Preventing Bullying. https://www.cdc.gov/violenceprevention/pdf/yv/Bullying-factsheet_508_1.pdf

28. Gladden, R. M., Vivolo-Kantor, A. M., Hamburger, M. E., & Lumpkin, C. D. (2014). Bullying surveillance among youths: Uniform definitions for public health and recommended data elements. Centers for Disease Control (CDC). <https://www.cdc.gov/violenceprevention/pdf/bullying-definitions-final-a.pdf>

29. Rudolph, K. D. (2009). The interpersonal context of adolescent depression. In S. Nolen-Hoeksema & L. M. Hilt (Eds.), *Handbook of depression in adolescents* (pp. 377–418). New York, NY: Taylor and Francis.

Family adversity, such as abuse and parental psychopathology, during childhood, can set the stage for social and behavioral problems during adolescence. Adolescents with such problems tend to generate stress in their relationships (e.g., by resolving conflict poorly and excessively seeking reassurance) and select more maladaptive social contexts (e.g., “misery loves company” scenarios in which depressed youths select other depressed youths as friends and then frequently co-ruminate as they discuss their problems, exacerbating negative affect and stress). Adolescents who have more relationship-oriented goals related to intimacy and social approval are more vulnerable to disruption in these relationships. Anxiety and depression can then exacerbate problems in social relationships, which can also contribute to the stability of anxiety and depression over time.

Academic achievement

Academic achievement during adolescence is predicted by interpersonal (e.g., parental engagement in adolescents’ education), intrapersonal (e.g., intrinsic motivation), and institutional (e.g., school quality) factors. Academic achievement is important in its own right as a marker of positive adjustment during adolescence but also because academic achievement sets the stage for future educational and occupational opportunities. The most serious consequence of school failure, particularly dropping out of school, is the high risk of unemployment or underemployment in adulthood that tends to follow. High achievement can set the stage for college or future vocational training and opportunities.

HEALTH IN ADOLESCENCE

Diana Lang and Nick Cone

Adolescents tend to have more independence in what they eat and when they sleep compared to younger age groups. Furthermore, they are more independent (able to drive or are transported by peers). This section explores sleep, nutrition, disordered eating, and pregnancy.

Adolescent Sleep

According to the National Sleep Foundation (NSF),¹ adolescents need about 8 to 10 hours of sleep each night to function best. A Sleep in America poll indicated that adolescents between sixth and twelfth grade were not getting the recommended amount of sleep. For the older adolescents, only about one in ten (9%) get an optimal amount of sleep, and they are more likely to experience negative consequences the following day. These include feeling too tired or sleepy, being cranky or irritable, falling asleep in school, having a depressed mood, and drinking caffeinated beverages.² Lack of adequate sleep can also make adolescents more at risk for substance abuse, car crashes, poor academic performance, obesity, and a weakened immune system.³

Why don't adolescents get adequate sleep? In addition to known environmental and social factors, including work, homework, media, technology, and socializing, the adolescent brain is also a factor. As adolescent progress through puberty, their circadian rhythms change and push back



(Image Source: Teenager Sleeping on Pexels)

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1. National Sleep Foundation (2016). Teens and Sleep. <https://sleepfoundation.org/sleep-topics/teens-and-sleep>
 2. National Sleep Foundation (2016). Teens and Sleep. <https://sleepfoundation.org/sleep-topics/teens-and-sleep>
 3. Weintraub, K. (2016). Young and sleep deprived. *Monitor on Psychology*, 47(2), 46-50.

their sleep time until later in the evening.⁴ This biological change not only keeps adolescents awake at night; it makes it difficult for them to get up in the morning. When they are awake too early, their brains do not function optimally. Impairments tend to be noted in attention, behavior, and academic achievement, while increases in late school attendance and absenteeism are also demonstrated.

Science demonstrates that **melatonin** levels (or the “sleep hormone” levels) in the blood tend to naturally rise later at night and fall later in the morning among adolescents. This may explain why many teens might stay up late and struggle getting up early in the morning. A lack of sleep makes paying attention difficult, increases impulsivity and may also increase irritability and depression.⁵

To support adolescents’ later sleeping schedule, the Centers for Disease Control and Prevention recommended that school not begin any earlier than 8:30 a.m. Psychologists and other professionals have been advocating for later school times, and they have produced research demonstrating better student outcomes for later start times. More middle and high schools have changed their start times to better reflect the sleep research. However, the logistics of changing start times and bus schedules are proving too difficult for some schools leaving many adolescent vulnerable to the negative consequences of sleep deprivation.

Nutrition

Adequate adolescent nutrition is necessary for optimal growth and development. Dietary choices and habits established during adolescence greatly influence future health, yet many studies report that teens consume few fruits and vegetables and are not receiving the calcium, iron, vitamins, or minerals necessary for healthy development.⁶

One of the reasons for poor nutrition is anxiety about **body image**, which is individuals’ idea of how their body looks. The way adolescents feel about their bodies can affect the way they feel about themselves as a whole. Some adolescents may adjust their eating habits to lose weight due to their sudden weight gain. Adding to the rapid physical changes, they are simultaneously bombarded by messages, and sometimes teasing, related to body image, appearance, attractiveness, weight, and eating that they encounter in the media, at home, and from their friends/peers (both in person and via social media).

4. Weintraub, K. (2016). Young and sleep deprived. *Monitor on Psychology*, 47(2), 46-50.

5. National Institute of Mental Health (NIMH). (2020). The teen brain: 7 things to know. <https://www.nimh.nih.gov/health/publications/the-teen-brain-7-things-to-know>

6. Christian, P., & Smith, E. R. (2018). Adolescent undernutrition: Global burden, physiology, and nutritional risks. *Annals of Nutrition & Metabolism*, 72(4), 316–328. <https://doi.org/10.1159/000488865>

Much research has been conducted on the psychological ramifications of body image on adolescents. Modern day teenagers are exposed to more media on a daily basis than any generation before them. Recent studies have indicated that the average teenager watches roughly 1500 hours of television per year, and 70% use social media multiple times a day.⁷ As such, modern day adolescents are exposed to many representations of ideal, societal beauty. The concept of a person being unhappy with their own image or appearance has been defined as “**body dissatisfaction**.” In teenagers, body dissatisfaction is often associated with body mass, low self-esteem, and atypical eating patterns. Scholars continue to debate the effects of media on body dissatisfaction in teens.

Disordered Eating

Disordered eating affects all genders. Some individuals also have a distorted sense of body image referred to as **muscle dysmorphia**, or an extreme concern with becoming more muscular. Dissatisfaction with body image can explain why some teens erratically eat or ingest diet pills to lose weight and why some teens may take steroids to increase their muscle mass. Although disordered eating can occur in children and adults, it frequently appears during the teen years or young adulthood.⁸

Risk Factors for Disordered Eating

Because of the high mortality rate, researchers are looking into the etiology of the disorder and associated risk factors. Researchers are finding that disordered eating patterns are caused by a complex interaction of genetic, biological, behavioral, psychological, and social factors.⁹ Disordered eating appears to run in families, and researchers are working to identify DNA variations that are linked to the increased risk of developing disordered eating habits. Researchers have also found differences in patterns of brain activity in females who have disordered eating in comparison with females who do not report disordered eating. The main criteria for the most common disordered eating patterns: **anorexia nervosa**, **bulimia**

7. Markey, Charlotte (2019). "Teens, Body Image, and Social Media." Psychology Today. <https://www.psychologytoday.com/us/blog/smart-people-don-t-diet/201902/teens-body-image-and-social-media>.

8. National Institutes of Mental Health. (2021). Eating Disorders. <https://www.nimh.nih.gov/health/topics/eating-disorders/index.shtml>

9. National Institutes of Mental Health. (2021). Eating Disorders. <https://www.nimh.nih.gov/health/topics/eating-disorders/index.shtml>

nervosa, and **binge-eating disorder** (see Table 1) are described in the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition, DSM-5-TR¹⁰

Table 1. Disordered Eating Diagnostic Criteria¹¹

Diagnosis	Major Criteria
Anorexia	Significantly low body weight, significant weight and shape concerns
Bulimia Nervosa	Recurrent binge eating and compensatory behaviors (eg, purging, laxative use); significant weight and shape concerns
Binge eating disorder	Recurrent binge eating; at least 3 of 5 additional criteria related to binge eating (eg, eating large amounts when not physically hungry, eating alone due to embarrassment); significant distress

Consequences of Disordered Eating

For those suffering from anorexia, health consequences may include an abnormally slow heart rate and low blood pressure, which increase the risk for heart failure. Additionally, there is a reduction in bone density (osteoporosis), muscle loss and weakness, severe dehydration, fainting, fatigue, and overall weakness. Individuals with anorexia nervosa may die from complications associated with starvation, while others die of suicide.

The bingeing and purging cycle of bulimia can affect the digestive system and lead to electrolyte and chemical imbalances that can affect the heart and other major organs. Frequent vomiting can cause inflammation and possible rupture of the esophagus, as well as tooth decay and staining from stomach acids. Lastly, binge eating disorder results in similar health risks to obesity, including high blood pressure, high cholesterol level, heart disease, Type II diabetes, and gall bladder disease.¹²

10. American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders. American Psychiatric Association.

11. Eichen, D. M., & Wilfley, D. E. (2016, May 26). Diagnosis and assessment issues in eating disorders. *Psychiatric Times*. <https://www.psychiatrictimes.com/view/diagnosis-and-assessment-issues-eating-disorders>

12. National Eating Disorders Association. (2016). Health consequences of eating disorders. <https://www.nationaleatingdisorders.org/health-consequences-eating-disorders>

Disordered Eating Treatment

To treat disordered eating, getting adequate nutrition and stopping inappropriate behaviors, such as purging, are the foundations of treatment. Treatment plans are tailored to individual needs and include medical care, nutritional counseling, medications (such as antidepressants), and individual, group, and/or family psychotherapy.¹³¹⁴

Link to Learning

Visit National Eating Disorders Association to learn more about disordered eating.

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13. National Institutes of Mental Health. (2021). Eating Disorders. <https://www.nimh.nih.gov/health/topics/eating-disorders/index.shtml>
 14. Centers for Disease Control and Prevention (CDC). (2017). The obesity epidemic and United States students. https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2017/2017_US_Obesity.pdf

Adolescent Pregnancy



(Image Source: Stylized image of pregnant woman on Pixabay)

In the United States, adolescent pregnancy rates have declined, however, teenage birth rates are higher than in most developed countries. It appears that adolescents in the United States seem to be less sexually active than in previous years, and those who are sexually active seem to be using birth control.¹⁵

Risk Factors for Adolescent Pregnancy

Miller, Benson, and Galbraith¹⁶ found that parent/child closeness, parental supervision, and parents' values against teen intercourse (or unprotected intercourse) decreased the risk of adolescent pregnancy. In contrast, residing in disorganized/dangerous neighborhoods, living in a lower SES family, living with a single parent, having older sexually active siblings or pregnant/parenting teenage sisters, early puberty, and being a victim of sexual abuse place adolescents at an increased risk of adolescent pregnancy.

Consequences of Adolescent Pregnancy

After a child is born, life can be difficult for teen parents. Fewer than 50% of teenagers who have children before age 18 graduate from high school. Without a high school degree, job prospects tend to be limited and economic independence can be difficult. Teen parents are more likely to live in poverty and a majority of unmarried teen mothers receives public assistance within 5 years of the birth of their first child. Further, a child born to a teenage mother is more likely to repeat a grade in school, perform poorly on standardized tests, and drop out before finishing high school when compared to their counterparts who are not born

15. Center for Disease Control. (2016). Birth rates (live births) per 1,000 females aged 15–19 years, by race and Hispanic ethnicity, select years. Retrieved from <http://www.cdc.gov/teenpregnancy/about/birth-rates-chart-2000-2011-text.htm>

16. Miller, B. C., Benson, B., & Galbraith, K. A. (2001). Family relationships and adolescent pregnancy risk: A research synthesis. *Developmental Review: DR*, 21(1), 1–38. <https://doi.org/10.1006/drev.2000.0513>

to teen mothers.¹⁷ All genders tend to become parents at an older age as their educational attainment increases.

Diverse experiences and outcomes within and between adolescents

Although similar biological changes occur for adolescents as they enter puberty, these changes can differ significantly depending on one's cultural, ethnic, and societal factors.

Adolescent development does not necessarily follow the same pathway for all individuals. Certain features of adolescence, particularly with respect to biological changes associated with puberty and cognitive changes associated with brain development, are relatively universal. However, other features of adolescence depend largely on circumstances that are more environmentally variable. For example, adolescents growing up in one country might have different opportunities for risk-taking than adolescents in a different country and supports and sanctions for different behaviors in adolescence depend on laws and values that



(Image Source: Group of girls on Pixabay)

might be specific to where adolescents live. Likewise, different cultural norms regarding family and peer relationships shape adolescents' experiences in these domains. For example, in some countries, adolescents' parents are expected to retain control over major decisions, whereas, in other countries, adolescents are expected to begin sharing in or taking control of decision-making.

Even within the same country, adolescents' gender, ethnicity, immigrant status, religion, sexual orientation, socioeconomic status, and personality can shape both how adolescents behave and how others respond to them, creating diverse developmental contexts for different adolescents. For example, early puberty (that occurs before most other peers have experienced puberty) appears to be associated with worse outcomes for females than males, likely in part because females who enter puberty early tend to associate with older males, which in turn tends to be associated with early sexual behavior and substance use. For adolescents who

17. March of Dimes. (2012). Teenage pregnancy. <http://www.marchofdimes.org/materials/teenage-pregnancy.pdf>

are ethnic or sexual minorities, discrimination sometimes presents a set of challenges that nonminority's do not face.

Finally, genetic variations contribute an additional source of diversity in adolescence. Current approaches emphasize gene X environment interactions, which often follow a differential susceptibility model.¹⁸ That is, particular genetic variations are considered more riskier than others, but genetic variations also can make adolescents more or less susceptible to environmental factors. Thus, it is important to be mindful that individual differences play an important role in adolescent development.

18. Belsky, J., & Pluess, M. (2009). Beyond diathesis-stress: Differential susceptibility to environmental influences. *Psychological Bulletin*, 135, 885–908

EARLY ADULthood

INTRODUCTION TO EARLY ADULTHOOD

Alisa Beyer; Julie Lazzara; Diana Lang; Nick Cone; Margaret Clark-Plaskie;
Lumen Learning; Martha Lally; and Suzanne Valentine-French

Learning Objectives

- Describe physical development and health in early adulthood
- Describe sexuality issues related to early adulthood
- Explain the facets of cognitive development occurring in early adulthood
- Distinguish between formal and postformal thought
- Describe cognitive development and dialectical thought during early adulthood
- Describe Erikson's stage of intimacy vs. isolation
- Describe the relationship between infant and adult temperament
- Explain the five factor model of personality
- Describe adult attachment styles
- Summarize attachment theory in adulthood
- Explain adult gender identity and gender roles
- Describe some factors related to attraction in relationships
- Describe trends and norms in dating, cohabitation, and marriage across the world
- Describe educational trends in early adulthood
- Explain the relationship between education and work in early adulthood

The theory of emerging (or early/young) adulthood proposes that a new life stage has arisen between adolescence and adulthood over the past half-century in industrialized countries. Fifty years ago, most young people in these countries had entered stable adult roles in love and work by their late teens or early twenties.



(Image Source: Mikael Blomkvist on Pexels)

Have you noticed that many young adults in industrialized societies today are taking longer to accomplish the early adulthood developmental tasks of becoming independent? Completion of formal education, financial independence from parents, marriage, and parenthood have all been markers of the end of adolescence and beginning of adulthood, and all of these transitions happen, on average, later now than in the past. The prolonging of adolescence within industrialized countries

has prompted the introduction of a new developmental period called emerging adulthood (sometimes called early adulthood) that captures these developmental changes out of adolescence and into adulthood.¹

Emerging adulthood is the period between the late teens and early twenties; approximately ages 18-25, although some researchers have included up to age 29 in the definition.² Arnett³ argues that emerging adulthood is neither adolescence nor is it young adulthood. Individuals in this age period have left behind the relative dependency of childhood and adolescence, but have not yet taken on the responsibilities of adulthood. “Emerging adulthood is a time of life when many different directions remain possible, when little about the future is decided for certain when the scope of independent exploration of life’s possibilities are greater for most people than it will be at any other period of the life course”.⁴

Arnett⁵ pointed out this prolonged transitional period and identified the following five characteristics of emerging adulthood that distinguishes it from adolescence and young adulthood:

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1. Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037//0003-066x.55.5.469>.
 2. Society for the Study of Emerging Adulthood (SSEA). (2016). Overview. <http://ssea.org/about/index.htm>
 3. Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037//0003-066x.55.5.469>
 4. Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037//0003-066x.55.5.469>
 5. Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037//0003-066x.55.5.469>

Identity exploration

Erik Erikson⁶ commented on a trend during the 20th century of a “prolonged adolescence” in industrialized societies. Today, most identity development occurs during the late teens and early twenties rather than in adolescence. It is during emerging adulthood that many people are exploring their career choices and ideas about intimate relationships, setting the foundation for adulthood. Emerging adulthood is an extended period of time for exploring what individuals between the ages



(Image Source: Pixabay on Pexels)

of 18 and 25 want out of work, love, and life. Part of that exploration is attending postsecondary (tertiary) education to expand more pathways for work. **Tertiary education** includes community colleges, universities, and trade schools.

Instability

Exploration generates uncertainty and instability.⁷⁸ Emerging adults tend to change jobs, relationships, and residences more frequently than other age groups. Rates of residential change in American society are much higher at ages 18 to 29 than at any other period of life.⁹ This reflects the explorations going on in emerging adults’ lives. Some move out of their parents’ household for the first time in their late teens to attend a residential college, whereas others move out simply to be independent.¹⁰ They may move again when they drop out of college, change trade schools, or when they graduate. They may move to cohabit with a romantic partner and then move out when the relationship ends. Some move to another part

6. Erikson, E. H. (1968). *Identity: Youth and crisis*. WW Norton.

7. Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037/0003-066x.55.5.469>

8. Arnett, J. J. (2006). G. Stanley Hall’s adolescence: Brilliance and nonsense. *History of Psychology*, 9(3), 186–197. <https://doi.org/10.1037/1093-4510.9.3.186>

9. Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–75. <https://doi.org/10.1002/cd.75>

10. Goldscheider, F. K., & Goldscheider, C. (1999). *The changing transition to adulthood: Leaving and returning home*. SAGE Publications.

of the country or the world to study or work. For nearly half of American emerging adults, residential change includes moving back in with their parents or guardians at least once.¹¹ In some countries, such as in southern Europe, emerging adults remain in their parents' home rather than move out; nevertheless, they may still experience instability in education, work, and love relationships.¹²¹³

Self-focus

Being self-focused is not the same as being “self-centered.” Adolescents are more self-centered than emerging adults. Arnett found emerging adults tend to be very considerate of the feelings of others, especially their parents. They now begin to see their parents as people not just parents, something most adolescents fail to do.¹⁴ Nonetheless, emerging adults focus more on themselves, as they realize that they have few obligations to others and that this is the time where they can do what they want with their life. Most American emerging adults move out of their parents' home at age 18 or 19 and do not marry or have their first child until at least their late twenties.¹⁵ Even in countries where emerging adults remain in their parents' home through their early twenties, as in southern Europe and in Asian countries such as Japan, they establish a more independent lifestyle than they had as adolescents.¹⁶ Emerging adulthood is a time between adolescents' reliance on parents or primary caregivers and adults' long-term commitments in love and work, and during these years, emerging adults focus on themselves as they develop the knowledge, skills, and self-understanding they will need for adult life. During emerging adulthood, they tend to make independent decisions about everything from what to have for dinner to whether or not to get married.

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11. Goldscheider, F. K., & Goldscheider, C. (1999). *The changing transition to adulthood: Leaving and returning home*. SAGE Publications.
 12. Douglass, C. B. (Ed.). (2020). *Barren states: The population “implosion” in Europe*. Routledge.
 13. Douglass, C. B. (2007). From duty to desire: Emerging adulthood in Europe and its consequences. *Child Development Perspectives*, 1(2), 101–108. <https://doi.org/10.1111/j.1750-8606.2007.00023.x>
 14. Arnett, J. J. (2006). G. Stanley Hall's adolescence: Brilliance and nonsense. *History of Psychology*, 9(3), 186–197. <https://doi.org/10.1037/1093-4510.9.3.186>
 15. Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–75. <https://doi.org/10.1002/cd.75>
 16. Rosenberger, N. (2007). Rethinking emerging adulthood in Japan: Perspectives from long-term single women. *Child Development Perspectives*, 1(2), 92–95. <https://doi.org/10.1111/j.1750-8606.2007.00021.x>

Feeling in-between

When asked if they feel like adults, more 18 to 25-year-olds answer “yes and no” than do teens or adults older than the age of 25.¹⁷ Most emerging adults have gone through the changes of puberty, are typically no longer in high school, and many have also moved out of their parents’ home. Thus, they no longer feel as dependent as they did as teenagers. Yet, they may still be financially dependent on their parents or primary caregivers to some degree, and they have not completely attained some of the indicators of adulthood, such as finishing their education, obtaining a “career-based” full-time job, being in a committed relationship, or being responsible for others. It is not surprising that Arnett found that 60% of 18 to 25-year-olds felt that in some ways they were adults, but in some ways, they were not.¹⁸ It is when most people reach their late twenties and early thirties that a clear majority feel like they have reached adulthood. Most emerging adults have the subjective feeling of being in a transitional period of life, on the way to adulthood but not there yet. This “in-between” feeling in emerging adulthood has been found in a wide range of countries, including Argentina,¹⁹ Austria,²⁰ Israel,²¹ the Czech Republic,²² and China.²³

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17. Arnett, J. J. (2004). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. In J. J. Arnett & N. Galambos (Eds.), *Cultural conceptions of the transition to adulthood: New directions in child and adolescent development*. San Francisco: Jossey-Bass.
 18. Arnett, J. J. (2004). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. In J. J. Arnett & N. Galambos (Eds.), *Cultural conceptions of the transition to adulthood: New directions in child and adolescent development*. San Francisco: Jossey-Bass.
 19. Facio, A., & Micocci, F. (2003). Emerging adulthood in Argentina. *New Directions for Child and Adolescent Development*, 2003(100), 21–31. <https://doi.org/10.1002/cd.72>
 20. Sirsch, U., Dreher, E., Mayr, E., & Willinger, U. (2009). What does it take to be an adult in Austria?: Views of adulthood in Austrian adolescents, emerging adults, and adults. *Journal of Adolescent Research*, 24(3), 275–292. <https://doi.org/10.1177/0743558408331184>
 21. Mayseless, O., & Scharf, M. (2003). What does it mean to be an adult? The Israeli experience. *New Directions for Child and Adolescent Development*, 2003(100), 5–20. <https://doi.org/10.1002/cd.71>
 22. Macek, P., Bejček, J., & Vaníčková, J. (2007). Contemporary Czech emerging adults: Generation growing up in the period of social changes. *Journal of Adolescent Research*, 22(5), 444–475. <https://doi.org/10.1177/0743558407305417>
 23. Nelson, L. J., & Chen, X. (2007). Emerging adulthood in China: The role of social and cultural factors. *Child Development Perspectives*, 1(2), 86–91. <https://doi.org/10.1111/j.1750-8606.2007.00020.x>

Many possibilities

This stage tends to be an age of high hopes and great expectations. In one national survey of 18- to 24-year-olds in the United States, nearly all—89%—agreed with the statement, “I am confident that one day I will get to where I want to be in life.”²⁴ This optimism in emerging adulthood has been found in other countries as well.²⁵ Arnett^{26,27} suggests that this optimism is because these dreams have yet to be tested. For example, it is easier to believe that you will eventually find your soulmate when you have yet to have had a serious relationship. It may also be a chance to change directions, for those whose lives up to this point have been difficult. The experiences of children and teens tend to be heavily influenced by the choices and decisions of their primary caregivers. If their primary caregivers are dysfunctional, there is little a child can do about it. In emerging adulthood, people can move out and move on. They have the chance to transform their lives and move away from unhealthy environments. Even those whose lives were happier and more fulfilling as children, now have the opportunity in emerging adulthood to become independent and make decisions about the direction they would like their life to take.



(Image Source: Mariya Georgieva on Unsplash)

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24. Arnett, J. J. & Schwab, J. (2012). The Clark University poll of emerging adults: Thriving, struggling, & hopeful. Worcester, MA: Clark University.
25. Nelson, L. J., & Chen, X. (2007). Emerging adulthood in China: The role of social and cultural factors. *Child Development Perspectives*, 1(2), 86–91. <https://doi.org/10.1111/j.1750-8606.2007.00020.x>
26. Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037//0003-066x.55.5.469>.
27. Arnett, J. J. (2006). G. Stanley Hall's adolescence: Brilliance and nonsense. *History of Psychology*, 9(3), 186–197. <https://doi.org/10.1037/1093-4510.9.3.186>

Video Example

To hear about emerging adulthood and why it may take longer to reach adulthood today in industrialized nations, view this video clip of Dr. Jeffrey Arnett. In the first 6 1/2 minutes he describes four societal revolutions that may have caused emerging adulthood. In the second half of the clip, Arnett discusses how “30 is the new 20,” as twenty-somethings today enjoy unparalleled freedoms when compared with other generations.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=886#oembed-1>

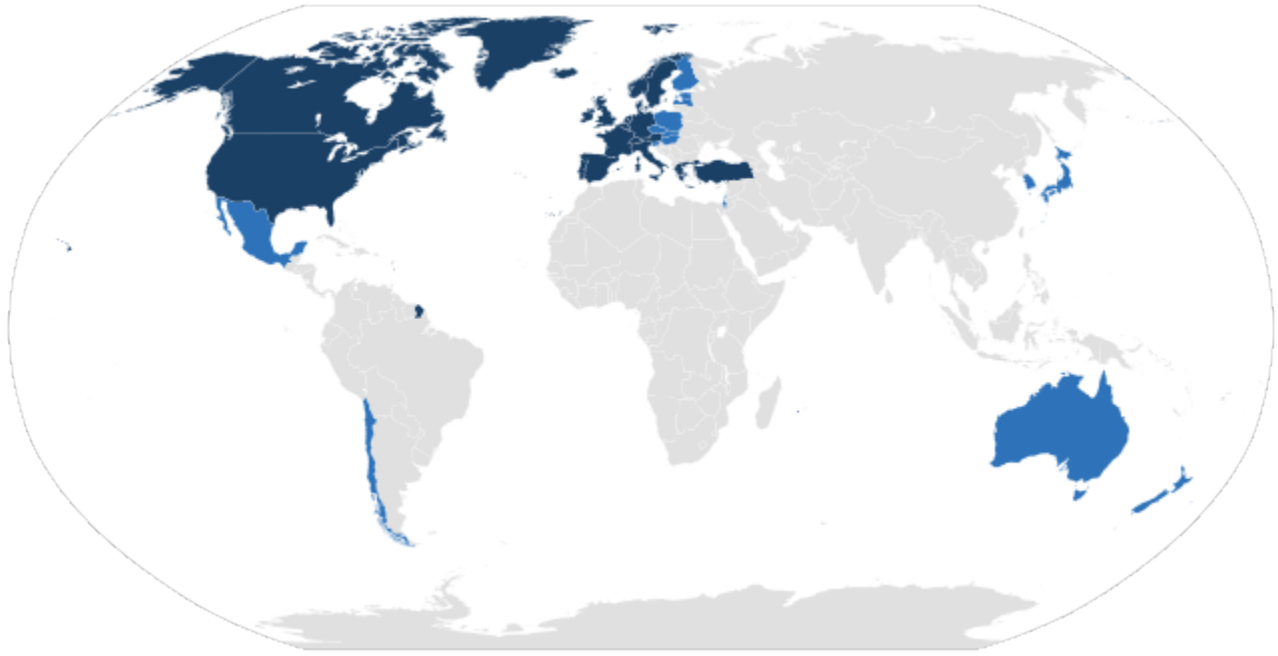
You can view the transcript for “Why does it take so long to grow up today? | Jeffrey Jensen Arnett | TEDxPSU” here (opens in new window).

Is Emerging Adulthood a Global Phenomenon?

The five features proposed in the theory of emerging adulthood originally were based on research involving about 300 Americans between ages 18 and 29 from various ethnic groups, social classes, and geographical regions.²⁸ To what extent does the theory of emerging adulthood apply internationally?

The answer to this question depends greatly on what part of the world is considered. Demographers make a useful distinction between the developing countries that comprise the majority of the world’s population and the economically developed countries that are part of the Organization for Economic Co-operation and Development (OECD), including the United States, Canada, western Europe, Japan, South Korea, Australia, and New Zealand. The rest of the human population resides in developing countries, which have much lower median incomes; much lower median educational attainment; and much higher incidence of illness, disease, and early death. Let us consider emerging adulthood in OECD countries first, then in developing countries.

28. Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–75. <https://doi.org/10.1002/cd.75>



Map of OECD countries. Darker shaded countries are original members. (Image Source: Parastscilveks, CC BY-SA 2.0)

The same demographic changes as described above for the United States have taken place in other OECD countries as well. This is true of participation in postsecondary education as well as median ages for entering marriage and parenthood.²⁹ However, there is also substantial variability in how emerging adulthood is experienced across OECD countries. Europe is the region where emerging adulthood is longest and most leisurely.³⁰ Europe today is one location comprised of the most affluent, generous, and egalitarian societies in the world.³¹ Governments pay for tertiary education, assist young people in finding jobs, and provide generous unemployment benefits for those who cannot find work. In northern Europe, many governments also provide housing support. Emerging adults in European societies make the most of these advantages, gradually making their way to adulthood during their twenties while enjoying travel and leisure with friends.

The lives of Asian emerging adults in developed countries such as Japan and South Korea are in some ways similar to the lives of emerging adults in Europe and in some ways strikingly

29. UNdata (2010). Gross enrollment ratio in tertiary education. United Nations Statistics Division. Retrieved from <http://data.un.org/Data.aspx?d=GenderStat&f=inID:68>

30. Douglass, C. B. (2007). From duty to desire: Emerging adulthood in Europe and its consequences. *Child Development Perspectives*, 1(2), 101–108. <https://doi.org/10.1111/j.1750-8606.2007.00023.x>

31. Arnett, J. J. (2007). The long and leisurely route: Coming of age in Europe today. *Current History*, 106(698), 130–136. <https://doi.org/10.1525/curh.2007.106.698.130>

different. Like European emerging adults, Asian emerging adults tend to enter marriage and parenthood around age 30.³² Like European emerging adults, Asian emerging adults in Japan and South Korea enjoy the benefits of living in affluent societies with generous social welfare systems that provide support for them in making the transition to adulthood—for example, free university education and substantial unemployment benefits.

However, in other ways, the experience of emerging adulthood in Asian OECD countries is markedly different than in Europe. Europe has a long history of individualism, and today's emerging adults carry that legacy with them in their focus on self-development and leisure during emerging adulthood. In contrast, Asian cultures have a shared cultural history emphasizing collectivism and family obligations. Although many Asian cultures have become more individualistic in recent decades as a consequence of globalization, the legacy of collectivism persists in the lives of most emerging adults. They pursue identity explorations and self-development during emerging adulthood, like their American and European counterparts, but within narrower boundaries set by their sense of obligations to others, especially their parents.³³ For example, in their views of the most important criteria for becoming an adult, emerging adults in the United States and Europe consistently rank financial independence among the most important markers of adulthood. In contrast, emerging adults with an Asian cultural background typically emphasize becoming capable of supporting parents financially as among the most important criteria.^{34,35} This sense of family obligation may curtail their identity explorations in emerging adulthood to some extent, as they pay more heed to their parents' wishes about what they should study, what job they should take, and where they should live than emerging adults do in the West.³⁶

Another notable contrast between Western and Asian emerging adults is in their sexuality. In the West, premarital sex is normative by the late teens, more than a decade before most people enter marriage. In the United States and Canada, and in northern and eastern Europe, cohabitation tends to be normative; many people have at least one cohabiting partnership before marriage. In southern Europe, cohabiting is typically still taboo, but premarital sex

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32. Arnett, J. J. (2011). Emerging adulthood(s): The cultural psychology of a new life stage. In L. A. Jensen (Ed.), *Bridging cultural and developmental approaches to psychology: New syntheses in theory, research, and policy* (pp. 255–275). Oxford University Press.
33. Phinney, J. S., & Baldelomar, O. A. (2010). Identity development in multiple cultural contexts. In *Bridging Cultural and Developmental Approaches to Psychology* (pp. 161–186). Oxford University Press.
34. Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–75. <https://doi.org/10.1002/cd.75>
35. Nelson, L. J., Badger, S., & Wu, B. (2004). The influence of culture in emerging adulthood: Perspectives of Chinese college students. *International Journal of Behavioral Development*, 28(1), 26–36. <https://doi.org/10.1080/01650250344000244>
36. Rosenberger, N. (2007). Rethinking emerging adulthood in Japan: Perspectives from long-term single women. *Child Development Perspectives*, 1(2), 92–95. <https://doi.org/10.1111/j.1750-8606.2007.00021.x>

is more tolerated in emerging adulthood. In contrast, both premarital sex and cohabitation remain rare and forbidden throughout Asia.

For young people in developing countries, emerging adulthood typically only exists for the wealthier segment of society, mainly the urban middle class, whereas the rural and urban poor—the majority of the population—have no emerging adulthood and may even have no adolescence because they enter adult-like work at an early age and also begin marriage and parenthood relatively early. However, as globalization proceeds, and economic development along with it, the proportion of young people who experience emerging adulthood will most likely increase as the middle class expands. By the end of the 21st century, emerging adulthood may be normative worldwide.

In Europe, governments pay for tertiary education, assist young people in finding jobs, and provide generous unemployment benefits for those who cannot find work. In northern Europe, many governments also provide housing support. Emerging adults in European societies tend to make the most of these advantages, gradually making their way to adulthood during their twenties while enjoying travel and leisure with friends.

The lives of Asian emerging adults in developed countries, such as Japan and South Korea, are in some ways similar to the lives of emerging adults in Europe and in some ways strikingly different. Like European emerging adults, Asian emerging adults tend to enter marriage and parenthood around age 30.³⁷ Like European emerging adults, Asian emerging adults in Japan and South Korea enjoy the benefits of living in affluent societies with generous social welfare systems that provide support for them in making the transition to adulthood, including free university education and substantial unemployment benefits.

However, in other ways, the experience of emerging adulthood in Asian OECD countries is markedly different than in Europe. Europe has a long history of individualism, and today's emerging adults carry that legacy with them in their focus on self-development and leisure during emerging adulthood. In contrast, Asian cultures have a shared cultural history emphasizing collectivism and family obligations.

37. Arnett, J. J. (2011). Emerging adulthood(s): The cultural psychology of a new life stage. In L. A. Jensen (Ed.), *Bridging cultural and developmental approaches to psychology: New syntheses in theory, research, and policy* (pp. 255–275). Oxford University Press.



Is your culture one that promotes romantic relationships for emerging adults? Or does it encourage you to wait till you're older? What would it be like to live in the opposite culture? (Image Source: Freestocks on Unsplash)

Although Asian cultures have become more individualistic in recent decades, as a consequence of globalization, the legacy of collectivism persists in the lives of emerging adults. They pursue identity explorations and self-development during emerging adulthood, like their American and European counterparts, but within narrower boundaries set by their sense of obligations to others, especially their parents.³⁸ For example, in their views of the most important criteria for becoming an adult, emerging adults in the United States and Europe consistently rank financial independence among the most important markers of adulthood. In contrast, emerging adults with an Asian cultural background especially emphasize becoming capable of

38. Phinney, J. S., & Baldelomar, O. A. (2010). Identity development in multiple cultural contexts. In *Bridging Cultural and Developmental Approaches to Psychology* (pp. 161–186). Oxford University Press.

supporting parents financially as among the most important criteria.^{39,40} This sense of family obligation may curtail their identity explorations in emerging adulthood to some extent, as they pay more heed to their parents' wishes about what they should study, what job they should take, and where they should live than emerging adults do in the West.⁴¹

Video Example

A Counter Argument: No Emerging Adulthood?

While Arnett describes “emerging adulthood” as a time of delayed entry into early adulthood, not everyone agrees. View this clip from Dr. Meg Jay, as she cautions young adults not to procrastinate since what happens during their twenties is important for the rest of adulthood:

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=886#oembed-2>

39. Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–75. <https://doi.org/10.1002/cd.75>

40. Nelson, L. J., Badger, S., & Wu, B. (2004). The influence of culture in emerging adulthood: Perspectives of Chinese college students. *International Journal of Behavioral Development*, 28(1), 26–36. <https://doi.org/10.1080/01650250344000244>

41. Rosenberger, N. (2007). Rethinking emerging adulthood in japan: Perspectives from long-term single women. *Child Development Perspectives*, 1(2), 92–95. <https://doi.org/10.1111/j.1750-8606.2007.00021.x>

PHYSICAL DEVELOPMENT IN EARLY ADULTHOOD

Diana Lang; Nick Cone; Margaret Clark-Plaskie; Laura Overstreet; Martha Lally; Suzanne Valentine-French; and Wikimedia Contributors

The Physiological Peak



Early adulthood is generally a time of peak physical health. (Image Source: Li Sun on Pexels)

People in their twenties and thirties are considered young adults. If you are in your early twenties, you are probably at the peak of your physiological development. Your body has completed its growth, though your brain is still developing (as explained in the previous module on adolescence). Physically, you are in the “prime of your life” as your reproductive system, motor ability, strength, and lung capacity are operating at their best. However, these systems will start a slow, gradual decline so that by the time you reach your mid to late 30s, you will begin to notice signs of aging. This includes a decline in your immune system, your response time, and in your ability to recover quickly from physical exertion. For example,

you may have noticed that it takes you quite some time to stop panting after running to class or taking the stairs. But, remember that both nature and nurture continue to influence development. Getting out of shape is not an inevitable part of aging; it is probably due to the fact that you have become less physically active and have experienced greater stress. The good news is that there are things you can do to combat many of these changes. So keep in mind, as we continue to discuss the lifespan, that some of the changes we associate with aging can be prevented or turned around if we adopt healthier lifestyles.

In fact, research shows that the habits we establish in our twenties are related to certain health conditions in middle age, particularly the risk of heart disease. What are healthy habits that young adults can establish now that will prove beneficial in later life? Healthy habits include maintaining a lean body mass index, moderate alcohol intake, a smoke-free lifestyle, a healthy diet, and regular physical activity. When experts were asked to name one thing they would recommend young adults do to facilitate good health, their specific responses included: weighing self often, learning to cook, reducing sugar intake, developing an active lifestyle, eating vegetables, practicing portion control, establishing an exercise routine, and finding a job you love.¹

Being overweight or obese is a concern in early adulthood. Medical research shows that Americans with moderate weight gain from early to middle adulthood have significantly increased risks of major chronic disease and mortality.² Given the fact that Americans tend to gain about one to two pounds per year from early to middle adulthood, developing healthy nutrition and exercise habits across adulthood is extremely important.³

Health in Early Adulthood

Obesity

Although at the peak of physical health, a concern for early adults is the current rate of obesity. **Body mass index (BMI)**, expressed as weight in kilograms divided by height in meters squared (kg/m^2), is commonly used to classify overweight (BMI 25.0–29.9), obesity (BMI greater

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1. Parker-Pope, T. (2016, October 17). The 8 health habits experts say you need in your 20s. *The New York Times*. <https://www.nytimes.com/interactive/2016/10/16/well/live/health-tips-for-your-20s.html>
 2. Zheng, Y., Manson, J. E., Yuan, C., Liang, M. H., Grodstein, F., Stampfer, M. J., Willett, W. C., & Hu, F. B. (2017). Associations of weight gain from early to middle adulthood with major health outcomes later in life. *JAMA: The Journal of the American Medical Association*, 318(3), 255–269. <https://doi.org/10.1001/jama.2017.7092>
 3. Nichols, H. (2017, July 18). *Weight gain in early adulthood linked to health risks later in life*. Medical News Today. <https://www.medicalnewstoday.com/articles/318480>

than or equal to 30.0), and extreme obesity (BMI greater than or equal to 40.0). The CDC⁴ also indicated that one's 20s are the prime time to gain weight as the average person gains one to two pounds per year from early adulthood into middle adulthood. The American obesity crisis is also reflected worldwide.⁵

Causes of Obesity

According to the Centers for Disease Control and Prevention (CDC),⁶ obesity originates from a complex set of contributing factors, including one's environment, behavior, and genetics. Societal factors include culture, education, food marketing and promotion, the quality of food, and the physical activity environment available. Behaviors leading to obesity include diet, the amount of physical activity, and medication use. Lastly, there does not appear to be a single gene responsible for obesity. Rather, research has identified variants in several genes that may contribute to obesity by increasing hunger and food intake. Another genetic explanation is the mismatch between today's environment and "energy-thrifty genes" that multiplied in the distant past, when food sources were unpredictable. The genes that helped our ancestors survive occasional famines are now being challenged by environments in which food is plentiful all the time. Overall, obesity most likely results from complex interactions among the environment and multiple genes.

Obesity Health Consequences

Obesity is considered to be one of the leading causes of death in the United States and worldwide. According to the CDC⁷ compared to those with a normal or healthy weight, people who are obese are at increased risk for many serious diseases and health conditions including:

- All-causes of death (mortality)
- High blood pressure (Hypertension)
- High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides (Dyslipidemia)

4. Centers for Disease Control and Prevention. (2016). Adult obesity causes and consequences. Retrieved from <http://www.cdc.gov/obesity/adult/causes.html>

5. Wightton, K. (2016). World's obese population hits 640 million, according to largest ever study. Imperial College. http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_311-3-2016-22-34-39

6. Centers for Disease Control and Prevention. (2016). Adult obesity causes and consequences. <http://www.cdc.gov/obesity/adult/causes.html>

7. Centers for Disease Control and Prevention. (2016). Adult obesity causes and consequences. <http://www.cdc.gov/obesity/adult/causes.html>

- Type 2 diabetes
- Coronary heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Sleep apnea and breathing problems
- Some cancers (endometrial, breast, colon, kidney, gallbladder, and liver)
- Low quality of life
- Mental illness such as clinical depression, anxiety, and other disorders
- Body pain and difficulty with physical functioning

Video Example

This video explains how the brain continues to develop into adulthood:

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=889#oembed-1>

You can **view the transcript for “When Does Your Brain Stop Developing?” here** (opens in new window).

A Healthy, but Risky Time

Early adulthood tends to be a time of relatively good health. For instance, in the United States, adults ages 18-44 have the lowest percentage of physician office visits than any other age group, younger or older. However, early adulthood seems to be a particularly risky time for violent deaths (rates vary by gender, race, and ethnicity). The leading causes of death for both age groups 15-24 and 25-34 in the U.S. are unintentional injury, suicide, and homicide. Cancer and heart disease follow as the fourth and fifth top causes of death among young adults.⁸

8. Centers for Disease Control. (2022). Leading causes of death. <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>

Substance Use, Abuse, and Risky Behaviors

Rates of violent death are influenced by substance use which tends to peak during emerging and early adulthood. Drugs impair judgment, reduce inhibitions, and alter mood, all of which can lead to dangerous behavior. Reckless driving, violent altercations, and forced sexual encounters are some examples. Drug and alcohol use increase the risk of sexually transmitted infections because people are more likely to engage in risky sexual behavior when under the influence. This includes having sex with someone who has had multiple partners, having anal sex without the use of a condom, having multiple partners, or having sex with someone whose history is unknown. Lastly, as previously discussed, drugs and alcohol ingested during pregnancy have a teratogenic effect on the developing embryo and fetus.

Overdose deaths involving prescription opioids more than quadrupled from 1999 through 2016 followed by significant declines reported in both 2018 and 2019, and then an increase in 2020.^{9,10}

Overall, the prevalence of drug use disorders is highest in people in their twenties. For example, an estimated 464,000 young adults aged 18 to 25 in 2018 initiated prescription pain reliever misuse in 2018, or an average of about 1,300 young adults each day who initiated pain reliever misuse. The number of young adults in 2018 who initiated pain reliever misuse was lower than the numbers in 2015 and 2016, but it was similar to the number in 2017.¹¹

Unlike the patterns for cigarette, alcohol, and marijuana use, the majority of the people in 2018 who initiated pain reliever misuse were aged 26 or older.¹²

Approximately 2 in 5 young adults aged 18 to 25 in 2018 (38.7 percent) were past year users of illicit drugs. This percentage corresponds to about 13.2 million young adults who used illicit

9. Centers for Disease Control and Prevention. Prescription Opioids Overview. <https://www.cdc.gov/drugoverdose/data/prescribing/overview.html>

10. CDC WONDER. Multiple Cause of Death 1999-2020. Centers for Disease Control and Prevention, National Center on Health Statistics. <https://wonder.cdc.gov/>

11. Substance Abuse and Mental Health Services Administration. (2019). Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/>

12. Substance Abuse and Mental Health Services Administration. (2019). Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/>

drugs in the past year. The percentage of young adults in 2018 who used illicit drugs in the past year was similar to the percentages in 2015 to 2017.¹³

The higher prevalence of substance use disorders in people in their twenties (or sometimes in their late teens) is consistent across most countries and is typically related to risky behaviors.

Alcohol Use

The National Institute on Alcohol Abuse and Alcoholism (NIAAA)¹⁴ defines binge drinking when blood alcohol concentration levels reach 0.08 g/dL. This typically occurs after four drinks for women and five drinks for men in approximately two hours. According to the NIAAA¹⁵ “Binge drinking poses serious health and safety risks, including car crashes, drunk-driving arrests, sexual assaults, and injuries. Over the long term, frequent binge drinking can damage the liver and other organs,” (p. 1).

Alcohol and College Students

The role alcohol plays in predicting acquaintance rape on college campuses is of particular concern. “Alcohol use in one the strongest predictors of rape and sexual assault on college campuses.”¹⁶ Krebs et al.¹⁷ found that more than 80% of sexual assaults on college campuses involved alcohol. Many college students view perpetrators who were drinking as less responsible, and victims who were drinking as more responsible for the assaults.¹⁸ However, in most states, the legal ability to give consent requires that individuals not be under the influence of alcohol or other substances.

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13. National Center for Drug Abuse Statistics. (2022). Drug Use Among Youth: Facts & Statistics. <https://drugabusestatistics.org/teen-drug-use/>
 14. National Institute on Alcohol Abuse and Alcoholism. (2015). College Drinking. <http://pubs.niaaa.nih.gov/publications/CollegeFactSheet/CollegeFact.htm>
 15. National Institute on Alcohol Abuse and Alcoholism. (2015). College Drinking. <http://pubs.niaaa.nih.gov/publications/CollegeFactSheet/CollegeFact.htm>
 16. Carroll, J. L. (2016). *Sexuality now: Embracing diversity* (5th ed.). Boston, MA: Cengage Learning. p.454
 17. Krebs, C., Lindquist, C., Warner, T., Fisher, B., & Martin, S. (2009). College women’s experiences with physically forced, alcohol or other drug-enabled, and drug-facilitated sexual assault before and since entering college. *Journal of American College Health*, 57(6), 639-649.
 18. Untied, A. S., Orchowski, L. M., Mastroleo, N., & Gidycz, C. A. (2012). College students’ social reactions to the victim in a hypothetical sexual assault scenario: the role of victim and perpetrator alcohol use. *Violence and Victims*, 27(6), 957-972. <https://doi.org/10.1891/0886-6708.27.6.957>

Factors Affecting College Students' Drinking

Several factors associated with college life affect a student's involvement with alcohol.¹⁹ These include the pervasive availability of alcohol, inconsistent enforcement of underage drinking laws, unstructured time, coping with stressors, and limited interactions with parents, caregivers, and other adults. Due to social pressures to conform and expectations when entering college, the first six weeks of freshman year are an especially susceptible time for students. Additionally, more drinking occurs in colleges with active Greek systems and athletic programs. Alcohol consumption is lowest among students living with their families and commuting, while it is highest among those living in fraternities and sororities.

College Strategies to Curb Drinking

Strategies to address college drinking involve the individual-level and campus community as a whole. Identifying at-risk groups, such as first year students, members of fraternities and sororities, and athletes has proven helpful in changing students' knowledge, attitudes, and behavior regarding alcohol.²⁰ Interventions include education and awareness programs, as well as intervention by health professionals. At the college-level, reducing the availability of alcohol has proven effective by decreasing both consumption and negative consequences.

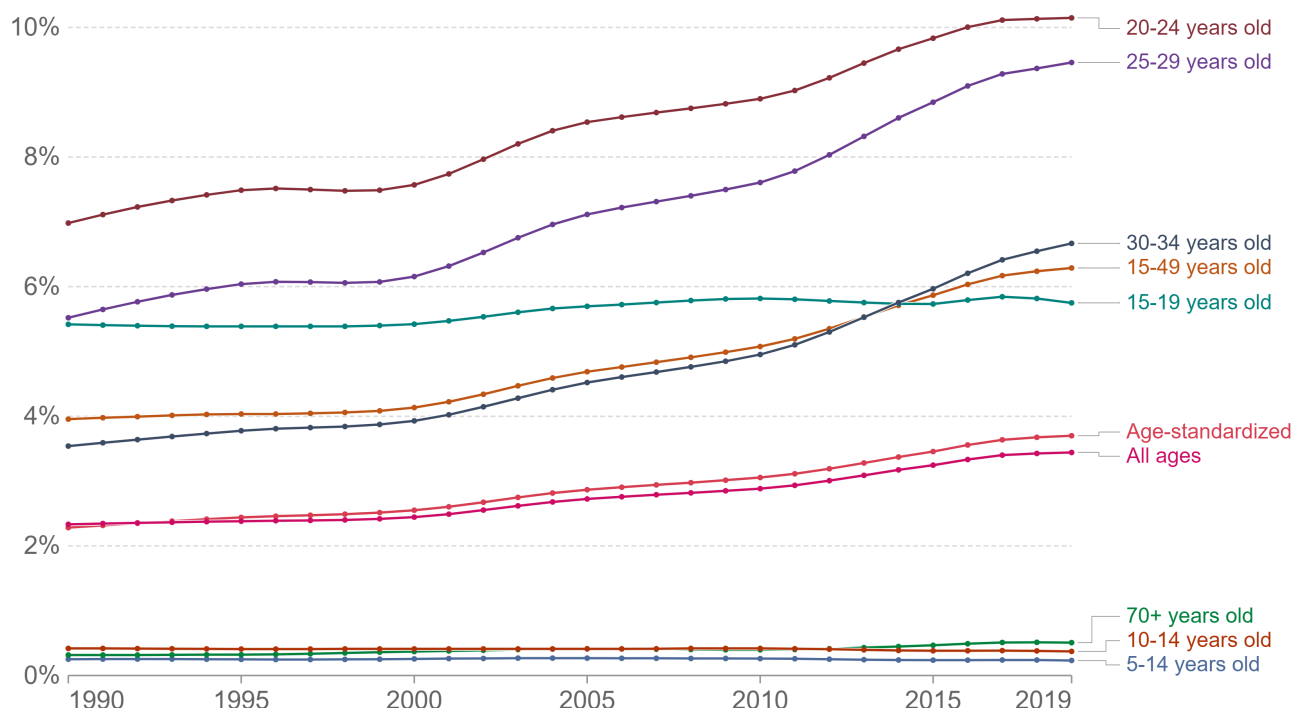
19. National Institute on Alcohol Abuse and Alcoholism. (2015). College Drinking. <http://pubs.niaaa.nih.gov/publications/CollegeFactSheet/CollegeFact.htm>

20. National Institute on Alcohol Abuse and Alcoholism. (2015). College Drinking. <http://pubs.niaaa.nih.gov/publications/CollegeFactSheet/CollegeFact.htm>

Prevalence of drug use disorders by age, United States, 1990 to 2019

Our World
in Data

Share of population within each category suffering from drug use disorders. Drug dependence is defined by the International Classification of Diseases as the presence of three or more indicators of dependence for at least a month within the previous year. Drug dependency includes all illicit drugs.



Source: IHME, Global Burden of Disease

CC BY

Prevalence of drug use disorders by age, United States, 1990 to 2019 (OurWorldinData, 2019)

Nicotine Use

In 2018, an estimated 6.5 million young adults aged 18 to 25 smoked cigarettes in the past month. This number of young adults who were current cigarette smokers corresponds to about one fifth of young adults (19.1 percent). The percentage of young adults who were current cigarette smokers in 2018 was lower than the percentages in 2002 to 2017.

According to the CDC²¹, the use of e-cigarettes (also referred to as vaping, e-hookahs, vape pens, tank systems, mods, and electronic nicotine delivery systems) reached the highest prevalence in 2019 and is now slowly declining. E-cigarettes are unsafe for kids, teens, and young adults because they can contain other harmful substances in addition to nicotine, which is highly addictive, and can harm brain development at this age. Young people who

21. Centers for Disease Control. (2020, February 25). Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products. https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html

use e-cigarettes may be more likely to smoke cigarettes in the future.²² In addition, serious and fatal lung injuries are linked to e-cigarette use due to the combinations of nicotine, tetrahydrocannabinol (THC), cannabinoid (CBD) oils, and other substances, flavorings, and additives.

Sexually Transmitted Infections: Sexually transmitted infections (STIs), also referred to as sexually transmitted diseases (STDs) or venereal diseases (VDs), *are illnesses that have a significant probability of transmission by means of sexual behavior, including vaginal intercourse, anal sex, and oral sex.* Some STIs can also be contracted by sharing intravenous drug needles with an infected person, as well as through childbirth or breastfeeding.

Common STIs include:

- chlamydia;
- herpes (HSV-1 and HSV-2);
- human papillomavirus (HPV);
- gonorrhea;
- syphilis;
- trichomoniasis;
- HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome).

The most effective way to prevent transmission of STIs is to practice safe sex by completely avoiding direct contact of skin and/or fluids which can lead to transfer with infected partners. Proper use of safe-sex supplies (such as condoms, gloves, or dental dams) reduces contact and risk and can be effective in limiting exposure; however, some disease transmission may occur even with these barriers.

Sexuality

Human sexuality *refers to people's sexual interest in and attraction to others, as well as their capacity to have erotic experiences and responses.* Sexuality may be experienced and expressed in a variety of ways, including thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles, and relationships. These may manifest themselves in biological, physical, emotional, social, or spiritual aspects. The biological and physical aspects of sexuality largely concern the human reproductive functions, including the human sexual-response cycle and the basic

22. US Department of Health and Human Services. (2016). E-cigarette Use Among Youth and Young Adults: A Report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, CDC.

biological drive that exists in all species. Emotional aspects of sexuality include bonds between individuals that are expressed through profound feelings or physical manifestations of love, trust, and care. Social aspects deal with the effects of human society on one's sexuality, while spirituality concerns an individual's spiritual connection with others through sexuality. Sexuality also impacts, and is impacted by cultural, political, legal, philosophical, moral, ethical, and religious aspects of life.

The Brain and Sex

The brain is the structure that translates the nerve impulses from the skin into pleasurable sensations. It controls nerves and muscles used during sexual behavior. The brain regulates the release of hormones, which are believed to be the physiological origin of sexual desire. The cerebral cortex, which is the outer layer of the brain that allows for thinking and reasoning, is believed to be the origin of sexual thoughts and fantasies. Beneath the cortex is the limbic system, which consists of the amygdala, hippocampus, cingulate gyrus, and septal area. These structures are where emotions and feelings are believed to originate, and are important for sexual behavior.

The **hypothalamus** is the most important part of the brain for sexual functioning. *This is the small area at the base of the brain consisting of several groups of nerve-cell bodies that receives input from the limbic system.* Studies with lab animals have shown that destruction of certain areas of the hypothalamus causes complete elimination of sexual behavior. One of the reasons for the importance of the hypothalamus is that it controls the pituitary gland, which secretes hormones that control the other glands of the body.

Hypothalamus

Thyrotropin-releasing hormone
Dopamine
Growth hormone-releasing hormone
Somatostatin
Gonadotropin-releasing hormone
Corticotropin-releasing hormone
Oxytocin
Vasopressin

Thyroid

Triiodothyronine
Thyroxine

Pineal gland

Melatonin

Pituitary Gland

Anterior pituitary

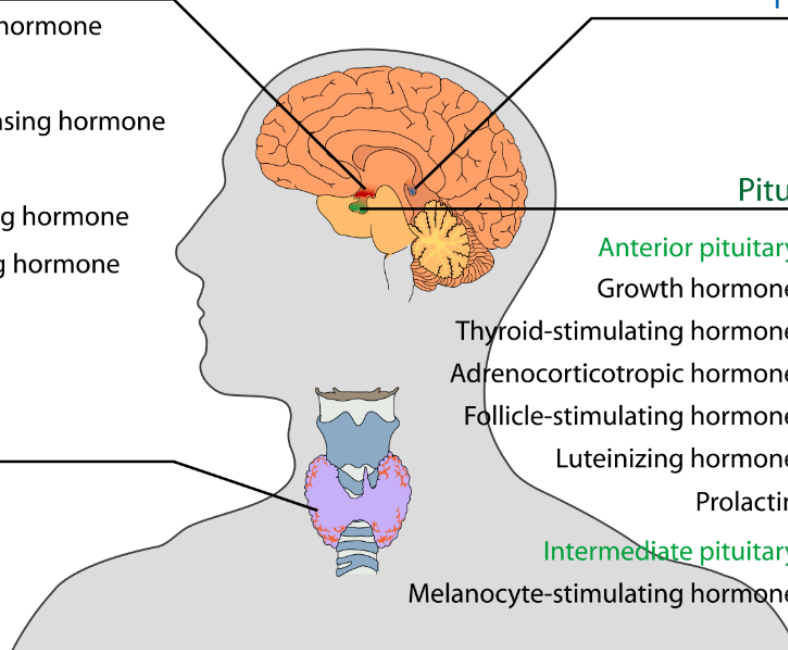
Growth hormone
Thyroid-stimulating hormone
Adrenocorticotrophic hormone
Follicle-stimulating hormone
Luteinizing hormone
Prolactin

Posterior pituitary

Oxytocin
Vasopressin
Oxytocin (stored)
Anti-diuretic hormone (stored)

Intermediate pituitary

Melanocyte-stimulating hormone



The endocrine gland (Image Source: Wikimedia Commons)

Hormones

Several important sexual hormones are secreted by the pituitary gland. Oxytocin, also known as the hormone of love, *is released during sexual intercourse when an orgasm is achieved*. Oxytocin is also released in females when they give birth or are breast feeding; it is believed that oxytocin is involved with maintaining close relationships. Both prolactin and oxytocin stimulate milk production in females. Follicle-stimulating hormone (FSH) *is responsible for ovulation in females by triggering egg maturity; it also stimulates sperm production in males*. Luteinizing hormone (LH) *triggers the release of a mature egg in females during the process of ovulation*.

Testosterone appears to be a major contributing factor to sexual motivation. Vasopressin *is involved in the male arousal phase*, and the increase of vasopressin during erectile response may be directly associated with increased motivation to engage in sexual behavior.

Estrogen and progesterone typically *regulate motivation to engage in sexual behavior for females, with estrogen increasing motivation and progesterone decreasing it*. The levels of these hormones rise and fall throughout a female's menstrual cycle. Research suggests that testosterone, oxytocin, and vasopressin are also implicated in female sexual motivation in similar ways as they are in males, but more research is needed to understand these relationships.

The Sexual Response Cycle *is a model that describes the physiological responses that take place*

during sexual activity. According to Kinsey, Pomeroy, and Martin,²³ the cycle consists of four phases: excitement, plateau, orgasm, and resolution. The excitement **phase** is the phase in which the intrinsic (inner) motivation to pursue sex arises. The plateau **phase** is the period of sexual excitement with increased heart rate and circulation that sets the stage for orgasm. Orgasm is the release of tension, and the resolution **period** is the unaroused state before the cycle begins again.

Sexual motivation, often referred to as **libido**, is a person's overall sexual drive or desire for sexual activity. This motivation is determined by biological, psychological, and social factors. In most mammalian species, sex hormones control the ability to engage in sexual behaviors. However, sex hormones do not directly regulate the ability to copulate in primates (including humans); rather, they are only one influence on the motivation to engage in sexual behaviors. Social factors, such as work and family also have an impact, as do internal psychological factors like personality and stress. Hormones, medical conditions, medications, lifestyle stress, pregnancy, and relationship issues may also affect sex drive.

Sexual Responsiveness

People tend to reach their peak of sexual responsiveness at different ages. Sexual arousal can easily occur in response to physical stimulation or fantasizing. Sexual responsiveness tends to decline in the late twenties and into the thirties although they may continue to be sexually active throughout adulthood. Over time, individuals may require more intense stimulation in order to become aroused.

Sexlessness

There has been a sharp increase in the number of individuals ages 18 to 35 who report not having sexual intercourse (sexlessness) in the prior year and it continued into 2021.²⁴ This research shows there have been at least two separate trends related to the increase in sexlessness: one is that people are delaying marriage and the other is the increasing sexlessness among individuals who have never been married. For additional information, visit the 2021 General Social Survey).

23. Kinsey, A., Pomeroy, W.B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: Saunders.

24. Lyman Stone. (2021). Number 4 in 2021: More Faith, Less Sex: Why Are So Many Unmarried Young Adults Not Having Sex? Institute for Family Studies. <https://ifstudies.org/blog/number-4-in-2021-more-faith-less-sex-why-are-so-many-unmarried-young-adults-not-having-sex>

COGNITIVE DEVELOPMENT IN EARLY ADULTHOOD

Diana Lang; Nick Cone; Margaret Clark-Plaskie; and Laura Overstreet

We have learned about cognitive development from infancy through adolescence, ending with Piaget's stage of formal operations. Does that mean that cognitive development stops with adolescence? Couldn't there be different ways of thinking in adulthood that comes after (or "post") formal operations?

In this section, we will learn about these types of postformal operational thought and consider research done by William Perry related to types of thought and advanced thinking. We will also look at education in early adulthood, the relationship between education and work, and some tools used by young adults to choose their careers.

Beyond Formal Operational Thought: Postformal Thought



As young adults gain more experience, they think increasingly more in the abstract, and are able to understand different perspectives and complexities. (Image Source: Millennials Jam Workshop by ITU Pictures, CC BY 2.0)

In the adolescence module, we discussed Piaget's formal operational thought. The hallmark of this type of thinking is the ability to think abstractly or to consider possibilities and ideas about circumstances never directly experienced. Thinking abstractly is only one characteristic of adult thought, however. If you compare a 14-year-old with someone in their late 30s, you would probably find that the later considers not only what is possible, but also what is likely. Why the change? The young adult has gained experience and understands why possibilities do not always become realities. This difference in adult and adolescent thought can spark arguments between the generations.

Here is an example. A student in her late 30s relayed such an argument she was having with her 14-year-old son. The son had saved a considerable amount of money and wanted to buy an old car and store it in the garage until he was old enough to drive. He could sit in it, pretend he was driving, clean it up, and show it to his friends. It sounded like a perfect opportunity. The mother, however, had practical objections. The car would just sit for several years while deteriorating. The son would probably change his mind about the type of car he wanted by the time he was old enough to drive and they would be stuck with a car that would

not run. She was also concerned that having a car nearby would be too much temptation and the son might decide to sneak it out for a quick ride before he had a permit or license.

Piaget's theory of cognitive development ended with formal operations, but it is possible that other ways of thinking may develop after (or "post") formal operations in adulthood (even if this thinking does not constitute a separate "stage" of development). **Postformal thought** is practical, realistic and more individualistic, but also characterized by understanding the complexities of various perspectives. As a person approaches the late 30s, chances are they make decisions out of necessity or because of prior experience and are less influenced by what others think. Of course, this is particularly true in individualistic cultures such as the United States. Postformal thought is often described as more flexible, logical, willing to accept moral and intellectual complexities, and dialectical than previous stages in development.

Perry's Scheme

One of the first theories of cognitive development in early adulthood originated with Perry,¹ who studied undergraduate students at Harvard University. Perry noted that over the course of students' college years, cognition tended to shift from **dualism** (absolute, true/false, right and wrong type of thinking) to **multiplicity** (recognizing that some problems are solvable and some answers are not yet known) to **relativism** (understanding the importance of the specific context of knowledge—it's all relative to other factors). Similar to Piaget's formal operational thinking in adolescence, this change in thinking in early adulthood is affected by educational experiences.

1. Perry, W. G. (1998). *Forms of ethical and intellectual development in the college years: A scheme*. Jossey-Bass.

Table 1. Stages of Perry's Scheme

Stage	Summary of Position in Perry's Scheme	Basic Example
Dualism	The authorities know	<i>"the tutor knows what is right and wrong"</i>
	The true authorities are right, the others are frauds	<i>"my tutor doesn't know what is right and wrong but others do"</i>
	There are some uncertainties and the authorities are working on them to find the truth	<i>"my tutors don't know, but somebody out there is trying to find out"</i>
Multiplicity	(a) Everyone has the right to their own opinion (b) The authorities don't want the right answers. They want us to think in a certain way	<i>"different tutors think different things"</i> <i>"there is an answer that the tutors want and we have to find it"</i>
	Everything is relative but not equally valid	<i>"there are no right and wrong answers, it depends on the situation, but some answers might be better than others"</i>
	You have to make your own decisions	<i>"what is important is not what the tutor thinks but what I think"</i>
Relativism	First commitment	<i>"for this particular topic I think that...."</i>
	Several Commitments	<i>"for these topics I think that...."</i>
	Believe own values, respect others, be ready to learn	<i>"I know what I believe in and what I think is valid, others may think differently and I'm prepared to reconsider my views"</i>

Video Example

Please watch this brief lecture by Dr. Eric Landrum to better understand the way that thinking can shift during college, according to Perry's scheme.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=893#oembed-1>

Notice the overall shifts in beliefs over time. Do you recognize your own thinking or the thinking of others you know in this clip?

You can **view the transcript for “Perry’s Scheme of Intellectual Development” here (opens in new window)**.

Dialectical Thought

In addition to moving toward more practical considerations, thinking in early adulthood may also become more flexible and balanced. Abstract ideas that the adolescent believes in firmly may become standards by which the individual evaluates reality. As Perry's research pointed out, adolescents tend to think in dichotomies or absolute terms; ideas are true or false; good or bad; right or wrong and there is no middle ground. However, with education and experience, the young adult comes to recognize that there is some right and some wrong in each position. Such thinking is more realistic because very few positions, ideas, situations, or people are completely right or wrong.

Some adults may move even beyond the relativistic or contextual thinking described by Perry; they may be able to bring together important aspects of two opposing viewpoints or positions, synthesize them, and come up with new ideas. This is referred to as **dialectical thought** and is considered one of the most advanced aspects of postformal thinking.² There isn't just one theory of postformal thought; there are variations, with emphasis on adults' ability to tolerate ambiguity or to accept contradictions or find new problems, rather than solve problems, etc. (as well as relativism and dialecticism that we just learned about).

2. Basseches, M. (1984). *Dialectical thinking and adult development*. Praeger.

What they all have in common is the proposition that the way we think may change during adulthood with education and experience.

PSYCHOSOCIAL DEVELOPMENT IN EARLY ADULthood

Diana Lang; Nick Cone; Margaret Clark-Plaskie; Laura Overstreet; Martha Lally; and Suzanne Valentine-French

From a lifespan developmental perspective, growth and development do not stop in childhood or adolescence; they continue throughout adulthood. In this section we will build on Erikson's psychosocial stages, then be introduced to theories about transitions that occur during adulthood. More recently, Arnett notes that transitions to adulthood happen at later ages than in the past and he proposes that there is a new stage between adolescence and early adulthood called, "emerging adulthood."

Erikson's Theory

Intimacy vs. Isolation



Young adulthood is a time to connect with others in both friendships and romantic relationships. (Image Source: Hans on Pixabay)

Erikson¹ believed that the main task of early adulthood is to establish intimate relationships and not feel isolated from others. Intimacy does not necessarily involve romance; it involves caring about another and sharing one's self without losing one's self. This developmental crisis of "intimacy versus isolation" is affected by how the adolescent crisis of "identity versus role confusion" was resolved (in addition to how the earlier developmental crises in infancy and childhood were resolved). The young adult might be afraid to get too close to someone else and lose her or his sense of self, or the young adult might define her or himself

1. Erikson, E. H. (1950). *Childhood and society*. W W Norton & Co.

in terms of another person. Intimate relationships are more difficult if one is still struggling with identity. Achieving a sense of identity is a life-long process, but there are periods of identity crisis and stability. Additional, according to Erikson,² having some sense of identity is essential for intimate relationships. Although, consider what that would mean for previous generations of women who may have defined themselves through their husbands and marriages, or for Eastern cultures today that value interdependence rather than independence.

Friendships as a source of intimacy

In our twenties, intimacy needs may be met in friendships rather than with partners. This is especially true in the United States today as many young adults postpone making long-term commitments to partners either in marriage or in cohabitation.

Gaining Adult Status

Many of the developmental tasks of early adulthood involve becoming part of the adult world and gaining independence. Young adults sometimes complain that they are not treated with respect, especially if they are put in positions of authority over older workers. Consequently, young adults may emphasize their age to gain credibility from those who are even slightly younger. “You’re only 23? I’m 27!” a young adult might exclaim. [Note: This kind of statement is much less likely to come from someone in their 40s!]

The focus of early adulthood is often on the future. Many aspects of life are on hold while people seek additional education, go to work, and prepare for a brighter future. There may be a belief that the hurried life now lived will improve ‘as soon as I finish school’ or ‘as soon as I get promoted’ or ‘as soon as the children get a little older.’ As a result, time may seem to pass rather quickly. The day consists of meeting many demands that these tasks bring. The incentive for working so hard is that it will all result in a better future.

2. Erikson, E. H. (1950). *Childhood and society*. W W Norton & Co.



Women are often torn between caring for their families and advancing their careers outside of the home. (Image Source: Vilandra on Pixabay)

Adulthood, then, is a period of building and rebuilding one's life. Many of the decisions that are made in early adulthood are made before a person has had enough experience to really understand the consequences of such decisions. And, perhaps, many of these initial decisions are made with one goal in mind – to be seen as an adult. As a result, early decisions may be driven more by the expectations of others. For example, imagine someone who chose a career path based on other's advice but now finds that the job is not what was expected.

Temperament and Personality in Early Adulthood

Remember, **temperament** is defined as *the innate characteristics of the infant, including mood, activity level, and emotional reactivity, noticeable soon after birth*. Does one's temperament remain stable through the lifespan? Do shy and inhibited babies grow up to be shy adults, while the sociable child continues to be the life of the party? Like most developmental research the answer is more complicated than a simple yes or no. Chess and Thomas,³ who identified children as easy, difficult, slow-to-warm-up or blended, found that children identified as easy grew up to become well-adjusted adults, while those who exhibited a difficult temperament were not as well-adjusted as adults. Kagan⁴ has studied the temperamental category of

3. Chess, S., & Thomas, A. (1984). *Origins and evolution of behavior disorders: From infancy to early adult life*. Harvard University Press.

4. Kagan, J. (2003). Behavioral inhibition as a temperamental category. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 320–331). Oxford University Press.

inhibition to the unfamiliar in children. Infants exposed to unfamiliarity reacted strongly to the stimuli and cried loudly, pumped their limbs, and had an increased heart rate. Research has indicated that these highly reactive children show temperamental stability into early childhood, and Bohlin and Hagekull⁵ found that shyness in infancy was linked to social anxiety in adulthood.

An important aspect of this research on inhibition was looking at the response of the amygdala, which is important for fear and anxiety, especially when confronted with possible threatening events in the environment. Using functional magnetic resonance imaging (fMRIs) young adults identified as strongly inhibited toddlers showed heightened activation of the amygdala when compared to those identified as uninhibited toddlers.⁶

The research does seem to indicate that temperamental stability holds for many individuals through the lifespan, yet we know that one's environment can also have a significant impact. Recall from our discussion on **epigenesis** or *how environmental factors are thought to change gene expression by switching genes on and off*. Many cultural and environmental factors can affect one's temperament, including supportive versus abusive child-rearing, socioeconomic status, stable homes, illnesses, teratogens, etc. Additionally, individuals often choose environments that support their temperament, which in turn further strengthens them.⁷ In summary, because temperament is genetically driven, genes appear to be the major reason why temperament remains stable into adulthood. In contrast, the environment appears mainly responsible for any change in temperament.⁸

Everybody has their own unique **personality**; that is, their characteristic manner of thinking, feeling, behaving, and relating to others.⁹ Personality traits refer to these characteristic, routine ways of thinking, feeling, and relating to others. Personality integrates one's temperament with cultural and environmental influences. Consequently, there are signs or indicators of these traits in childhood, but they become particularly evident when the person is an adult. Personality traits are integral to each person's sense of self, as they involve what people value,

5. Bohlin, G., & Hagekull, B. (2009). Socio-emotional development: from infancy to young adulthood. *Scandinavian Journal of Psychology*, 50(6), 592–601. <https://doi.org/10.1111/j.1467-9450.2009.00787.x>

6. Davidson, R., & Begley, S. (2013). *The emotional life of your brain: How its unique patterns affect the way you think, feel, and live - and how you can change them*. Hodder Paperback.

7. Cain, S. (2012). *Quiet*. New York: Crown Publishing Group.

8. Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 399–423). Guilford Press.

9. John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 114–158). The Guilford Press.

how they think and feel about things, what they like to do, and, basically, what they are like most every day throughout much of their lives.

Five-Factor Model

There are hundreds of different personality traits, and all of these traits can be organized into the broad dimensions referred to as the Five-Factor Model.¹⁰ These five broad domains include: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (Think OCEAN to remember). This applies to traits that you may use to describe yourself. Table 7.2 provides illustrative traits for low and high scores on the five domains of this model of personality.

10. John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 114–158). The Guilford Press.

Table 7.2. Descriptions of the Big Five Personality Traits Table adapted from John, Naumann, & Soto (2008)¹¹

Dimension	Description	Examples of behaviors predicted by the trait
Openness to experience	A general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience	Individuals who are highly open to experience tend to have distinctive and unconventional decorations in their home. They are also likely to have books on a wide variety of topics, a diverse music collection, and works of art on display.
Conscientiousness	A tendency to show self-discipline, act dutifully, and aim for achievement	Individuals who are conscientious have a preference for planned rather than spontaneous behavior.
Extraversion	The tendency to experience positive emotions and to seek out stimulation and the company of others	Extroverts enjoy being with people. In groups they like to talk, assert themselves, and draw attention to themselves.
Agreeableness	A tendency to be compassionate and cooperative rather than suspicious and antagonistic toward others; reflects individual differences in general concern for social harmony	Agreeable individuals value getting along with others. They are generally considerate, friendly, generous, helpful, and willing to compromise their interests with those of others.
Neuroticism	The tendency to experience negative emotions, such as anger, anxiety, or depression; sometimes called “emotional instability”	Those who score high in neuroticism are more likely to interpret ordinary situations as threatening and minor frustrations as hopelessly difficult. They may have trouble thinking clearly, making decisions, and coping effectively with stress.

Personality can change throughout adulthood. Longitudinal studies reveal average changes during adulthood in the expression of some traits (e.g., neuroticism and openness decrease with age and conscientiousness increases) and individual differences in these patterns due to idiosyncratic life events (e.g., divorce, illness). Longitudinal research also suggests that adult

11. John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. R. Robins, & L. A. Pervin (Eds.), *Handbook of personality. Theory and research* (3rd ed., pp. 114–158). New York, NY: Guilford Press.

personality traits, such as conscientiousness, predict important life outcomes including job success, health, and longevity.¹²¹³

The Harvard Health Letter¹⁴ identifies research correlations between conscientiousness and lower blood pressure, lower rates of diabetes and stroke, fewer joint problems, being less likely to engage in harmful behaviors, being more likely to stick to healthy behaviors, and more likely to avoid stressful situations. Conscientiousness also appears related to career choices, friendships, and stability of marriage. Lastly, a person possessing both self-control and organizational skills, both related to conscientiousness, may withstand the effects of aging better and have stronger cognitive skills than one who does not possess these qualities.

Attachment

Attachment in Emerging/Young Adulthood

Table 7.3. Which of the following best describes you in your romantic relationships?Adapted from Hazan, C., & Shaver, P. (1987).¹⁵

Secure	I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don’t often worry about being abandoned or about someone getting too close to me.
Avoidant	I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being.
Anxious/ Ambivalent	I find that others are reluctant to get as close as I would like. I often worry that my partner doesn’t really love me or won’t stay with me. I want to merge completely with another person, and this sometimes scares people away.

12. Friedman, H. S., Tucker, J. S., Tomlinson-Keasey, C., Schwartz, J. E., Wingard, D. L., & Criqui, M. H. (1993). Does childhood personality predict longevity? *Journal of Personality and Social Psychology*, 65(1), 176–185. <https://doi.org/10.1037/0022-3514.65.1.176>

13. Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 2(4), 313–345. <https://doi.org/10.1111/j.1745-6916.2007.00047.x>

14. Harvard Health Letter. (2012). Raising your conscientiousness. <http://www.helath.harvard.edu>

15. Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524. <http://dx.doi.org/10.1037/0022-3514.52.3.511>

Hazan and Shaver¹⁶ described the attachment styles of adults, using the same three general categories proposed by Ainsworth's research on young children; secure, avoidant, and anxious/ambivalent. Hazan and Shaver developed three brief paragraphs describing the three adult attachment styles. Adults were then asked to think about romantic relationships they were in and select the paragraph that best described the way they felt, thought, and behaved in these relationships (See Table 7.3.).¹⁷

Bartholomew¹⁸ challenged the categorical view of attachment in adults and suggested that adult attachment was best described as varying along two dimensions; attachment related-anxiety and attachment-related avoidance. **Attachment-related anxiety** refers to the extent to which an adult worries about whether their partner really loves them. Those who score high on this dimension fear that their partner will reject or abandon them.¹⁹ **Attachment-related avoidance** refers to whether an adult can open up to others, and whether they trust and feel they can depend on others. Those who score high on attachment-related avoidance are uncomfortable with opening up and may fear that such dependency may limit their sense of autonomy.²⁰ According to Bartholomew²¹ this would yield four possible attachment styles in adults; secure, dismissing, preoccupied, and fearful-avoidant (see Figure 7.10)

16. Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524. <http://dx.doi.org/10.1037/0022-3514.52.3.511> Page 515

17. This section was adapted from Lumen Learning's Lifespan Development, adapted from content authored by Martha Lally and Suzanne Valentine-French, available under a Creative Commons Attribution Noncommercial License

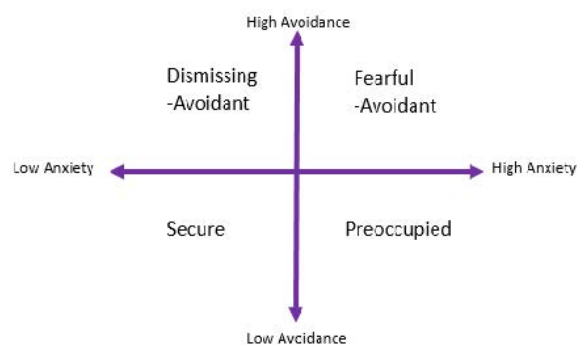
18. Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7(2), 147-178. <https://doi.org/10.1177/0265407590072001>

19. Fraley, R. C., Hudson, N. W., Heffernan, M. E., & Segal, N. (2015). Are adult attachment styles categorical or dimensional? A taxometric analysis of general and relationship-specific attachment orientations. *Journal of Personality and Social Psychology*, 109(2), 354-368. <https://doi.org/10.1037/pspp0000027>

20. Fraley, R. C., Hudson, N. W., Heffernan, M. E., & Segal, N. (2015). Are adult attachment styles categorical or dimensional? A taxometric analysis of general and relationship-specific attachment orientations. *Journal of Personality and Social Psychology*, 109(2), 354-368. <https://doi.org/10.1037/pspp0000027>

21. Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7(2), 147-178. <https://doi.org/10.1177/0265407590072001>

Securely attached adults score lower on both dimensions. They are comfortable trusting their partners and do not worry excessively about their partner's love for them. Adults with a dismissing style score low on attachment-related anxiety, but higher on attachment-related avoidance. Such adults dismiss the importance of relationships. They trust themselves, but do not trust others, thus do not share their dreams, goals, and fears with others. They do not depend on other people, and feel uncomfortable when they have to do so.



Four-Category Model with the Two- Dimensions of Attachment Source: Adapted from Fraley, et al., 2015. p. 355

Those with a preoccupied attachment are low in attachment-related avoidance, but high in attachment-related anxiety. Such adults are often prone to jealousy and worry that their partner does not love them as much as they need to be loved. Adults whose attachment style is fearful- avoidant score high on both attachment-related avoidance and attachment-related anxiety. These adults want close relationships, but do not feel comfortable getting emotionally close to others. They have trust issues with others and often do not trust their own social skills in maintaining relationships.

Research on attachment in adulthood has found that:

Adults with insecure attachments report lower satisfaction in their relationships.^{22,23}

Those high in attachment-related anxiety tend to report more daily conflict in their relationships.²⁴

Those with avoidant attachment exhibit less support to their partners.²⁵

Young adults tend to show greater attachment-related anxiety than do middle-aged or older adults.²⁶

22. Butzer, B., & Campbell, L. (2008). Adult attachment, sexual satisfaction, and relationship satisfaction: A study of married couples. *Personal Relationships*, 15(1), 141–154. <https://doi.org/10.1111/j.1475-6811.2007.00189.x>

23. Holland, A. S., Fraley, R. C., & Roisman, G. I. (2012). Attachment styles in dating couples: Predicting relationship functioning over time. *Personal Relationships*, 19(2), 234–246. <https://doi.org/10.1111/j.1475-6811.2011.01350.x>

24. Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and support in romantic relationships: the role of attachment anxiety. *Journal of Personality and Social Psychology*, 88(3), 510–531. <https://doi.org/10.1037/0022-3514.88.3.510>

25. Simpson, J. A., Rholes, W. S., Oriña, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality & Social Psychology Bulletin*, 28(5), 598–608. <https://doi.org/10.1177/0146167202288004>

26. Chopik, W. J., Edelstein, R. S., & Fraley, R. C. (2013). From the cradle to the grave: age differences in attachment from early

Some studies report that young adults tend to show more attachment-related avoidance,²⁷ while other studies find that middle-aged adults tend to show higher avoidance than younger or older adults.²⁸

Young adults with more secure and positive relationships with their parents tend to make the transition to adulthood more easily than do those with more insecure attachments.²⁹

Do people with certain attachment styles attract those with similar styles?

When people are asked what kinds of psychological or behavioral qualities they are seeking in a romantic partner, a large majority of people indicate that they are seeking someone who is kind, caring, trustworthy, and understanding, that is the kinds of attributes that characterize a “secure” caregiver.³⁰ However, we know that people do not always end up with others who meet their ideals. Are secure people more likely to end up with secure partners, and, vice versa, are insecure people more likely to end up with insecure partners? The majority of the research that has been conducted to date suggests that the answer is “yes.”

One important question is whether these findings exist because (a) secure people are more likely to be attracted to other secure people, (b) secure people are likely to create security in their partners over time, or (c) some combination of these possibilities. Existing empirical research strongly supports the first alternative. For example, when people have the opportunity to interact with individuals who vary in security in a speed-dating context, they express a greater interest in those who are higher in security than those who are more insecure.³¹ However, there is also some evidence that people’s attachment styles mutually shape one another in close relationships.

adulthood to old age: Attachment from early to older adulthood. *Journal of Personality*, 81(2), 171–183. <https://doi.org/10.1111/j.1467-6494.2012.00793.x>

27. Schindler, I., Fagundes, C. P., & Murdock, K. W. (2010). Predictors of romantic relationship formation: Attachment style, prior relationships, and dating goals. *Personal Relationships*, 17(1), 97–105. <https://doi.org/10.1111/j.1475-6811.2010.01255.x>
28. Chopik, W. J., Edelstein, R. S., & Fraley, R. C. (2013). From the cradle to the grave: age differences in attachment from early adulthood to old age: Attachment from early to older adulthood. *Journal of Personality*, 81(2), 171–183. <https://doi.org/10.1111/j.1467-6494.2012.00793.x>
29. Fraley, R. C. (2013). Attachment through the life course. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. nobaproject.com.
30. Chappell, K. D., & Davis, K. E. (1998). Attachment, partner choice, and perception of romantic partners: An experimental test of the attachment-security hypothesis. *Personal Relationships*, 5(3), 327–342. <https://doi.org/10.1111/j.1475-6811.1998.tb00175.x>
31. McClure, M. J., Lydon, J. E., Baccus, J. R., & Baldwin, M. W. (2010). A signal detection analysis of chronic attachment anxiety at speed dating: being unpopular is only the first part of the problem. *Personality & Social Psychology Bulletin*, 36(8), 1024–1036. <https://doi.org/10.1177/0146167210374238>

Childhood experiences shape adult attachment

The majority of research on this issue relies on adults' reports of what they recall about their childhood experiences. This kind of work suggests that secure adults are more likely to describe their early childhood experiences with their parents as being supportive, loving, and kind.³² A number of longitudinal studies are emerging that demonstrate prospective associations between early attachment experiences and adult attachment styles and/or interpersonal functioning in adulthood.

It is easy to come away from such findings with the mistaken assumption that early experiences “determine” later outcomes. To be clear: Attachment theorists assume that the relationship between early experiences and subsequent outcomes is probabilistic, not deterministic. Having supportive and responsive experiences with caregivers early in life is assumed to set the stage for positive social development. But that does not mean that attachment patterns cannot change over time. For instance, even if an individual has far from optimal experiences in early life, attachment theory suggests that it is possible for that individual to develop well-functioning adult relationships through a number of corrective experiences, including relationships with siblings, other family members, teachers, and close friends. Security is best viewed as a culmination of a person's attachment history rather than a reflection of only the person's early experiences. Those early experiences are considered important, not because they determine a person's fate, but because they provide the foundation for subsequent experiences.

32. Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511–524. <https://doi.org/10.1037//0022-3514.52.3.511>

RELATIONSHIPS IN EARLY ADULTHOOD

Diana Lang; Nick Cone; Margaret Clark-Plaskie; Martha Lally; Suzanne Valentine-French; Laura Overstreet; Lumen Learning; Wikimedia Contributors; Sarah Hoiland; and Julie Lazzara



(Image Source: Snapwire on Pexels)

We have learned from Erikson that the psychosocial developmental task of early adulthood is “intimacy versus isolation” and if resolved relatively positively, it can lead to the virtue of “love.” In this section, we will look more closely at relationships in early adulthood, particularly in terms of love, dating, cohabitation, marriage, and parenting.

Relationships with Parents, Caregivers, and Siblings

In early adulthood the parent-child relationship should transition toward a relationship between two adults. This involves a reappraisal of the relationship by both parents and young adults.

For some parents/caregivers, especially during emerging adulthood, it is difficult for them to interact with their adult children as “adults.” Aquilino¹ suggests that parents who are reluctant

1. Aquilino, W. S. (2006). Family Relationships and Support Systems in Emerging Adulthood. In J. J. Arnett & J. L. Tanner

or unable to do so may hinder young adults' identity development. Arnett² reported that leaving home often helped promote psychological growth and independence in early adulthood.

Sibling relationships are one of the longest-lasting bonds in people's lives. Yet, there is little research on the nature of sibling relationships in adulthood.³ What is known is that the nature of these relationships change, as adults have a choice as to whether they will maintain a close bond and continue to be a part of the life of a sibling. Siblings must make the same reappraisal of each other as adults, as parents have to with their adult children. Research has shown a decline in the frequency of interactions between siblings during early adulthood, as presumably peers, romantic relationships, and children become more central to the lives of young adults. Aquilino⁴ suggests that the task in early adulthood may be to maintain enough of a bond so that there will be a foundation for this relationship in later life. Those who are successful can often move away from the "older-younger" sibling conflicts of childhood, toward a more equal relationship between two adults. Siblings that were close to each other in childhood are typically close in adulthood.⁵⁶

Attraction and Love

Attraction

Why do some people hit it off immediately? Using scientific methods, psychologists have investigated factors influencing attraction and have identified a number of variables, such as similarity, proximity (physical or functional), familiarity, and reciprocity, that influence with whom we develop relationships.

(Eds.), *Emerging adults in America: Coming of age in the 21st century* (pp. 193–217). American Psychological Association. <https://doi.org/10.1037/11381-008>

2. Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–75. <https://doi.org/10.1002/cd.75>
3. Aquilino, W. S. (2006). Family Relationships and Support Systems in Emerging Adulthood. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century* (pp. 193–217). American Psychological Association. <https://doi.org/10.1037/11381-008>
4. Aquilino, W. S. (2006). Family Relationships and Support Systems in Emerging Adulthood. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century* (pp. 193–217). American Psychological Association. <https://doi.org/10.1037/11381-008>
5. Dunn, J. (1984). Sibling studies and the developmental impact of critical incidents. In P.B. Baltes & O.G. Brim (Eds.), *Life-span development and behavior* (Vol 6). Orlando, FL: Academic Press.
6. Dunn, J. (2007). Siblings and socialization. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization*. New York: Guilford.

Proximity



Important relationships can develop by chance and physical proximity helps. For example, seeing someone regularly on your commute to work or school may be all that's necessary to spark a genuine friendship. (Image Source: Cheri Lucas Rowlands, CC BY-SA 2.0)

Often we “stumble upon” friends or romantic partners; this happens partly due to how close in proximity we are to those people. Specifically, **proximity** or *physical nearness* has been found to be one of the most significant factors in the development of relationships. For example, when young adults move out of their family-of-origin household, they tend to make friends consisting of classmates, roommates, and teammates (i.e., people close in proximity). Proximity allows people the opportunity to get to know one other and discover their similarities—all of which can result in a friendship or intimate relationship. Proximity is not just about geographic distance, but rather functional distance, or the frequency with which we cross paths with others. For example, young adults living outside of their family-of-origin's household are more likely to become closer and develop

relationships with people who live in the same building because they see them (i.e., cross paths) more often than they see people on a different floor. How does the notion of proximity apply in terms of online relationships? Levine⁷ argues that in terms of developing online relationships and attraction, functional distance refers to being at the same place at the same time in a virtual world (i.e., a chat room or Internet forum)—crossing virtual paths.

Familiarity

One of the reasons why proximity matters to attraction is that it breeds *familiarity*; people are more attracted to that which is familiar. Just being around someone or being repeatedly

7. Levine, D. (2000). Virtual attraction: What rocks your boat. *Cyberpsychology & Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, 3(4), 565–573. <https://doi.org/10.1089/109493100420179>

exposed to them increases the likelihood that we will be attracted to them. We also tend to feel safe with familiar people, as it is likely we know what to expect from them. Dr. Zajonc⁸ labeled this phenomenon the mere-exposure effect. More specifically, he argued that the more often we are exposed to a stimulus (e.g., sound, person) the more likely we are to view that stimulus positively.

There is a certain comfort in knowing what to expect from others; consequently, research suggests that we like what is familiar. While this is often on a subconscious level, research has found this to be one of the most basic principles of attraction.⁹ For example, young people who are reared by an overbearing primary caregiver may be attracted to other overbearing individuals *not* because they like being dominated but rather because it is what they consider to be normal (i.e., familiar).

Similarity

While many make the argument that opposites attract, research has found that is generally not true; *similarity* is key; overall we tend to like others who are like us.

When it comes to marriage, research has found that couples tend to be very similar, particularly when it comes to age, social class, race, education, physical attractiveness, values, and attitudes.¹⁰¹¹ This phenomenon is known as the **matching hypothesis**.¹²¹³ We like others who validate our points of view and who are similar in thoughts, desires, and attitudes.

Reciprocity

Another key component in attraction is **reciprocity**; this principle is based on the notion that we are more likely to like someone if they feel the same way toward us. In other words, it is hard to be friends with someone who is not friendly in return. Another way to think of it is that relationships are built on give and take; if one side is not reciprocating, then the relationship is

8. Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, 9(2, Pt.2), 1–27. <https://doi.org/10.1037/h0025848>

9. Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *The American Psychologist*, 35(2), 151–175. <https://doi.org/10.1037/0003-066x.35.2.151>

10. McCann, V. (2016). *Human relations: The art and science of building effective relationships, books a la carte* (2nd ed.). Pearson.

11. Taylor, L. S., Fiore, A. T., Mendelsohn, G. A., & Cheshire, C. (2011). “Out of my league”: a real-world test of the matching hypothesis. *Personality & Social Psychology Bulletin*, 37(7), 942–954. <https://doi.org/10.1177/0146167211409947>

12. Feingold, A. (1988). Matching for attractiveness in romantic partners and same-sex friends: A meta-analysis and theoretical critique. *Psychological Bulletin*, 104(2), 226–235. <https://doi.org/10.1037/0033-2909.104.2.226>

13. Mckillip, J., & Redel, S. L. (1983). External validity of matching on physical attractiveness for same and opposite sex Couples1. *Journal of Applied Social Psychology*, 13(4), 328–337. <https://doi.org/10.1111/j.1559-1816.1983.tb01743.x>

doomed. Basically, we feel obliged to give what we get and to maintain equity in relationships. Researchers have found that this is true across cultures.¹⁴

Love

Is all love the same? Are there different types of love? Examining these questions more closely, Sternberg's^{15,16} work has focused on the notion that all types of love are comprised of three distinct areas: intimacy, passion, and commitment. Intimacy includes caring, closeness, and emotional support. The passion component of love is comprised of physiological and emotional arousal; these can include physical attraction, emotional responses that promote physiological changes, and sexual arousal. Lastly, commitment refers to the cognitive process and decision to commit to love another person and the willingness to work to keep that love over the course of your life. The elements involved in intimacy (caring, closeness, and emotional support) are generally found in all types of close relationships—for example, a mother's love for a child or the love that friends share. Interestingly, this is not true for passion. Passion is unique to romantic love, differentiating friends from lovers. In sum, depending on the type of love and the stage of the relationship (i.e., newly in love), different combinations of these elements are present.



Most people in the world are or will be in a romantic relationship in their lifetime. (Image Source: Uriel Mont on Pexels)

Taking this theory a step further, anthropologist Helen Fisher explained that she scanned the brains (using fMRI) of people who had just fallen in love and observed that their brain chemistry was “going crazy,” similar to the brain of an addict on a drug high.¹⁷ Specifically, serotonin production increased by as much as 40% in newly-in-love individuals. Further, those

14. Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25(2), 161. <https://doi.org/10.2307/2092623>

15. Sternberg, R. J. (2004). A Triangular Theory of Love. In H. T. Reis & C. E. Rusbult (Eds.), *Close relationships: Key readings* (pp. 213–227). Taylor & Francis.

16. Sternberg, R. J. (2007). Triangulating Love. In Oord, T. J. *The Altruism Reader: Selections from Writings on Love, Religion, and Science* (pp 331–347). West Conshohocken, PA: Templeton Foundation.

17. Cohen, E. (2007, February 15). Loving with all your ... brain. <http://www.cnn.com/2007/HEALTH/02/14/love.science/>.

newly in love tended to show obsessive-compulsive tendencies. Conversely, when a person experiences a breakup, the brain processes it in a similar way to quitting a heroin habit.¹⁸ Thus, those who believe that breakups are physically painful are correct! Another interesting point is that long-term love and sexual desire activate different areas of the brain. More specifically, sexual needs activate the part of the brain that is particularly sensitive to innately pleasurable things such as food, sex, and drugs (i.e., the striatum—a rather simplistic reward system), whereas love requires conditioning—it is more like a habit. When sexual needs are rewarded consistently, then love can develop. In other words, love grows out of positive rewards, expectancies, and habit.¹⁹

Link to learning

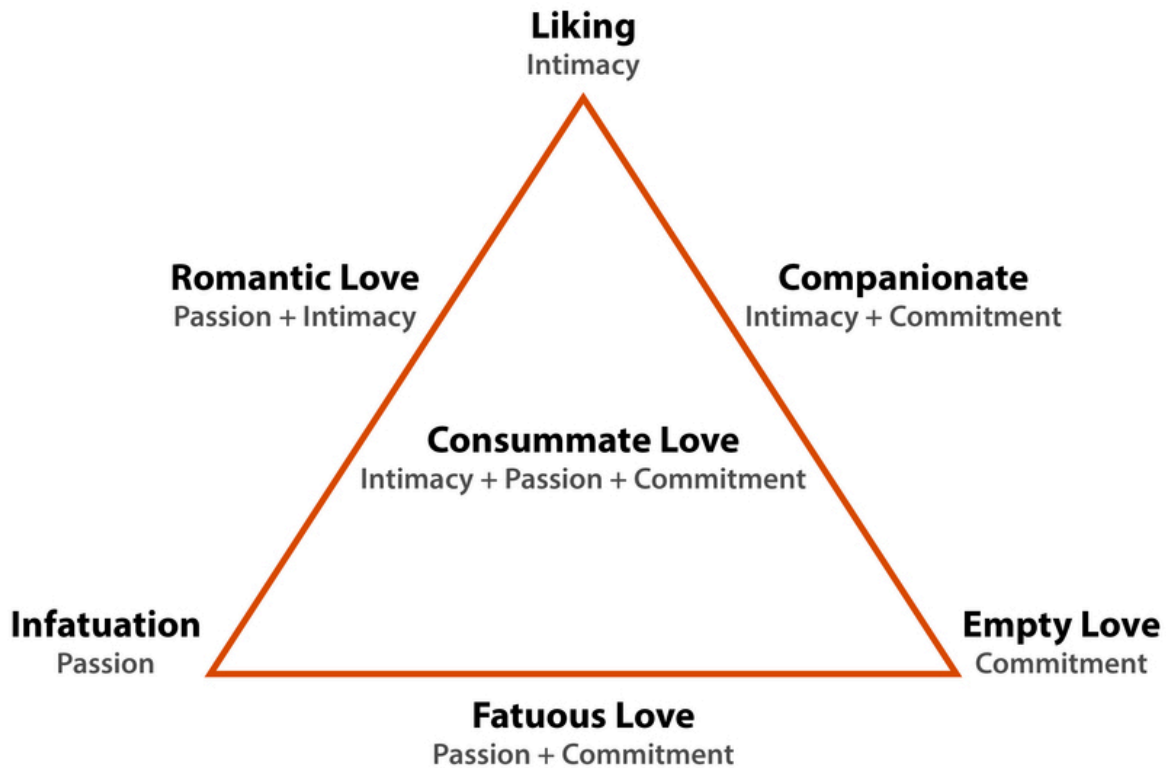
Dive deeper into Helen Fisher’s research by watching her TED talk “**The Brain in Love.**”

Attachment Theory in Adulthood

The need for intimacy, or close relationships with others, is universal and persistent across the lifespan. What our adult intimate relationships look like actually stems from infancy and our relationship with our primary caregiver (historically our mother)—a process of development described by attachment theory, which you learned about in the module on infancy. Recall that according to attachment theory, different styles of caregiving result in different relationship “attachments.”

18. Fisher, H. E., Brown, L. L., Aron, A., Strong, G., & Mashek, D. (2010). Reward, addiction, and emotion regulation systems associated with rejection in love. *Journal of Neurophysiology*, 104(1), 51–60. <https://doi.org/10.1152/jn.00784.2009>

19. Cacioppo, S., Bianchi-Demicheli, F., Hatfield, E., & Rapson, R. L. (2012). Social neuroscience of love. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 9(1), 3–13.



The Triangular Theory of Love. Adapted from Wikimedia Commons, CC0.

For example, responsive mothers—mothers who soothe their crying infants—tend to produce infants who have secure attachments.^{20,21} As adults, secure individuals rely on their working models—concepts of how relationships operate—that were created in infancy, as a result of their interactions with their primary caregiver (mother), to foster happy and healthy adult intimate relationships. Securely attached adults feel comfortable being depended on and depending on others.

As you might imagine, inconsistent or dismissive parents also impact the attachment style of their infants,²² but in a different direction. In early studies on attachment style, infants were observed interacting with their caregivers, followed by being separated from them, then finally reunited. About 20% of the observed children were “resistant,” meaning they were anxious even before, and especially during, the separation; and 20% were “avoidant,” meaning they actively avoided their caregiver after separation (i.e., ignoring the mother when they were reunited).

20. Ainsworth, M. S. (1973). Infant–mother attachment. *American Psychologist*, 34(10), 932–937. <https://doi.org/10.1037/0003-066X.34.10.932>

21. Bowlby, J. (1969). *Attachment. Attachment and loss: Vol. 1. Loss*. New York: Basic Books.

22. Ainsworth, M. S. (1973). Infant–mother attachment. *American Psychologist*, 34(10), 932–937. <https://doi.org/10.1037/0003-066X.34.10.932>

These early attachment patterns can affect the way people relate to one another in adulthood. Anxious-resistant adults worry that others don’t love them, and they often become frustrated or angry when their needs go unmet. Anxious-avoidant adults will appear not to care much about their intimate relationships and are uncomfortable being depended on or depending on others themselves.

Table 7.4. Types of Early Attachment and Adult Intimacy

Secure Attachment	Anxious-avoidant Attachment	Anxious-resistant Attachment
“I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don’t often worry about being abandoned or about someone getting too close to me,”	“I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being.”	“I find that others are reluctant to get as close as I would like. I often worry that my partner doesn’t really love me or won’t want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away.”

The good news is that our attachment can be changed. It isn’t easy, but it is possible for anyone to “recover” a secure attachment. The process often requires the help of a supportive and dependable other, and for the insecure person to achieve coherence—the realization that his or her upbringing is not a permanent reflection of character or a reflection of the world at large, nor does it bar him or her from being worthy of love or others of being trustworthy.²³

Video Example

You can watch this video “**What is Your Attachment Style?**” from **The School of Life** to learn more.

23. Treboux, D., Crowell, J. A., & Waters, E. (2004). When “new” meets “old”: configurations of adult attachment representations and their implications for marital functioning. *Developmental Psychology*, 40(2), 295–314. <https://doi.org/10.1037/0012-1649.40.2.295>

Trends in Dating, Cohabitation, and Marriage

Singlehood

In the United States, being single is the most common lifestyle for people in their early 20s and there has been an increase in the number of adults staying single. In 1960, only about 1 in 10 adults age 25 or older had never been married, in 2012 that had risen to 1 in 5.²⁴ The number of adults who remain single across the world has also increased dramatically in the last 30 years. Singlehood has become a more acceptable lifestyle than it was in the past and many singles are very happy with their status. Whether or not a single person is happy depends on the circumstances of their remaining single.

Reasons for Staying Single

There are many reasons young adults cite for staying single, such as not having met the right person, wanting more financial stability, not ready to settle down, and feeling too young to marry.²⁵ In addition, adults are marrying later in life, cohabitating, and raising children outside of wedlock in greater numbers than in previous generations. Young adults also have other priorities, such as education, and establishing their careers. This may be reflected by changes in attitudes about the importance of marriage.

Dating

In general, traditional dating among teens and those in their early twenties has been replaced with more varied and flexible ways of getting together (technology with social media play a key role).

Dating and the Internet

The ways people are finding relationships has changed drastically with the advent of the

24. Wang, W., & Parker, K. (2014). Record share of Americans have never married: As values, economics and gender patterns change. Washington, DC: Pew Research Center. http://www.pewsocialtrends.org/files/2014/09/2014-09-24_NeverMarried-Americans.pdf

25. Wang, W., & Parker, K. (2014). Record share of Americans have never married: As values, economics and gender patterns change. Washington, DC: Pew Research Center. http://www.pewsocialtrends.org/files/2014/09/2014-09-24_NeverMarried-Americans.pdf

Internet. As Finkel and colleagues²⁶ found, social networking sites, and the Internet generally, perform three important tasks. Specifically, sites provide individuals with access to a database of other individuals who are interested in meeting someone. Dating sites generally reduce issues of proximity, as individuals do not have to be close in proximity to meet. Also, they provide a medium in which individuals can communicate with others. Finally, some Internet dating websites advertise special matching strategies, based on factors such as personality, hobbies, and interests, to identify the “perfect match” for people looking for love online. In general, scientific questions about the effectiveness of Internet matching or online dating compared to face-to-face dating remain to be answered.

It is important to note that social networking sites have also opened the doors for many to meet people that they might not have ever had the opportunity to meet; unfortunately, it now appears that the social networking sites can be forums for unsuspecting people to be duped. In 2010 a documentary, *Catfish*,²⁷ focused on the personal experience of a man who met a woman online and carried on an emotional relationship with this person for months. As he later came to discover, though, the person he thought he was talking and writing with did not exist. Individuals should research people’s backgrounds and be cautious when meeting others from online sources.

Online communication differs from face-to-face interaction in a number of ways. In face-to-face meetings, people have many cues upon which to base their first impressions. A person’s looks, voice, mannerisms, dress, scent, and surroundings all provide information in face-to-face meetings, but in computer-mediated meetings, written messages are the only cues provided. Fantasy is used to conjure up images of voice, physical appearance, mannerisms, and so forth. The anonymity of online involvement may make it easier to become intimate without fear of interdependence. When online, people tend to disclose more intimate details about themselves more quickly. A shy person may open up more without worrying about whether or not the partner is frowning or looking away. And, someone who has been abused may feel safer in virtual relationships.

Hooking Up

United States demographic changes have significantly affected the romantic relationships among emerging and early adults. As previously described, the age for puberty has declined, while the times for one’s first marriage and first child have increased. This results in a

26. Finkel, E. J., Burnette, J. L., & Scissors, L. E. (2007). Vengefully ever after: destiny beliefs, state attachment anxiety, and forgiveness. *Journal of Personality and Social Psychology*, 92(5), 871–886. <https://doi.org/10.1037/0022-3514.92.5.871>

27. Joost, H., & Schulman, A. (2010). *Catfish*. Rogue.

“historically unprecedented time gap where young adults are physiologically able to reproduce, but not psychologically or socially ready to settle down and begin a family and child rearing.”²⁸ Consequently, traditional forms of dating have shifted for some people to include more casual **hookups** that involve uncommitted sexual encounters.^{29,30}

Emotional Consequences of Hooking up

Concerns regarding hooking up behavior are evident in the research literature. One significant finding is the high comorbidity of hooking up and substance use. Those engaging in non-monogamous sex are more likely to have used marijuana, cocaine, and alcohol, and the overall risks of sexual activity are drastically increased with the addition of alcohol and drugs.³¹ Regret has also been expressed, and those who had the most regret after hooking up also had more symptoms of depression.³² Hook ups were also found associated with lower self-esteem, increase guilt, and foster feelings of using someone or feeling used.

Hooking up can best be explained by a biological, psychological, and social perspective. Research indicates that some emerging adults feel it is necessary to engage in hooking up behavior as part of the sexual script depicted in the culture and media. Additionally, they desire sexual gratification. However, many also want a more committed romantic relationship and may feel regret with uncommitted sex.

Friends with Benefits

Hookups are different than those relationships that involve continued mutual exchange. These relationships are often referred to as **Friends with Benefits** (FWB) or “Booty Calls.” *These relationships involve friends having casual sex without commitment.* Hookups do not include a friendship relationship. Bisson and Levine³³ found that 60% of 125 undergraduates reported

28. Garcia, J. R., Reiber, C., Massey, S. G., & Merriwether, A. M. (2012). Sexual hookup culture: A review. *Review of General Psychology: Journal of Division 1, of the American Psychological Association*, 16(2), 161–176. <https://doi.org/10.1037/a0027911>

29. Bogle, K. A. (2007). The shift from dating to hooking up in college: What scholars have missed: The shift from dating to hooking up. *Sociology Compass*, 1(2), 775–788. <https://doi.org/10.1111/j.1751-9020.2007.00031.x>

30. Bogle, K. A. (2008). *Hooking up: Sex, dating, and relationships on campus*. New York University Press.

31. Garcia, J. R., Reiber, C., Massey, S. G., & Merriwether, A. M. (2012). Sexual hookup culture: A review. *Review of General Psychology: Journal of Division 1, of the American Psychological Association*, 16(2), 161–176. <https://doi.org/10.1037/a0027911>

32. Welsh, D. P., Grello, C. M., & Harper, M. S. (2006). No strings attached: the nature of casual sex in college students. *Journal of Sex Research*, 43(3), 255–267. <https://doi.org/10.1080/00224490609552324>

33. Bisson, M. A., & Levine, T. R. (2009). Negotiating a friends with benefits relationship. *Archives of Sexual Behavior*, 38(1), 66–73. <https://doi.org/10.1007/s10508-007-9211-2>

a FWB relationship. The concern with FWB is that one partner may feel more romantically invested than the other.³⁴

Cohabitation

Cohabitation is an arrangement where two or more people who are not married live together. These often involve a romantic or sexually intimate relationship on a more long-term or permanent basis. Such arrangements have become increasingly common in Western countries during the past few decades due to changing social views regarding marriage, gender roles, employment, and religion and economic changes. With many jobs now requiring advanced educational attainment, a competition between marriage and pursuing post-secondary education has ensued.³⁵

According to the U.S. Census Bureau,³⁶ cohabitation has been increasing, while marriage has been decreasing in young adulthood. As seen in the graph below, over the past 50 years, the percentage of 18-24 year olds in the U.S. living with an unmarried partner has gone from 0.1 percent to 9.4 percent, while living with a spouse has gone from 39.2 percent to 7 percent. More 18-24 year olds live with an unmarried partner now than with a married partner.

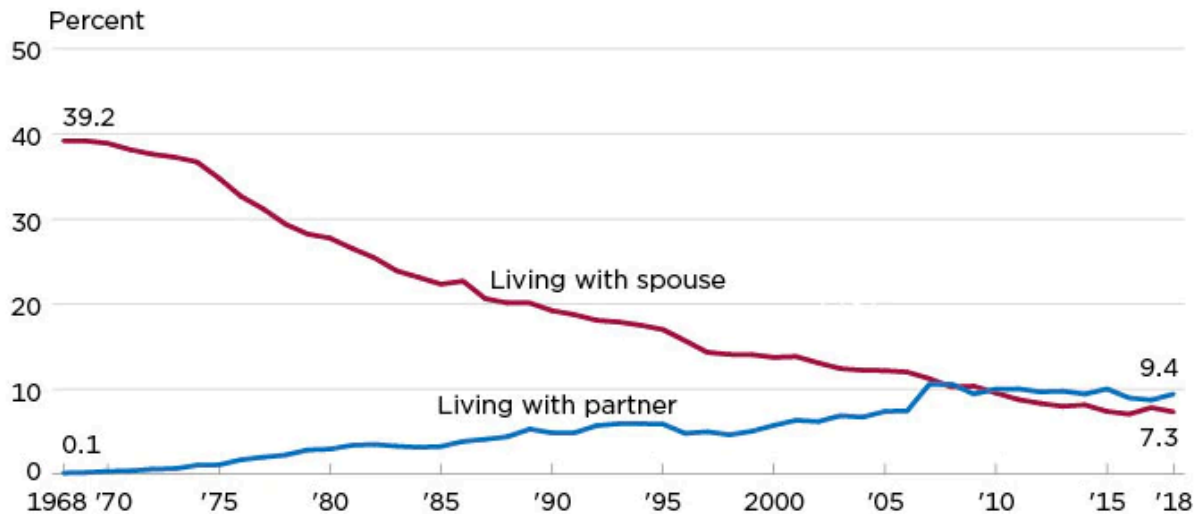
34. Garcia, J. R., Reiber, C., Massey, S. G., & Merriwether, A. M. (2012). Sexual hookup culture: A review. *Review of General Psychology: Journal of Division 1, of the American Psychological Association*, 16(2), 161–176. <https://doi.org/10.1037/a0027911>

35. Yu, J., & Xie, Y. (2015). Cohabitation in China: Trends and determinants. *Population and Development Review*, 41(4), 607–628. <https://doi.org/10.1111/j.1728-4457.2015.00087.x>

36. US Census Bureau. (2022, November 15). Living with an unmarried partner now common for young adults. <https://www.census.gov/library/stories/2018/11/cohabitation-is-up-marriage-is-down-for-young-adults.html>

A higher proportion of 18- to 24-year-olds live with an unmarried partner than a spouse.

Living Arrangements of Young Adults Ages 18 to 24



Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements, 1968 to 2018.

The rates of those between ages 18-44 living with a partner are gradually on the rise, even when marriage is not part of their goal.)Image Source: US Census Bureau)

Similar increases in cohabitation have also occurred in other industrialized countries. For example, rates are high in Great Britain, Australia, Sweden, Denmark, and Finland. In fact, more children in Sweden are born to cohabiting couples than to married couples. In Europe, the Scandinavian countries have been the first to start this leading trend, although many countries have since followed. Mediterranean Europe has traditionally been very conservative, with religion playing a strong role.

Engagement and Marriage

Marriage Worldwide: Cohen³⁷ reviewed data assessing most of the world's countries and found that marriage has declined universally during the last several decades. This decline has occurred in both poor and rich countries, however, the countries with the biggest drops in marriage were mostly rich: France, Italy, Germany, Japan and the U.S. Cohen states that the

37. Cohen, P. (2013, June 12). Marriage is declining globally. Can you say that? <https://familyinequality.wordpress.com/2013/06/12/marriage-is-declining/>

decline is not only due to individuals delaying marriage, but also because of high rates of non-marital cohabitation. Delayed or reduced marriage is associated with higher income and lower fertility rates that are reflected worldwide.

Marriage in the United States: In 1960, 72% of adults age 18 or older were married, in 2010 this had dropped to barely half.³⁸ At the same time, the age of first marriage has been increasing for both men and women. In 1960, the average age for first marriage was 20 for women and 23 for men. By 2010, this had increased to 26.5 for women and nearly 29 for men. Many of the explanations for increases in singlehood and cohabitation previously given can also account for the drop and delay in marriage.

Marriage and Elopement: Historically, marriage was not a personal choice, but one made by one's family. Arranged marriages often ensured proper transference of a family's wealth and the support of ethnic and religious customs. Such marriages were a marriage of families rather than of individuals. In Western Europe, starting in the 18th century the notion of personal choice in a marital partner slowly became the norm. Arranged marriages were seen as "traditional" and marriages based on love "modern". Many of these early "love" marriages were obtained by eloping.³⁹

In a majority of countries worldwide, most people will marry in their lifetime. Around the world, people tend to get married later in life or not at all. People in more developed countries (e.g., Nordic and Western Europe), for instance, typically marry later in life—at an average age of 30 years. This is very different than, for example, the economically developing country of Afghanistan, which has one of the lowest average-age statistics for marriage.⁴⁰

Cultural Influences on Marriage

Many cultures have both explicit and unstated rules that specify who is an appropriate mate. Consequently, mate selection is not completely left to the individual. Rules of **endogamy** *indicate the groups we should marry within and those we should not marry in.*⁴¹ For example, many cultures specify that people marry within their own race, social class, age group, or religion. Endogamy reinforces the cohesiveness of the group. Additionally, these rules encourage **homogamy** *or marriage between people who share social characteristics.* The majority of

38. Wang, W., & Taylor, P. (2011). For Millennials, parenthood trumps marriage. Washington, DC: Pew Research Center.
<https://www.pewresearch.org/social-trends/2011/03/09/for-millennials-parenthood-trumps-marriage/>

39. Thornton, A. (2005). *Reading history sideways: The fallacy and enduring impact of the developmental paradigm on family life.* University of Chicago Press.

40. United Nations (2013). World Marriage Data 2012. Department of Economic and Social Affairs. Population Division.
<http://www.un.org/esa/population/publications/WMD2012/MainFrame.html>

41. Witt, J. (2010). *SOC* (2010th ed.). McGraw-Hill Humanities/Social Sciences/Languages.

marriages in the U. S. are homogamous with respect to race, social class, age and to a lesser extent, religion. Homogamy is also seen in couples with similar personalities and interests.



In some countries, many people are coupled and committed to marriage through arrangements made by parents or professional marriage brokers. (Image Source: Ananabanana, CC BY-NC-SA 2.0)

Arranged Marriages

In some cultures, however, it is not uncommon for the families of young people to find a mate for them. In India, the marriage market refers to the use of marriage brokers or marriage bureaus to pair eligible singles together.⁴² To many Westerners, the idea of arranged marriage can appear to take the romance out of the equation and violate values about personal freedom. On the other hand, some argue that parents are able to make more mature decisions than young people.

While such intrusions may seem inappropriate based on your upbringing, for many people of the world such help is expected, even appreciated. In India for example, “parental arranged marriages are largely preferred to other forms of marital

choices.”⁴³ Of course, one’s religious and social caste plays a role in determining how involved family may be.

Same-Sex Marriage and Couples Worldwide

As of 2022, same-sex marriage is legal in 30 countries, and counting. Many other countries either recognize same-sex couples for the purpose of immigration, grant rights for domestic partnerships, or grant common law marriage status to same-sex couples. In June 26, 2015, the United States Supreme Court ruled that the Constitution guarantees same-sex marriage. The decision indicated that limiting marriage to only heterosexual couples violated the 14th amendment’s guarantee of equal protection under the law. This ruling occurred 11 years after

42. Trivedi, A. (2013). *In New Delhi, women marry up and men are left behind*. The New York Times. <http://india.blogs.nytimes.com/2013/01/15/in-delhi-women-marry-up-and-men-are-left-behind>

43. Ramsheena, C. A. (2015). Youth and marriage: A study of changing marital choices among the university students in India. *Journal of Sociology and Social Anthropology*, 06(01). <https://doi.org/10.31901/24566764.2015/06.01.11>

same-sex marriage was first made legal in Massachusetts, and at the time of the high court decision, 36 states and the District of Columbia had legalized same sex marriage.⁴⁴

Predictors of Marital Harmony

Advice on how to improve one's marriage is centuries old. One expert on marital communication is John Gottman. Gottman⁴⁵ differs from many marriage counselors in his belief that having a good marriage does not depend on compatibility. Rather, the way that partners communicate to one another is crucial.

Gottman's research team measured the physiological responses of thousands of couples as they discuss issues of disagreement. Fidgeting in one's chair, leaning closer to or further away from the partner while speaking, and increases in respiration and heart rate are all recorded and analyzed along with videotaped recordings of the partners' exchanges. In marriages destined to fail, partners engage in the "marriage killers": **Contempt, criticism, defensiveness, and stonewalling**. Each of these undermines the caring and respect that healthy marriages require. To some extent, all partnerships include some of these behaviors occasionally, but when these behaviors become the norm, they can signal that the end of the relationships is near; for that reason, they are known as "Gottman's Four Horsemen of the Apocalypse". **Contempt**, which it entails *mocking or derision and communicates the other partner is inferior*, is seen of the worst of the four because it is the strongest predictor of divorce.

Gottman et al.⁴⁶ researched the perceptions newlyweds had about their partner and marriage via the Oral History Interview. This Interview analyzes eight variables in marriage including:



While marriage is common across cultures, the details such as "How" and "When" are often quite different. Now the "Who" of marriage is experiencing an important change as laws are updated in a growing number of countries to give same-sex couples the same rights and benefits as heterosexual couples. (Image Source: Bart Vis, CC BY 2.0)

44. Masci, D., Sciupac, E. P., & Lipka, M. (2019). Same-Sex Marriage Around the World. Pew Research Center. Retrieved from <https://www.pewresearch.org/religion/fact-sheet/gay-marriage-around-the-world/>

45. Gottman, J. M. (1999). Couple's handbook: Marriage Survival Kit Couple's Workshop. Seattle, WA: Gottman Institute

46. Carrère, S., Buehlman, K. T., Gottman, J. M., Coan, J. A., & Ruckstuhl, L. (2000). Predicting marital stability and divorce in newlywed couples. *Journal of Family Psychology: JFP: Journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 14(1), 42–58. <https://doi.org/10.1037//0893-3200.14.1.42>

Fondness/affection, we-ness, expansiveness/ expressiveness, negativity, disappointment, and three aspects of conflict resolution (chaos, volatility, glorifying the struggle), was able to predict the stability of the marriage (vs. divorce) with 87% accuracy at the four to six year-point and 81% accuracy at the seven to nine year-point. Later, Gottman⁴⁷ developed workshops for couples to strengthen their marriages based on the results of the Oral History Interview. Interventions include increasing positive regard for each other, strengthening their friendship, and improving communication and conflict resolution patterns.

Accumulated Positive Deposits to the “Emotional Bank Account.” When there is a positive balance of relationship deposits this can help the overall relationship in times of conflict. For instance, some research shows that being friendly and making deposits can change the nature of conflict. Gottman and Levenson⁴⁸ also found that couples rated as having more pleasant interactions, compared with couples with less pleasant interactions, reported higher marital satisfaction, less severe marital problems, better physical health, and less risk for divorce. Finally, Janicki et al.⁴⁹ showed that the intensity of conflict with a spouse predicted marital satisfaction, unless there was a record of positive partner interactions, in which case the conflict did not matter as much. Again, it seems as though having a positive balance through prior positive deposits helps to keep relationships strong even in the midst of conflict.

Link to Learning

While Gottman’s research has contributed to our understandings of how to make marriages work, more current research demonstrates that these findings most likely extend to other types of romantic, committed relationships.

Additional techniques for maintaining or creating healthy relationships can be found on The Gottman Method website

47. Gottman, J. M. (1999). *Couple's handbook: Marriage Survival Kit Couple's Workshop*. Seattle, WA: Gottman Institute

48. Gottman, J. M., & Levenson, R. W. (1992). Marital processes predictive of later dissolution: behavior, physiology, and health. *Journal of Personality and Social Psychology*, 63(2), 221–233. <https://doi.org/10.1037//0022-3514.63.2.221>

49. Janicki, D. L., Kamarck, T. W., Shiffman, S., & Gwaltney, C. J. (2006). Application of ecological momentary assessment to the study of marital adjustment and social interactions during daily life. *Journal of Family Psychology: JFP: Journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 20(1), 168–172. <https://doi.org/10.1037/0893-3200.20.1.168>

EDUCATION AND WORK IN EARLY ADULTHOOD

Diana Lang; Nick Cone; Margaret Clark-Plaskie; Laura Overstreet; Martha Lally;
and Suzanne Valentine-French

Education in Early Adulthood

A concern over the past decade has been, “Does formal education prepare young adults for the workplace?” It appears that students need to learn “soft skills,” as well as the particular knowledge and skills within their college major. As education researcher Pazich¹ noted, most American college students today are enrolling in business or other pre-professional programs and to be effective and successful workers and leaders, they would benefit from the communication, teamwork, and critical thinking skills, as well as the content knowledge, gained from liberal arts education. In fact, two-thirds of children starting primary school now will be employed in jobs in the future that currently do not exist. Therefore, students cannot learn every single skill or fact that they may need to know, but they can learn how to learn, think, research, and communicate well so that they are prepared to continually learn new things and adapt effectively in their careers and lives since the economy, technology, and global markets will continue to evolve.² In sum, workers need skills in listening, reading, writing, speaking, global awareness, critical thinking, civility, and computer literacy—all skills that enhance success in the workplace.

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1. Bordoloi Pazich, L. (2018, September 26). *The power of academic friendship*. Inside Higher Ed. <https://www.insidehighered.com/views/2018/09/26/need-combine-business>
 2. Henseler, C. (2017, September 6). Liberal arts is the foundation for professional success in the 21st century. Huffington Post. https://www.huffpost.com/entry/liberal-arts-is-the-foundation-for-professional-success_b_5996d9a7e4b03b5e472cee9d#:~:text=From%20this%20view%2C%20graduates%20of,success%20in%20the%2021st%20century.

Career Choices in Early Adulthood

Hopefully, we are each becoming lifelong learners, particularly since we are living longer and will most likely change jobs multiple times during our lives. However, for many, our job changes will be within the same general occupational field, so our initial career choice is still significant. We've seen with Erikson that identity largely involves occupation.

One of the most well-known theories about career choice is from Holland,³ who proposed that there are six personality types (realistic, investigative, artistic, social, enterprising, and conventional), as well as varying types of work environments. The better matched one's personality is to the workplace characteristics, the more satisfied and successful one is predicted to be with that career or vocational choice. Research support has been mixed and we should note that there is more to satisfaction and success in a career than one's personality traits or likes and dislikes. For instance, education, training, and abilities need to match the expectations and demands of the job, plus the state of the economy, availability of positions, and salary rates may play practical roles in choices about work.



Additional education helps individuals learn job skills and develop soft skills to prepare them for the workplace. There are many career paths that do not necessitate a college degree. (Image Source: PxFuel)

3. Holland, J. (1984). *Making vocational choices: A theory of vocational personalities and work environments* (2nd ed.). Prentice Hall.

Link to Learning: What's your right career?

To complete a free online career questionnaire and identify potential careers based on your preferences, go to: **Career One Stop Questionnaire**

Did you find out anything interesting? Think of this activity as a starting point to your career exploration. Other great ways for young adults to research careers include informational interviewing, job shadowing, volunteering, practicums, and internships. Once you have a few careers in mind that you want to find out more about, go to the **Occupational Outlook Handbook** from the U.S. Bureau of Labor Statistics to learn about job tasks, required education, average pay, and projected outlook for the future.

Career Development and Employment

Work plays a significant role in the lives of people, and emerging and early adulthood is the time when most people make choices that will help establish our careers.

In recent years, young adults are more likely to find themselves job-hopping, and periodically returning to school for further education and retraining than in prior generations. However, researchers find that occupational interests remain fairly stable. Thus, despite the more frequent change in jobs, most people are generally seeking jobs with similar interests rather than entirely new careers.⁴

Recent research also suggests that Millennials are looking for something different in their place of employment. According to a Gallup poll report,⁵ Millennials want more than a paycheck, they want a purpose. Unfortunately, only 29% of Millennials surveyed by Gallup reported that they were “engaged” at work. In fact, they report being less engaged than Gen Xers and Baby Boomers; with 55% of Millennials saying they are not engaged at all with their job. This indifference to their workplace may explain the greater tendency to switch jobs. With their current job giving them little reason to stay, they are more likely to take any new

4. Rottinghaus, P. J., Coon, K. L., Gaffey, A. R., & Zytowski, D. G. (2007). Thirty-year stability and predictive validity of vocational interests. *Journal of Career Assessment*, 15(1), 5–22. <https://doi.org/10.1177/1069072706294517>

5. Gallup Poll Report (2016). What millennials want from work and life. Business Journal. <http://www.gallup.com/businessjournal/191435/millennials-work-life.aspx>

opportunity to move on. Only half of Millennials saw themselves working at the same company a year later. Gallup estimates that this employment turnover and lack of engagement costs businesses \$30.5 billion a year.

Around the world, teens and young adults were some of the hardest hit by the economic downturn in recent years and by Covid-19.⁶ Consequently, a number of young people have become **NEETs**, *neither employed nor in education or training*. While the number of young people who are NEETs has declined, there is concern that “without assistance, economically inactive young people won’t gain critical job skills and will never fully integrate into the wider economy or achieve their full earning potential.”⁷ In Europe, where the rates of NEETs are persistently high, there is also concern that having such large numbers of young adults with little opportunity may increase the chances of social unrest.

Please visit the links below for a summary of some of these early adulthood topics, but from a slightly different perspective—that of generations or cohorts. “Millennials” are defined as individuals who were born between 1981 and 1996, and as such, they make up a large part of today’s young adults. “Gen Zers” are defined as those born after 1996.

Links to Learning: Gen zers, Millenials, and Other Generations

Read this article “Millennial life: How young adulthood today compares with prior generations” and this article “Gen Zers: what we know about Gen Z so far” from the Pew Research Center.

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6. Desilver, D. (2016) Millions of young people in the US and EU are neither working nor learning. Pew Research Center. <http://www.pewresearch.org/fact-tank/2016/01/28/us-eu-neet-population/>
7. Desilver, D. (2016) Millions of young people in the US and EU are neither working nor learning. Pew Research Center. <http://www.pewresearch.org/fact-tank/2016/01/28/us-eu-neet-population/>

PUTTING IT TOGETHER: EARLY ADULTHOOD

Diana Lang; Nick Cone; Julie Lazzara; and Tera Jones



(Image Source: Keira Burton via Pexels)

Emerging adults are often in the “prime of life,” especially physically and sexually. However, young adults may be engaged in risky behaviors and be particularly vulnerable to injuries, accidents, alcohol and drug use/abuse, sexually transmitted diseases, intimate partner violence, and suicide. Nutrition and exercise habits in this stage are important since they are associated with health and certain illnesses in middle age. Cognitive and brain development continues, with the influences of education and experience. Young adults may move from formal logical thinking to postformal thinking, becoming better at considering multiple perspectives and contexts, appreciating ambiguity and uncertainty, and using practical experience in making decisions.

Additional education often plays an important role for more young adults, thus, we examined the connections between education and work and learned about how exploring and choosing

one's career is key during this stage. We saw that establishing intimacy in friendships, romance, and family relationships is another significant aspect of young adulthood; love, dating, cohabitation, and marriage.

MIDDLE ADULTHOOD

PHYSICAL DEVELOPMENT IN MIDDLE ADULTHOOD

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Ronnie Mather

Learning Objectives

- Explain the difference between primary and secondary aging
- Describe sensory changes that occur during middle adulthoodIdentify health concerns in middle adulthood
- Explain what occurs during the climacteric for females and males
- Describe sexuality during middle adulthood
- Explain the importance of sleep and the consequences of sleep deprivation
- Describe the importance of exercise and nutrition for optimal health
- Describe brain functioning in middle adulthood
- Detail the most important physiological changes occurring in men and women during middle adulthood
- Describe how physiological changes during middle adulthood can impact life experience, health, and sexuality
- Describe cognitive and neurological changes during middle adulthood
- Outline cognitive gains/deficits typically associated with middle adulthood
- Explain changes in fluid and crystallized intelligence during adulthood
- Analyze emotional and social development in middle adulthood
- Explain the sources of stress confronting adults in midlife and the strategies to cope
- Summarize Erikson's seventh psychosocial task of generativity vs stagnation
- Evaluate Levinson's notion of the midlife crisis
- Examine key theories on aging, including socio-emotional selectivity theory (SSC) and selection, optimization, and compensation (SOC)
- Explain how relationships are maintained and changed during middle adulthood
- Describe the link between intimacy and subjective well-being
- Discuss issues related to family life in middle adulthood

Middle adulthood, or midlife, refers to the period of the lifespan between early adulthood and late adulthood. Although ages and tasks are culturally defined, the most common age definition is from 40-45 to 60-65. This may be the least studied time of the lifespan, and research on this developmental period is relatively new as many aspects of midlife are still being explored. In the United States, the large Baby Boom cohort (those born between 1946 and 1964) are now midlife adults (and some even late adults) and this has led to increased interest in this developmental stage. We do know that this stage reflects both developmental gains and

losses and that there are considerable individual differences, but there is still much to learn about this age group.¹

Each person experiences age-related physical changes based on many factors: *biological factors, such as molecular and cellular changes, and oxidative damage are called **primary aging**, while aging that occurs due to controllable factors, such as an unhealthy lifestyle including lack of physical exercise and poor diet, is called **secondary aging**.*² These factors are shown in Figure 1.



Contributors to Aging (Image Source: AbbeyElder on Wikimedia, CC BY SA)

Getting out of shape is not an inevitable part of aging; it is probably due to the fact that middle adults become less physically active and have experienced greater stress. Smoking tobacco, drinking alcohol, poor diet, stress, physical inactivity, and chronic disease such as diabetes or

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1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Ronnie Mather for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology*.
 2. Busse, E. W. (1969). Theories of aging. In E. W. Busse & E. W. Pfeiffer (Eds.), *Behavior and adaptation in later life* (pp. 11-31). Boston, MA: Little Brown.

arthritis reduce overall health. However, there are things can be done to combat many of these changes by adopting healthier lifestyles.



(Image Source: “Golf” on Pixabay)

Hippocrates (author of the famous “Hippocratic oath”) was of the opinion that “walking is the best medicine.” This was his learned opinion in 400 BCE and there is now considerable, and increasing, evidence that he may have been correct.

As we will see, there are simple physiological changes that accompany middle adulthood. These are somewhat inevitable, but the importance of physical activity at this age range would be difficult to overstate looking at the evidence. Exercise does not necessarily mean running marathons, it may simply mean a commitment to using your legs in a brisk fashion for thirty minutes. “Use it or lose it” is a good mantra for this stage of development—the technical term for the the loss of muscle tissue and function as we age is sarcopenia. From age 30, the body loses 3-8% of its muscle mass per decade, and this accelerates after the age of 60.³ Diet and

3. Volpi, E., Nazemi, R., & Fujita, S. (2004). Muscle tissue changes with aging. *Current opinion in clinical nutrition and metabolic care*, 7(4), 405-10.

exercise can ameliorate both the extent and lifestyle consequences of these kinds of processes. In this section, we will examine some of the changes associated with middle adulthood and consider how they impact human life.⁴

Physical Mobility in Middle Adulthood



Exercise during middle adulthood is important not only for the body, but for the brain. (Image Source: Ed Yourdon, CC BY SA)

The importance of not succumbing to the temptations of a sedentary lifestyle was as obvious to Hippocrates in 400 BCE as it is now. Piasecki et al⁵ are of the opinion that **sarcopenia** (loss of muscle tissue and function as we age) in legs might be the result of leg muscles becoming detached from the nervous system. Further, Piasescki et al ⁶ believe that exercise encourages

4. Volpi, E., Nazemi, R., & Fujita, S. (2004). Muscle tissue changes with aging. *Current opinion in clinical nutrition and metabolic care*, 7(4), 405-10.

5. Piasecki, M., Piasecki, J., Stashuk, D. W., Swiecicka, A., Rutter, M. K., Jones, D. A., & McPhee, J. S. (2018, March 23). Failure to expand the motor unit size to compensate for declining motor unit numbers distinguishes sarcopenic from non-sarcopenic older men. <https://physoc.onlinelibrary.wiley.com/doi/full/10.1113/JP275520>

6. Piasecki, M., Piasecki, J., Stashuk, D. W., Swiecicka, A., Rutter, M. K., Jones, D. A., & McPhee, J. S. (2018, March 23). Failure to expand the motor unit size to compensate for declining motor unit numbers distinguishes sarcopenic from non-sarcopenic older men. <https://physoc.onlinelibrary.wiley.com/doi/full/10.1113/JP275520>

new nerve growth slowing the progression of sarcopenia (Figure 2). Persons aged 75 may have up to 30-60% fewer nerve endings in their leg muscles than they did in their early 20s.

Sarcopenia has only recently been recognized as an independent disease entity since 2016 (ICD-10). In 2018 the U.S. Center for Disease Control and prevention assigned sarcopenia its own discrete medical code. Disease entities that affect mobility will become an increasingly costly phenomenon, and will affect the quality of life of millions of people as the population ages. In many ways it is a natural phenomenon, and many doctors and researchers have been reticent to overly pathologize natural changes associated with age. However, mobility is now becoming a central concern, and some researchers are now identifying some conditions like **osteosarcopenia**, which describes the decline of both muscle tissue (sarcopenia) and bone tissue (osteoporosis). Diagnoses and pharmaceuticals which deal with the central question of mobility will become ever more important, even more so as the burgeoning costs associated with caring for those with mobility issues becomes apparent.

The years between 30 and 60 can see the onset of **rheumatoid arthritis** (RA). This is the third most common form of arthritis and its specific etiology is unknown at this time. RA occurs when antibodies attack normal synovial fluid in the joints mistaking them for an alien threat. **It affects women more than men by a factor of around 3 to 1.** Peak onset for women is reckoned to be sometime in the early 40s. This has led to the conclusion, albeit a preliminary one, that RA is caused by hormonal changes. Women who are pregnant, and have RA, often experience a temporary remission, again leading to the identification of hormonal changes in the body as the most likely culprit. Women also experience symptoms at an earlier age. This condition is often associated with people in their 60s, but only about a third first experience symptoms at this age, though they become more acute with the passage of time.

Human beings reach peak bone mass around 35-40. **Osteoporosis** is a “silent disease” which progresses until a fracture occurs. The sheer scale and cost of this illness is radically underestimated. It is often associated with women due to the fact that bone mass can deteriorate in women much more quickly in middle age due to menopause. After menopause women can lose 5-10% bone mass per year, rendering it advisable to monitor intakes of calcium and Vitamin D, and evaluate individual risk factors. Beginning in their 60s, though, men and women lose bone mass at roughly the same rate. The number of American men diagnosed with osteoporosis is currently around the 2 million mark, with a further 12 million reckoned to be at risk. The National Osteoporosis Foundation (NOF) estimates that 50% of women and 25% of men over the age of 50 will suffer a bone fracture due to osteoporosis. Attention at this stage of the life may bring pronounced health benefits now and later for both women and men. Fixing the damage takes a considerable amount of the Medicare budget.

The health benefits that walking and other physical activity have on the nervous system are

becoming increasingly obvious to those who study aging. Adami et al⁷ found pronounced links between weight bearing exercise and neuron production. We tend to think of the brain as a central processing unit giving instructions to the body via the conduit of the central nervous system, but contemporary science is now coalescing around the idea that muscles and nerves also communicate with the brain—it is a two-way informational and sustaining process. Many studies suggest that voluntary physical activity (VPA) extends and improves quality of life. Such studies show that even moderate physical activity can bring large gains.

In addition, there is often an increase in **chronic inflammation** at this time of life with no discernible discrete cause (as opposed to acute inflammation associated with something like an infection). Inflammation is the body's natural way of responding to injury or harmful pathogens in the body. The function of inflammation is to eliminate the initial cause of injury and initiate tissue repair, but when this happens consistently and for longer periods of time, the body's stress response systems become overworked. This can have serious effects on health, such as fatigue, fever, chest or abdominal pain, rashes, or greater susceptibility to diseases such as cancer, rheumatoid arthritis, and heart disease. Untreated acute inflammation, autoimmune disorders, or long-term exposure to irritants are some contributing factors,⁸ as is social isolation.⁹

Chronic inflammation has been implicated as part of the cause of the muscle loss that occurs with aging.¹⁰ Chronic inflammatory disorder is now implicated in a whole series of chronic diseases such as dementia, and the biomedical evidence for its centrality is now emerging in the medical research literature.

Because of the aging population, health issues associated with autoimmune disease, chronic inflammation, and bone mass density will become central concerns in health and social policy in the coming decades.

7. Adami, R., Pagano, J., Colombo, M., Platonova, N., Recchia, D., Chiaramonte, R., Bottinelli, R., Canepari, M., & Bottai, D. (2018). Reduction of movement in neurological diseases: Effects on neural stem cells characteristics. *Frontiers in Neuroscience*, 12, 336. <https://doi.org/10.3389/fnins.2018.00336>

8. Santos-Longhurst, Adrienne. Understanding and Managing Chronic Inflammation. Healthline. <https://www.healthline.com/health/chronic-inflammation#symptoms>.

9. Nersesian, P. V., Han, H.-R., Yenokyan, G., Blumenthal, R. S., Nolan, M. T., Hladek, M. D., & Szanton, S. L. (2018). Loneliness in middle age and biomarkers of systemic inflammation: Findings from Midlife in the United States. *Social Science & Medicine* (1982), 209, 174–181. <https://doi.org/10.1016/j.socscimed.2018.04.007>

10. Toth, M. J., Matthews, D. E., Tracy, R. P., & Previs, M. J. (2005). Age-related differences in skeletal muscle protein synthesis: relation to markers of immune activation. *American Journal of Physiology. Endocrinology and Metabolism*, 288(5), E883-91. <https://doi.org/10.1152/ajpendo.00353.2004>

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Normal Physiological Changes in Middle Adulthood

There are a few primary biological physical changes in midlife. There are changes in vision, hearing, more joint pain, and weight gain.¹¹ Vision is affected by age. As we age, the lens of the eye gets larger but the eye loses some of the flexibility required to adjust to visual stimuli. This is known as **presbyopia**. Middle aged adults often have trouble seeing up close as a result. Night vision is also affected as the pupil loses some of its ability to open and close to accommodate drastic changes in light.

Presbycusis is the most common cause of hearing loss, afflicting one out of four persons between ages 65 and 74, and one out of two by age 75. This loss accumulates after years of being exposed to intense noise levels, and is generally due to the loss or damage of nerve hair cells inside the cochlea. It is more common in men, but men are also more likely to work in noisy occupations, which may explain their nearly doubled rates of hearing loss levels.¹² Hearing loss is also exacerbated by cigarette smoking, high blood pressure, and stroke. High frequency sounds are the first affected by such hearing loss. Hearing loss could be prevented by guarding against being exposed to extremely noisy environments.

There is new concern over hearing loss as early as childhood with the widespread use of headphones, as loud and/or prolonged listening can cause damage to the cilia, or the tiny sensory hairs, within the cochlea. Another cause of hearing loss in middle age is **otosclerosis**, a physiological condition affecting the middle ear and its bone structure. This occurs when one of the bones in the middle ear, the stapes, acquires a rigidity via abnormal bone growth which it should not have. Unable to vibrate, it induces hearing impairment. Otosclerosis is often described as a rare condition, but it afflicts a good number of Americans, with white

11. Lachman, M. E. (2004). Development in midlife. *Annual Review of Psychology*, 55(1), 305–331. <https://doi.org/10.1146/annurev.psych.55.090902.141521>

12. National Institute on Deafness and Other Communication Disorders. Quick Statistics on Hearing. <https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing>.

women being more prone, though there has been some speculation that this was the origin of deafness in the composer Beethoven. Its cause is unknown, but chronic inflammation may be a risk factor. We tend to associate hearing loss with older adults, but peak onset is in the middle adulthood age bracket.

Weight gain, sometimes referred to as the middle-aged spread, or the accumulation of fat in the abdomen is one of the common complaints of midlife adults. Men tend to gain fat on their upper abdomen and back while women tend to gain more fat on their waist and upper arms. Many adults are surprised at this weight gain because their diets have not changed. However, the metabolism slows by about one-third during midlife.¹³ Consequently, midlife adults have to increase their level of exercise, eat less, and watch their nutrition to maintain their earlier physique.

Many of the changes that occur in midlife can be easily compensated for (by buying glasses, exercising, and watching what one eats, for example.) Most midlife adults experience generally good health. However, the percentage of adults who have a disability increases through midlife; while 7 percent of people in their early 40s have a disability, the rate jumps to 30 percent by the early 60s. This increase is highest among those of lower socioeconomic status.¹⁴

What can we conclude from this information? Again, lifestyle has a strong impact on the health status of midlife adults. Smoking tobacco, drinking alcohol, poor diet, stress, physical inactivity, and chronic disease such as diabetes or arthritis reduce overall health. It becomes important for midlife adults to take preventative measures to enhance physical well-being. Those midlife adults who have a strong sense of mastery and control over their lives, who engage in challenging physical and mental activity, who engage in weight bearing exercise, monitor their nutrition, and make use of social resources are most likely to enjoy a plateau of good health through these years. Not only that, but those who begin an exercise regimen in their 40s may enjoy comparable benefits to those who began in their 20s according to Saint-Maurice et al (2019), who also found that while it is never too late to begin, continuing to do as much as possible, is just as important.¹⁵

13. Berger, K. S. (2005). *The developing person through the life span* (6th ed.). New York: Worth.

14. Bumpass, L. L., & Aquilino, W. S. (1995). A social map of midlife: Family and work over the life course. Prepared for the MacArthur Foundation Research Network on Successful Midlife Development.

15. Saint-Maurice, P. F., Coughlan, D., Kelly, S. P., Keadle, S. K., Cook, M. B., Carlson, S. A., Fulton, J. E., & Matthews, C. E. (2019). Association of leisure-time physical activity across the adult life course with all-cause and cause-specific mortality. *JAMA Network Open*, 2(3), e190355. <https://doi.org/10.1001/jamanetworkopen.2019.0355>

The Climacteric

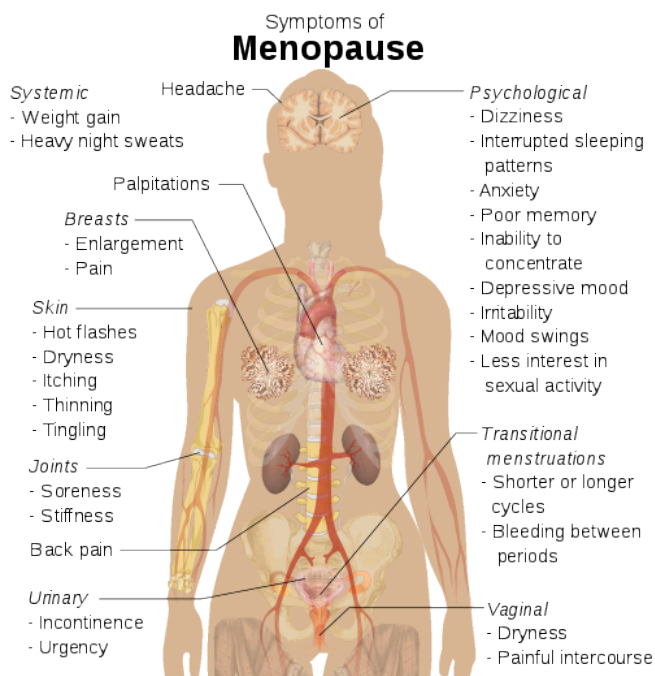
One biologically based change that occurs during midlife is the **climacteric**. During midlife, men may experience a reduction in their ability to reproduce. Women, however, lose their ability to reproduce once they reach menopause.

Menopause

Menopause refers to a period of transition in which a woman's ovaries stop releasing eggs and the level of estrogen and progesterone production decreases (Figure 3). After menopause, a woman's menstruation ceases.¹⁶

Changes typically occur between the mid 40s and mid 50s. The median age range for a woman to have her last menstrual period is 50-52, but ages vary. A woman may first begin to notice that her periods are more or less frequent than before. These changes in menstruation may last from 1 to 3 years. After a year without menstruation, a woman is considered menopausal and no longer capable of reproduction. (Keep in mind that some women, however, may experience another period even after going for a year without one.) The loss of estrogen also affects vaginal lubrication which diminishes and becomes more watery. The vaginal wall also becomes thinner, and less elastic.

Menopause is not seen as universally distressing.¹⁷ Changes in hormone levels are associated with hot flashes and sweats in some women, but women vary in the extent to which these are experienced. Depression, irritability, and weight gain are not necessarily due to



Most women experience some of these common symptoms of menopause, but the severity and experience of these symptoms is also influenced by cultural expectations. (Image Source: Mikael Haggstrom, CC0)

16. National Institutes of Health. (2007). Menopause: MedlinePlus Medical Encyclopedia. <http://www.nlm.nih.gov/medlineplus/ency/article/000894.htm>

17. Lachman, M. E. (2004). Development in midlife. *Annual Review of Psychology*, 55(1), 305–331. <https://doi.org/10.1146/annurev.psych.55.090902.141521>

menopause.¹⁸¹⁹ Depression and mood swings are more common during menopause in women who have prior histories of these conditions rather than those who have not. The incidence of depression and mood swings is not greater among menopausal women than non-menopausal women.

Cultural influences seem to also play a role in the way menopause is experienced. For example, once after listing the symptoms of menopause in a psychology course, a woman from Kenya responded, “We do not have this in my country or if we do, it is not a big deal,” to which some U.S. students replied, “I want to go there!” Indeed, there are cultural variations in the experience of menopausal symptoms. Hot flashes are experienced by 75 percent of women in Western cultures, but by less than 20 percent of women in Japan.²⁰

Women in the United States respond differently to menopause depending upon the expectations they have for themselves and their lives. White, career-oriented women, African-American, and Mexican-American women overall tend to think of menopause as a liberating experience. Nevertheless, there has been a popular tendency to erroneously attribute frustrations and irritations expressed by women of menopausal age to menopause and thereby not take her concerns seriously. Fortunately, many practitioners in the United States today are normalizing rather than pathologizing menopause.

Concerns about the effects of hormone replacement have changed the frequency with which estrogen replacement and hormone replacement therapies have been prescribed for menopausal women. Estrogen replacement therapy was once commonly used to treat menopausal symptoms. But more recently, hormone replacement therapy has been associated with breast cancer, stroke, and the development of blood clots.²¹ Most women do not have symptoms severe enough to warrant estrogen or hormone replacement therapy (HRT). Women who do require HRT can be treated with lower doses of estrogen and monitored with more frequent breast and pelvic exams. There are also some other ways to reduce symptoms. These include avoiding caffeine and alcohol, eating soy, remaining sexually active, practicing relaxation techniques, and using water-based lubricants during intercourse.

Fifty million women in the USA aged 50-55 are post-menopausal. During and after menopause a majority of women will experience weight gain. Changes in estrogen levels lead

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18. Rossi, A. (2019). Chapter Six. The Menopausal Transition and Aging Processes. In O. Brim, C. Ryff & R. Kessler (Ed.), *How Healthy Are We?: A National Study of Well-Being at Midlife* (pp. 153-202). Chicago: University of Chicago Press. <https://doi.org/10.7208/9780226074764-007>
 19. Reid, J. D. (1999). Women's health in midlife. In N. E. Avis (Author) & S. L. Willis (Ed.), *Life in the Middle: Psychological and Social Development in Middle Age* (pp. 105-147). San Diego, CA: Academic.
 20. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.
 21. National Institutes of Health. (2007). Menopause: MedlinePlus Medical Encyclopedia. <http://www.nlm.nih.gov/medlineplus/ency/article/000894.htm>

to a redistribution of body fat from hips and back to stomachs. This is more dangerous to general health and wellbeing because abdominal fat is largely visceral, meaning it is contained within the abdominal cavity and may not look like typical weight gain. That is, it accumulates in the space between the liver, intestines and other vital organs. This is far more harmful to health than subcutaneous fat which is the kind of fat located under the skin. It is possible to be relatively thin and retain a high level of visceral fat, yet this type of fat is deemed especially harmful by medical research.

Andropause

Do males experience a climacteric? Yes. While they do not lose their ability to reproduce as they age, they do tend to produce lower levels of testosterone and fewer sperm. However, men are capable of reproduction throughout life after puberty. It is natural for sex drive to diminish slightly as men age, but a lack of sex drive may be a result of extremely low levels of testosterone. About 5 million men experience low levels of testosterone that results in symptoms such as a loss of interest in sex, loss of body hair, difficulty achieving or maintaining erection, loss of muscle mass, and breast enlargement. This decrease in libido and lower testosterone (androgen) levels is known as **andropause**, although this term is somewhat controversial as this experience is not clearly delineated, as menopause is for women. Low testosterone levels may be due to glandular disease such as testicular cancer. Testosterone levels can be tested and if they are low, men can be treated with testosterone replacement therapy. This can increase sex drive, muscle mass, and beard growth. However, long term HRT for men can increase the risk of prostate cancer.²²

The debate around declining testosterone levels in men may hide a fundamental fact. The issue is not about individual males experiencing individual hormonal change at all. We have all seen the adverts on the media promoting substances to boost testosterone: “Is it low-T?” The answer is probably in the affirmative, if somewhat relative. That is, in all likelihood they will have lower testosterone levels than their fathers. However, it is equally likely that the issue does not lie solely in their individual physiological make up, but is rather a generational transformation.²³ Why this has occurred in such a dramatic fashion is still unknown. There is evidence that low testosterone may have negative health effects on men. In addition, there are

22. Patient Education Institute. (n.d.). Low Testosterone: MedlinePlus Interactive Health Tutorial. <http://www.nlm.nih.gov/medlineplus/tutorials/lowtestosterone/htm/index.htm>

23. Travison, T. G., Araujo, A. B., O'Donnell, A. B., Kupelian, V., & McKinlay, J. B. (2007). A population-level decline in serum testosterone levels in American men. *The Journal of Clinical Endocrinology and Metabolism*, 92(1), 196–202. <https://doi.org/10.1210/jc.2006-1375>

studies which show evidence of rapidly decreasing sperm count and grip strength. Exactly why these changes are happening is unknown and will likely involve more than one cause.

The Climacteric and Sexuality

Sexuality is an important part of people's lives at any age. Midlife adults tend to have sex lives that are very similar to that of younger adulthood. And many women feel freer and less inhibited sexually as they age. However, a woman may notice less vaginal lubrication during arousal and men may experience changes in their erections from time to time. This is particularly true for men after age 65. Men who experience consistent problems are likely to have other medical conditions (such as diabetes or heart disease) that impact sexual functioning.²⁴

Couples continue to enjoy physical intimacy and may engage in more foreplay, oral sex, and other forms of sexual expression rather than focusing as much on sexual intercourse. Risk of pregnancy continues until a woman has been without menstruation for at least 12 months, however, and couples should continue to use contraception. People continue to be at risk of contracting sexually transmitted infections such as genital herpes, chlamydia, and genital warts. Seventeen percent of new cases of AIDS in the United States are in people 50 and older.²⁵ Of all people living with HIV, 47% are aged 50 or over.²⁶ Practicing safe sex is important at any age- safe sex is not just about avoiding an unwanted pregnancy... it is about protecting yourself from STDs as well. Hopefully, when partners understand how aging affects sexual expression, they will be less likely to misinterpret these changes as a lack of sexual interest or displeasure in the partner and be more able to continue to have satisfying and safe sexual relationships.

24. National Institute on Aging. (2005). Sexuality in Later Life. <http://www.niapublications.org/agepages/sexuality.asp>

25. Centers for Disease Control and Prevention. (2022). HIV: HIV in the United States by age. <https://www.cdc.gov/hiv/group/age/olderamericans/index.html>

26. National Institute of Health. (n.d.) Understanding HIV/AIDS. <https://aidsinfo.nih.gov/understanding-hiv-aids/fact-sheets/25/80/hiv-and-older-adults>

Exercise, Nutrition, and Health

The impact of exercise



(Image Source: “Preparing for bike ride” by Bill Branson [Photographer] for the National Cancer Institute)

Exercise is a powerful way to combat the changes we associate with aging. Exercise builds muscle, increases metabolism, helps control blood sugar, increases bone density, and relieves stress. Unfortunately, fewer than half of midlife adults exercise and only about 20 percent exercise frequently and strenuously enough to achieve health benefits. Many stop exercising soon after they begin an exercise program—particularly those who are very overweight. The best exercise programs are those that are engaged in regularly—regardless of the activity, but a well-

rounded program that is easy to follow includes walking and weight training. Having a safe, enjoyable place to walk can make the difference in whether or not someone walks regularly. Weight lifting and stretching exercises at home can also be part of an effective program. Exercise is particularly helpful in reducing stress in midlife (Figure 4). Walking, jogging, cycling, or swimming can release the tension caused by stressors, and learning relaxation techniques can have healthful benefits. Exercise can be thought of as preventative health care; promoting exercise for the 78 million “baby boomers” may be one of the best ways to reduce health care costs and improve quality of life.²⁷

Nutrition

Aging brings about a reduction in the number of calories a person requires. Many Americans respond to weight gain by dieting. However, eating less does not necessarily mean eating right and people often suffer vitamin and mineral deficiencies as a result. Very often, physicians will recommend vitamin supplements to their middle aged patients. As stated above, chronic inflammation is now identified as one of the so called “pillars of aging”. The link between diet and inflammation is yet unclear, but there is now some information available on the Diet

27. Shure, J., & Cahan, V. (1998, September 10). Launch an Exercise Program Today. National Institute on Aging. <http://www.nia.nih.gov/NewsAndEvents/PressReleases/PR19980910Launch.htm>

Inflammation Index²⁸, which in popular parlance, supports a diet rich in plant-based foods, healthy fats, nuts, fish in moderation, and sparing use of red meat— often referred to as “the Mediterranean Diet.”

The ideal diet is one low in fat, low in sugar, high in fiber, low in sodium, and low in cholesterol. In 2005, the Food Pyramid, a set of nutritional guidelines established by the U. S. Government was updated to accommodate new information on nutrition and to provide people with guidelines based on age, sex, and activity levels. The ideal diet is low in sodium (less than 2300 mg per day). Sodium causes fluid retention which may in turn exacerbate high blood pressure. The ideal diet is also low in cholesterol (less than 300 mg per day) and high in fiber. Fiber is thought to reduce the risk of certain cancers and heart disease. Finally, an ideal diet is low in sugar. Sugar is not only a problem for diabetics; it is also a problem for most people. Sugar satisfies the appetite but provides no protein, vitamins or minerals. It provides empty calories. High starch diets are also a problem because starch is converted to sugar in the body. A 1-2 ounce serving of red wine (or grape juice) may have beneficial effects on health, as red wine can increase “good cholesterol” or HDLs (high density lipoproteins) in the blood and provide antioxidants important for combating aging.²⁹

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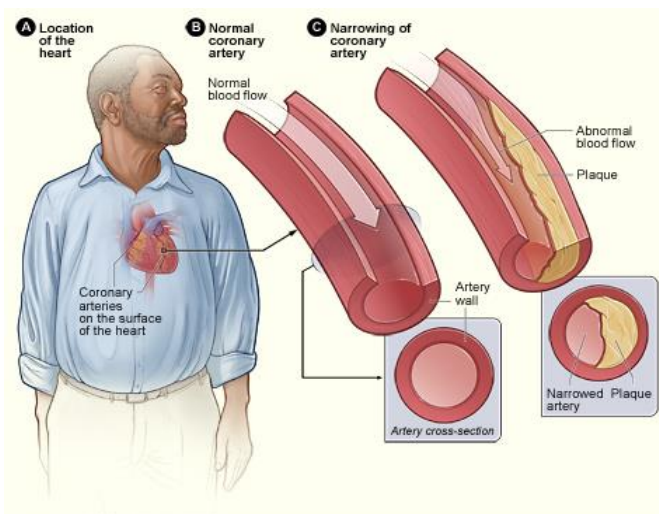
Health Concerns

Heart Disease: According to the most recent National Vital Statistics Reports³⁰ heart disease

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28. Shivappa, N., Steck, S. E., Hurley, T. G., Hussey, J. R., & Hébert, J. R. (2014). Designing and developing a literature-derived, population-based dietary inflammatory index. *Public Health Nutrition*, 17(8), 1689–1696. <https://doi.org/10.1017/S1368980013002115>
29. Nersesian, P. V., Han, H.-R., Yenokyan, G., Blumenthal, R. S., Nolan, M. T., Hladek, M. D., & Szanton, S. L. (2018). Loneliness in middle age and biomarkers of systemic inflammation: Findings from Midlife in the United States. *Social Science & Medicine* (1982), 209, 174–181. <https://doi.org/10.1016/j.socscimed.2018.04.007>
30. Xu, J., Murphy, S. L., Kochanek, K. D., & Bastian, B. A. (2016). Deaths: Final data for 2013. *National Vital Statistics Reports*, 64(2), 1-119.

continues to be the number one cause of death for Americans as it claimed 23.5% of those who died in 2013. It is also the number one cause of death worldwide.³¹ Heart disease develops slowly over time and typically appears in midlife.³²

Heart disease can include heart defects and heart rhythm problems, as well as narrowed, blocked, or stiffened blood vessels referred to as cardiovascular disease. The blocked blood vessels prevent the body and heart from receiving adequate blood. **Atherosclerosis**, or a buildup of fatty plaque in the arteries, is the most common cause of cardiovascular disease. The plaque buildup thickens the artery walls and restricts the blood flow to organs and tissues. Cardiovascular disease can lead to a heart attack, chest pain (angina), or stroke³³. Figure 5 illustrates atherosclerosis.



Atherosclerosis (Image Source: StatPearls)

Symptoms of cardiovascular disease differ for men and women. Males are more likely to suffer chest pain, while women are more likely to demonstrate shortness of breath, nausea, and extreme fatigue. Symptoms can also include pain in the arms, legs, neck, jaw, throat, abdomen or back.³⁴

According to the Mayo Clinic³⁵ there are many risk factors for developing heart disease, including medical conditions, such as high blood pressure, high cholesterol, diabetes, and obesity. Other risk factors include:

- **Advanced Age**-increased risk for narrowed arteries and weakened or thickened heart muscle.
- **Sex**-males are at greater risk, but a female's risk increases after menopause.
- **Family History**-increased risk, especially if male parent or brother developed heart.

31. World Health Organization (WHO). (2013). A global brief on hypertension: Silent killer, global public health crisis.

http://apps.who.int/iris/bitstream/10665/79059/1/WHO_DCO_WHD_2013.2_eng.pdf?ua=1

32. Hooker, E., & Pressman, S. (2016). The healthy life. NOBA. <http://nobaproject.com/modules/the-healthy-life>

33. Mayo Clinic. (2014a). Heart disease. <http://www.mayoclinic.org/diseases-conditions/heart-disease/basics/definition/con-20034056>

34. Mayo Clinic. (2014a). Heart disease. <http://www.mayoclinic.org/diseases-conditions/heart-disease/basics/definition/con-20034056>

35. Mayo Clinic. (2014a). Heart disease. <http://www.mayoclinic.org/diseases-conditions/heart-disease/basics/definition/con-20034056>

disease before age 55 or female parent or sister developed heart disease before age 65.

- **Smoking**-nicotine constricts blood vessels and carbon monoxide damages the inner lining.
- **Poor Diet**-a diet high in fat, salt, sugar, and cholesterol.
- **Stress**-unrelieved stress can damage arteries and worsen other risk factors.
- **Poor Hygiene**-establishing good hygiene habits can prevent viral or bacterial infections that can affect the heart. Poor dental care can also contribute to heart disease.

Complications of heart disease can include heart failure, when the heart cannot pump enough blood to meet the body's needs, and a heart attack, when a blood clot blocks the blood flow to the heart. This blockage can damage or destroy a part of the heart muscle, and atherosclerosis is a factor in a heart attack. Treatment for heart disease includes medication, surgery, and lifestyle changes including exercise, healthy diet, and refraining from smoking.

Sudden cardiac arrest is the unexpected loss of heart functioning, breathing, and consciousness, often caused by an arrhythmia or abnormal heartbeat. The heart beat may be too quick, too slow, or irregular. With a healthy heart, it is unlikely for a fatal arrhythmia to develop without an outside factor, such as an electric shock or illegal drugs. If not treated immediately, sudden cardiac arrest can be fatal and result in sudden cardiac death.

Hypertension, or *high blood pressure*, is a serious health problem that occurs when the blood flows with a greater force than normal. One in three American adults (70 million people) have hypertension and only half have it under control.³⁶ It can strain the heart, increase the risk of heart attack and stroke, or damage the kidneys³⁷. Uncontrolled high blood pressure in early and middle adulthood can also damage the brain's white matter (axons), and may be linked to cognitive problems later in life.³⁸ Normal blood pressure is under 120/80 (see Table 1). The first number is the **systolic pressure**, which is the pressure in the blood vessels when the heart beats. The second number is the **diastolic pressure**, which is the pressure in the blood vessels when the heart is at rest. High blood pressure is sometimes referred to as the *silent killer*, as most people with hypertension experience no symptoms.

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36. Nwankwo T., Yoon S. S., Burt, V., & Gu, Q. (2013) Hypertension among adults in the US: National Health and Nutrition Examination Survey, 2011-2012. NCHS Data Brief, No. 133. Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention, US Dept of Health and Human Services.
37. Centers for Disease Control and Prevention (2014a). About high blood pressure. <http://www.cdc.gov/bloodpressure/about.htm>
38. Maillard, P., Sashardi, S., Beiser, A., Himail, J. J., Au, R., Fletcher, E., DeCarli, C. (2012). Effects of systolic blood pressure on white-matter integrity in young adults in the Farmington Heart Study: A cross-sectional study. *The Lancet: Neurology*, 11(12), 1039-1047.

Table 1 Blood Pressure Levels

	Systolic Pressure	Diastolic Pressure
Normal	Under 120	Under 80
Prehypertension (at risk)	120-139	80-89
Hypertension	140 or higher	90 or higher

Table Source: adapted from CDC (2014c)³⁹

Risk factors for high blood pressure include:

- Family history of hypertension
- Diet that is too high in sodium, often found in processed foods, and too low in potassium
- Sedentary lifestyle
- Obesity
- Too much alcohol consumption
- Tobacco use, as nicotine raises blood pressure⁴⁰.

Making lifestyle changes can often reduce blood pressure in many people.

Cancer

After heart disease, cancer was the second leading cause of death for Americans in 2013 as it accounted for 22.5% of all deaths.⁴¹ According to the National Institutes of Health⁴², **cancer** is the name given to a collection of related diseases in which the body's cells begin to divide without stopping and spread into surrounding tissues. These extra cells can divide and form growths called tumors, which are typically masses of tissue. Cancerous tumors are malignant, which means they can invade nearby tissues. When removed malignant tumors may grow back. Unlike malignant tumors, benign tumors do not invade nearby tissues. Benign tumors can sometimes

39. Centers for Disease Control and Prevention. (2014c). Measuring high blood pressure. <http://www.cdc.gov/bloodpressure/measure.htm>

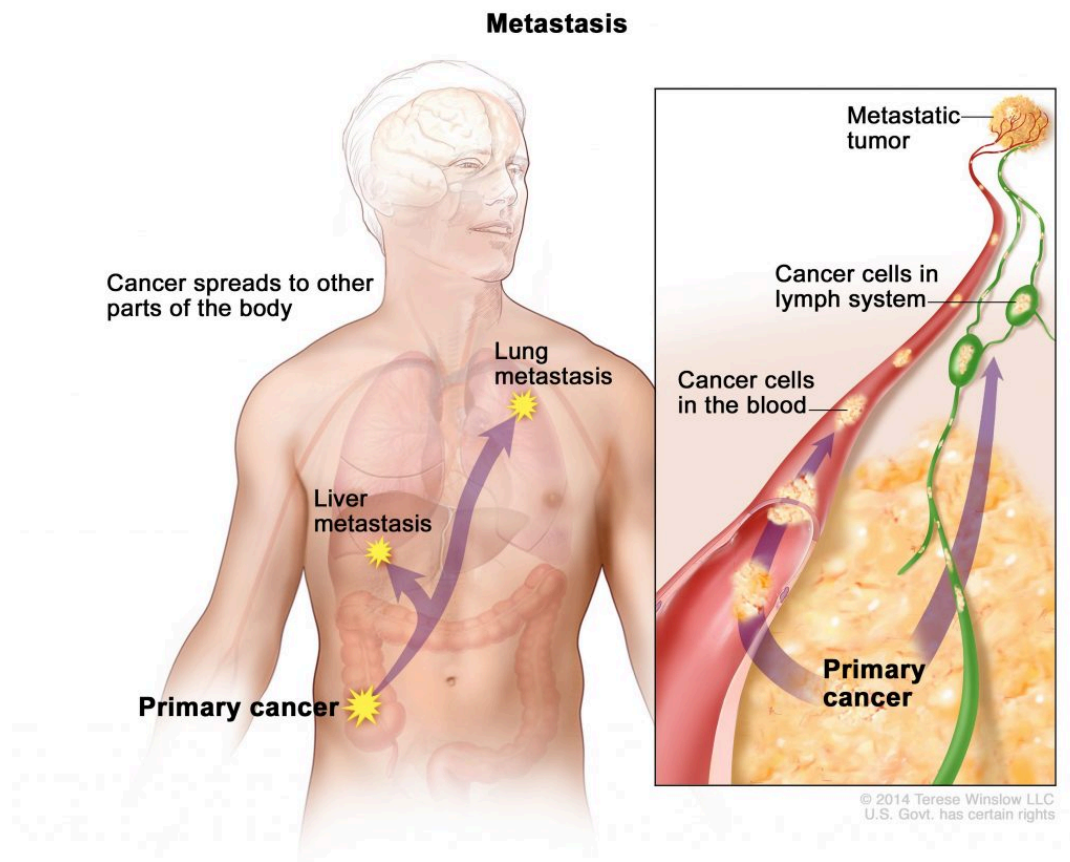
40. Centers for Disease Control and Prevention. (2014b). Behaviors that increase the risk for high blood pressure. <http://www.cdc.gov/bloodpressure/behavior.htm>

41. Xu, J., Murphy, S. L., Kochanek, K. D., & Bastian, B. A. (2016). Deaths: Final data for 2013. *National Vital Statistics Reports*, 64(2), 1-119.

42. National Institutes of Health. (2015). Cancer. Retrieved from <https://www.cancer.gov/about-cancer/understanding/what-is-cancer>

be quite large, and when removed usually do not grow back. Although benign tumors in the body are not cancerous, benign brain tumors can be life threatening.

Cancer cells can prompt nearby normal cells to form blood vessels that supply the tumors with oxygen and nutrients, which allows them to grow. These blood vessels also remove waste products from the tumors. Cancer cells can also hide from the immune system, a network of organs, tissues, and specialized cells that protects the body from infections and other conditions. Lastly, cancer cells can metastasize, which means they can break from where they first formed, called the primary cancer, and travel through the lymph system or blood to form new tumors in other parts of the body. This new metastatic tumor is the same type as the primary tumor.⁴³ Figure 6 illustrates how cancers can metastasize.



Example of Cancer Metastasis (Image Source: Teresa Winslow LLC, via Cancer.gov)

Cancer can start almost anywhere in the human body. While normal cells mature into very distinct cell types with specific functions, cancer cells do not and continue to divide without stopping. Further, cancer cells are able to ignore the signals that normally tell cells to stop

43. National Institutes of Health. (2015). Cancer. <https://www.cancer.gov/about-cancer/understanding/what-is-cancer>

dividing or to begin a process known as programmed cell death which the body uses to get rid of unneeded cells. With the growth of cancer cells, normal cells are crowded out and the body is unable to work the way it is supposed to. For example, the cancer cells in lung cancer form tumors which interfere with the functioning of the lungs and how oxygen is transported to the rest of the body.

There are more than 100 types of cancer. The American Cancer Society assembles a list of the most common types of cancers in the United States. To qualify for the 2016 list, the estimated annual incidence had to be 40,000 cases or more. The most common type of cancer on the list is breast cancer, with more than 249,000 new cases expected in 2016. The next most common cancers are lung cancer and prostate cancer. Table 2 lists the estimated number of new cases and deaths for each common cancer type.⁴⁴

Table 2 2016 Estimates of Cancer Types

Cancer Type	Estimated New Cases	Estimated Deaths
Bladder	76,960	16,390
Breast (Female – Male)	246,660 – 2,600	40,450 – 440
Colon and Rectal (Combined)	134,490	49,190
Endometrial	60,050	10,470
Kidney (Renal Cell and Renal Pelvis) Cancer	62,700	14,240
Leukemia (All Types)	60,140	24,400
Lung (Including Bronchus)	224,390	158,080
Melanoma	76,380	10,130
Non-Hodgkin Lymphoma	72,580	20,150
Pancreatic	53,070	41,780
Prostate	180,890	26,120
Thyroid	64,300	1,980

Cholesterol is a waxy fatty substance carried by lipoprotein molecules in the blood. It is created

44. American Cancer Society. (2016). Cancer Facts and Figures 2016. Atlanta, Ga: American Cancer Society. <http://patients.gi.org/topics/acid-reflux/http://patients.gi.org/topics/digestive-health-tips/>

by the body to create hormones and digest fatty foods, and is also found in many foods. Your body needs cholesterol, but too much can cause heart disease and stroke. Two important kinds of cholesterol are low-density lipoprotein (LDL) and high-density lipoprotein (HDL). A third type of fat is called triglycerides. Your total cholesterol score is based on all three types of lipids (see Table 3). Total cholesterol is calculated by adding HDL plus LDL plus 20% of the Triglycerides.

Table 3. Normal Levels of Cholesterol

Cholesterol Type	Normal
Total Cholesterol	Less than 200 md/dl*
LDL	Less than 100 mg/dl
HDL	40mg/dl or higher
Triglycerides	Less than 150mg/dl

*Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood.

Table Source: CDC (2015).

LDL cholesterol makes up the majority of the body's cholesterol, however, it is often referred to as "bad" cholesterol because at high levels it can form plaque in the arteries leading to heart attack and stroke. HDL cholesterol, often referred to as "good" cholesterol, absorbs cholesterol and carries it back to the liver, where it is then flushed from the body. Higher levels of HDL can reduce the risk of heart attack and stroke. Triglycerides are a type of fat in the blood used for energy. High levels of triglycerides can also increase your risk for heart disease and stroke when coupled with high LDL and low HDL. All adults 20 or older should have their cholesterol checked. In early adulthood, doctors may check every few years if the numbers have previously been normal, and there are no other signs of heart disease. In middle adulthood, this may become part of the annual check-up.⁴⁵

Risk factors for high cholesterol include: A family history for high cholesterol, diabetes, a diet high in saturated fats, trans fat, and cholesterol, physical inactivity, and obesity. Almost 32% of American adults have high LDL cholesterol levels, and the majority do not have it under control, nor have they made lifestyle changes (Figure 7).⁴⁶

45. Centers for Disease Control and Prevention. (2015) Facts about high cholesterol. <http://www.cdc.gov/cholesterol/facts.htm>

46. Centers for Disease Control and Prevention. (2015) Facts about high cholesterol. <http://www.cdc.gov/cholesterol/facts.htm>

Diabetes (Diabetes Mellitus) is a disease in which the body does not control the amount of glucose in the blood. This disease occurs when the body does not make enough insulin or does not use it the way it should.⁴⁷ Insulin is a type of hormone that helps glucose in the blood enter cells to give them energy. In adults, 90% to 95% of all diagnosed cases of diabetes are type 2.⁴⁸ Type 2 diabetes usually begins with insulin resistance, a disorder in which the cells in the muscles, liver, and fat tissue do not use insulin properly.⁴⁹ As the need for insulin increases, cells in the pancreas gradually lose the ability to produce enough insulin. In some Type 2 diabetics, pancreatic beta cells will cease functioning, and the need for insulin injections will become necessary. Some people with diabetes experience insulin resistance with only minor dysfunction of the beta cell secretion of insulin. Other diabetics experience only slight insulin resistance, with the primary cause being a lack of insulin secretion.⁵⁰



Image Source: Centers for Disease Control and Prevention. (2014d)

Table 4. Individuals with diabetes. Source: 2009-2012 National Health and Nutrition Examination Survey estimates applied to 2021 U.S. Census data.

Population	Number with Diabetes (millions)	Percentage with Diabetes (unadjusted)
All people 20 years and older	28.9	12.3
All men	15.5	13.6
All women	13.4	11.2
20-44 years old	4.3	4.1
45-64 years old	13.4	16.2
65-years or older	11.2	25.9

47. National Institutes of Health. (2016a) Facts about diabetes. <http://www.niddk.nih.gov/health-information/health-topics/Diabetes/diabetes-facts/Pages/default.aspx>

48. American Diabetes Association (2016). Standards of medical care in diabetes. *Diabetes Care*, 39(1), 1-112.

49. Centers for Disease Control and Prevention. (2014d). National diabetes statistics report, 2014. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>

50. Centers for Disease Control and Prevention. (2014d). National diabetes statistics report, 2014. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>

One in three adults are estimated to have prediabetes, and 9 in 10 of them do not know. According to the CDC⁵¹ without intervention, 15% to 30% of those with prediabetes will develop diabetes within 5 years. In 2012, 29 million people (over 9% of the population) were living with diabetes in America, mostly adults age 20 and up. Table 4 shows the numbers in millions and percentage of adults, by age and gender, living with diabetes. The median age of diagnosis is 54⁵². During middle adulthood, the number of people with diabetes dramatically increases; with 4.3 million living with diabetes prior to age 45, to over 13 million between the ages of 45 to 64; a four-fold increase. Men are slightly more likely to experience diabetes than are women.

Diabetes also affects ethnic and racial groups differently. Non-Hispanic Whites (7.6%) are less likely to be diagnosed with diabetes than are Asian Americans (9%), Hispanics (12.8%), non-Hispanic Blacks (13.2%), and American Indians/Alaskan Natives (15.9%). However, these general figures hide the variations within these groups. For instance the rate of diabetes was less for Central, South, and Cuban Americans than for Mexican Americans and Puerto Ricans, and four times less for Alaskan Natives than the American Indians of southern Arizona.⁵³

The risk factors for diabetes include:

- Those over age 45
- Obesity
- Family history of diabetes
- History of gestational diabetes (see Chapter 2)
- Race and ethnicity
- Physical inactivity
- Diet

Diabetes has been linked to numerous health complications. Adults with diabetes are 1.7 times more likely to have cardiovascular disease, 1.8 times more likely to experience a heart attack, and 1.5 times more likely to experience stroke than adults without diabetes. Diabetes can cause blindness and other eye problems. In diabetics age 40 or older, 28.5% showed signs of diabetic retinopathy, *damage to the small blood vessels in the retina that may lead to loss of vision*. More

51. Centers for Disease Control and Prevention. (2014d). National diabetes statistics report, 2014. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>

52. Centers for Disease Control and Prevention. (2014d). National diabetes statistics report, 2014. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>

53. Centers for Disease Control and Prevention. (2014d). National diabetes statistics report, 2014. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>

than 4% showed advanced diabetic retinopathy. Diabetes is linked as the primary cause of almost half (44%) of new cases of kidney failure each year. About 60% of non-traumatic limb amputations occur in people with diabetes. Diabetes has been linked to hearing loss, tinnitus (ringing in the ears), gum disease, and neuropathy (nerve disease).⁵⁴

Typical tests for diabetes include a fasting glucose test and the A1C (See Table 5). Fasting glucose levels should be under 100mg/dl.⁵⁵ The A1C provides information about the average levels of blood glucose over the last 3 months.⁵⁶ The A1C should be under 5.7, where a 5.0 = 97mg/dl and a 6.0 = 126 mg/dl.⁵⁷

Table 5 Diagnostic Blood Tests for Diabetes

	Normal	Prediabetes	Diabetes
Fasting Glucose	Below 100mg/dl	100-125mg/dl	126mg/dl +
A1C	Under 5.7	5.7-6.9	7+

Adapted from the American Diabetes Association (2016)⁵⁸

Metabolic Syndrome is a cluster of several cardiometabolic risk factors, including large waist circumference, high blood pressure, and elevated triglycerides, LDL, and blood glucose levels, which can lead to diabetes and heart disease.⁵⁹ The prevalence of metabolic syndrome in the U.S. is approximately 34% and is especially high among Hispanics and African Americans⁶⁰. Prevalence increases with age, peaking in one's 60s⁶¹. Metabolic syndrome increases morbidity

54. Centers for Disease Control and Prevention. (2014d). National diabetes statistics report, 2014. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>

55. ADA, 2016

56. National Institutes of Health. (2014a). The A1C and diabetes. <http://www.niddk.nih.gov/health-information/health-topics/diagnostic-tests/a1c-test-diabetes/Pages/index.aspx>

57. American Diabetes Association (2016). Standards of medical care in diabetes. *Diabetes Care*, 39(1), 1-112.

58. American Diabetes Association (2016). Standards of medical care in diabetes. *Diabetes Care*, 39(1), 1-112.

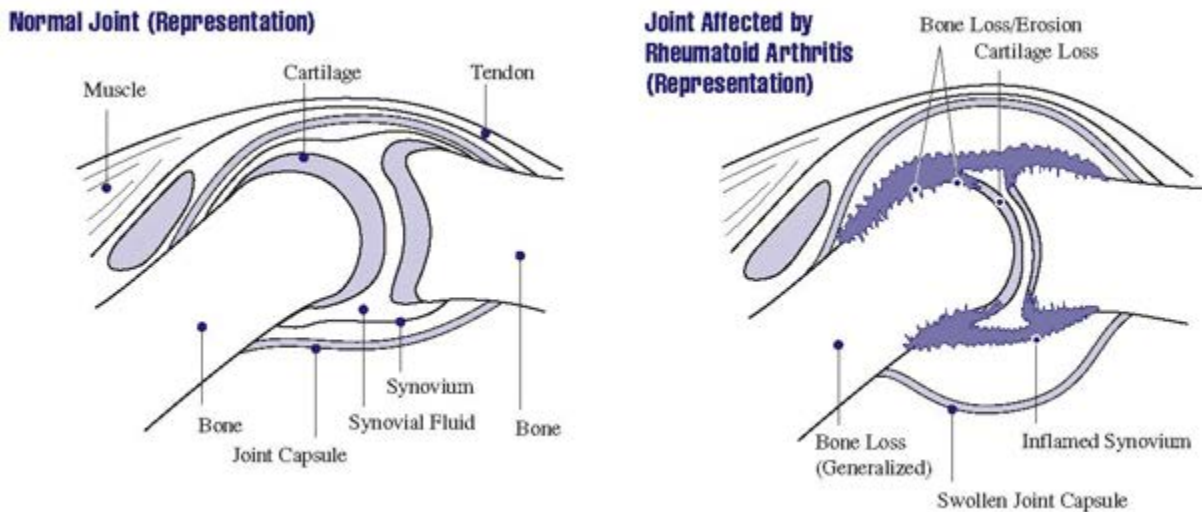
59. Crist, L. A., Champagne, C. M., Corsino, L., Lien, L. F., Zhang, G., & Young, D. R. (2012). Influence of change in aerobic fitness and weight on prevalence of metabolic syndrome. *Preventing Chronic Disease* 9,110171. <http://dx.doi.org/10.5888/pcd9.110171>

60. Ford, E. S., Li, C., & Zhao, G. (2010). Prevalence and correlates of metabolic syndrome based on a harmonious definition among adults in the US. *Journal of Diabetes*, 2(3), 180-193.

61. Ford, E. S., Li, C., & Zhao, G. (2010). Prevalence and correlates of metabolic syndrome based on a harmonious definition among adults in the US. *Journal of Diabetes*, 2(3), 180-193.

from cardiovascular disease and diabetes.^{62,63} Hu and colleagues found that even having one or two of the risk factors for metabolic syndrome increased the risk of mortality. Crist et al.⁶⁴ found that increasing aerobic activity and reducing weight led to a drop in many of the risk factors of metabolic syndrome, including a reduction in waist circumference and blood pressure, and an increase in HDL cholesterol.

Rheumatoid arthritis



Demonstration of Rheumatoid arthritis (Image Source: National Institutes of Health)

Rheumatoid arthritis (RA) is an inflammatory disease that causes pain, swelling, stiffness, and loss of function in the joints.⁶⁵ RA occurs when the immune system attacks the membrane lining the joints (see Figure 8). RA is the second most common form of arthritis after osteoarthritis, which is the normal wear and tear on the joints discussed in chapter 9. Unlike osteoarthritis, RA is

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62. Hu, G., Qiao, Q., Tuomilehto, J., Balkau, B., Borch, Johnsen, K., & Pyorala, K. (2004). Prevalence of metabolic syndrome and its relation to all-cause and cardiovascular mortality in non-diabetic European men and women. *Archives of Internal Medicine*, 164(10), 1066-1076.
63. Malik, S. (2004). Impact of the metabolic syndrome on mortality from coronary heart disease, cardiovascular disease, and all causes in United States adults. *Circulation*, 110(10), 1245-1250.
64. Crist, L. A., Champagne, C. M., Corsino, L., Lien, L. F., Zhang, G., & Young, D. R. (2012). Influence of change in aerobic fitness and weight on prevalence of metabolic syndrome. *Preventing Chronic Disease* 9,110171. <http://dx.doi.org/10.5888/pcd9.110171>
65. National Institutes of Health (2016b). Handout on Health: Rheumatoid Arthritis. <http://www.niams.nih.gov/health%5Finfo/rheumatic%5Fdisease/>

symmetric in its attack of the body, thus, if one shoulder is affected so is the other. In addition, those with RA may experience fatigue and fever. Below are the common features of RA.⁶⁶

Features of Rheumatoid Arthritis

- Tender, warm, swollen joints
- Symmetrical pattern of affected joints
- Joint inflammation *often* affecting the wrist and finger joints closest to the hand
- Joint inflammation *sometimes* affecting other joints, including the neck, shoulders, elbows, hips, knees, ankles, and feet
- Fatigue, occasional fevers, a loss of energy
- Pain and stiffness lasting for more than 30 minutes in the morning or after a long rest
- Symptoms that last for many years
- Variability of symptoms among people with the disease.

About 1.5 million people (approximately 0.6%) of Americans experience rheumatoid arthritis. It occurs across all races and age groups, although the disease often begins in middle adulthood and occurs with increased frequency in older people. Like some other forms of arthritis, rheumatoid arthritis occurs much more frequently in women than in men. About two to three times as many women as men have the disease.⁶⁷ The lifetime risk for RA for women is 3.6% and 1.7% for men.⁶⁸

Genes play a role in the development of RA. However, individual genes by themselves confer only a small risk of developing the disease, as some people who have these particular genes never develop RA. Scientists think that something must occur to trigger the disease process in people whose genetic makeup makes them susceptible to rheumatoid arthritis. For instance, some scientists also think hormonal factors may be involved. In women who experience RA, the symptoms may improve during pregnancy and flare after pregnancy. Women who use oral contraceptives may increase their likelihood of developing RA. This suggests hormones, or

66. National Institutes of Health (2016b). Handout on Health: Rheumatoid Arthritis. <http://www.niams.nih.gov/health%5Finfo/rheumatic%5Fdisease/>

67. National Institutes of Health (2016b). Handout on Health: Rheumatoid Arthritis. <http://www.niams.nih.gov/health%5Finfo/rheumatic%5Fdisease/>

68. Crowson, C. S., Matteson, E. L., Myasoedova, E., Michet, C. J., Ernste, F. C., Warrington, K. J., ...Gabriel, S. E. (2011). The lifetime risk of adult-onset rheumatoid arthritis and other inflammatory autoimmune rheumatic diseases. *Arthritis and Rheumatism*, 63(3), 633-639. <https://doi.org/10.1002/art.30155>.

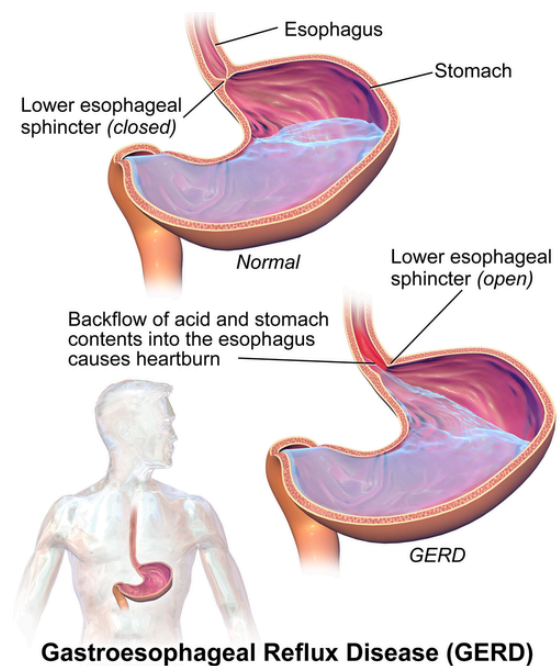
possibly deficiencies or changes in certain hormones, may increase the risk of developing RA in a genetically susceptible person.⁶⁹

Rheumatoid arthritis can affect virtually every area of a person's life, and it can interfere with the joys and responsibilities of work and family life. Fortunately, current treatment strategies allow most people with RA to lead active and productive lives. Pain-relieving drugs and medications can slow joint damage, and establishing a balance between rest and exercise can also lessen the symptoms of RA.⁷⁰

Digestive Issues

Heartburn, also called acid indigestion or pyrosis, is a common digestive problem in adults and is the result of stomach acid backing up into the esophagus (Figure 9). Prolonged contact with the digestive juices injures the lining of the esophagus and causes discomfort. Heartburn that occurs more frequently may be due to gastroesophageal reflux disease, GERD. Normally the lower sphincter muscle in the esophagus keeps the acid in the stomach from entering the esophagus. In GERD this muscle relaxes too frequently and the stomach acid flows into the esophagus. In the U.S. 60 million people experience heartburn at least once a month, and 15 million experience it every day. Prolonged problems with heartburn can lead to more serious complications, including esophageal cancer, one of the most lethal forms of cancer in the U.S. Problems with heartburn can be linked to eating fatty or spicy foods, caffeine, smoking, and eating before bedtime.⁷¹

Gallstones are hard particles, including fatty materials, bile pigments, and calcium deposits, that can develop in the gallbladder. Ranging in size from a grain of sand to a golf ball, they typically take years to develop, but in some people have developed over the course of a few months.



How GERD causes heartburn.

69. National Institutes of Health (2016b). Handout on Health: Rheumatoid Arthritis. <http://www.niams.nih.gov/health%5Finfo/rheumatic%5Fdisease/>

70. National Institutes of Health (2016b). Handout on Health: Rheumatoid Arthritis. <http://www.niams.nih.gov/health%5Finfo/rheumatic%5Fdisease/>

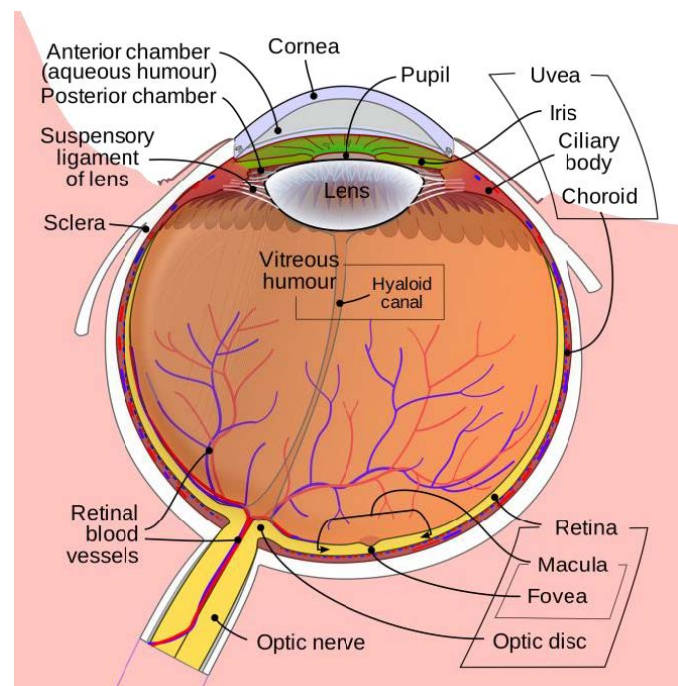
71. American College of Gastroenterology. (2016a) Acid reflux: Overview. <https://gi.org/topics/acid-reflux/>

About 75% of gallstones do not create any symptoms, but those that do may cause sporadic upper abdominal pain when stones block bile or pancreatic ducts. If stones become lodged in the ducts, it may necessitate surgery or other medical intervention as it could become life-threatening if left untreated.⁷²

Gallstones are present in about 20% of women and 10% of men over the age of 55.⁷³ Risk factors include a family history of gallstones, diets high in calories and refined carbohydrates (such as, white bread and rice), diabetes, metabolic syndrome, Crohn's disease, and obesity, which increases the cholesterol in the bile and thus increases the risk of developing gallstones⁷⁴.

Sensory Changes

Vision (Figure 10): A normal change of the eye due to age is **presbyopia**, which is Latin for “old vision.” It refers to a loss of elasticity in the lens of the eye that makes it harder for the eye to focus on objects that are closer to the person. When we look at something far away, the lens flattens out; when looking at nearby objects tiny muscle fibers around the lens enable the eye to bend the lens. With age these muscles weaken and can no longer accommodate the lens to focus the light. Anyone over the age of 35 is at risk for



Interior of the Human Eye (Image Source: “Diagram of the human eye” by Rhcastilhos and Jmarchn on Wikimedia, CC BY SA)

72. American College of Gastroenterology. (2016b) Biliary tract disorders, gallbladder disorders, and gallstone pancreatitis. <https://gi.org/topics/acid-reflux/>

73. American College of Gastroenterology. (2016b) Biliary tract disorders, gallbladder disorders, and gallstone pancreatitis. <https://gi.org/topics/acid-reflux/>

74. National Institutes of Health. (2013). Gallstones. U.S. Department of Health and Human Services. <http://www.niddk.nih.gov/health-information/health-topics/digestive-diseases/gallstones/Pages/facts.aspx>

developing presbyopia. According to the National Eye Institute (NEI)⁷⁵, signs that someone may have presbyopia include:

- Hard time reading small print
- Having to hold reading material farther than arm's distance
- Problems seeing objects that are close
- Headaches
- Eyestrain

Another common eye problem people experience as they age are **floaters**, *little spots or “cobwebs” that float around the field of vision*. They are most noticeable if you are looking at the sky on a sunny day, or at a lighted blank screen. Floaters occur when the vitreous, a gel-like substance in the interior of the eye, slowly shrinks. As it shrinks, it becomes somewhat stringy, and these strands can cast tiny shadows on the retina. In most cases, floaters are harmless, more of an annoyance than a sign of eye problems. However, floaters that appear suddenly, or that darken and obscure vision can be a sign of more serious eye problems, such as retinal tearing, infection, or inflammation. People who are very nearsighted (myopic), have diabetes, or who have had cataract surgery are also more likely to have floaters.⁷⁶

During midlife, adults may begin to notice a drop in **scotopic sensitivity**, *the ability to see in dimmer light*. By age 60, the retina receives only one third as much light as it did at age 20, making working in dimmer light more difficult (Jackson & Owsley, 2000). Night vision is also affected as the pupil loses some of its ability to open and close to accommodate drastic changes in light. Eyes become more sensitive to glare from headlights and street lights making it difficult to see people and cars, and movements outside of our direct line of sight.⁷⁷

Finally, some people experience **dry eye syndrome**, *which occurs when the eye does not produce tears properly, or when the tears evaporate too quickly because they are not the correct consistency*.⁷⁸ While dry eye can affect people at any age, nearly 5 million Americans over the age of 50 experience dry eye. It affects women more than men, especially after menopause. Women who

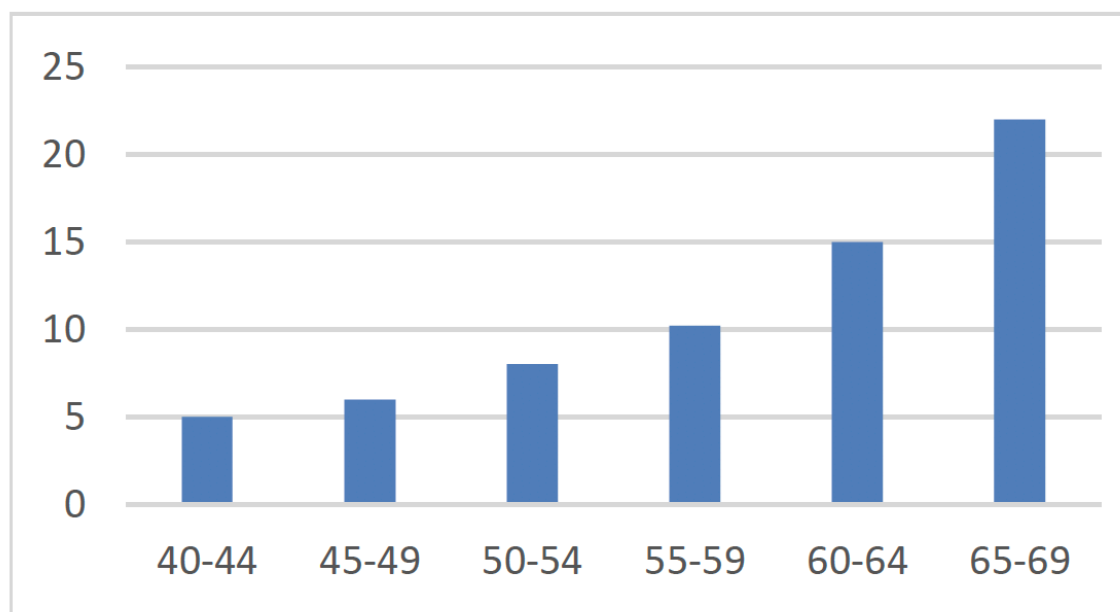
75. National Eye Institute. (2016). Facts about presbyopia. Department of Health and Human Services. <https://nei.nih.gov/health/errors/presbyopia>

76. National Eye Institute. (2009). Facts about floaters. Department of Health and Human Services. <https://nei.nih.gov/health/floaters/floaters>

77. National Institutes of Health. (2016c). Older drivers: How health affects driving. <http://nihseniorhealth.gov/olderdrivers/howhealthaffectsdriving/01.html>

78. National Eye Institute. (2013). Facts about dry eye. Department of Health and Human Services. Retrieved from <https://nei.nih.gov/health/dryeye/dryeye>

experienced an early menopause may be more likely to experience dry eye, which can cause surface damage to the eye.



Adapted from Dawes, et al., (2014).

The graph above shows the incidence rate of hearing impairment in UK Adults, from Dawes et al (2014).

Hearing: Hearing problems increase during middle adulthood. According to a recent UK study⁷⁹, the rate of hearing problems in their sample doubled between the ages of 40 and 55 and tripled by age 64 (Figure 11). Similar statistics are found in U.S. samples of middle-aged adults. Prior to age 40, about 5.5% of adults report hearing problems. This jumps to 19% among 40 to 69 year-olds.⁸⁰ Middle-aged adults may experience more problems understanding speech when in noisy environments, in comparison to younger adults.^{81,82} As we age we also lose the ability

79. Dawes, P., DicMonrokinson, C., Emsley, R., Bishop, P. N., Cruickshanks, K. J., Edmundson-Jones, M., Munro, K. (2014). Vision impairment and dual sensory problems in middle age. *Ophthalmic Physiological Optics*, 34, 479–488. <https://doi.org/10.1111/opo.12138>

80. American Psychological Association (2016). By the numbers: Hearing loss and mental health. *Monitor on Psychology*, 47(4), 9.

81. Füllgrabe, C., Moore, B. C. J., & Stone, M. A. (2015). Age-group differences in speech identification despite matched audio metrically normal hearing: contributions from auditory temporal processing and cognition. *Frontiers in Aging Neuroscience*, 6, 1-25. <https://doi.org/10.3389/fnagi.2014.00347>

82. Neidleman, M. T., Wambacq, I., Besing, J., Spitzer, J. B., & Koehnke, J. (2015). The Effect of Background Babble on Working Memory in Young and Middle-Aged Adults. *Journal of the American Academy of Audiology*, 26(3), 220-228. <https://doi.org/10.3766/jaaa.26.3.3>

to hear higher frequencies.⁸³ Hearing changes are more common among men than women, but males may underestimate their hearing problems.⁸⁴ For many adults, hearing loss accumulates after years of being exposed to intense noise levels. Men are more likely to work in noisy occupations. Hearing loss is also exacerbated by cigarette smoking, high blood pressure, and stroke. Most hearing loss could be prevented by guarding against being exposed to extremely noisy environments.

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83. Humes, L. E., Kewley-Port, D., Fogerty, D., & Kinney, D. (2010). Measures of hearing threshold and temporal processing across the adult lifespan. *Hearing Research*, 264(1/2), 30-40. <https://doi.org/10.1016/j.heares.2009.09.010>
84. Uchida, Y., Nakashima, T., Ando, F., Niino, N., & Shimokata, H. (2003). Prevalence of Self-perceived Auditory Problems and their Relation to Audiometric Thresholds in a Middle-aged to Elderly Population. *Acta Oto-Laryngologica*, 123(5), 618

COGNITIVE DEVELOPMENT IN MIDDLE ADULTHOOD

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Ronnie Mather



(Image Source: Andrea Piacquadio on Pexels)

While we sometimes associate aging with cognitive decline (often due to the way it is portrayed in the media), aging does not necessarily mean a decrease in cognitive function. In fact, tacit knowledge, verbal memory, vocabulary, inductive reasoning, and other types of practical thought skills *increase* with age. We'll learn about these advances as well as some neurological changes that happen in middle adulthood in the section that follows.¹

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Ronnie Mather for Lumen Learning and available under a Creative Commons

Cognition in Middle Adulthood

One of the most influential perspectives on cognition during middle adulthood has been that of the Seattle Longitudinal Study (SLS) of adult cognition, which began in 1956. Schaie & Willis² summarized the general findings from this series of studies as follows: “We have generally shown that reliably replicable average age decrements in psychometric abilities do not occur prior to age 60, but that such reliable decrement can be found for all abilities by 74 years of age.” In short, decreases in cognitive abilities begin in the sixth decade and gain increasing significance from that point on. However, Singh-Maoux et al.³ argue for small but significant cognitive declines beginning as early as age 45. There is some evidence that adults should be as aggressive in maintaining their cognitive health as they are their physical health during this time as the two are intimately related (Figure 1).



Remaining cognitively active can reduce cognitive decline. (Image Source: Jeanine McCool Sarasota on Unsplash)

A second source of longitudinal research data on this part of the lifespan has been The Midlife in the United States Studies (MIDUS), which began in 1994. The MIDUS data supports the view that this period of life is something of a trade-off, with some cognitive and physical decreases of varying degrees. The cognitive mechanics of processing speed, often referred to as fluid intelligence, physiological lung capacity, and muscle mass, are in relative decline. However, knowledge, experience and the increased ability to regulate our emotions can compensate for these losses. Continuing cognitive focus and exercise can also reduce the extent and effects of cognitive decline.

Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and The Noba Project.

2. Schaie, K. W., & Willis, S. L. (2010). The Seattle longitudinal study of adult cognitive development. *ISSBD Bulletin*, 57(1), 24–29.
3. Singh-Manoux, A., Kivimaki, M., Glymour, M. M., Elbaz, A., Berr, C., Ebmeier, K. P., Ferrie, J. E., & Dugravot, A. (2012). Timing of onset of cognitive decline: results from Whitehall II prospective cohort study. *BMJ (Clinical Research Ed.)*, 344(jan04 4), d7622. <https://doi.org/10.1136/bmj.d7622>

Control Beliefs

Central to all of this are personal **control beliefs**, which have a long history in psychology. Beginning with the work of Julian Rotter,⁴ a fundamental distinction is drawn between those who believe that they are the fundamental agent of what happens in their life, and those who believe that they are largely at the mercy of external circumstances. Those who believe that life outcomes are dependent on what they say and do are said to have a strong internal locus of control. Those who believe that they have little control over their life outcomes are said to have an external locus of control.

Empirical research has shown that those with an internal locus of control enjoy better results in psychological tests across the board; behavioral, motivational, and cognitive. It is reported that this belief in control declines with age, but again, there is a great deal of individual variation. This raises another issue: directional causality. Does my belief in my ability to retain my intellectual skills and abilities at this time of life ensure better performance on a cognitive test compared to those who believe in their inexorable decline? Or, does the fact that I enjoy that intellectual competence or facility instill or reinforce that belief in control and controllable outcomes? It is not clear which factor is influencing the other. The exact nature of the connection between control beliefs and cognitive performance remains unclear.⁵

Brain science is developing exponentially and will unquestionably deliver new insights on a whole range of issues related to cognition in midlife. One of them will surely be on the brain's capacity to renew, or at least replenish itself, at this time of life. The capacity to renew is called neurogenesis; the capacity to replenish what is there is called neuroplasticity. At this stage, it is impossible to ascertain exactly what effect future pharmacological interventions may have on possible cognitive decline at this, and later, stages of life.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=200#h5p-28>

4. Rotter, J. B. (1954). *Social Learning and Clinical Psychology*. Prentice-Hall.

5. Lachman, M. E., Teshale, S., & Agrigoroaei, S. (2014). Midlife as a Pivotal Period in the Life Course: Balancing Growth and Decline at the Crossroads of Youth and Old Age. *International journal of behavioral development*, 39(1), 20-31.

Cognitive Aging

Researchers have identified areas of loss and gain in cognition in older age. Cognitive ability and intelligence are often measured using standardized tests and validated measures. The psychometric approach has identified two categories of intelligence that show different rates of change across the life span.⁶ Fluid and crystallized intelligence were first identified by Cattell in 1971.⁷ **Fluid intelligence** refers to information processing abilities, such as logical reasoning, remembering lists, spatial ability, and reaction time. **Crystallized intelligence** encompasses abilities that draw upon experience and knowledge. Measures of crystallized intelligence include vocabulary tests, solving number problems, and understanding texts. There is a general acceptance that fluid intelligence decreases continually from the 20s, but that crystallized intelligence continues to accumulate. One might expect to complete the NY Times crossword more quickly at 48 than 22, but the capacity to deal with novel information declines.

With age, systematic declines are observed on cognitive tasks requiring self-initiated, effortful processing, without the aid of supportive memory cues.⁸ Older adults tend to perform poorer than young adults on memory tasks that involve recall of information, where individuals must retrieve information they learned previously without the help of a list of possible choices. For example, older adults may have more difficulty recalling facts such as names or contextual details about where or when something happened.⁹ What might explain these deficits as we age?



While typing speed and reaction time slow with age, older typists can compensate in other ways, by looking farther ahead at printed text. (Image Source: Steve pb on Pixabay)

As we age, working memory, or our ability to simultaneously store and use information,

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6. Schaie, K. W. & Willis, S. L. (1996). Psychometric intelligence and aging. In F. Blanchard-Fields & T.M. Hess (Eds.), *Perspectives on Cognitive Change in Adulthood and Aging* (pp. 293–322). New York: McGraw Hill.
 7. Jensen, A. R., & Cattell, R. B. (1974). Abilities: Their structure, growth, and action. *The American Journal of Psychology*, 87(1/2), 290. <https://doi.org/10.2307/1422024>
 8. Park, D. C. (2000). The basic mechanisms accounting for age-related decline in cognitive function. In D.C. Park & N. Schwarz (Eds.), *Cognitive Aging: A Primer* (pp. 3–21). New York: Psychology Press.
 9. Craik, F. I. M. (2000). Age-related changes in human memory. In D. C. Park & N. Schwarz (Eds.), *Cognitive Aging: A Primer* (pp. 75–92). New York: Psychology Press.

becomes less efficient.¹⁰ The ability to process information quickly also decreases with age. This slowing of processing speed may explain age differences on many different cognitive tasks.¹¹ Some researchers have argued that inhibitory functioning, or the ability to focus on certain information while suppressing attention to less pertinent information, declines with age and may explain age differences in performance on cognitive tasks.¹²

Fewer age differences are observed when memory cues are available, such as for recognition memory tasks, or when individuals can draw upon acquired knowledge or experience. For example, older adults often perform as well if not better than young adults on tests of word knowledge or vocabulary. With age often comes expertise, and research has pointed to areas where aging experts perform as well or better than younger individuals. For example, older typists were found to compensate for age-related declines in speed by looking farther ahead at printed text (Figure 2).¹³ Compared to younger players, older chess experts are able to focus on a smaller set of possible moves, leading to greater cognitive efficiency.¹⁴ Accrued knowledge of everyday tasks, such as grocery prices, can help older adults to make better decisions than young adults.¹⁵

We began with Schaie and Willis¹⁶ observing that no discernible general cognitive decline could be observed before 60, but other studies contradict this notion. How do we explain this contradiction? In a thought-provoking article, Ramscar et al.¹⁷ argued that an emphasis on information processing speed ignored the effect of the process of learning/experience itself; that is, that such tests ignore the fact that more information to process leads to slower processing in both computers and humans. We are more complex cognitive systems at 55 than 25.

10. Craik, F. I., & Bialystok, E. (2006). Cognition through the lifespan: mechanisms of change. *Trends in Cognitive Sciences*, 10, 131–138.

11. Salthouse, T. A. (2004). What and when of cognitive aging. *Current Directions in Psychological Science*, 13, 140–144.

12. Hasher, L. & Zacks, R. T. (1988). Working memory, comprehension, and aging: A review and a new view. In G.H. Bower (Ed.), *The Psychology of Learning and Motivation*, (Vol. 22, pp. 193–225). San Diego, CA: Academic Press.

13. Salthouse, T. A. (1984). Effects of age and skill in typing. *Journal of Experimental Psychology: General*, 113, 345.

14. Charness, N. (1981). Search in chess: Age and skill differences. *Journal of Experimental Psychology: Human Perception and Performance*, 7, 467.

15. Tentori, K., Osherson, D., Hasher, L., & May, C. (2001). Wisdom and aging: Irrational preferences in college students but not older adults. *Cognition*, 81, B87–B96.

16. Schaie, K. W., & Willis, S. L. (2010). The Seattle longitudinal study of adult cognitive development. *ISSBD Bulletin*, 57(1), 24–29.

17. Ramscar, M., Hendrix, P., Shaoul, C., Milin, P., & Baayen, H. (2014). The myth of cognitive decline: non-linear dynamics of lifelong learning. *Topics in Cognitive Science*, 6(1), 5–42. <https://doi.org/10.1111/tops.12078>

Video Example

This video highlights some of the cognitive changes during adulthood as well as the characteristics that either decline, improve, or remain stable.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=200#oembed-1>

You can view the transcript for “Aging and cognitive abilities | Processing the Environment | MCAT | Khan Academy” here (opens in new window).

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=200#h5p-29>

Performance in Middle Adulthood

Research on interpersonal problem solving suggests that older adults use more effective strategies than younger adults to navigate through social and emotional problems.¹⁸ In the context of work, researchers rarely find that older individuals perform less well on the job.¹⁹ Similar to everyday problem solving, older workers may develop more efficient strategies and rely on expertise to compensate for cognitive decline.

Empirical studies of cognitive aging are often difficult, and quite technical, given their nature. Similarly, experiments focused on one kind of task may tell you very little in terms of

18. Blanchard-Fields, F. (2007). Everyday problem solving and emotion: An adult development perspective. *Current Directions in Psychological Science*, 16, 26–31.

19. Park, D. C. & Gutchess, A. H. (2000). Cognitive aging and everyday life. In D.C. Park & N. Schwarz (Eds.), *Cognitive Aging: A Primer* (pp. 217–232). New York: Psychology Press.

general capacities. Memory and attention as psychological constructs are now divided into very specific subsets which can be confusing and difficult to compare.

However, one study does show with relative clarity the issues involved. In the USA, The Federal Aviation Authority insists that all air traffic controllers retire at 56 and that they cannot begin until age 31 unless they have previous military experience. However, in Canada controllers are allowed to work until age 65 and are allowed to train at a much earlier age. Nunes and Kramer²⁰ studied four groups: a younger group of controllers (20-27), an older group of controllers aged 53 to 64, and two other groups of the same age who were not air traffic controllers. On simple cognitive tasks, not related to their occupational lives as controllers, older controllers were slower than their younger peers. However, when it came to job-related tasks their results were largely identical. This was not true of the older group of non-controllers who had significant deficits in comparison. Specific knowledge or expertise in a domain acquired over time (crystallized intelligence), can offset a decline in fluid intelligence.

Tacit Knowledge

The idea of **tacit knowledge** was first introduced by Michael Polanyi.²¹ He argued that each individual had a huge store of knowledge based on life experience, but that it was often difficult to describe, codify, and thus transfer, as stated in his famous formulation, “we always know more than we can tell.” Organizational theorists have spent a great deal of time thinking about the problem of tacit knowledge in this setting. Think of someone you have encountered who is extremely good at what they do. They may have no more (or less) education, formal training, and even experience, than others who are supposedly at an equivalent level. What is the “something” that they have? Tacit knowledge is highly prized and older workers often have the greatest amount, even if they are not conscious of that fact.

Crystalized versus Fluid Intelligence

Intelligence is influenced by heredity, culture, social contexts, personal choices, and certainly age. One distinction in specific intelligences noted in adulthood, is between **fluid intelligence**, which refers to the capacity to learn new ways of solving problems and performing activities quickly and abstractly, and **crystallized intelligence**, which refers to the accumulated knowledge of the world we

20. Nunes, A., & Kramer, A. F. (2009). Experience-based mitigation of age-related performance declines: evidence from air traffic control. *Journal of Experimental Psychology. Applied*, 15(1), 12–24. <https://doi.org/10.1037/a0014947>

21. Polanyi, M. (1967). *Tacit Dimension*. Doubleday Books.

have acquired throughout our lives.²² These intelligences are distinct, and crystallized intelligence increases with age, while fluid intelligence tends to decrease with age (Figure 3).^{23,24}

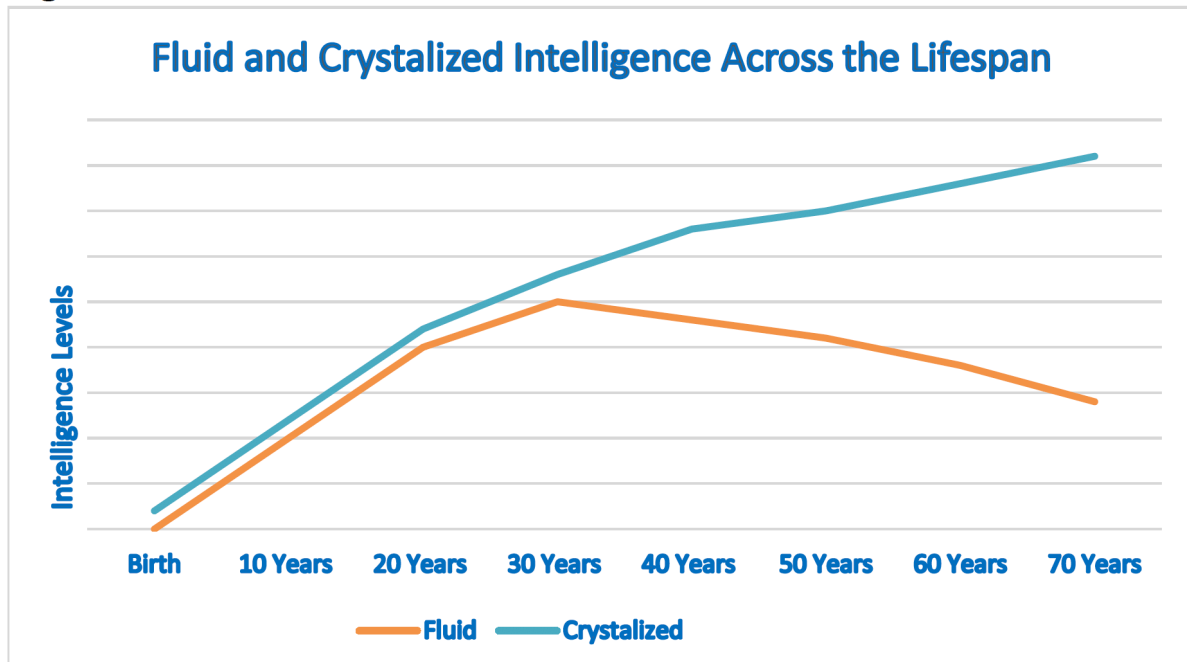


Chart of fluid and crystallized intelligence. Adapted from Horn, Donaldson and Engstrom (1981)

Research demonstrates that older adults have more crystallized intelligence as reflected in semantic knowledge, vocabulary, and language. As a result, adults generally outperform younger people on measures of history, geography, and even on crossword puzzles, where this information is useful.²⁵ It is this superior knowledge, combined with a slower and more complete processing style, along with a more sophisticated understanding of the workings of the world around them, that gives older adults the advantage of “wisdom” over the advantages of fluid intelligence which favor the young.^{26,27}

22. Salthouse, T. A. (2004). What and when of cognitive aging. *Current Directions in Psychological Science*, 13, 140–144.

23. Horn, J. L., Donaldson, G., & Engstrom, R. (1981). Apprehension, memory, and fluid intelligence decline in adulthood. *Research on Aging*, 3(1), 33–84.

24. Salthouse, T. A. (2004). What and when of cognitive aging. *Current Directions in Psychological Science*, 13, 140–144.

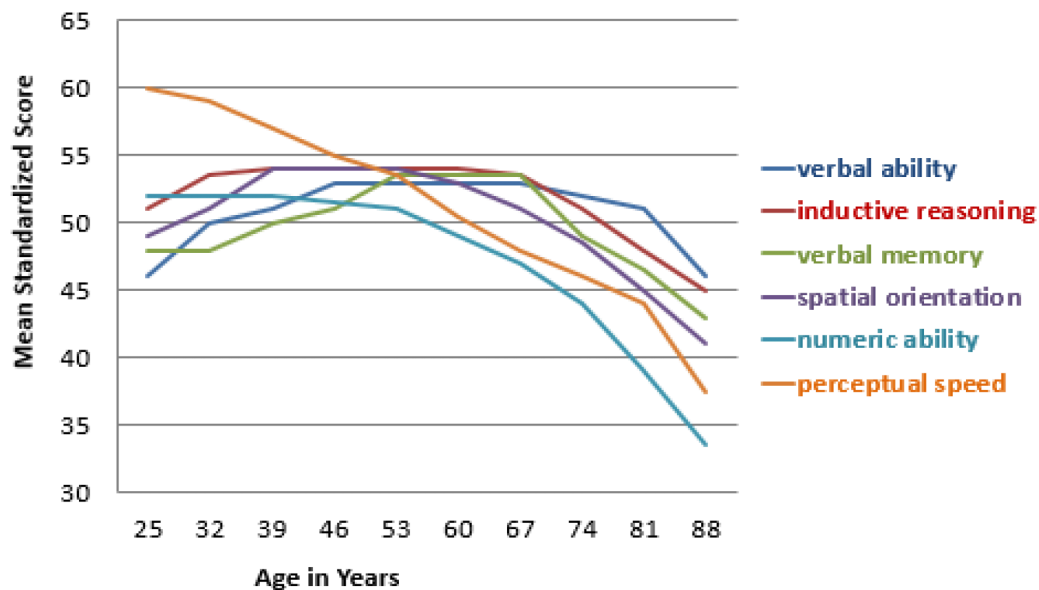
25. Salthouse, T. A. (2004). What and when of cognitive aging. *Current Directions in Psychological Science*, 13, 140–144.

26. Baltes, P. B., Staudinger, U. M., & Lindenberger, U. (1999). Lifespan Psychology: Theory and Application to Intellectual Functioning. *Annual Review of Psychology*, 50, 471–507.

27. Scheibe, S., Kunzmann, U. & Baltes, P. B. (2009). New territories of Positive Lifespan Development: Wisdom and Life Longings. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford handbook of Positive Psychology* (2nd ed.). New York: Oxford University Press.

The differential changes in crystallized versus fluid intelligence help explain why older adults do not necessarily show poorer performance on tasks that also require experience (i.e., crystallized intelligence), although they show poorer memory overall. A young chess player may think more quickly, for instance, but a more experienced chess player has more knowledge to draw on.

Seattle Longitudinal Study: The Seattle Longitudinal Study has tracked the cognitive abilities of adults since 1956. Every seven years the current participants are evaluated and new individuals are also added. Approximately 6000 people have participated thus far, and 26 people from the original group are still in the study today. Current results demonstrate that middle-aged adults perform better on four out of six cognitive tasks than those same individuals did when they were young adults. Verbal memory, spatial skills, inductive reasoning (generalizing from particular examples), and vocabulary increase with age until one's 70s.^{28,29} However, numerical computation and perceptual speed decline in middle and late adulthood (see Figure 4).



Seattle Longitudinal Study shows cognitive ability decreasing across various categories, from ages 25 to 88.

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28. Schaie, K. W. (2005). *Developmental influences on adult intelligence the Seattle longitudinal study*. Oxford: Oxford University Press.
29. Willis, S. L., & Schaie, K. W. (1999). Intellectual functioning in midlife. In S. L. Willis & J. D. Reid (Eds.), *Life in the Middle: Psychological and Social Development in Middle Age* (pp. 233-247). San Diego: Academic.

Cognitive skills in the aging brain have been studied extensively in pilots, and similar to the Seattle Longitudinal Study results, older pilots show declines in processing speed and memory capacity, but their overall performance seems to remain intact. According to Phillips³⁰ researchers tested pilots aged 40 to 69 as they performed on flight simulators. Older pilots took longer to learn to use the simulators, but performed better than younger pilots at avoiding collisions.

Flow is the mental state of being completely present and fully absorbed in a task.³¹ When in a state of flow, the individual is able to block outside distractions and the mind is fully open to producing. Additionally, the person is achieving great joy or intellectual satisfaction from the activity and accomplishing a goal. Further, when in a state of flow, the individual is not concerned with extrinsic rewards. Csikszentmihalyi³² used his theory of flow to research how some people exhibit high levels of creativity as he believed that a state of flow is an important factor to creativity.³³ Other characteristics of creative people identified by Csikszentmihalyi³⁴ include curiosity and drive, a value for intellectual endeavors, and an ability to lose our sense of self and feel a part of something greater. In addition, he believed that the tortured creative person was a myth and that creative people were very happy with their lives. According to Nakamura and Csikszentmihalyi³⁵ people describe flow as the height of enjoyment. The more they experience it, the more they judge their lives to be gratifying. The qualities that allow for flow are well-developed in middle adulthood.

Tacit knowledge is knowledge that is pragmatic or practical and learned through experience rather than explicitly taught, and it also increases with age.³⁶ Tacit knowledge might be thought of as “know-how” or “professional instinct.” It is referred to as tacit because it cannot be codified or written down. It does not involve academic knowledge, rather it involves being able to use skills and to problem-solve in practical ways. Tacit knowledge can be understood in the workplace and used by blue collar workers, such as carpenters, chefs, and hair dressers.

30. Phillips, M. L. (2011). The mind at midlife. American Psychological Association. <http://www.apa.org/monitor/2011/04/mind-midlife.aspx>

31. Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper Perennial Modern Classics.

32. Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: Harper Collins.

33. Kaufman, S. B., & Gregoire, C. (2016). How to cultivate creativity. *Scientific American Mind*, 27(1), 62-67.

34. Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: Harper Collins.

35. Nakamura, J., & Csikszentmihalyi, M. (2002). The concept of flow. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 89-105). New York: Oxford University Press.

36. Hedlund, J., Antonakis, J., & Sternberg, R. J. (2002). Tacit knowledge and practical intelligence: Understanding the lessons of experience. http://www.au.af.mil/au/awc/awcgate/army/ari_tacit_knowledge.pdf

Middle Adults Returning to Education

Midlife adults in the United States often find themselves in college classrooms. In fact, the rate of enrollment for older Americans entering college, often part-time or in the evenings, is rising faster than traditionally aged students. Students over age 35, accounted for 17% of all college and graduate students in 2009, and are expected to comprise 19% of that total by 2020.³⁷ According to the American Association of Community Colleges,³⁸ students aged 22-39 make up 36% of enrollments, whereas those aged 40+ makes up 8%. In some cases, older students are developing skills and expertise in order to launch a second career, or to take their career in a new direction. Whether they enroll in school to sharpen particular skills, to retool and reenter the workplace, or to pursue interests that have previously been neglected, older students tend to approach the learning process differently than younger college students.³⁹

The mechanics of cognition, such as working memory and speed of processing, gradually decline with age. However, they can be easily compensated for through the use of higher order cognitive skills, such as forming strategies to enhance memory or summarizing and comparing ideas rather than relying on rote memorization.⁴⁰ Although older students may take a bit longer to learn material, they are less likely to forget it quickly. Adult learners tend to look for relevance and meaning when learning information. Older adults have the hardest time learning material that is meaningless or unfamiliar. They are more likely to ask themselves, “Why is this important?” when being introduced to information or when trying to memorize concepts or facts. Older adults are more task-oriented learners and want to organize their activity around problem-solving. However, these differences may decline as new generations, equipped with higher levels of education, begin to enter midlife.

37. Holland, K. (2014). Why America's campuses are going gray. CNBC. <http://www.cnbc.com/2014/08/28/why- americas- campuses-are-going-gray.html>

38. American Association of Community Colleges. (2022). Fast Facts 2022. https://www.aacc.nche.edu/wp-content/uploads/2022/ 02/AACC_2022_Fact_Sheet.pdf

39. Knowles, M. S., Holton, E. F., & Swanson, R. A. (1998). *The adult learner: A neglected species*. Houston: Gulf Pub., Book Division.

40. Lachman, M. E. (2004). Development in Midlife. *Annual Review of Psychology*, 55(1), 305-331. doi: 10.1146/ annurev.psych.55.090902.141521

Link to Learning

Visit PBS' website for the story of Jules Means who has gone back to higher education late in life.

Sleep

According to the American Academy of Sleep Medicine⁴¹ adults require at least 7 hours of sleep per night to avoid the health risks associated with chronic sleep deprivation. Less than 6 hours and more than 10 hours is also not recommended for those in middle adulthood.⁴² Not surprisingly, many Americans do not receive the 7-9 hours of sleep recommended. In 2013, only 59% of U.S. adults met that standard, while in 1942, 84% did.⁴³ This means 41% of Americans receive less than the recommended amount of nightly sleep. Additional results included that in 1993, 67% of Americans felt they were getting enough sleep, but in 2013 only 56% felt they received as much sleep as needed. Additionally, 43% of Americans in 2013 believed they would feel better with more sleep.

Sleep problems: According to the Sleep in America poll,⁴⁴ 9% of Americans report being diagnosed with a sleep disorder, and of those 71% have sleep apnea and 24% suffer from insomnia. Pain is also a contributing factor in the difference between the amount of sleep Americans say they need and the amount they are getting. An average of 42 minutes of sleep debt occur for those with chronic pain, and 14 minutes for those who have suffered from acute pain in the past week. Stress and overall poor health are also key components of shorter sleep durations and worse sleep quality. Those in midlife with lower life satisfaction experienced greater delay in the onset of sleep than those with higher life satisfaction. Delayed onset of

41. Kasper, T. (2015). Why you only need 7 hours of sleep. American Academy of Sleep Medicine. <http://sleepeducation.org/news/2015/06/03/why-you-only-need-7-hours-of-sleep>

42. National Sleep Foundation. (2015). 2015 Sleep in America™ poll finds pain a significant challenge when it comes to Americans' sleep. National Sleep Foundation. <https://sleepfoundation.org/media-center/press-release/2015-sleep-america-poll>

43. Jones, J. M. (2013). In U.S., 40% Get Less than Recommended Amount of Sleep. Gallup. http://www.gallup.com/poll/166553/less-recommended-amount-sleep.aspx?g_source=sleep%202013&g_medium=search&g_campaign=tiles

44. National Sleep Foundation. (2015). 2015 Sleep in America™ poll finds pain a significant challenge when it comes to Americans' sleep. National Sleep Foundation. <https://sleepfoundation.org/media-center/press-release/2015-sleep-america-poll>

sleep could be the result of worry and anxiety during midlife, and improvements in those areas should improve sleep. Lastly, menopause can affect a woman's sleep duration and quality.⁴⁵

Table 1. Preference of Children and Sleep. Table Source: CDC (2016)

Demographic	Sleep less than 7 hours
Single Mothers	43.5%
Mothers with Partner	31.2%
Women without Children	29.7%
Single Fathers	37.5%
Fathers with Partner	34.1%
Men without Children	32.3%

Children in the home and sleep: As expected, having children at home affects the amount of sleep one receives. According to a 2016 National Center for Health Statistics analysis⁴⁶ having children decreases the amount of sleep an individual receives, however, having a partner can improve the amount of sleep for both males and females. Table 1 illustrates the percentage of individuals not receiving seven hours of sleep per night based on parental role.

Negative consequences of insufficient sleep:

There are many consequences of too little sleep, and they include physical, cognitive, and emotional changes. Sleep deprivation suppresses immune responses that fight off infection, and can lead to obesity, memory impairment, and hypertension.^{47,48} Insufficient sleep is linked to an increased risk for colon cancer, breast cancer, heart disease and type 2 diabetes.⁴⁹ A lack of sleep can increase stress as cortisol (a stress hormone) remains elevated which keeps the body in a state of alertness and hyperarousal which increases blood pressure. Sleep is also

45. National Sleep Foundation. (2016). Menopause and Insomnia. National Sleep Foundation. <https://sleepfoundation.org/ask-the-expert/menopause-and-insomnia>

46. Centers for Disease Control and Prevention. (2016). The National Center for Health Statistics. <https://www.cdc.gov/nchs/index.htm>

47. Ferrie, J. E., Shipley, M. J., Cappuccio, F. P., Brunner, E., Miller, M. A., Kumari, M., & Marmot, M. G. (2007). A prospective study of change in sleep duration: Associations with mortality in the Whitehall II cohort. *Sleep*, 30(12), 1659.

48. Kushida, C. (2005). *Sleep deprivation: basic science, physiology, and behavior*. London, England: Informal Healthcare.

49. Pattison, K. (2015). Sleep deficit. Experience Life. <https://experiencelife.com/article/sleep-deficit/>

associated with longevity. Dew et al.⁵⁰ found that older adults who had better sleep patterns also lived longer. During deep sleep a growth hormone is released which stimulates protein synthesis, breaks down fat that supplies energy, and stimulates cell division. Consequently, a decrease in deep sleep contributes to less growth hormone being released and subsequent physical decline seen in aging.⁵¹

Sleep disturbances can also impair glucose functioning in middle adulthood. Caucasian, African American, and Chinese non-shift-working women aged 48–58 years who were not taking insulin-related medications, participated in the Study of Women’s Health across the Nation (SWAN) Sleep Study and were subsequently examined approximately 5 years later.⁵² Body mass index (BMI) and insulin resistance were measured at two time points. Results indicated that irregular sleep schedules, including highly variable bedtimes and staying up much later than usual, are associated in midlife women with insulin resistance, which is an important indicator of metabolic health, including diabetes risk. Diabetes risk increases in midlife women, and irregular sleep schedules may be an important reason because irregular bedtime schedules expose the body to varying levels of light, which is the most important timing cue for the body’s circadian clock. By disrupting circadian timing, bedtime variability may impair glucose metabolism and energy homeostasis.

50. Dew, M. A., Hoch, C. C., Buysse, D. J., Monk, T. H., Begley, A. E., Houck, P. R.,...Reynolds, C. F., III. (2003). Healthy older adults’ sleep predicts all-cause mortality at 4 to 19 years of follow-up. *Psychosomatic Medicine*, 65(1), 63–73.

51. Pattison, K. (2015). Sleep deficit. Experience Life. <https://experiencelife.com/article/sleep-deficit/>

52. Taylor, B. J., Matthews, K. A., Hasler, B. P., Roecklein, K. A., Kline, C. E., Buysse, D. J., Kravitz, H. M., Tiani, A. G., Harlow, S. D., & Hall, M. H. (2016). Bedtime variability and metabolic health in midlife women: the SWAN sleep study. *Sleep*, 39(2), 457–465.

PSYCHOSOCIAL DEVELOPMENT IN MIDDLE ADULTHOOD

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Ronnie Mather



Figure 1. Traditionally, middle adulthood has been regarded as a period of reflection and change. (Image Source: Klimkin on Pixabay)

In the popular imagination (and academic press) middle adulthood has been referenced in relation to a “mid-life crisis.” There is an emerging view that this may have been an overstatement—certainly, the evidence on which it is based has been seriously questioned. However, there is some support for the view that people do undertake a sort of emotional audit, reevaluate their priorities, and emerge with a slightly different orientation to emotional regulation and personal interaction in this time period. Why, and the mechanisms through which this change is affected, are a matter of some debate. We will examine the ideas of

Erikson, Baltes, and Carstensen, and how they might inform a more nuanced understanding of this vital part of the lifespan.¹

Psychosocial Development

What do you think is the happiest stage of life?² What about the saddest stages? Perhaps surprisingly, Blanchflower & Oswald³ found that reported levels of unhappiness and depressive symptoms peak in the early 50s for men in the U.S., and interestingly, the late 30s for women. In Western Europe, minimum happiness is reported around the mid 40s for both men and women, albeit with some significant national differences. There is now a view that “older people” (50+) may be “happier” than younger people, despite some cognitive and functional losses. This is often referred to as “the paradox of aging.” Positive attitudes to the continuance of cognitive and behavioral activities, interpersonal engagement, and their vitalizing effect on human neural plasticity, may lead not only to more life, but to an extended period of both self-satisfaction and continued communal engagement.

Erikson's Theory

As you know by now, Erikson's theory is based on an idea called epigenesis, meaning that development is progressive and that each individual must pass through the eight different stages of life—all while being influenced by context and environment. Each stage forms the basis for the following stage, and each transition to the next is marked by a crisis which must be resolved. The sense of self, each “season”, was wrested, from and by, that conflict. The ages 40-65 are no different. The individual is still driven to engage productively, but the nurturing of children and income generation assume lesser functional importance. From where will the individual derive their sense of self and self-worth?

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1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Ronnie Mather for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia.
 2. This section, Psychosocial Development, is adapted from *Lifespan Development* by Ronnie Mather for Lumen Learning, and licensed under a Creative Commons ShareAlike License. Selections from the content were originally taken from *LifeSpan Psychology* by Laura Overstreet and Wikipedia's article on socioemotional selectivity theory.
 3. Blanchflower, D. G., & Oswald, A. J. (2008, April). Is well-being U-shaped over the life cycle? <https://www.ncbi.nlm.nih.gov/pubmed/18316146>

Generativity versus Stagnation is Erikson's characterization of the fundamental conflict of adulthood. It is the seventh conflict of his famous "8 seasons of man" (1950) and negotiating this conflict results in the virtue of care. **Generativity** is "primarily the concern in establishing and guiding the next generation."⁴ Generativity is a concern for a generalized other (as well as those close to an individual) and occurs when a person can shift their energy to care for and mentor the next generation. One obvious motive for this generative thinking might be parenthood, but others have suggested intimations of mortality by the self. John Kotre⁵ theorized that generativity is a selfish act, stating that its fundamental task was to outlive the self. He viewed generativity as a form of investment. This form of investment can often be seen through volunteering. However, a commitment to a "belief in the species" can be taken in numerous directions, and it is probably correct to say that most modern treatments of generativity treat it as collection of facets or aspects—encompassing creativity, productivity, commitment, interpersonal care, and so on.

On the other side of generativity is **stagnation**. It is the feeling of lethargy and a lack of enthusiasm and involvement in both individual and communal affairs. It may also denote an underdeveloped sense of self, or some form of overblown narcissism. Erikson sometimes used the word "rejectivity" when referring to severe stagnation.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
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The Stage-Crisis View and the Midlife Crisis

In 1977, Daniel Levinson published an extremely influential article that would be seminal in establishing the idea of a profound crisis which lies at the heart of middle adulthood. The

4. Erikson, E. (1950). *Childhood and society*. p.267. New York: Norton & Company.

5. Kotre, J. (1985). *Outliving the self: Generativity and the interpretation of lives*. Johns Hopkins University Press.

concept of a midlife crisis is so pervasive that over 90% of Americans are familiar with the term, although those who actually report experiencing such a crisis is significantly lower.⁶

Levinson based his findings about a midlife crisis on biographical interviews with a limited sample of 40 men (no women!), and an entirely American sample at that (Figure 1). Despite these severe methodological limitations, his findings proved immensely influential. Levinson⁷ identified five main stages or “seasons” of a man’s life as follows:

1. Preadulthood: Ages 0-22 (with 17 – 22 being the Early Adult Transition years)
2. Early Adulthood: Ages 17-45 (with 40 – 45 being the Midlife Transition years)
3. Middle Adulthood: Ages 40-65 (with 60-65 being the Late Adult Transition years)
4. Late Adulthood: Ages 60-85
5. Late Late Adulthood: Ages 85+



Figure 2. According to Levinson, we go through a midlife crisis. While most people have heard of the midlife crisis, and often associate it with sports cars, joining a band, or exploring new relationships, there is very little support for the theory as it was proposed by Levinson.

Levinson’s theory is known as **the stage-crisis view**. He argued that each stage overlaps, consisting of two distinct phases—a stable phase, and a transitional phase into the following period. The latter phase can involve questioning and change, and Levinson believed that 40-45 was a period of profound change, which could only culminate in a reappraisal, or perhaps reaffirmation, of goals, commitments and previous choices—a time for taking stock and recalibrating what was important in life. Crucially, Levinson would argue that a much wider range of factors, involving, primarily, work and family, would affect this taking stock – what he had achieved, what he had not; what he thought important, but had

brought only a limited satisfaction.

In 1996, two years after his death, the study he was conducting with his co-author and wife

6. Wethington, E. (2000). Expecting stress: Americans and the “midlife crisis.” *Motivation and Emotion*, 24(2), 85–103.

<https://doi.org/10.1023/a:1005611230993>

7. Levinson, D. J. (1986). A conception of adult development. *American Psychologist*, 41(1), 3–13. <https://doi.org/10.1037/0003-066X.41.1.3>

Judy Levinson, was published on “the seasons of life” as experienced by women. Again, it was a small-scale study, with 45 women who were professionals, academics, and homemakers, in equal proportion. The changing place of women in society was reckoned by Levinson to be a profound moment in the social evolution of the human species, however, it had led to a fundamental polarity in the way that women formed and understood their social identity. Levinson referred to this as the “dream.” For men, the “dream” was formed in the age period of 22-28, and largely centered on the occupational role and professional ambitions. Levinson understood the female “dream” as fundamentally split between this work-centered orientation, and the desire/imperative of marriage/family; a polarity that heralded both new opportunities, and fundamental angst.

Levinson found that the men and women he interviewed sometimes had difficulty reconciling the “dream” they held about the future with the reality they currently experienced. “What do I really get from and give to my wife, children, friends, work, community-and self?” a man might ask.⁸ Tasks of the midlife transition include:

1. ending early adulthood;
2. reassessing life in the present and making modifications if needed; and
3. reconciling “polarities” or contradictions in one’s sense of self.

Perhaps early adulthood ends when a person no longer seeks adult status but feels like a full adult in the eyes of others. This “permission” may lead to different choices in life—choices that are made for self-fulfillment instead of social acceptance. While people in their 20s may emphasize how old they are (to gain respect, to be viewed as experienced), by the time people reach their 40s, they tend to emphasize how young they are (few 40-year-olds cut each other down for being so young: “You’re only 43? I’m 48!!”).

This new perspective on time brings about a new sense of urgency to life. The person becomes focused more on the present than the future or the past. The person grows impatient at being in the “waiting room of life,” postponing doing the things they have always wanted to do. “If it’s ever going to happen, it better happen now.” A previous focus on the future gives way to an emphasis on the present. Neugarten⁹ notes that in midlife, people no longer think of their lives in terms of how long they have lived. Rather, life is thought of in terms of how many years are left. If an adult is not satisfied at midlife, there is a new sense of urgency to start to make changes now.

8. Levinson, D. J. (1978). *The seasons of a man’s life*. p. 192. New York: Knopf.

9. Neugarten, B. L. (1968). The awareness of middle aging. In B. L. Neugarten (Ed.), *Middle age and aging* (pp. 93-98). Chicago: University of Chicago Press.

Changes may involve ending a relationship or modifying one's expectations of a partner. These modifications are easier than changing the self.¹⁰ Midlife is a period of transition in which one holds earlier images of the self while forming new ideas about the self of the future. A greater awareness of aging accompanies feelings of youth, and harm that may have been done previously in relationships haunts new dreams of contributing to the well-being of others. These polarities are the quieter struggles that continue after outward signs of "crisis" have gone away.

Levinson characterized midlife as a time of developmental crisis. However, like any body of work, it has been subject to criticism. Firstly, the sample size of the populations on which he based his primary findings is too small. By what right do we generalize findings from interviews with 40 men and 45 women, however thoughtful and well conducted? Secondly, Chiriboga¹¹ could not find any substantial evidence of a midlife crisis, and it might be argued that this, and further failed attempts at replication, indicate a cohort effect. The findings from Levinson's population indicated a shared historical and cultural situatedness, rather than a cross-cultural universal experience by all or even most individuals. Midlife is a time of revaluation and change, that may escape precise determination in both time and geographical space, but people do emerge from it, and seem to enjoy a period of contentment, reconciliation, and acceptance of self.

Video Example

This video explains the research and controversy surrounding the concept of a midlife crisis.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=204#oembed-2>

You can view the transcript for "Does Everyone Have a 'Midlife Crisis'?" here (opens in new window).

10. Levinson, D. J. (1978). *The seasons of a man's life*. New York: Knopf.

11. Chiriboga, D. A. (1989). Mental health at the midpoint: Crisis, challenge, or relief? In S. Hunter & M. Sundel (Eds.), *Midlife myths: Issues, findings, and practice implications* (pp. 116–144). Sage Publications, Inc.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=204#h5p-32>

Socio-Emotional Selectivity Theory (SST)

It is the inescapable fate of human beings to know that their lives are limited. As people move through life, goals and values tend to shift. What we consider priorities, goals, and aspirations are subject to renegotiation. Attachments to others, current and future, are no different. Time is not the unlimited good as perceived by a child under normal social circumstances; it is very much a valuable commodity, requiring careful consideration in terms of the investment of resources. This has become known in the academic literature as mortality salience.

Mortality salience posits that reminders about death or finitude (at either a conscious or subconscious level), fills us with dread. We seek to deny its reality, but awareness of the increasing nearness of death can have a potent effect on human judgement and behavior. This has become a very important concept in contemporary social science. It is with this understanding that Laura Carstensen developed the theory of **socioemotional selectivity theory**, or SST. The theory maintains that as time horizons shrink, as they typically do with age, people become increasingly selective, investing greater resources in emotionally meaningful goals and activities. According to the theory, motivational shifts also influence cognitive processing. Aging is associated with a relative preference for positive over negative information. This selective narrowing of social interaction maximizes positive emotional experiences and minimizes emotional risks as individuals become older. They systematically hone their social networks so that available social partners satisfy their emotional needs. An adaptive way of maintaining a positive affect might be to reduce contact with those we know may negatively affect us, and avoid those who might.

SST is a theory which emphasizes a time perspective rather than chronological age. When people perceive their future as open ended, they tend to focus on future-oriented development or knowledge-related goals. When they feel that time is running out, and the opportunity to reap rewards from future-oriented goals' realization is dwindling, their focus tends to shift towards present-oriented and emotion or pleasure-related goals. Research on this theory often compares age groups (e.g., young adulthood vs. old adulthood), but the shift in goal priorities

is a gradual process that begins in early adulthood. Importantly, the theory contends that the cause of these goal shifts is not age itself, *i.e.*, not the passage of time itself, but rather an age-associated shift in time perspective. The theory also focuses on the types of goals that individuals are motivated to achieve. Knowledge-related goals aim at knowledge acquisition, career planning, the development of new social relationships and other endeavors that will pay off in the future. Emotion-related goals are aimed at emotion regulation, the pursuit of emotionally gratifying interactions with social partners, and other pursuits whose benefits which can be realized in the present.

This shift in emphasis, from long term goals to short term emotional satisfaction, may help explain the previously noted “paradox of aging.” That is, that despite noticeable physiological declines, and some notable self-reports of reduced life-satisfaction around this time, post-50 there seems to be a significant increase in reported subjective well-being. SST does not champion social isolation, which is harmful to human health, but shows that increased selectivity in human relationships, rather than abstinence, leads to more positive affect. Perhaps “midlife crisis and recovery” may be a more apt description of the 40-65 period of the lifespan.

Video Example

Watch Laura Carstensen in this TED talk explain how happiness actually increases with age.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=204#oembed-1>

You can view the transcript for “Older people are happier – Laura Carstensen” here (opens in new window).

Selection, Optimization, Compensation (SOC)

Another perspective on aging was identified by German developmental psychologists Paul and Margret Baltes. Their text *Successful Aging*¹² marked a seismic shift in moving social science research on aging from largely a deficits-based perspective to a newer understanding based on a holistic view of the life-course itself. The former had tended to focus exclusively on what was lost during the aging process, rather than seeing it as a balance between those losses and gains in areas like the regulation of emotion, experience and wisdom.

The Baltes' model for successful aging argues that across the lifespan, people face various opportunities or challenges such as, jobs, educational opportunities, and illnesses. According to the SOC model, a person may select particular goals or experiences, or circumstances might impose themselves on them. Either way, the selection process includes shifting or modifying goals based on choice or circumstance in response to those circumstances. The change in direction may occur at the subconscious level. This model emphasizes that setting goals and directing efforts towards a specific purpose is beneficial to healthy aging. Optimization is about making the best use of the resources we have in



Figure 3. Italian soccer player Paolo Maldini in 2008, just one year before he retired at age 41. He appeared in an incredible 8 champions league finals during his 25-year career. Defensive players like Maldini tend to have a longer career due to their experience compensating for a decline in pace, while offensive players are generally sought after for their agility and speed. (Image Source: Wikimedia Commons, CC BY SA)

12. Baltes, P.B. and Baltes, M. (1990). *Successful Aging: Perspectives from the Behavioral Sciences*. Cambridge: University Press.

pursuing goals. Compensation, as its name suggests, is about using alternative strategies in attaining those goals.¹³

The processes of selection, optimization, and compensation can be found throughout the lifespan. As we progress in years, we select areas in which we place resources, hoping that this selection will optimize the resources that we have, and compensate for any defects accruing from physiological or cognitive changes. Previous accounts of aging had understated the degree to which possibilities from which we choose had been eliminated, rather than reduced, or even just changed. As we select areas in which to invest, there is always an opportunity cost. We are masters of our own destiny, and our own individual orientation to the SOC processes will dictate “successful aging.” Rather than seeing aging as a process of progressive disengagement from social and communal roles undertaken by a group, Baltes argued that “successful aging” was a matter of sustained individual engagement, accompanied by a belief in individual self-efficacy and mastery.

The SOC model covers a number of functional domains—motivation, emotion, and cognition. We might become more adept at playing the SOC game as time moves on, as we work to compensate and adjust for changing abilities across the lifespan. For example, a soccer player at 35 may no longer have the vascular and muscular fitness that they had at 20 but her “reading” of the game might compensate for this decline. She may well be a better player than she was at 20, even with fewer physical resources in a game which ostensibly prioritizes them. The work of Paul and Margaret Baltes was very influential in the formation of a very broad developmental perspective which would coalesce around the central idea of resiliency.¹⁴

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=204#h5p-33>

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13. Stephanie, R., Margie, L., & Elizabeth, R. (2015). Self-Regulatory Strategies in Daily Life: Selection, Optimization, and Compensation and Everyday Memory Problems. *International Journal of Behavioral Development*, 40(2), 126-136.
 14. Weiss, L. A., Westerhof, G. J., & Bohlmeijer, E. T. (2016). Can we increase psychological well-being? The effects of interventions on psychological well-being: A meta-analysis of randomized controlled trials. *PloS One*, 11(6), e0158092. <https://doi.org/10.1371/journal.pone.0158092>

Stress

Social Relationships and Stress

Research has shown that the impact of social isolation on our risk for disease and death is similar in magnitude to the risk associated with smoking regularly.¹⁵¹⁶ In fact, the importance of social relationships for our health is so significant that some scientists believe our body has developed a physiological system that encourages us to seek out our relationships, especially in times of stress.¹⁷ **Social integration** is the concept used to describe the number of social roles that you have.¹⁸ For example, you might be a daughter, a basketball team member, a Humane Society volunteer, a coworker, and a student. Maintaining these different roles can improve your health via encouragement from those around you to maintain a healthy lifestyle. Those in your social network might also provide you with social support (e.g., when you are under stress). This support might include emotional help (e.g., a hug when you need it), tangible help (e.g., lending you money), or advice. By helping to improve health behaviors and reduce stress, social relationships can have a powerful, protective impact on health, and in some cases, might even help people with serious illnesses stay alive longer.¹⁹

Caregiving and stress

A disabled child, spouse, parent, or other family member is part of the lives of some midlife adults. According to the National Alliance for Caregiving²⁰, 40 million Americans provide unpaid caregiving. The typical caregiver is a 49 year-old female currently caring for a 69 year-old female who needs care because of a long-term physical condition. Looking more closely at the age of the recipient of caregiving, the typical caregiver for those 18-49 years of age is a female (61%) caring mostly for her own child (32%) followed by a spouse or partner (17%). When looking at older recipients (50+) who receive care, the typical caregiver is female (60%) caring for a parent (47%) or spouse (10%).

15. Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS Medicine*, 7(7), e1000316.

16. House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241, 540–545

17. Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review*, 107, 411–429.

18. Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357.

19. Spiegel, D., Kraemer, H., Bloom, J., & Gottheil, E. (1989). Effect of psychosocial treatment on survival of patients with metastatic breast cancer. *The Lancet*, 334, 888–891.

20. National Alliance for Caregiving. (2015). Caregiving in the U.S. 2015. <http://www.caregiving.org/caregiving2015>.

Caregiving places enormous stress on the caregiver. Caregiving for a young or adult child with special needs was associated with poorer global health and more physical symptoms among both fathers and mothers.²¹ Marital relationships are also a factor in how the caring affects stress and chronic conditions. Fathers who were caregivers identified more chronic health conditions than non-caregiving fathers, regardless of marital quality. In contrast, caregiving mothers reported higher levels of chronic conditions when they reported a high level of marital strain.²² Age can also make a difference in how one is affected by the stress of caring for a child with special needs. Using data from the Study of Midlife in the United States, Ha, Hong, Seltzer and Greenberg²³ found that older parents were significantly less likely to experience the negative effects of having a disabled child than younger parents. They concluded that an age-related weakening of the stress occurred over time. This follows with the greater emotional stability noted at midlife.

Currently 25% of adult children, mainly baby boomers, provide personal or financial care to a parent.²⁴ Daughters are more likely to provide basic care and sons are more likely to provide financial assistance. Adult children 50+ who work and provide care to a parent are more likely to have fair or poor health when compared to those who do not provide care. Some adult children choose to leave the work force, however, the cost of leaving the work force early to care for a parent is high. For females, lost wages and social security benefits equals \$324,044, while for men it equals \$283,716.²⁵ This loss can jeopardize the adult child's financial future. Consequently, there is a need for greater workplace flexibility for working caregivers.

Spousal care

Certainly caring for a disabled spouse would be a difficult experience that could negatively affect one's health. However, research indicates that there can be positive health effect for

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21. Seltzer, M. M., Floyd, F., Song, J., Greenberg, J., & Hong, J. (2011). Midlife and aging parents of adults with intellectual and developmental disabilities: Impacts of lifelong parenting. *American Association on Intellectual and Developmental Disability*, 116, 479-499.
 22. Kang, S. W., & Marks, N. F. (2014). Parental caregiving for a child with special needs, marital strain, and physical health: Evidence from National Survey of Midlife in the U.S. 2005. *Contemporary Perspectives in Family Research*, 8A, 183- 209.
 23. Ha, J., Hong, J., Seltzer, M. M., & Greenberg, J. S. (2008). Age and gender differences in the well-being of midlife and aging parents with children with mental health or developmental problems: Report of a national study. *Journal of Health and Social Behavior*, 49, 301-316.
 24. Metlife. (2011). Metlife study of caregiving costs to working caregivers: Double jeopardy for baby boomers caring for their parents. <http://www.caregiving.org/wp-content/uploads/2011/06/mmi-caregiving-costs-working-caregivers.pdf>
 25. Metlife. (2011). Metlife study of caregiving costs to working caregivers: Double jeopardy for baby boomers caring for their parents. <http://www.caregiving.org/wp-content/uploads/2011/06/mmi-caregiving-costs-working-caregivers.pdf>

caring for a disabled spouse. Beach, Schulz, Yee and Jackson²⁶ evaluated health related outcomes in four groups: Spouses with no caregiving needed (Group 1), living with a disabled spouse but not providing care (Group 2), living with a disabled spouse and providing care (Group 3), and helping a disabled spouse while reporting caregiver strain, including elevated levels of emotional and physical stress (Group 4). Not surprisingly, the participants in Group 4 were the least healthy and identified poorer perceived health, an increase in health-risk behaviors, and an increase in anxiety and depression symptoms. However, those in Group 3 who provided care for a spouse, but did not identify caregiver strain, actually identified decreased levels of anxiety and depression compared to Group 2 and were actually similar to those in Group 1. It appears that greater caregiving involvement was related to better mental health as long as the caregiving spouse did not feel strain. The beneficial effects of helping identified by the participants were consistent with previous research.²⁷²⁸

When caring for a disabled spouse, gender differences have also been identified. Female caregivers of a spouse with dementia experienced more burden, had poorer mental and physical health, exhibited increased depressive symptomatology, took part in fewer health-promoting activities, and received fewer hours of help than male caregivers.²⁹ This recent study was consistent with previous research findings that women experience more caregiving burden than men, despite similar caregiving situations.³⁰³¹ Explanations for why women do not use more external support, which may alleviate some of the burden, include women's expectations that they should assume caregiving roles³² and their concerns with the opinions of others.³³ Also contributing to women's poorer caregiving outcomes is that disabled males are more aggressive than females, especially males with dementia who display more physical

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26. Beach, S. R., Schulz, R., Yee, J. L., & Jackson, S. (2000). Negative and positive health effects of caring for a disabled spouse: Longitudinal findings from the caregiver health effects study. *Psychology and Aging, 15*(2), 259-271.
 27. Krause, N. A., Herzog, R., & Baker, E. (1992). Providing support to others and well-being in later life. *Journal of Gerontology: Psychological Sciences, 47*, P300-311.
 28. Schulz, R., Newsom, J., Mittelman, M., Burton, L., Hirsch, C., & Jackson, S. (1997). Health effects of caregiving: The caregiver health effects study: An ancillary study of the Cardiovascular Health Study. *Annals of Behavioral Medicine, 19*, 110- 116.
 29. Gibbons, C., Creese, J., Tran, M., Brazil, K., Chambers, L., Weaver, B., & Bedard, M. (2014). The psychological and health consequences of caring for a spouse with dementia: A critical comparison of husbands and wives. *Journal of Women & Aging, 26*, 3-21.
 30. Torti, F. M., Gwyther, L. P., Reed, S. D., Friedman, J. Y., & Schulman, K. A. (2004). A multinational review of recent trends and reports in dementia caregiver burden. *Alzheimer Disease and Associated Disorders, 18*(2), 99-109.
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 32. Torti, F. M., Gwyther, L. P., Reed, S. D., Friedman, J. Y., & Schulman, K. A. (2004). A multinational review of recent trends and reports in dementia caregiver burden. *Alzheimer Disease and Associated Disorders, 18*(2), 99-109.
 33. Arai, Y., Sugiura, M., Miura, H., Washio, M., & Kudo, K. (2000). Undue concern for other's opinions deters caregivers of impaired elderly from using public services in rural Japan. *International Journal of Geriatric Psychiatry, 15*(10), 961- 968.

and sexual aggression toward their caregivers.^{34,35} Female caregivers are certainly at risk for negative consequences of caregiving, and greater support needs to be available to them.

Work at midlife

Who is the U.S. workforce? The civilian, non-institutionalized workforce; that is the population of those aged 16 and older, who are employed has steadily declined since it reached its peak in the late 1990s, when 67% of the civilian workforce population was employed. In 2012 the rate had dropped to 64% and has declined to 58% in 2021.³⁶ However, these should also be considered within the lens of the COVID-19 pandemic occurring in 2020. In 1992, 26% of the population was 55+, in 2019, 29.3% of the population is 55+, and by 2040 it is projected to be 32.6%.³⁷ Table 1 shows the rates of employment by age. In 2021, ~64% of the workforce was male. For both genders and age groups the rate of participation in the labor force has improved from 2011 to 2021.

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- 34. Eastley, R., & Wilcock, G. K. (1997). Prevalence and correlates of aggressive behaviors occurring in patients with Alzheimer's disease. *International Journal of Geriatric Psychiatry*, 12, 484-487.
 - 35. Zuidema, S. U., de Jonghe, J. F., Verhey, F. R., & Koopman, R. T. (2009). Predictors of neuropsychiatric symptoms in nursing home patients: Influence of gender and dementia severity. *International Journal of Geriatric Psychiatry*, 24(10), 1079-1086.
 - 36. Monthly Labor Review. (2021). Percentage of the non-institutionalized civilian workforce employed by gender & age. <https://www.bls.gov/cps/tables.htm#otheryears>
 - 37. U.S. Census Bureau, Population Division. (2017). Projected 5-Year Age Groups and Sex Composition: Main Projections Series for the United States, 2017-2060. <https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html>

Table 1 Percentage of the non-institutionalized civilian workforce employed by gender & age.

	2011 (Men)	2021 (Men)	2011 (Women)	2021 (Women)
16-19	24.6	31.4	27.1	32.6
20-24	63.0	65.9	58.7	63.0
25-34	80.5	82.5	67.1	72.1
35-44	84.2	85.5	69.3	71.2
45-54	79.8	83.0	70.4	71.9
55-59	72.8	74.6	63.6	63.9
60-64	54.7	60.2	47.2	49.6
Totals	63.9	63.9	53.2	53.2

*Adapted from (adapted from Monthly Labor Review).³⁸

Hispanic males have the highest rate of participation in the labor force. In 2021, 70.5% of Hispanic males, compared with 58.6% of White, 68.3% of Asian, and 57.7% of Black men ages 16 or older were employed. Among women, Black women were more likely to be participating in the workforce, 54.1%, compared with 53.9% of Asian, 52.8% of White, and 51.8% of Hispanic females.³⁹

38. Monthly Labor Review. (2021). Percentage of the non-institutionalized civilian workforce employed by gender & age. <https://www.bls.gov/cps/tables.htm#otheryears>

39. Monthly Labor Review. (2021). Percentage of the non-institutionalized civilian workforce employed by gender & age. <https://www.bls.gov/cps/tables.htm#otheryears>

Climate in the workplace for middle-aged adults

A number of studies have found that job satisfaction tends to peak in middle adulthood.^{40,41} This satisfaction stems from not only higher wages, but often greater involvement in decisions that affect the workplace as they move from worker to supervisor or manager. Job satisfaction is also influenced by being able to do the job well, and after years of experience at a job many people are more effective and productive. Another reason for this peak in job satisfaction is that at midlife many adults lower their expectations and goals.⁴² Middle-aged employees may realize they have reached the highest they are likely to in their career. This satisfaction at work translates into lower absenteeism, greater productivity, and less job hopping in comparison to younger adults.⁴³

However, not all middle-aged adults are happy in the workplace. Women may find themselves up against the **glass ceiling**, *organizational discrimination in the workplace that limits the career advancement of women*. This may explain why females employed at large corporations are twice as likely to quit their jobs as are men.⁴⁴ Another problem older workers may encounter is job **burnout**, *becoming disillusioned and frustrated at work*. American workers may experience more burnout than do workers in many other developed nations because most developed nations guarantee by law a set number of paid vacation days⁴⁵, the United States does not.⁴⁶

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 - 41. Easterlin, R. A. (2006). Life cycle happiness and its sources: Intersections of psychology, economics, and demography. *Journal of Economic Psychology*, 27, 463-482.
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 - 43. Easterlin, R. A. (2006). Life cycle happiness and its sources: Intersections of psychology, economics, and demography. *Journal of Economic Psychology*, 27, 463-482.
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 - 46. U.S. Department of Labor (2016). Vacation Leave. https://www.dol.gov/general/topic/workhours/vacation_leave

Not all employees are covered under overtime pay laws.⁴⁷ This is important when you considered that the 40-hour work week is a myth for most Americans. Only 4 in 10 U.S. workers work the typical 40-hour work week. The average work week for many is almost a full day longer (47 hours), with 39% working 50 or more hours per week.⁴⁸ In comparison to workers in many other developed nations, American workers work more hours per year.⁴⁹ As can be seen in Figure 3, Americans work more hours than most European nations, especially in western and northern Europe, although they work fewer hours than workers in other nations, especially Cambodia and Mexico.

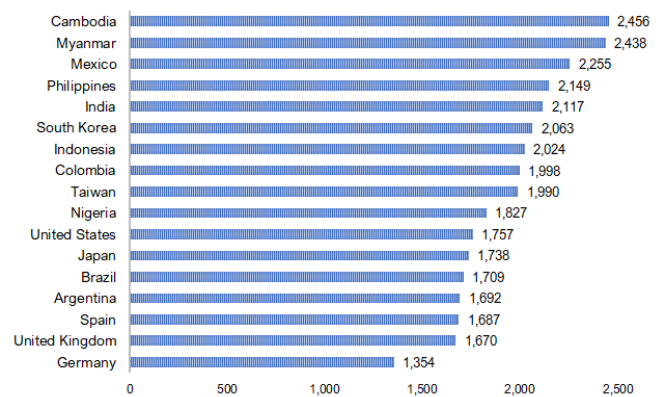


Figure 3. Average Annual Hours per employed person, 2017 (Data from OECD)

Challenges in the workplace for middle-aged adults

In recent years middle-aged adults have been challenged by economic downturns, starting in 2001, and again in 2008. Fifty-five percent of adults reported some problems in the workplace, such as fewer hours, pay cuts, having to switch to part-time, etc., during the most recent economic recession (see Figure 4).⁵⁰ While young adults took the biggest hit in terms of levels of unemployment, middle-aged adults also saw their overall financial resources suffer as their retirement nest eggs disappeared and house values shrank, while foreclosures increased.⁵¹

47. U.S. Department of Labor (2016). Vacation Leave. https://www.dol.gov/general/topic/workhours/vacation_leave

48. Saad, L. (2014). The 40-hour work week is actually longer – by 7 hours. Gallup. <http://www.gallup.com/poll/175286/hour-workweek-actually-longer-seven-hours.aspx>

49. Organisation for Economic Cooperation and Development. (2016). Average annual hours actually worked per worker. OECD Stat. Retrieved from <http://stats.oecd.org/Index.aspx?DataSetCode=ANHRS>

50. Pew Research Center. (2010a). How the great recession has changed life in America. <http://www.pewsocialtrends.org/2010/06/30/how-the-great-recession-has-changed-life-in-america/>

51. Pew Research Center. (2010b). Section 5: Generations and the Great Recession. <http://www.people-press.org/2011/11/03/section-5-generations-and-the-great-recession/>

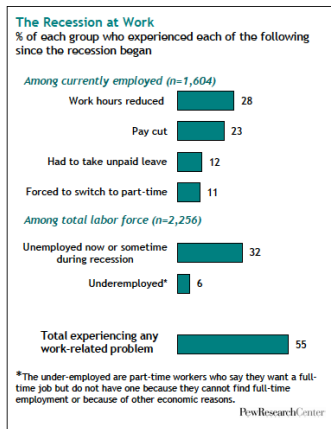


Figure 4: The recession at work (Source: Pew Research Center, 2010)

Not surprisingly, this age group reported that the recession hit them worse than did other age groups, especially those aged 50-64. Middle-aged adults who find themselves unemployed are likely to remain unemployed longer than those in early adulthood.⁵² In the eyes of employers, it may be more cost-effective to hire a young adult, despite their limited experience, as they would be starting out at lower levels of the pay scale. In addition, hiring someone who is 25 and has many years of work ahead of them versus someone who is 55 and will likely retire in 10 years may also be part of the

decision to hire a younger worker.⁵³ American workers are also competing with global markets and changes in technology. Those who are able to keep up with all these changes, or are willing to uproot and move around the country or even the world have a better chance of finding work. The decision to move may be easier for people who are younger and have fewer obligations to others.

Leisure

As most developed nations restrict the number of hours an employer can demand that an employee work per week, and require employers to offer paid vacation time, what do middle-aged adults do with their *time off from work and duties*, referred to as **leisure**? Around the world, the most common leisure activity in both early and middle adulthood is watching television.⁵⁴ On average, middle-aged adults spend 2-3 hours per day watching TV⁵⁵ and watching TV accounts for more than half of all leisure time.

In the United States, men spend about 5 hours more per week in leisure activities, especially

52. U.S. Government Accountability Office. (2012). Unemployed older workers: Many experience challenges regaining employment and face reduced retirement security. <http://www.gao.gov/products/GAO-12-445>

53. Lachman, M. E. (2004). Development in Midlife. *Annual Review of Psychology*, 55(1), 305-331. <https://doi.org/10.1146/annurev.psych.55.090902.141521>

54. Marketing Charts Staff. (2014). Are young people watching less TV? <http://www.marketingcharts.com/television/are-young-people-watching-less-tv-24817/>

55. Gripsrud, J. (2007). Television and the European public sphere. *European Journal of Communication*, 22, 479-492.

on weekends, than do women.^{56,57} The leisure gap between mothers and fathers is slightly smaller, about 3 hours a week, than among those without children under age 18.⁵⁸ Those age 35-44 spend less time on leisure activities than any other age group, 15 or older.⁵⁹ This is not surprising as this age group are more likely to be parents and still working up the ladder of their career, so they may feel they have less time for leisure.

Americans have less leisure time than people in many other developed nations. As you read earlier, there are no laws in many job sectors guaranteeing paid vacation time in the United States. Ray, Sanes and Schmitt⁶⁰ report that several other nations also provide additional time off for young and older workers and for shift workers. In the United States, those in higher-paying jobs and jobs covered by a union contract are more likely to have paid vacation time and holidays.⁶¹

Do U.S. workers take their time off?

According to Project Time-Off,⁶² 55% of U.S. workers in 2015 did not take all of their paid vacation and holiday leave. A large percentage of this leave is lost. It cannot be rolled over into the next year or paid out. A total of 658 million vacation days, or an average of 2 vacation days per worker was lost in 2015. The reasons most often given for not taking time off was worry that there would be a mountain of work to return to (40%), concern that no one else could do the job (35%), not being able to afford a vacation (33%), feeling it was harder to take time away when you have or are moving up in the company (33%), and not wanting to seem replaceable (22%). Since 2000, more American workers are willing to work for free rather than take the time that is allowed to them. A lack of support from their boss and even their colleagues to take a vacation is often a driving force in deciding to forgo time off. In fact, 80% of the respondents to the survey above said they would take time away if they felt they had support from their boss.

56. Drake, B. (2013). Another gender gap: Men spend more time in leisure activities. Pew Research Center.

<http://www.pewresearch.org/fact-tank/2013/06/10/another-gender-gap-men-spend-more-time-in-leisure-activities/>

57. U.S. Bureau of Labor Statistics (2016). American time use survey – 2015. Retrieved from <http://www.bls.gov/news.release/pdf/atus.pdf>

58. Drake, B. (2013). Another gender gap: Men spend more time in leisure activities. Pew Research Center.

<http://www.pewresearch.org/fact-tank/2013/06/10/another-gender-gap-men-spend-more-time-in-leisure-activities/>

59. U.S. Bureau of Labor Statistics (2016). American time use survey – 2015. <http://www.bls.gov/news.release/pdf/atus.pdf>

60. Ray, R., Sanes, M., & Schmitt, J. (2013). No-vacation nation revisited. Center for Economic Policy Research. <http://cepr.net/publications/reports/no-vacation-nation-2013>

61. Ray, R., & Schmitt, J. (2007). No vacation nation USA: A comparison of leave and holiday in OECD countries.

http://www.law.harvard.edu/programs/lwp/papers/No_Holidays.pdf

62. Project Time-Off (2016). The state of American vacation: How vacation became a casualty of our work culture.

<http://www.projecttimeoff.com/research/state-american-vacation-2016>

Two-thirds reported that they hear nothing, mixed messages, or discouraging remarks about taking their time off. Almost a third (31%) feel they should contact their workplace, even while on vacation.

Benefits of taking time away from work

Several studies have noted the benefits of taking time away from work. It reduces job stress burnout,⁶³ improves both mental health⁶⁴ and physical health,⁶⁵ especially if that leisure time also includes moderate physical activity.⁶⁶ Leisure activities can also improve productivity and job satisfaction⁶⁷ and help adults deal with balancing family and work obligations.⁶⁸

There are many socioemotional changes that occur in how middle-aged adults perceive themselves. While people in their early 20s may emphasize how old they are to gain respect or to be viewed as experienced, by the time people reach their 40s they tend to emphasize how young they are. For instance, few 40-year-olds cut each other down for being so young stating: “You’re only 43? I’m 48!” A previous focus on the future gives way to an emphasis on the present. Neugarten⁶⁹ notes that in midlife, people no longer think of their lives in terms of how long they have lived. Rather, life is thought of in terms of how many years are left.

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- 63. Nimrod, G., Kleiber, D. A., & Berdychevsky, L. (2012). Leisure in coping with depression. *Journal of Leisure Research*, 44(4), 414-449.
 - 64. Qian, X., Yarnal, C. M., Almeida, D. M. (2013). Does leisure time as a stress coping source increase affective complexity? Applying the Dynamic Model of Affect (DMA). *Journal of Leisure Research*, 45(3), 393-414.
 - 65. Stern, C., & Konno, R. (2009). Physical Leisure activities and their role in preventing dementia: A systematic review. *International Journal of Evidence-Based Healthcare*, 7, 270-282.
 - 66. Lee, B., Lawson, K. M., Chang, P., Neuendorf, C., Dmitrieva, N. O., & Almeida, D. H. (2015). Leisure-time physical activity moderates the longitudinal associations between work-family spillover and physical health. *Journal of Leisure Research*, 47(4), 444-466.
 - 67. Kühnel, J., & Sonnentag, S. (2011). How long do you benefit from vacation? A closer look at the fade-out vacation effects. *Journal of Organizational Behavior*, 32, 125-143.
 - 68. Lee, B., Lawson, K. M., Chang, P., Neuendorf, C., Dmitrieva, N. O., & Almeida, D. H. (2015). Leisure-time physical activity moderates the longitudinal associations between work-family spillover and physical health. *Journal of Leisure Research*, 47(4), 444-466.
 - 69. Neugarten, B. L. (1968). The awareness of middle aging. In B. L. Neugarten (Ed.), *Middle age and aging* (pp. 93-98). Chicago: University of Chicago Press.

RELATIONSHIPS IN MIDDLE ADULTHOOD

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Ronnie Mather; and Stephanie Loalada

The importance of establishing and maintaining relationships in middle adulthood is now well established in academic literature—there are now thousands of published articles purporting to demonstrate that social relationships are integral to any and all aspects of subjective well being and physiological functioning, and these help to inform actual healthcare practices. Studies show an increased risk of dementia, cognitive decline, susceptibility to vascular disease, and increased mortality in those who feel isolated and alone. However, loneliness is not confined to people living a solitary existence. It can also refer to those who endure a perceived discrepancy in the socio-emotional benefits of interactions with others, either in number or nature. One may have an expansive social network and still feel a dearth of emotional satisfaction in one's own life.¹

Socioemotional selectivity theory (SST) predicts a quantitative decrease in the number of social interactions in favor of those bringing greater emotional fulfillment. Over the past thirty years, or more, there have been significant social changes that have had a large effect on human bonding. These have affected the way we manage our emotional interactions, and the manner in which society views, shapes and supports that emotional regulation. Government policy has also changed, and had a profound influence on how families are shaped, reshaped, and operate as social and economic agents.

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Ronnie Mather and Stephanie Loalada for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and The Noba Project.

Types of Relationships

Intimate Relationships

It makes sense to consider the various types of relationships in our lives when trying to determine just how relationships impact our well-being. For example, would you expect a person to derive the same happiness from an ex-spouse as from a child or coworker? Among the most important relationships for most people is their long-time romantic partner. Most researchers begin their investigation of this topic by focusing on intimate relationships because they are the closest form of social bond. Intimacy is more than just physical in nature; it also entails psychological closeness. Research findings suggest that having a single confidante—a person with whom you can be authentic and trust not to exploit your secrets and vulnerabilities—is more important to happiness than having a large social network.²

Another important aspect is the distinction between formal and informal relationships. Formal relationships are those that are bound by the rules of politeness. In most cultures, for instance, young people treat older people with formal respect by avoiding profanity and slang when interacting with them. Similarly, workplace relationships tend to be more formal, as do relationships with new acquaintances. Formal connections are generally less relaxed because they require a bit more work, demanding that we exert more self-control. Contrast these connections with informal relationships—friends, lovers, siblings, or others with whom you can relax. We can express our true feelings and opinions in these informal relationships, using the language that comes most naturally to us, and generally be more authentic. Because of this, it makes sense that more intimate relationships—those that are more comfortable and in which you can be more vulnerable—might be the most likely to translate to happiness.

2. Taylor, S. E. (2010). Social support: A review. In H. S. Friedman (Ed.), *Oxford Handbook of Health Psychology*. New York, NY: Oxford University Press.

Marriage and Happiness

One of the most common ways that researchers often begin to investigate intimacy is by looking at marital status. The well-being of married people is compared to that of people who are single or have never been married. In other research, married people are compared to people who are divorced or widowed.³ Researchers have found that the transition from singlehood to marriage brings about an increase in subjective well-being.^{4,5} In fact, this finding is one of the strongest in social science research on personal relationships over the past quarter of a century.



Figure 1. Relationships that allow us to be our authentic self bring the most happiness.

As is usually the case, the situation is more complex than might initially appear. As a marriage progresses, there is some evidence for a regression to a **hedonic set-point**—that is, most individuals have a set happiness point or level, and that both good and bad life events—marriage, bereavement, unemployment, births and so on—have some effect for a period of time, but over many months, they will return to that set-point. One of the best studies in this area is that of Luhmann et al.,⁷ who report a gradual decline in subjective well-being after a few years, especially in the component of affective well-being. Adverse events obviously have an effect on subjective well-being and happiness, and these effects can be stronger than the positive effects of being married in some cases.⁸

Although research frequently points to marriage being associated with higher rates of happiness, this does not guarantee that getting married will make you happy! The quality of

3. Lucas, R. E., & Dyrenforth, P. S. (2005). The myth of marital bliss? *Psychological Inquiry*, 16(2/3), 111-115.

4. Haring-Hidore, M., Stock, W. A., Okun, M. A., Witter, R. A. (1985). Marital status and subjective well-being: A research synthesis. *Journal of Marriage and Family*, 4, 947-953.

5. Lucas, R. E. (2005). Time does not heal all wounds: A longitudinal study of reaction and adaptation to divorce. *Psychological Science*, 16, 945-950.

6. Williams, K. (2003). Has the future arrived? A contemporary examination of gender, marriage, and psychological well-being. *Journal of Health and Social Behavior*, 44, 470-487.

7. Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology*, 102, 592-615.

8. Lucas, R. E. (2005). Time does not heal all wounds: A longitudinal study of reaction and adaptation to divorce. *Psychological Science*, 16, 945-950.

one's marriage matters greatly. When a person remains in a problematic marriage, it takes an emotional toll. Indeed, a large body of research shows that people's overall life satisfaction is affected by their satisfaction with their marriage.⁹¹⁰¹¹¹²¹³ The lower a person's self-reported level of marital quality, the more likely he or she is to report depression.¹⁴ In fact, longitudinal studies—those that follow the same people over a period of time—show that as marital quality declines, depressive symptoms increase.¹⁵¹⁶ Proulx and colleagues¹⁷ arrived at this same conclusion after a systematic review of 66 cross-sectional and 27 longitudinal studies.

Marital satisfaction has peaks and valleys during the course of the life cycle. Rates of happiness are highest in the years prior to the birth of the first child. It hits a low point with the coming of children. Relationships during this stage typically become more traditional and there are more financial hardships and stress in living. Children bring new expectations to the marital relationship. Two people who are comfortable with their roles as partners may find the added parental duties and expectations more challenging to meet. Some couples elect not to have children in order to have more time and resources for the marriage. These child-free couples are happy keeping their time and attention on their partners, careers, and interests.

What is it about bad marriages, or bad relationships in general, that take such a toll on well-being? Research has pointed to conflict between partners as a major factor leading to lower

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9. Carr, D., Freedman, V. A., Cornman, J. C., Schwarz, N. (2014). Happy marriage, happy life? Marital quality and subjective well-being in later life. *Journal of Marriage and Family*, 76, 930-948.
 10. Dush, C. M. K., Taylor, M. G., & Kroeger, R. A. (2008). Marital happiness and psychological well-being across the life course. *Family Relations*, 57, 211-226.
 11. Karney, B. R. (2001). Depressive symptoms and marital satisfaction in the early years of marriage: Narrowing the gap between theory and research. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 45-68). Washington DC: American Psychological Association.
 12. Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology*, 102, 592-615.
 13. Proulx, C. M., Helms, H. M., & Buehler, C. (2007). Marital quality and personal well-being: A meta-analysis. *Journal of Marriage and Family*, 69, 576-593.
 14. Bookwala, J. (2012). Marriage and other partnered relationships in middle and late adulthood. In R. Blieszner & V. H. Bedford (Eds.), *Handbook of Aging and the Family* (2nd Ed, pp 91-124). Santa Barbara, CA: ABC-CLIO
 15. Fincham, F. D., Beach, S. R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science*, 8, 351-357.
 16. Karney, B. R. (2001). Depressive symptoms and marital satisfaction in the early years of marriage: Narrowing the gap between theory and research. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 45-68). Washington DC: American Psychological Association.
 17. Proulx, C. M., Helms, H. M., & Buehler, C. (2007). Marital quality and personal well-being: A meta-analysis. *Journal of Marriage and Family*, 69, 576-593.

subjective well-being.¹⁸ This makes sense. Negative relationships are linked to ineffective social support¹⁹ and are a source of stress. In more extreme cases, physical and psychological abuse can be detrimental to well-being.²⁰ Victims of abuse sometimes feel shame, lose their sense of self, and become less happy and prone to depression and anxiety.²¹ However, the unhappiness and dissatisfaction that occur in abusive relationships tend to dissipate once the relationships end.²²

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18. Gere, J., & Schimmack, U. (2011). When romantic partners' goals conflict: Effects on relationship quality and subjective well-being. *Journal of Happiness Studies*, 14, 37-49.
 19. Reblin, M., Uchino, B. N., & Smith, T. W. (2010). Provider and recipient factors that may moderate the effectiveness of received support: Examining the effects of relationship quality and expectations for support on behavioral and cardiovascular reactions. *Journal of Behavioral Medicine*, 33, 423-431.
 20. Follingstad, D. R., Rutledge, L. L., Berg, B. J., Hause, E. S., & Polek, D. S. (1990). The role of emotional abuse in physically abusive relationships. *Journal of Family Violence*, 5(2), 107-120.
 21. Arias, I., & Pape, K. T. (1999). Psychological abuse: Implications for adjustment and commitment to leave violent partners. *Violence and Victims*, 14, 55-67.
 22. Arriaga, X. B., Capezza, N. M., Goodfriend, W., Rayl, E. S., & Sands, K. J. (2013). Individual well-being and relationship maintenance at odds: The unexpected perils of maintaining a relationship with an aggressive partner. *Social Psychological and Personality Science*, 4, 676-684.

Typology of Marriage

One way marriages vary is with regard to the reason the partners are married. Some marriages have intrinsic value: the partners are together because they enjoy, love, and value one another. Marriage is not thought of as a means to another end, instead it is regarded as an end in itself. These partners look for someone they are drawn to, and with whom they feel a close and intense relationship. Other marriages called utilitarian marriages are unions entered into primarily for practical reasons. For example, the marriage brings financial security, children, social approval, housekeeping, political favor, a good car, a great house, and so on.

There have been a few attempts to establish a typological framework for marriages. The best-known is that by Olson (1993), who referred to five typical kinds of marriage. Using a sample of 6,267 couples, Olson & Fowers (1993) identified eleven relationship domains that covered areas related to relationship satisfaction and more functional areas related to marriage. So, five of the eleven domains included areas such as marital satisfaction, communication, and things like financial management, parenting, and egalitarian roles. Using these eleven areas they came up with five kinds of marriage:

- **Vitalized.** Very high relationship quality. Tend to belong in a higher income bracket. Happy with their spouse across all areas—personality, communication, roles, and expectations.
- **Harmonious relationships.** These marriages have some areas of tension and disagreement but there is still broad agreement on major issues. Lack of agreement on parenting was the primary feature of this group, although the couples still scored highly on relationship quality.
- **Traditional marriages.** These marriages show much less emphasis on emotional closeness, but still score slightly above average on connection. There are high levels of compatibility in relation to parenting.
- **Conflicted.** These marriages accomplish functional goals such as parenting but are marked by a great deal of interpersonal disagreement. Communication and conflict resolution scores are extremely low.
- **Devitalized.** These marriages have low scores across all eleven areas—little interpersonal closeness and little agreement on family roles.

One aspect of this early study is the link between marital satisfaction and income/college education. Olson & Fowers (1993) were one of the first studies to point to this link, which is now

commonly accepted. The less well-off are more prone to divorce, as are those with less college-level education. Income and college education are of course linked, and there is now increasing concern that marital dissolution and broader patterns of social inequality are now inextricably linked.²³

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=226#h5p-34>

Marital Communication

Advice on how to improve one's marriage is centuries old. One of today's experts on marital communication is John Gottman. Gottman differs from many marriage counselors in his belief that having a good marriage does not depend on compatibility, rather, the way that partners communicate with one another is crucial. At the University of Washington in Seattle, Gottman has measured the physiological responses of thousands of couples as they discuss issues which have led to disagreements. Fidgeting in one's chair, leaning closer to or further away from the partner while speaking, and increases in respiration and heart rate are all recorded and analyzed, along with videotaped recordings of the partners' exchanges.

Gottman believes he can accurately predict whether or not a couple will stay together by analyzing their communication. In marriages destined to fail, partners engage in the "marriage killers" such as contempt, criticism, defensiveness, and stonewalling. Each of these undermines the politeness and respect that healthy marriages require. According to Gottman, stonewalling, or shutting someone out, is the strongest sign that a relationship is destined to fail. Perhaps the most interesting aspect of Gottman's work is the emphasis on the fact that marriage is about constant negotiation rather than conflict resolution.

23. Olson, D. H., & Fowers, B. J. (1993). Five Types of Marriage: An Empirical Typology Based on ENRICH. *The Family Journal*, 1(3), 196–207. <https://doi.org/10.1177/1066480793013002>

What Gottman terms perpetual problems, are responsible for 69% of conflicts within marriage. For example, if someone in a couple has said, “I am so sick of arguing over this,” then that may be a sign of a perpetual problem. While this may seem problematic, Gottman argues that couples can still be connected despite these perpetual problems if they can laugh about it, treat it as a “third thing” (not reducible to the perspective of either party), and recognize that these are part of relationships that need to be aired and dealt with as best you can. It is somewhat refreshing to hear that differences lie at the heart of marriage, rather than a rationale for its dissolution!

Link to Learning

Listen to NPR’s *Act One: What Really Happens in Marriage* to hear John Gottman talk about his work.

Parenting in Later Life

Just because children grow up does not mean their family stops being a family, rather the specific roles and expectations of its members change over time. One major change comes when a child reaches adulthood and moves away. When exactly children leave home varies greatly depending on societal norms and expectations, as well as on economic conditions such as employment opportunities and affordable housing options. Some parents may experience sadness when their adult children leave the home—a situation called an **empty nest**.

Many parents are also finding that their grown children are struggling to launch into independence. It’s an increasingly common story: a child goes off to college and, upon graduation, is unable to find steady employment. In such instances, a frequent outcome is for the child to return home, becoming a “boomerang kid.” The boomerang generation, as the phenomenon has come to be known, refers to young adults, mostly between the ages of 25 and 34, who return home to live with their parents while they strive for stability in their lives—often in terms of finances, living arrangements, and sometimes romantic relationships. These boomerang kids can be both good and bad for families. Within American families, 48% of boomerang kids report having paid rent to their parents, and 89% say they help out with

household expenses—a win for everyone.²⁴ On the other hand, 24% of boomerang kids report that returning home hurts their relationship with their parents.²⁵ For better or for worse, the number of children returning home has been increasing around the world. The Pew Research Center (2016) reported that the most common living arrangement for people aged 18-34 was living with their parents (32.1%).²⁶

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=226#h5p-35>

Adult children typically maintain frequent contact with their parents, if for no other reason, money and advice. Attitudes toward one's parents may become more accepting and forgiving, as parents are seen in a more objective way, as people with good points and bad. As adults children can continue to be subjected to criticism, ridicule, and abuse at the hand of parents. How long are we “adult children”? For as long as our parents are living, we continue in the role of son or daughter. (I had a neighbor in her nineties who would tell me her “boys” were coming to see her this weekend. Her boys were in their 70s-but they were still her boys!) But after one's parents are gone, the adult is no longer a child; as one 40 year old man explained after the death of his father, “I'll never be a kid again.”

Family Issues and Considerations

In addition to middle-aged parents spending more time, money, and energy taking care of their adult children, they are also increasingly taking care of their own aging and ailing parents. Middle-aged people in this set of circumstances are commonly referred to as the **sandwich**

24. Parker, K. (2012). The boomerang generation: Who are the boomerang kids? Pew Research Center. <http://www.pewsocialtrends.org/2012/03/15/who-are-the-boomerang-kids/>

25. Parker, K. (2012). The boomerang generation: Who are the boomerang kids? Pew Research Center. <http://www.pewsocialtrends.org/2012/03/15/who-are-the-boomerang-kids/>

26. Fry, Richard. For First Time in Modern Era (2016). Living With Parents Edges Out Other Living Arrangements for 18- to 34-Year-Olds. Pew Research Center. <https://www.pewsocialtrends.org/2016/05/24/for-first-time-in-modern-era-living-with-parents-edges-out-other-living-arrangements-for-18-to-34-year-olds/>.

generation.²⁷ Of course, cultural norms and practices again come into play. In some Asian and Hispanic cultures, the expectation is that adult children are supposed to take care of aging parents and parents-in-law. In other Western cultures—cultures that emphasize individuality and self-sustainability—the expectation has historically been that elders either age in place, modifying their home and receiving services to allow them to continue to live independently, or enter long-term care facilities. However, given financial constraints, many families find themselves taking in and caring for their aging parents, increasing the number of multigenerational homes around the world.

Being a midlife child often involves **kinkeeping**; organizing events and communication in order to maintain family ties. This role was first defined by Carolyn Rosenthal.²⁸ Kinkeepers are often midlife daughters (they are the person who tells you what food to bring to a gathering, or makes arrangement for a family reunion). They can often function as “managers” who maintain family ties and lines of communication. This is true for both large nuclear families, reconstituted, and multi-generational families. Rosenthal found that over half of the families she sampled were capable of identifying the individual who performed this role. Often adults at this stage of their lives are pressed into caregiving roles. Often referred to as the “sandwich generation”, they are still looking out for their own children while simultaneously caring for elderly parents. Given shifts in longevity and increasing costs for professional care of the elderly, this role will likely expand, placing ever greater pressure on careers.

Abuse in Family Life

Abuse can occur in multiple forms and across all family relationships. Breiding, Basile, Smith, Black, & Mahendra²⁹ define the forms of abuse as:

- **Physical abuse:** the use of intentional physical force to cause harm. Scratching, pushing, shoving, throwing, grabbing, biting, choking, shaking, slapping, punching, and hitting are common forms of physical abuse
- **Sexual abuse:** the act of forcing someone to participate in a sex act against his or her will.

27. Dukhovnov, D., & Zagheni, E. (2015). Who takes care of whom in the U.S.? Evidence from matrices of time transfers by age and sex. *Population and Development Review*, 41(2), 183–206. <https://doi.org/10.1111/j.1728-4457.2015.00044.x>

28. Rosenthal, C. J. (1985). Kinkeeping in the familial division of labor. *Journal of Marriage and the Family*, 47(4), 965. <https://doi.org/10.2307/352340>

29. Breiding, M. J., Basile, K. C., Smith, S. G., Black, M. C., Mahendra, R. R. (2015). Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements, Version 2.0. Atlanta (GA): National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

Such abuse is often referred to as sexual assault or rape. A marital relationship does not grant anyone the right to demand sex or sexual activity from anyone, even a spouse

- **Psychological abuse:** aggressive behavior that is intended to control someone else. Such abuse can include threats of physical or sexual abuse, manipulation, bullying, and stalking.

Abuse between partners is referred to as intimate partner violence; however, such abuse can also occur between a parent and child (child abuse), adult children and their aging parents (elder abuse), and even between siblings.

The most common form of abuse between parents and children is that of neglect. Neglect refers to a family's failure to provide for a child's basic physical, emotional, medical, or educational needs.³⁰ Harry Potter's aunt and uncle, as well as Cinderella's stepmother, could all be prosecuted for neglect in the real world.

Abuse is a complex issue, especially within families. There are many reasons people become abusers: poverty, stress, and substance abuse are common characteristics shared by abusers, although abuse can happen in any family. There are also many reasons adults stay in abusive relationships: (a) learned helplessness (the abused person believing he or she has no control over the situation); (b) the belief that the abuser can/will change; (c) shame, guilt, self-blame, and/or fear; and (d) economic dependence. All of these factors can play a role.

Children who experience abuse may "act out" or otherwise respond in a variety of unhealthy ways. These include acts of self-destruction, withdrawal, and aggression, as well as struggles with depression, anxiety, and academic performance. Researchers have found that abused children's brains may produce higher levels of stress hormones. These hormones can lead to decreased brain development, lower stress thresholds, suppressed immune responses, and lifelong difficulties with learning and memory.³¹

Happy, Healthy Families

Our families play a crucial role in our overall development and happiness. They can support and validate us, but they can also criticize and burden us. For better or worse, we all have a family. In closing, here are strategies you can use to increase the happiness of your family:

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30. Child Welfare Information Gateway. (2006). Child neglect: A guide for prevention, assessment and intervention. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau.
31. Middlebrooks, J. S., & Audage, N. C. (2008). The effects of childhood stress on health across the lifespan. United States, Center for Disease Control, National Center for Injury Prevention and Control: Atlanta, GA.

- Teach morality—fostering a sense of moral development in children can promote well-being.³²
- Savor the good—celebrate each other’s successes.³³
- Use the extended family network—family members of all ages, including older siblings and grandparents, who can act as caregivers can promote family well-being.³⁴
- Create family identity—share inside jokes, fond memories, and frame the story of the family.³⁵
- Forgive—Don’t hold grudges against one another.³⁶

Singlehood

According to a recent Pew Research study, 16 per 1,000 adults age 45 to 54 have never-married, and 7 per 1,000 adults age 55 and older have never married in the U. S.³⁷ However, some of them may be living with a partner. In addition, some singles at midlife may be single through divorce or widowhood. Bella DePaulo³⁸ has challenged the idea that singles, especially the always single, fair worse emotionally and in health when compared to those who are married. DePaulo suggests that there is a bias in how studies examine the benefits of marriage. Most studies focus on only a comparison between married versus not married, which does not include a separate comparison between those who have always been single, and those who are single because of divorce or widowhood. Her research, along with that of others, has found that those who are married may be more satisfied with life than the divorced or widowed, but there is little difference between married and always single, especially when comparing those who are recently married with those who have been married for four or more years. It appears that once the initial blush of the honeymoon wears off, those who are wedded are no happier or healthier

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32. Damon, W. (2004). What Is Positive Youth Development? *The Annals of the American Academy of Political and Social Science*, 591, 13–24. <http://www.jstor.org/stable/4127632>
33. Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, 91(5), 904–917. <https://doi.org/10.1037/0022-3514.91.5.904>
34. Armstrong, M. I., Birnie-Lefcovitch, S., & Ungar, M. T. (2005). Pathways Between Social Support, Family Well Being, Quality of Parenting, and Child Resilience: What We Know. *Journal of Child and Family Studies*, 14(2), 269–281. <https://doi.org/10.1007/s10826-005-5054-4>
35. McAdams, D. P. (1993). *The stories we live by: Personal myths and the making of the self*. William Morrow & Co.
36. McCullough, M. E., Worthington, E. L., Jr., & Rachal, K. C. (1997). Interpersonal forgiving in close relationships. *Journal of Personality and Social Psychology*, 73(2), 321–336. <https://doi.org/10.1037/0022-3514.73.2.321>
37. Wang, W. & Parker, K. (2014) Record share of Americans have never married: As values, economics and gender patterns change. Pew Research Center. <http://www.pewsocialtrends.org/2014/09/24/record-share-of-americans-have-never-married/>
38. DePaulo, B. (2014). A singles studies perspective on mount marriage. *Psychological Inquiry*, 25(1), 64–68. <https://doi.org/10.1080/1047840X.2014.878173>

than those who remained single. This might also suggest that there may be problems with how the “married” category is also seen as one homogeneous group.

Online Dating

Montenegro³⁹ surveyed over 3,000 singles aged 40–69, and almost half of the participants reported their most important reason for dating was to have someone to talk to or do things with. Additionally, sexual fulfillment was also identified as an important goal for many. Alterovitz & Mendelsohn⁴⁰ reviewed online personal ads for men and women over age 40 and found that romantic activities and sexual interests were mentioned at similar rates among the middle-age and young-old age groups, but less for the old-old age group.

Marriage

As you read in Chapter 7, there has been a number of changes in the marriage rate as more people are cohabitating, more are deciding to stay single, and more are getting married at a later age. As you can see in Figure 2, 48% of adults age 45–54 are married; either in their first marriage (22%) or have remarried (26%). This makes marriage the most common relationship status for middle-aged adults in the United States. Marital satisfaction tends to increase for many couples in midlife as children are leaving home.⁴¹ Not all researchers agree. They suggest that those who are unhappy with their marriage are likely to have gotten divorced by now, making the quality of marriages later in life only look more satisfactory.⁴²

Age Composition, by Present Marital Status



Note: “Remarried” includes only those who are currently in a second or higher order marriage. “Divorced” includes all currently divorced adults, including those who had been in a remarriage. Figures may not add to 100% due to rounding.

Source: Pew Research Center analysis of 2013 American Community Survey (1% IPUMS)

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Figure 2. Age composition, by present marital status (Source: Pew Research Center, 2014)

39. Montenegro, X. P. (2003). *Lifestyles, dating, and romance: A study of midlife singles*. Washington, DC: AARP.

40. Alterovitz, S. S., & Mendelsohn, G. A. (2013). Relationship goals of middle-aged, young-old, and old-old Internet daters: An analysis of online personal ads. *Journal of Aging Studies*, 27, 159–165. doi:10.1016/j.jaging.2012.12.006

41. Landsford, J. E., Antonucci, T.C., Akiyama, H., & Takahashi, K. (2005). A quantitative and qualitative approach to social relationships and well-being in the United States and Japan. *Journal of Comparative Family Studies*, 36, 1–22.

42. Umberson, D., Williams, K., Powers, D., Chen, M., & Campbell, A. (2005). As good as it gets? A life course perspective on marital quality. *Social Forces*, 81, 493–511.

Divorce

Livingston⁴³ found that 27% of adults age 45 to 54 were divorced (see Figure 2). Additionally, 57% of divorced adults were women. This reflects the fact that men are more likely to remarry than are women. Two-thirds of divorces are initiated by women⁴⁴ Most divorces take place within the first 5 to 10 years of marriage. This time line reflects people's initial attempts to salvage the relationship. After a few years of limited success, the couple may decide to end the marriage. It used to be that divorce after having been married for 20 or more years was rare, but in recent years the divorce rate among more long-term marriages has been increasing. Brown and Lin⁴⁵ note that while the divorce rate in the U.S. has declined since the 1990s, the rate among those 50 and older has doubled. They suggest several reasons for the “graying of divorce”. There is less stigma attached to divorce today than in the past. Some older women are out-earning their spouses, and thus may be more financially capable of supporting themselves, especially as most of their children have grown. Finally, given increases in human longevity, the prospect of living several more years or decades with an incompatible spouse may prompt middle-aged and older adults to leave the marriage.

Gottman and Levenson⁴⁶ found that the divorces in early adulthood were more angry and conflictual, with each partner blaming the other for the failures in the marriage. In contrast, they found that at midlife divorces tended to be more about having grown apart, or a cooling off of the relationship. A survey by AARP⁴⁷ found that men and women had diverse motivations for getting a divorce. Women reported concerns about the verbal and physical abusiveness of their partner (23%), drug/alcohol abuse (18%), and infidelity (17%). In contrast, men mentioned they had simply fallen out of love (17%), no longer shared interests or values (14%), and infidelity (14%). Both genders felt their marriage had been over long before the decision to divorce was made, with many of the middle-aged adults in the survey reporting that they stayed together because they were still raising children. Only 1 in 4 regretted their decision to divorce.

The effects of divorce are varied. Overall, young adults struggle more with the consequences

43. Livingston, G. (2014). Four in ten couples are saying I do again. In Chapter 3. The differing demographic profiles of first-time marries, remarried and divorced adults. Pew Research Center. <http://www.pewsocialtrends.org/2014/11/14/chapter-3-the-differing-demographic-profiles-of-first-time-married-remarried-and-divorced-adults/>

44. AARP. (2009). *The divorce experience: A study of divorce at midlife and beyond*. Washington, DC: AARP

45. Brown, S. L., & Lin, I.-F. (2012). The gray divorce revolution: rising divorce among middle-aged and older adults, 1990-2010. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 67(6), 731-741. <https://doi.org/10.1093/geronb/gbs089>

46. Gottman, J. M., & Levenson, R. W. (2000). The timing of divorce: Predicting when a couple will divorce over a 14-year period. *Journal of Marriage & the Family*, 62, 737-745.

47. AARP. (2009). *The divorce experience: A study of divorce at midlife and beyond*. Washington, DC: AARP

of divorce than do those at midlife, as they have a higher risk of depression or other signs of problems with psychological adjustment (Birditt & Antonucci, 2013). Divorce at midlife is more stressful for women. In the AARP⁴⁸ survey, 44% of middle-aged women mentioned financial problems after divorcing their spouse, in comparison only 11% of men reported such difficulties. However, a number women who divorce in midlife report that they felt a great release from their day-to-day sense of unhappiness. Hetherington and Kelly⁴⁹ found that among the groups of divorcees she called the **enhancers**, *those who had used the experience to better themselves and seek more productive intimate relationships*, or the **competent loners**, *those who used their divorce experience to grow emotionally, but who choose to stay single*, the overwhelming majority were women.

Dating Post-Divorce

Most divorced adults have dated by one year after filing for divorce.⁵⁰⁵¹ One in four recent filers report having been in or were currently in a serious relationship, and over half were in a serious relationship by one year after filing for divorce. Not surprisingly, younger adults were more likely to be dating than were middle aged or older adults, no doubt due to the larger pool of potential partners from which they could to draw. Of course, these relationships will not all end in marriage. Teachman⁵² found that more than two thirds of women under the age of 45 had cohabited with a partner between their first and second marriages.

Dating for adults with children can be more of a challenge. Courtships are shorter in remarriage than in first marriages. When couples are “dating”, there is less going out and more time spent in activities at home or with the children. So the couple gets less time together to focus on their relationship. Anxiety or memories of past relationships can also get in the way. As one Talmudic scholar suggests “when a divorced man marries a divorced woman, four go to bed.”⁵³

Post-divorce parents **gatekeep**, *that is, they regulate the flow of information about their new*

48. AARP. (2009). *The divorce experience: A study of divorce at midlife and beyond*. Washington, DC: AARP

49. Hetherington, E. M. & Kelly, J. (2002). *For better or worse: Divorce reconsidered*. New York, NY: Norton.

50. Anderson, E.R., Greene, S.M., Walker, L., Malerba, C.A., Forgatch, M.S., & DeGarmo, D.S. (2004). Ready to take a chance again: Transitions into dating among divorced parents. *Journal of Divorce and Remarriage*, 40, 61-75.

51. Anderson, E. R., & Greene, S. M. (2011). “My child and I are a package deal”: Balancing adult and child concerns in repartnering after divorce. *Journal of Family Psychology*, 25(5), 741-750.

52. Teachman, J. (2008). Complex life course patterns and the risk of divorce in second marriages. *Journal of Marriage and Family*, 70, 294 – 305.

53. Seccombe, K., & Warner, R. L. (2004). *Marriages and families: Relationships in social context*. Belmont, CA: Wadsworth/Thomson Learning.

romantic partner to their children, in an attempt to balance their own needs for romance with consideration regarding the needs and reactions of their children. Anderson et al.⁵⁴ found that almost half (47%) of dating parents gradually introduce their children to their dating partner, giving both their romantic partner and children time to adjust and get to know each other. Many parents who use this approach do so to avoid their children having to keep meeting someone new until it becomes clearer that this relationship might be more than casual. It might also help if the adult relationship is on firmer ground so it can weather any initial push back from children when it is revealed. Forty percent are open and transparent about the new relationship at the outset with their children. Thirteen percent do not reveal the relationship until it is clear that cohabitation and or remarriage is likely. Anderson and colleagues suggest that practical matters influence which gatekeeping method parents may use. Parents may be able to successfully shield their children from a parade of suitors if there is reliable childcare available. The age and temperament of the child, along with concerns about the reaction of the ex-spouse, may also influence when parents reveal their romantic relationships to their children.

Rates of remarriage

The rate for remarriage, like the rate for marriage, has been declining overall. In 2013 the remarriage rate was approximately 28 per 1,000 adults 18 and older. This represents a 44% decline since 1990 and a 16% decline since 2008.⁵⁵ Brown and Lin⁵⁶ found that the rate of remarriage dropped more for younger adults than middle aged and older adults, and Livingston⁵⁷ found that as we age we are more likely to have remarried (see Figure 3). This is not surprising as it takes some time to marry, divorce, and then find someone else to marry. However, Livingston found that unlike those younger than 55, those 55 and up are remarrying

54. Anderson, E.R., Greene, S.M., Walker, L., Malerba, C.A., Forgatch, M.S., & DeGarmo, D.S. (2004). Ready to take a chance again: Transitions into dating among divorced parents. *Journal of Divorce and Remarriage*, 40, 61-75.

55. Payne, K. K. (2015). The remarriage rate: Geographic variation, 2013. National Center for Family & Marriage Research. <http://bgsu.edu/ncfmr/resources/data/family-profiles/payne-remarriage-rate-fp-15-08.html>

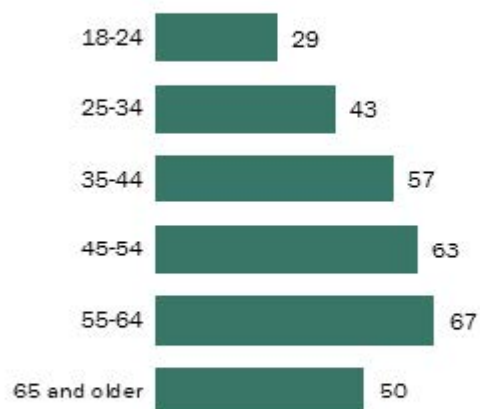
56. Brown, S. L., & Lin, I. (2013). The gray divorce revolution: Rising divorce among middle aged and older adults 1990-2010. National Center for Family & Marriage Research Working Paper Series. Bowling Green State University. <https://www.bgsu.edu/content/dam/BGSU/college-of-arts-and-sciences/NCFMR/documents/Lin/The-Gray-Divorce.pdf>

57. Livingston, G. (2014). Four in ten couples are saying I do again. In Chapter 3. The differing demographic profiles of first-time marries, remarried and divorced adults. Pew Research Center. <http://www.pewsocialtrends.org/2014/11/14/chapter-3-the-differing-demographic-profiles-of-first-time-married-remarried-and-divorced-adults/>

at a higher rate than in the past. In 2013, 67% of adults 55-64 and 50% of adults 65 and older had remarried, up from 55% and 34% in 1960, respectively.⁵⁸

Remarriage by Age

% of the previously married who ever remarried



Note: Previously married are those eligible for remarriage.

Source: Pew Research Center analysis of 2013 American Community Survey (1% IPUMS)

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Figure 3. Remarriage by age (Source: Pew Research Center, 2014)

declined.

Men have a higher rate of remarriage at every age group starting at age 25.⁵⁹ Livingston⁶⁰ reported that in 2013, 64% of divorced or widowed men compared with 52% of divorced or widowed women had remarried. However, this gender gap has narrowed over time. Even though more men still remarry, they are remarrying at a slower rate. In contrast, women are remarrying today more than they did in 1980. This gender gap has closed mostly among young and middle aged adults, but still persists among those 65 and older.

In 2012, Whites who were previously married were more likely to remarry than were other racial and ethnic groups.⁶¹ Moreover, the rate of remarriage has increased among Whites, while the rate of remarriage has declined for other racial and ethnic groups. This increase is driven by White women, whose rate of remarriage has increased, while the rate for White males has

58. Livingston, G. (2014). Four in ten couples are saying I do again. In Chapter 3. The differing demographic profiles of first-time marries, remarried and divorced adults. Pew Research Center. <http://www.pewsocialtrends.org/2014/11/14/chapter-3-the-differing-demographic-profiles-of-first-time-married-remarried-and-divorced-adults/>

59. Payne, K. K. (2015). The remarriage rate: Geographic variation, 2013. National Center for Family & Marriage Research. <http://bgsu.edu/ncfmr/resources/data/family-profiles/payne-remarriage-rate-fp-15-08.html>

60. Livingston, G. (2014). Four in ten couples are saying I do again. In Chapter 3. The differing demographic profiles of first-time marries, remarried and divorced adults. Pew Research Center. <http://www.pewsocialtrends.org/2014/11/14/chapter-3-the-differing-demographic-profiles-of-first-time-married-remarried-and-divorced-adults/>

61. Livingston, G. (2014). Four in ten couples are saying I do again. In Chapter 3. The differing demographic profiles of first-time marries, remarried and divorced adults. Pew Research Center. <http://www.pewsocialtrends.org/2014/11/14/chapter-3-the-differing-demographic-profiles-of-first-time-married-remarried-and-divorced-adults/>

Success of Remarriage

Reviews are mixed as to the happiness and success of remarriages. While some remarriages are more successful, especially if the divorce motivated the adult to engage in self-improvement and personal growth, a number of divorced adults end up in very similar marriages the second or third time around.⁶² Remarriages have challenges that are not found in first marriages that may create additional stress in the marital relationship. There can often be a general lack of clarity in family roles and expectations when trying to incorporate new kin into the family structure, even determining the appropriate terms for these kin, along with their roles can be a challenge. Partners may have to navigate carefully their role when dealing with their partners' children. All of this may lead to greater dissatisfaction and even resentment among family members. Even though remarried couples tend to have more realistic expectations for marriage, they tend to be less willing to stay in unhappy situations. The rate of divorce among remarriages is higher than among first marriages,⁶³ which can add additional burdens, especially when children are involved.

Children's Influence on Repartnering

Does having children affect whether a parent remarries? Goldscheider and Sassler (2006) found children residing with their mothers reduces the mothers' likelihood of marriage, only with respect to marrying a man without children.

Further, having children in the home appears to increase single men's likelihood of marrying a woman with children (Stewart, Manning, & Smock, 2003). There is also some evidence that individuals who participated in a stepfamily while growing up may feel better prepared for stepfamily living as adults. Goldscheider and Kaufman⁶⁴ found that having experienced family divorce as a child is associated with a greater willingness to marry a partner with children.

When children are present after divorce, one of the challenges the adults encounter is how much influence the child will have when selecting a new partner. Greene, Anderson, Hetherington, Forgatch, and DeGarmo⁶⁵ identified two types of parents. The child- focused parent allows the child's views, reactions, and needs to influence the repartnering. In contrast,

62. Hetherington, E. M. & Kelly, J. (2002). *For better or worse: Divorce reconsidered*. New York, NY: Norton.

63. Payne, K. K. (2015). The remarriage rate: Geographic variation, 2013. National Center for Family & Marriage Research. <http://bgsu.edu/ncfmr/resources/data/family-profiles/payne-remarriage-rate-fp-15-08.html>

64. Goldscheider, F., & Sassler, S. (2006). Creating stepfamilies: Integrating children into the study of union formation. *Journal of Marriage and Family*, 68, 275 – 291.

65. Greene, S. M., Anderson, E. R., Hetherington, E., Forgatch, M. S., & DeGarmo, D. S. (2003). Risk and resilience after divorce. In F. Walsh (Ed.), *Normal family processes: Growing diversity and complexity* (3rd ed., pp. 96-120). New York: Guilford Press.

the adult-focused parent expects that their child can adapt and should accommodate to parental wishes.

Anderson and Greene⁶⁶ found that divorced custodial mothers identified as more adult focused tended to be older, more educated, employed, and more likely to have been married longer. Additionally, adult focused mothers reported having less rapport with their children, spent less time in joint activities with their children, and the child reported lower rapport with their mothers. Lastly, when the child and partner were resisting one another, adult focused mothers responded more to the concerns of the partner, while the child focused mothers responded more to the concerns of the child. Understanding the implications of these two differing perspectives can assist parents in their attempts to repartner.

Grandparents

In addition to maintaining relationships with their children and aging parents, many people in middle adulthood take on yet another role, becoming a grandparent. The role of grandparent varies around the world. In multigenerational households, grandparents may play a greater role in the day-to-day activities of their grandchildren. While this family dynamic is more common in Latin America, Asia, and Africa, it has been on the increase in the U.S.⁶⁷

The degree of grandparent involvement also depends on the proximity of the grandparents' home to the grandchildren. In developed nations, the greater mobility of the society can mean that grandparents may live long distances from their grandchildren. Technology has brought grandparents and their more distant grandchildren together. Sorenson and Cooper⁶⁸ found that many of the grandfathers they interviewed would text, email, or Skype with their grandchildren in order to stay in touch.

Cherlin and Furstenberg⁶⁹ describe three styles of grandparents:

- **Remote:** Thirty percent of grandparents rarely see their grandchildren. Usually they live far away from the grandchildren, but may also have a distant relationship. Contact is

66. Anderson, E. R., & Greene, S. M. (2011). "My child and I are a package deal": Balancing adult and child concerns in repartnering after divorce. *Journal of Family Psychology*, 25(5), 741-750.

67. Pew Research Center. (2010). The return of the multi-generational family household. <http://www.pewsocialtrends.org/2010/03/18/the-return-of-the-multi-generational-family-household/>

68. Sorensen, P., & Cooper, N. J. (2010). Reshaping the family man: A grounded theory study of the meaning of grandfatherhood. *The Journal of Men's Studies*, 18(2), 117-136. <https://doi.org/10.3149/jms.1802.117>

69. Cherlin, A. J., & Furstenberg, F. F. (1986). *The new American grandparent: A place in the family, a life apart*. New York: Basic Books.

typically made on special occasions, such as holidays or birthdays.

- **Companionate:** Fifty-five percent of grandparents were described as “companionate”. These grandparents do things with the grandchild but have little authority or control over them. They prefer to spend time with them without interfering in parenting. They are more like friends to their grandchildren.
- **Involved:** Fifteen percent of grandparents were described as “involved”. These grandparents take a very active role in their grandchild’s life. They children might even live with the grandparent. The involved grandparent is one who has frequent contact with and authority over the grandchild. Grandmothers, more so than grandfathers, play this role. In contrast, more grandfathers than grandmothers saw their role as family historian and family advisor.⁷⁰

Bengtson⁷¹ suggests that grandparents adopt different styles with different grandchildren, and over time may change styles as circumstances in the family change. Today more grandparents are the sole care providers for grandchildren, or may step in at times of crisis. With these changes grandparents are redefining how they see their role in the family with fewer adopting a more formal role.⁷²

Early research on grandparents has routinely focused on grandmothers, with grandfathers often becoming invisible members of the family.⁷³ Yet, grandfathers stress the importance of their relationships with their grandchildren as strongly as do grandmothers.⁷⁴ For some men, this may provide them with the opportunity to engage in activities that their occupations, as well as their generation’s views of fatherhood and masculinity, kept them from engaging in with their own children.⁷⁵ Many of the grandfathers in Sorenson and Cooper’s study felt that being a grandfather was easier and a lot more enjoyable. Even among grandfathers that took on a more involved role, there was still a greater sense that they could be more light-hearted and flexible in their interactions with their grandchildren. Many grandfathers reported that

70. Neugarten, B. L., & Weinstein, K. K. (1964). The changing American grandparent. *Journal of Marriage and the Family*, 26, 199–204.

71. Bengtson, V. L. (2001). Families, intergenerational relationships, and kinkeeping in midlife. In N. M. Putney (Author) & M. E. Lachman (Ed.), *Handbook of midlife development* (pp. 528–579). New York: Wiley.

72. Hayslip Jr., B., Henderson, C. E., & Shore, R. J. (2003). The Structure of Grandparental Role Meaning. *Journal of Adult Development*, 10(1), 1–13.

73. Sorensen, P., & Cooper, N. J. (2010). Reshaping the family man: A grounded theory study of the meaning of grandfatherhood. *The Journal of Men’s Studies*, 18(2), 117–136. <https://doi.org/10.3149/jms.1802.117>

74. Waldrop, D., Weber, J., Herald, S., Pruett, J., Cooper, K., & Juozapavicius, K. (1999). Wisdom and life experience: How grandfathers mentor their grandchildren. *Journal of Aging and Identity*, 4(1), 33–46.

75. Sorensen, P., & Cooper, N. J. (2010). Reshaping the family man: A grounded theory study of the meaning of grandfatherhood. *The Journal of Men’s Studies*, 18(2), 117–136. <https://doi.org/10.3149/jms.1802.117>

they were more openly affectionate with their grandchildren than they had been with their own children.

Friendships

Adults of all ages who reported having a confidante or close friend with whom they could share personal feelings and concerns, believed these friends contributed to a sense of belonging, security, and overall wellbeing.⁷⁶ Having a close friend is a factor in significantly lower odds of psychiatric morbidity including depression and anxiety.^{77,78} The availability of a close friend has also been shown to lessen the adverse effects of stress on health.^{79,80,81} Additionally, poor social connectedness in adulthood is associated with a larger risk of premature mortality than cigarette smoking, obesity, and excessive alcohol use.⁸²

Female friendships and social support networks at midlife contribute significantly to a woman's feeling of life satisfaction and well-being.⁸³ Degges-White and Myers⁸⁴ found that women who have supportive people in their life experience greater life satisfaction than do those who live a more solitary life. A friendship network or the presence of a confidant have both been identified for their importance to women's mental health.⁸⁵ Unfortunately, with

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76. Dunér, A., & Nordstrom, M. (2007). The roles and functions of the informal support networks of older people who receive formal support: A Swedish qualitative study. *Ageing & Society*, 27, 67– 85. <https://doi.org/10.1017/S0144686X06005344>
 77. Harrison, J., Barrow, S., Gask, L., & Creed, F. (1999). Social determinants of GHQ score by postal survey. *Journal of Public Health Medicine*, 21, 283–288. <https://doi.org/10.1093/pubmed/21.3.283>
 78. Newton, T., Buckley, A., Zurlage, M., Mitchell, C., Shaw, A., & Woodruff-Borden, J. (2008). Lack of a close confidant: Prevalence and correlates in a medically underserved primary care sample. *Psychology, Health & Medicine*, 13, 185– 192. <https://doi.org/10.1080/13548500701405491>
 79. Kouzis, A. C., & Eaton, W. W. (1998). Absence of social networks, social support, and health services utilization. *Psychological Medicine*, 28, 1301–1310. <https://doi.org/10.1017/S0033291798007454>
 80. Hawkey, L. C., Hughes, M. E., Waite, L. J., Masi, C. M., Thisted, R. A., & Cacioppo, J. T. (2008). From social structural factors to perceptions of relationship quality and loneliness: The Chicago health, aging, and marital status transitions and health outcomes social relations study. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 63, 375–384. <https://doi.org/10.1093/geronb/63.6.S375>
 81. Tower, R. B., & Kasl, S. V. (1995). Depressive symptoms across older spouses and the moderating effect of marital closeness. *Psychology and Aging*, 10, 625– 638. <https://doi.org/10.1037/0882-7974.10.4.625>
 82. Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS Medicine*, 7(7), e1000316.
 83. Borzumato-Gainey, C., Kennedy, A., McCabe, B., & Degges-White, S. (2009). Life satisfaction, self-esteem, and subjective age in women across the life span. *Adult span Journal*, 8(1), 29–42.
 84. Degges-White, S., & Myers, J. E. (2006). Women at midlife: An exploration of chronological age, subjective age, wellness, and life satisfaction. *Adults pan Journal*, 5, 67–80.
 85. Baruch, G., & Brooks-Gunn, J. (1984). *Women in midlife*. New York: Plenum.

numerous caretaking responsibilities at home, it may be difficult for women to find time and energy to enhance the friendships that provide an increased sense of life satisfaction.⁸⁶ Emslie, Hunt and Lyons⁸⁷ found that for men in midlife, the shared consumption of alcohol was important to creating and maintaining male friends. Drinking with friends was justified as a way for men to talk to each other, provide social support, relax, and improve mood. Although the social support provided when men drink together can be helpful, the role of alcohol in male friendships can lead to health damaging behavior from excessive drinking.

The importance of social relationships begins in early adulthood by laying down a foundation for strong social connectedness and facilitating comfort with intimacy.⁸⁸ To determine the impact of the quantity and quality of social relationships in young adulthood on middle adulthood, Carmichael, Reis, and Duberstein⁸⁹ assessed individuals at age 50 on measures of social connection (types of relationships and friendship quality) and psychological outcomes (loneliness, depression, psychological well-being). Results indicated that the quantity of social interactions at age 20 and the quality, not quantity, of social interaction at age 30 predicted midlife social interactions. Those individuals who had high levels of social information seeking (quantity) at age 20 followed by less quantity in social relationships but greater emotional closeness (quality), resulted in positive psychosocial adjustment at midlife. Continuing to socialize widely in one's 30s appeared to negatively affect the development of intimacy, and consequently resulted in worse psychological outcomes at age 50.

Internet Friendships

What influence does the Internet have on friendships? It is not surprising that people use the Internet with the goal of meeting and making new friends.^{90,91} Researchers have wondered if the issue of not being face-to-face reduces the authenticity of relationships, or if the Internet really allows people to develop deep, meaningful connections. Interestingly, research has

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- 86. Borzumato-Gainey, C., Kennedy, A., McCabe, B., & Degges-White, S. (2009). Life satisfaction, self-esteem, and subjective age in women across the life span. *Adult span Journal*, 8(1), 29-42.
 - 87. Emslie, C., Hunt, K., & Lyons, A. 2013. The role of alcohol in forging and maintaining friendships amongst Scottish men in midlife. *Health Psychology*, 32(10), 33-41.
 - 88. Erikson, E. (1959). *Identity and the life cycle*. New York: Norton & Company.
 - 89. Carmichael, C. L., Reis, H. T., & Duberstein, P. R. (2015). In your 20s it's quantity, in your 30s it's quality: The prognostic value of social activity across 30 years of adulthood. *Psychology and Aging*, 30(1), 95-105.
 - 90. Fehr, B. (2008). Friendship formation. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of Relationship Initiation* (pp. 29-54). New York, NY: Psychology Press.
 - 91. McKenna, K. A. (2008) MySpace or your place: Relationship initiation and development in the wired and wireless world. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 235-247). New York, NY: Psychology Press.

demonstrated that virtual relationships are often as intimate as in-person relationships; in fact, Bargh and colleagues found that online relationships are sometimes more intimate.⁹² This can be especially true for those individuals who are more socially anxious and lonely as such individuals are more likely to turn to the Internet to find new and meaningful relationships.⁹³ McKenna and colleagues suggest that for people who have a hard time meeting and maintaining relationships, due to shyness, anxiety, or lack of face-to-face social skills, the Internet provides a safe, nonthreatening place to develop and maintain relationships. Similarly, Benford and Standen⁹⁴ found that for high-functioning autistic individuals, the Internet facilitated communication and relationship development with others, which would have been more difficult in face-to-face contexts, leading to the conclusion that Internet communication could be empowering for those who feel frustrated when communicating face to face.

Workplace Friendships

Friendships often take root in the workplace, due to the fact that people are spending as much, or more, time at work than they are with their family and friends.⁹⁵ Often, it is through these relationships that people receive mentoring and obtain social support and resources, but they can also experience conflicts and the potential for misinterpretation when sexual attraction is an issue. Indeed, Elsesser and Peplau⁹⁶ found that many workers reported that friendships grew out of collaborative work projects, and these friendships made their days more pleasant.

In addition to those benefits, Riordan and Griffeth⁹⁷ found that people who worked in an environment where friendships could develop and be maintained were more likely to report higher levels of job satisfaction, job involvement, and organizational commitment, and they were less likely to leave that job. Similarly, a Gallup poll revealed that employees who had close friends at work were almost 50% more satisfied with their jobs than those who did not.⁹⁸

92. Bargh, J. A., McKenna, K. Y. A., & Fitsimons, G. G. (2002). Can you see the real me? Activation and expression of the true self on the Internet. *Journal of Social Issues*, 58, 33–48.

93. McKenna, K. A., Green, A. S., & Gleason, M. E. J. (2002). Relationship formation on the Internet: What's the big attraction? *Journal of Social Issues*, 58, 9–31.

94. Benford, P., & Standen, P. (2009). The internet: a comfortable communication medium for people with Asperger syndrome (AS) and high functioning autism (HFA)? *Journal of Assistive Technologies*, 3(2), 44–53. <https://doi.org/10.1108/17549450200900015>

95. Kaufman, B. E., & Hotchkiss, J. L. 2003. *The economics of labor markets* (6th ed.). Mason, OH: Thomson South-Western.

96. Elsesser, L., & Peplau, L. A. (2006). The glass partition: Obstacles to cross-sex friendships at work. *Human Relations*, 59(8), 1077–1100.

97. Riordan, C. M., & Griffeth, R. W. (1995). The opportunity for friendship in the workplace: An underexplored construct. *Journal of Business and Psychology*, 10, 141–154.

98. Armour, S. (2007, August 2). Friendships and work: A good or bad partnership? USA Today. http://usatoday30.usatoday.com/money/workplace/2007-08-01-work-friends_N.htm

Women in Midlife

In Western society, aging for women is much more stressful than for men as society emphasizes youthful beauty and attractiveness.⁹⁹ The description that aging men are viewed as “distinguished” and aging women are viewed as “old” is referred to as the double standard of aging.¹⁰⁰ Since women have traditionally been valued for their reproductive capabilities, they may be considered old once they are postmenopausal. In contrast, men have traditionally been valued for their achievements, competence and power, and therefore are not considered old until they are physically unable to work.¹⁰¹ Consequently, women experience more fear, anxiety, and concern about their identity as they age, and may feel pressure to prove themselves as productive and valuable members of society.¹⁰²

Attitudes about aging, however, do vary by race, culture, and sexual orientation. In some cultures, aging women gain greater social status. For example, as Asian women age they attain greater respect and have greater authority in the household.¹⁰³ Compared to white women, Black and Latina women possess less stereotypes about aging.¹⁰⁴ Lesbians are also more positive about aging and looking older than heterosexuals.¹⁰⁵ The impact of media certainly plays a role in how women view aging by selling anti-aging products and supporting cosmetic surgeries to look younger.¹⁰⁶

Religion and Spirituality

Grzywacz and Keyes¹⁰⁷ found that in addition to personal health behaviors, such as regular exercise, healthy weight, and not smoking, social behaviors, including involvement in

99. Slevin, K. F. (2010). “If I had lots of money...I’d have a body makeover”: Managing the aging body. *Social Forces*, 88(3), 1003-1020.

100. Teuscher, U., & Teuscher, C. (2006). Reconsidering the double standard of aging: Effects of gender and sexual orientation on facial attractiveness ratings. *Personality and Individual Differences*, 42(4), 631-639.

101. Carroll, J. L. (2016). *Sexuality now: Embracing diversity* (5th ed.). Boston, MA: Cengage Learning.

102. Bromberger, J. T., Kravitz, H. M., & Chang, Y. (2013). Does risk for anxiety increase during the menopausal transition? Study of women’s health across the nation (SWAN). *Menopause*, 20(5), 488-495.

103. Fung, H. H. (2013). Aging in culture. *Gerontologist*, 53(3), 369-377.

104. Schuler, P., Vinci, D., Isosaari, R., Philipp, S., Todorovich, J., Roy, J., & Evans, R. (2008). Body-shape perceptions and body mass index of older African American and European American women. *Journal of Cross-Cultural Gerontology*, 23(3), 255-264.

105. Slevin, K. F. (2010). “If I had lots of money...I’d have a body makeover”: Managing the aging body. *Social Forces*, 88(3), 1003-1020.

106. Gilleard, C., & Higgs, P. (2000). *Cultures of aging: Self, citizen and the body*. Upper Saddle River, NJ: Prentice Hall Publishers.

107. Grzywacz, J. G. & Keyes, C. L. (2004). Toward health promotion: Physical and social behaviors in complete health. *Journal of Health Behavior*, 28(2), 99-111.

religious- related activities, have been shown to be positively related to optimal health. However, it is not only those who are involved in a specific religion that benefit, but so too do those identified as being spiritual. According to Greenfield, Vaillant, and Marks¹⁰⁸ **religiosity** refers to engaging with a formal religious group's doctrines, values, traditions, and co-members. In contrast, **spirituality** refers to an individual's intrapsychic sense of connection with something transcendent (that which exists apart from and not limited by the material universe) and the subsequent feelings of awe, gratitude, compassion, and forgiveness. Research has demonstrated a strong relationship between spirituality and psychological well-being, irrespective of an individual's religious participation.¹⁰⁹ Additionally, Sawatzky, Ratner, & Chiu¹¹⁰ found that spirituality was related to a higher quality of life for both individuals and societies.

Based on reports from the 2005 National Survey of Midlife in the United States, Greenfield et al.¹¹¹ found that higher levels of spirituality were associated with lower levels of negative affect and higher levels of positive affect, personal growth, purpose in life, positive relationships with others, self-acceptance, environmental mastery, and autonomy. In contrast, formal religious participation was only associated with higher levels of purpose in life and personal growth among just older adults and lower levels of autonomy. In summary, it appears that formal religious participation and spirituality relate differently to an individual's overall psychological well-being.

Religion and Age

Older individuals identify religion/spirituality as being more important in their lives than those younger.¹¹² This age difference has been explained by several factors including that religion and spirituality assist older individuals in coping with age- related losses, provide opportunities for socialization and social support in later life, and demonstrate a cohort effect in that older individuals were socialized more to be religious and spiritual than those younger.¹¹³

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108. Greenfield, E. A., Vaillant, G. E., & Marks, N. F. (2009). Do formal religious participation and spiritual perceptions have independent linkages with diverse dimensions of psychological well-being? *Journal of Health and Social Behavior*, 50, 196-212.
109. Vaillant, G. E. (2008). *Spiritual evolution: A scientific defense of faith*. New York: Doubleday Broadway.
110. Sawatzky, R., Ratner, P. A., & Chiu, L. (2005). A meta-analysis of the relationship between spirituality and quality of life. *Social Indicators Research*, 72, 153-188.
111. Greenfield, E. A., Vaillant, G. E., & Marks, N. F. (2009). Do formal religious participation and spiritual perceptions have independent linkages with diverse dimensions of psychological well-being? *Journal of Health and Social Behavior*, 50, 196-212.
112. Beit-Hallahmi, B., & Argyle, M. (1998). *Religious behavior, belief, and experience*. New York: Routledge.
113. Greenfield, E. A., Vaillant, G. E., & Marks, N. F. (2009). Do formal religious participation and spiritual perceptions have independent linkages with diverse dimensions of psychological well-being? *Journal of Health and Social Behavior*, 50, 196-212.

Religion and Gender

In the United States, women report identifying as being more religious and spiritual than men do.¹¹⁴ According to the Pew Research Center,¹¹⁵ women in the United States are more likely to say religion is very important in their lives than men (60% vs. 47%). American women also are more likely than American men to say they pray daily (64% vs. 47%) and attend religious services at least once a week (40% vs. 32%). Theories to explain this gender difference include that women may benefit more from the social-relational aspects of religion/spirituality because social relationships more strongly influence women's mental health. Additionally, women have been socialized to internalize the behaviors linked with religious values, such as cooperation and nurturance, more than males.¹¹⁶

Religion Worldwide

To measure the religious beliefs and practices of men and women around the world, the Pew Research Center¹¹⁷ conducted surveys of the general population in 84 countries between 2008 and 2015. Overall, an estimated 83% of women worldwide identified with a religion compared with 80% of men. This equaled 97 million more women than men identifying with a religion. There were no countries in which men were more religious than women by 2 percentage points or more. Among Christians, women reported higher rates of weekly church attendance and higher rates of daily prayer. In contrast, Muslim women and Muslim men showed similar levels of religiousness, except frequency of attendance at worship services. Because of religious norms, Muslim men worshiped at a mosque more often than Muslim women. Similarly, Jewish men attended a synagogue more often than Jewish women. In Orthodox Judaism, communal worship services cannot take place unless a minyan, or quorum of at least 10 Jewish men, is present, thus insuring that men will have high rates of attendance. Only in Israel, where roughly 22% of all Jewish adults self-identify as Orthodox, did a higher percentage of men than women report engaging in daily prayer.

114. De Vaus, D. & McAllister, I. (1987). Gender differences in religion: A test of the structural location theory. *American Sociological Review*, 52, 472-481.

115. Pew Research Center. (2016). The Gender gap in religion around the world. <http://www.pewforum.org/2016/03/22/the-gender-gap-in-religion-around-the-world/>

116. De Vaus, D. & McAllister, I. (1987). Gender differences in religion: A test of the structural location theory. *American Sociological Review*, 52, 472-481.

117. Pew Research Center. (2016). The Gender gap in religion around the world. <http://www.pewforum.org/2016/03/22/the-gender-gap-in-religion-around-the-world/>

LATE ADULTHOOD

INTRODUCTION TO LATE ADULTHOOD

Diana Lang; Nick Cone; and Sonja Ann Miller

Learning Objectives

- Describe age categories of late adulthood
- Describe physical changes in late adulthood
- Describe primary aging, including vision and hearing loss
- Explain trends in life expectancies, including factors that contribute to longer life
- Explain secondary aging concerns that are common in late adulthood, including illnesses and diseases
- Explain cognitive development in late adulthood
- Discuss the impact of aging on memory
- Explain how age impacts cognitive functioning
- Describe abnormal memory loss due to Alzheimer's disease, delirium, and dementia
- Describe psychosocial development in late adulthood
- Describe theories related to late adulthood, including Erikson's psychosocial stage of integrity vs. despair
- Describe examples of productivity in late adulthood
- Describe attitudes about aging
- Examine family relationships during late adulthood (grandparenting, marriage, divorce, widowhood, traditional and non-traditional roles; co-habitation, LGBTQ+)
- Describe the different psychosocial theories of aging

Jeanne Calment was a typical woman of her time. Born in Arles, France, in 1875, she lived a rather unremarkable life by most accounts—except for one thing: when she died in 1997 at the age of 122, she was on record as the oldest person to have ever lived. “I just kept getting older and couldn’t help it,” she once said (Figure 1).¹

So what does the extraordinary life of this ordinary woman have to do with us today? More than you might think. In her day, living to 100 was extremely rare. But today in the United States, people 100 and over represent the second-fastest-growing age group in the country. The fastest? People over 85. Many 65-year-olds today will live well into their 90s.

Furthermore, because of increases in average life expectancy, each new generation can expect to live longer than their parents’ generation and certainly longer than their grandparents’ generation. Think of it another way: a 10-year-old child today has a 50 percent chance of living to the age of 104. Some demographers have even speculated that the first person ever to live to be 150 is alive today.

As a consequence, it is time for individuals of all ages to rethink their personal life plans and consider prospects for a long life. We need to ask ourselves questions such as:

- What do we know about longevity?
- How does our brain and body change during this part of our lifespan?
- How can I age successfully and enjoy life to the fullest?

In this module, we will discuss several different domains of physical, cognitive, psychological and social development, as well as research on aging that will help answer these important questions.



Figure 1. Calment celebrating her 121st birthday in 1996. She died in 1997 at age 122.

1. This chapter was adapted from Lumen Learning's *Lifespan Development*, authored by Sonja Ann Miller and available under a Creative Commons Attribution license.

PHYSICAL DEVELOPMENT IN LATE ADULTHOOD

Diana Lang; Nick Cone; Sonja Ann Miller; Daniel Dickman; Urtano Annele; K. Jyvakorpi Satu; and E. Strandberg Timo



Figure 1. While late adulthood is generally a time of physical decline, there are no set rules as to when and how it happens. (Image Source: “Older” on Pixabay)

In this section, you’ll learn more about physical changes in late adulthood. We are continually learning more about how to promote greater health during the aging process.¹

1. This chapter was adapted from select chapters in *Waymaker Lifespan Development*, authored by Sonja Ann Miller and Daniel Dickman for Lumen Learning and available under a Creative Commons Attribution-ShareAlike license. The section on Successful Aging is adapted from "Definitions of successful ageing: A brief review of a multidimensional concept" by Urtano Annele, K. Jyvakorpi Satu, and E. Strandberg Timo, available under a Creative Commons Attribution 4.0 International License. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology*, Wikipedia, and The Noba Project.

Video Example

Watch this clip from Marco Pahor, a professor in the University of Florida department of aging and geriatric research, as he discusses his research about ways physical activity affects the mobility of older adults and how it may result in longer life, lower medical costs, and increased long-term independence.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=279#oembed-1>

You can view the transcript for “Study proves physical activity helps maintain mobility in older adults” here (opens in new window).

Defining Late Adulthood: Age or Quality of Life?



Figure 2. 82-year old bodybuilder Ernestine Shepherd is quoted saying, “You’re not getting old; you’re getting ready.”

We are considered in late adulthood from the time we reach our mid-sixties until death. Because we are living longer, late adulthood is getting longer. Whether we start counting at 65, as demographers may suggest, or later, there is a greater proportion of people alive in late adulthood than anytime in world history. A 10-year-old child today has a 50 percent chance of living to age 104. Some demographers have even speculated that the first person ever to live to be 150 is alive today.

About 15.2 percent of the U.S. population or 49.2 million Americans are 65 and older.² This number is expected to grow to 98.2 million by the

year 2060, at which time people in this age group will comprise nearly one in four U.S. residents. Of this number, 19.7 million will be age 85 or older. Developmental changes vary

2. US Census Bureau. (2018, April 10). The Nation's Older Population Is Still Growing, Census Bureau Reports.
<https://www.census.gov/newsroom/press-releases/2017/cb17-100.html>

considerably among this population, so it is further divided into categories of 65 plus, 85 plus, and centenarians for comparison by the census.³

Demographers use chronological age categories to classify individuals in late adulthood. Developmentalists, however, divide this population into categories based on physical and psychosocial well-being, in order to describe one's functional age. The "young old" are healthy and active. The "old old" experience some health problems and difficulty with daily living activities. The "oldest old" are frail and often in need of care. A 98 year old woman who still lives independently, has no major illnesses, and is able to take a daily walk would be considered as having a functional age of "young old". Therefore, *optimal aging* refers to those who enjoy better health and social well-being than average (Figure 2).

Normal aging refers to those who seem to have the same health and social concerns as most of those in the population. However, there is still much being done to understand exactly what *normal aging* means. *Impaired aging* refers to those who experience poor health and dependence to a greater extent than would be considered normal. Aging successfully involves making adjustments as needed in order to continue living as independently and actively as possible. This is referred to as selective optimization with compensation. **Selective Optimization With Compensation** is a strategy for improving health and well being in older adults and a model for successful aging. It is recommended that seniors select and optimize their best abilities and most intact functions while compensating for declines and losses. This means, for example, that a person who can no longer drive, is able to find alternative transportation, or a person who is compensating for having less energy, learns how to reorganize the daily routine to avoid overexertion. Perhaps nurses and other allied health professionals working with this population will begin to focus more on helping patients remain independent by optimizing their best functions and abilities rather than on simply treating illnesses. Promoting health and independence are essential for successful aging.

3. US Census Bureau. (2018, August 03). Newsroom. <https://www.census.gov/newsroom/facts-for-features/2017/cb17-ff08.html>

Video Example

Systematic examination of old age is a new field inspired by the unprecedented number of people living long enough to become elderly. Developmental psychologists Paul and Margret Baltes have proposed a model of adaptive competence for the entire life span, but the emphasis here is on old age. Their model SOC (Selection, Optimization, and Compensation) is illustrated with engaging vignettes of people leading fulfilling lives, including writers Betty Friedan and Joan Erikson, and dancer Bud Mercer. Segments of the cognitive tests used by the Baltes in assessing the mental abilities of older people are shown. Although the video clip show below is old and dated, it remains an intellectually appealing video in which the Baltes discuss personality components that generally lead to positive aging experiences.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=279#oembed-2>

You can view the transcript for “Aging Successfully: The Psychological Aspects of Growing Old (Davidson Films, Inc.)” [here](#) (opens in new window).

Try It

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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=279#h5p-36>

Age Categories

Senescence, or **biological aging**, is the gradual deterioration of functional characteristics (Figure 3).⁴

4. Senescence. (n.d.). <https://www.merriam-webster.com/dictionary/senescence>

The Young Old—65 to 74

These 18.3 million Americans tend to report greater health and social well-being than older adults. Having good or excellent health is reported by 41 percent of this age group.⁵ Their lives are more similar to those of midlife adults than those who are 85 and older. This group is less likely to require long-term care, to be dependent or to be poor, and more likely to be married, working for pleasure rather than income, and living independently. About 65 percent of men and 50 percent of women between the ages of 65-69 continue to work full-time.⁶

Physical activity tends to decrease with age, despite the dramatic health benefits enjoyed by those who exercise. People with more education and income are more likely to continue being physically active. And males are more likely to engage in physical activity than are females. The majority of the young-old continue to live independently. Only about 3 percent of those 65-74 need help with daily living skills as compared with about 22.9 percent of people over 85. Another way to consider this is that 97 percent of people between 65-74 and 77 percent of people over 85 do not require assistance! This age group is less likely to experience heart disease, cancer, or stroke than the old, but nearly as likely to experience depression.⁷



Figure 3. The word **senescence** can be traced back to Latin *senex*, meaning “old.” Lots of other English words come from *senex*—senile, senior, senate, etc. The word senate to describe a legislative assembly dates back to ancient Rome, where the Senate was originally a council of elders composed of the heads of patrician families. (Image Source: Hasan Albari on Pexels)

The Old Old—75 to 84

This age group is more likely to experience limitations on physical activity due to chronic disease such as arthritis, heart conditions, hypertension (especially for women), and hearing or

5. Chapman, D. P., Williams, S. M., Strine, T. W., Anda, R. F., & Moore, M. J. (2006, February 18). Preventing Chronic Disease: April 2006: 05_0167. Centers for Disease Control and Prevention. http://www.cdc.gov/pcd/issues/2006/apr/05_0167.htm

6. He, W., Sengupta, M., Velkoff, V., & DeBarros, K. (n.d.). U. S. Census Bureau, Current Population Reports, P23-209, 65+ in the United States: 2005 (United States, U. S. Census Bureau). www.census.gov/prod/1/pop/p23-190/p23-190.html

7. He, W., Sengupta, M., Velkoff, V., & DeBarros, K. (n.d.). U. S. Census Bureau, Current Population Reports, P23-209, 65+ in the United States: 2005 (United States, U. S. Census Bureau). www.census.gov/prod/1/pop/p23-190/p23-190.html

visual impairments. Rates of death due to heart disease, cancer, and cerebral vascular disease are double that experienced by people 65-74. Poverty rates are 3 percent higher (12 percent) than for those between 65 and 74. However, the majority of these 12.9 million Americans live independently or with relatives. Widowhood is more common in this group-especially among women.

The Oldest Old—85 plus

The number of people 85 and older is 34 times greater than in 1900 and now includes 5.7 million Americans. This group is more likely to require long-term care and to be in nursing homes. However, of the 38.9 million American over 65, only 1.6 million require nursing home care. Sixty-eight percent live with relatives and 27 percent live alone.⁸⁹

The Centenarians

Centenarians, or people aged 100 or older, are both rare and distinct from the rest of the older population (Figure 4). Although uncommon, the number of people living past age 100 is on the rise; between the year 2000 and 2014, then number of centenarians increased by over 43.6%, from 50,281 in 2000 to 72,197 in 2014.¹⁰ In 2010, over half (62.5 percent) of the 53,364 centenarians were age 100 or 101.¹¹

This number is expected to increase to 601,000 by the year 2050.¹² The majority is between ages 100 and 104 and eighty



Figure 4. Kirk Douglas, actor and filmmaker, is a centenarian. (Image Source: Angela George on Flickr)

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8. He, W., Sengupta, M., Velkoff, V., & DeBarros, K. (n.d.). U. S. Census Bureau, Current Population Reports, P23-209, 65+ in the United States: 2005 (United States, U. S. Census Bureau). www.census.gov/prod/1/pop/p23-190/p23-190.html
 9. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22). Census Bureau Home Page. http://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb10-ff06.html
 10. Jiaquan, X. (2016). Centers for Disease Control and Prevention. Mortality Among Centenarians in the United States, 2000–2014. <https://www.cdc.gov/nchs/data/databriefs/db233.pdf>.
 11. US Census Bureau. (2018, August 03). Newsroom. <https://www.census.gov/newsroom/facts-for-features/2017/cb17-ff08.html>
 12. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22).

percent are women. Out of almost 7 billion people on the planet, about 25 are over 110. Most live in Japan, a few live the in United States and three live in France (National Institutes of Health, 2006). These “super-Centenarians” have led varied lives and probably do not give us any single answers about living longer. Jeanne Clement smoked until she was 117. She lived to be 122. She also ate a diet rich in olive oil and rode a bicycle until she was 100. Her family had a history of longevity. Pitskhelauri¹³ suggests that moderate diet, continued work and activity, inclusion in family and community life, and exercise and relaxation are important ingredients for long life.

Census Bureau Home Page. http://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb10-ff06.html

13. Berger, K. S. (2005). *The developing person through the life span* (6th ed.). New York: Worth.

Blue Zones

Recent research on longevity reveals that people in some regions of the world live significantly longer than people elsewhere. Efforts to study the common factors between these areas and the people who live there is known as **blue zone research** (Figure 5). Blue zones are regions of the world where Dan Buettner claims people live much longer than average. The term first appeared in his November 2005 National Geographic magazine cover story, “The Secrets of a Long Life.” Buettner identified five regions as “Blue Zones”: Okinawa (Japan); Sardinia (Italy); Nicoya (Costa Rica); Icaria (Greece); and the Seventh-day Adventists in Loma Linda, California. He offers an explanation, based on data and first hand observations, for why these populations live healthier and longer lives than others.

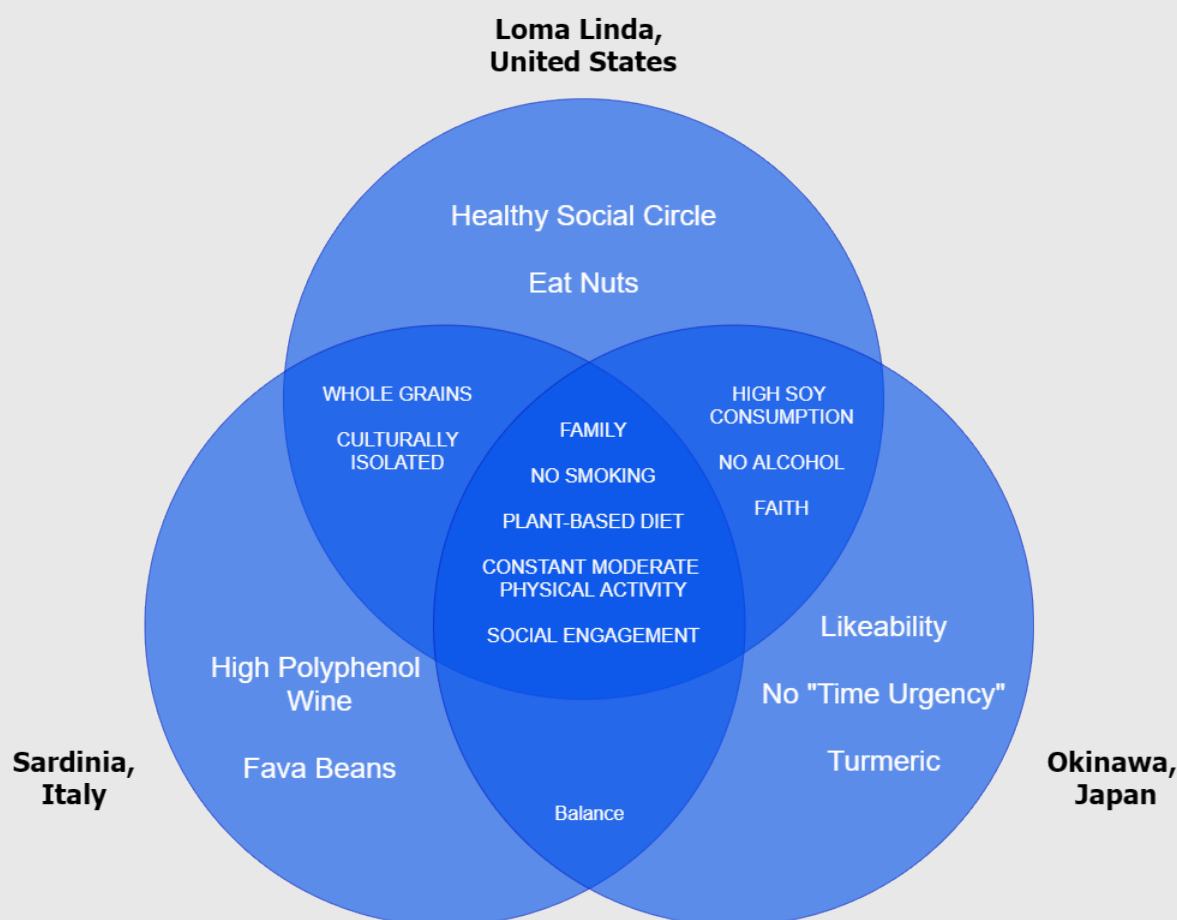


Figure 5. Blue zones share many common healthy habits contributing to longer lifespans. (Image Source: Abbeyelder on Wikimedia Commons, CC BY SA)

The people inhabiting blue zones share common lifestyle characteristics that contribute to their longevity. The Venn diagram below highlights the following six shared characteristics among the people of Okinawa, Sardinia, and Loma Linda blue zones. Though not a lifestyle choice, they also live as isolated populations with a related gene pool.

- Family, put ahead of other concerns
- Less smoking
- Semi-vegetarianism, when the majority of food consumed is derived from plants
- Constant moderate physical activity as an inseparable part of life
- Social engagement, when people of all ages are socially active and integrated into their communities
- Legumes are commonly consumed

In his book, Buettner provides a list of nine lessons, covering the lifestyle of blue zones people:

- Moderate, regular physical activity
- Life purpose
- Stress reduction
- Moderate caloric intake
- Plant-based diet
- Moderate alcohol intake, especially wine
- Engagement in spirituality or religion
- Engagement in family life
- Engagement in social life

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Successful Aging

“Successful aging” is a concept that describes the quality of aging. Studies continually use a variety of definitions for “successful aging.” For this book, “successful aging” is defined as encompassing the physical, functional, social, and psychological health domains of an individual.¹⁴¹⁵¹⁶¹⁷ Because a variety of terms and dimensions of successful aging are used, we have included Figure 6 as a brief overview.

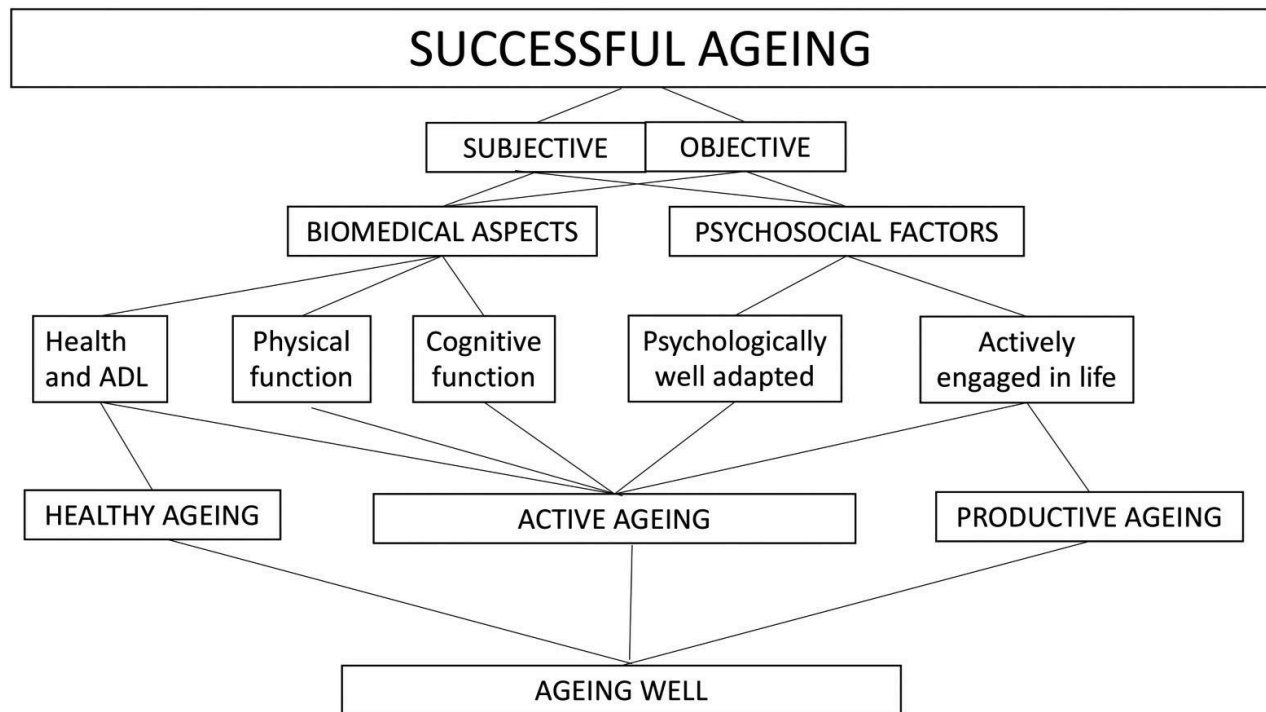


Figure 6. The dimensions of successful aging. Modified from Fernandez-Ballesteros, 2019, published in Acta Biomedica CC BY 4.0.

14. Cosco, T. D., Prina, A. M., Perales, J., Stephan, B. C. M., & Brayne, C. (2014). Operational definitions of successful aging: a systematic review. *International Psychogeriatrics*, 26(3), 373–381. <https://doi.org/10.1017/S1041610213002287>
15. Fries, J. F. (1980). Aging, natural death, and the compression of morbidity. *The New England Journal of Medicine*, 303(3), 130–135. <https://doi.org/10.1056/NEJM198007173030304>
16. Martin, P., Kelly, N., Kahana, B., Kahana, E., Willcox, B. J., Willcox, D. C., & Poon, L. W. (2015). Defining successful aging: a tangible or elusive concept? *The Gerontologist*, 55(1), 14–25. <https://doi.org/10.1093/geront/gnu044>
17. Depp, C. A., & Jeste, D. V. (2006). Definitions and predictors of successful aging: A comprehensive review of larger quantitative studies. *The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry*, 14(1), 6–20. <https://doi.org/10.1097/01.jgp.0000192501.03069.bc>

Most definitions of “successful aging” also include objective measurements of outcomes based on an individual’s overall health and functionality.¹⁸

Although definitions of successful aging are value-laden, Rowe and Kahn¹⁹ defined three criteria of successful aging that are useful for research and behavioral interventions. They include:

- Relative avoidance of disease, disability, and risk factors, like high blood pressure, smoking, or obesity
- Maintenance of high physical and cognitive functioning
- Active engagement in social and productive activities

For example, research has demonstrated that age-related declines in cognitive functioning across the adult life span may be slowed through physical exercise and lifestyle interventions.²⁰

Another way that older adults can respond to the challenges of aging is through compensation. Specifically, **selective optimization with compensation** is used when the elder *makes adjustments, as needed, in order to continue living as independently and actively as possible*.²¹ When older adults lose functioning, referred to as loss-based selection, they may first use new resources/technologies or continually practice tasks to maintain their skills. However, when tasks become too difficult, they may compensate by choosing other ways to achieve their goals. For example, a person who can no longer drive needs to find alternative transportation, or a person who is compensating for having less energy, learns how to reorganize the daily routine to avoid over-exertion.

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18. Fernández-Ballesteros, R. (2019). The concept of successful aging and related terms. In *The Cambridge Handbook of Successful Aging* (pp. 6–22). Cambridge University Press.
19. Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist*, 37(4), 433–440. <https://doi.org/10.1093/geront/37.4.433>
20. Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist*, 37(4), 433–440. <https://doi.org/10.1093/geront/37.4.433>
21. Baltes, B. B., & Dickson, M. W. (2001). Using life-span models in industrial-organizational psychology: The theory of selective optimization with compensation. *Applied Developmental Science*, 5(1), 51–62. https://doi.org/10.1207/s1532480xads0501_5

THE “GRAYING” POPULATION AND LIFE EXPECTANCY

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Sonja Ann Miller

The term “graying of America” refers to the fact that the American population is steadily becoming more dominated by older people. In other words, the median age of Americans is going up.¹ According to the U.S. Census Bureau’s 2017 National Population Projections (Figure 1), the year 2030 marks an important demographic turning point in U.S. history. By 2030, all baby boomers will be older than age 65. This will expand the size of the older population so that 1 in every 5 residents will be retirement age. And by 2035, it’s projected that there will be 76.7 million people under the age of 18 but 78 million people above the age of 65.²

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1. Most of this chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license. The section on the "graying" of America is from *Waymaker Lifespan Development*, authored by Sonja Ann Miller for Lumen Learning, and is available under a Creative Commons Attribution-ShareAlike license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia.
 2. US Census Bureau. (2018, October 05). Population Projections. <https://www.census.gov/programs-surveys/popproj.html>

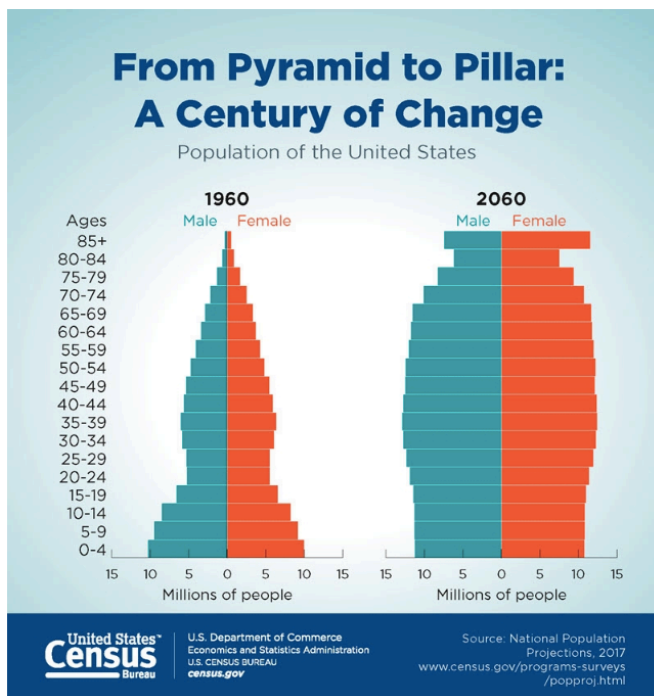


Figure 1. 2030 marks an important demographic change as international migration is expected to overtake natural population increases in the United States. (Image Source: U.S. Census Bureau)

baby boomers, age into older adulthood. As a result, the population will naturally grow very slowly, leaving net international migration to overtake natural increase as the leading cause of population growth, even as projected levels of migration remain relatively constant.³

“Graying” Around the World

While the world’s oldest countries are mostly in Europe today, some Asian and Latin American countries are quickly catching up. The percentage of the population aged 65 and over in 2015 ranged from a high of 26.6 percent for Japan to a low of around 1 percent for Qatar and United Arab Emirates. Of the world’s 25 oldest countries, 22 are in Europe, with Germany and Italy leading the ranks of European countries for many years.⁴

By 2050, Slovenia and Bulgaria are projected to be the oldest European countries. Japan, however, is currently the oldest nation in the world and is projected to retain this position

The 2030s are projected to be a transformative decade for the U.S. population. The population is expected to grow at a slower pace, age considerably and become more racially and ethnically diverse. Net international migration is projected to overtake natural increase in 2030 as the primary driver of population growth in the United States, another demographic first for the United States.

Although births are projected to be nearly four times larger than the level of net international migration in coming decades, a rising number of deaths will increasingly offset how much births are able to contribute to population growth. Between 2020 and 2050, the number of deaths is projected to rise substantially as the population ages and a significant share of the population, the

3. US Census Bureau. (2018, December 03). Older People Projected to Outnumber Children. <https://www.census.gov/newsroom/press-releases/2018/cb18-41-population-projections.html>

4. Wan, H., Goodking, D., and Kowal, P. (2015). An Aging World: 2015. United States Census Bureau. <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p95-16-1.pdf>.

through at least 2050. With the rapid aging taking place in Asia, the countries of South Korea, Hong Kong, and Taiwan are projected to join Japan at the top of the list of oldest countries and areas by 2050, when more than one-third of these Asian countries’ total populations are projected to be aged 65 and over.⁵

Life Expectancy

Life expectancy is a statistical measure of the average time an organism is expected to live, based on the year of birth, current age and other demographic factors including gender. The most commonly used measure of life expectancy is at birth (LEB). There are great variations in life expectancy in different parts of the world, mostly due to differences in public health, medical care, and diet, but also affected by education, economic circumstances, violence, mental health, and sex.

Life Expectancy vs Lifespan

Lifespan or **Maximum Lifespan** is referred to as the greatest age reached by any member of a given population (or species). For humans, the lifespan is currently between 120 and 125. **Life Expectancy** is defined as the average number of years that members of a population (or species) live. According to the World Health Organization (WHO)⁶ global life expectancy at birth in 2015 was 71.4 years, with females reaching 73.8 years and males reaching 69.1 years. Women live longer than men around the world, and the gap between the sexes has remained the same since 1990. Overall life expectancy ranged from 60.0 years in the WHO African Region to 76.8 years in the WHO European Region. Global life expectancy increased by 5 years between 2000 and 2015, and the largest increase was in the WHO African Region where life expectancy increased by 9.4 years. This was due primarily to improvements in child survival and access to antiretroviral medication for the treatment of HIV. According to the Central Intelligence Agency⁷ the United States ranks 43rd in the world for life expectancy.

5. Wan, H., Goodking, D., and Kowal, P. (2015). An Aging World: 2015. United States Census Bureau. <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p95-16-1.pdf>.

6. World Health Organization. (2016). Life expectancy. http://www.who.int/gho/mortality_burden_disease/life_tables/situation_trends_text/en/

7. Central Intelligence Agency. (2016). The world factbook. <https://www.cia.gov/library/publications/resources/the-world-factbook/geos/xx.html>

Gender Differences in Life Expectancy

Biological Explanations

Biological differences in sex chromosomes and different pattern of gene expression is theorized as one reason why females live longer.⁸ Males are heterogametic (XY), whereas females are homogametic (XX) with respect to the sex chromosomes. Males can only express their X chromosome genes that come from the mother, while females have an advantage by selecting the “better” X chromosome from their mother or father, while inactivating the “worse” X chromosome. This process of selection for “better” genes is impossible in males and results in the greater genetic and developmental stability of females. In terms of developmental biology, women are the “default” sex, which means that the creation of a male individual requires a sequence of events at a molecular level.

Men are more likely to contract viral and bacterial infections, and their immunity at the cellular level decreases significantly faster with age. Although women are slightly more prone to autoimmune and inflammatory diseases, such as rheumatoid arthritis, the gradual deterioration of the immune system is slower in women.⁹¹⁰

Looking at the influence of hormones, estrogen levels in women appear to have a protective effect on their heart and circulatory systems.¹¹ Estrogens also have antioxidant properties that protect against harmful effects of free radicals, which damage cell components, cause mutations, and are in part responsible for the aging process. Testosterone levels are higher in men than in women, and are related to more frequent cardiovascular and immune disorders. The level of testosterone is also responsible, in part, for male behavioral patterns, including increased levels of aggression and violence.¹²¹³ Another factor responsible for risky behavior is the frontal lobe of the brain. The frontal lobe, which controls judgment and consideration of an action’s consequences, develops more slowly in boys and young men. This lack of judgment

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 10. Hirokawa, K., Utsuyama, M., Hayashi, Y., Kitagawa, M., Makinodan, T., & Fulop, T. (2013). Slower immune system aging in women versus men in the Japanese population. *Immunity & Ageing: I & A*, 10(1), 19. <https://doi.org/10.1186/1742-4933-10-19>
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 12. Martin, P., Poon, L. W., & Hagberg, B. (2011). Behavioral factors of longevity. *Journal of Aging Research*, 2011, 197590. <https://doi.org/10.4061/2011/197590>
 13. Boryślawski, K., & Chmielewski, P. (2012). A prescription for healthy aging. In: A Kobylarek (Ed.), *Aging: Psychological, biological and social dimensions* (pp. 33-40). Wrocław: Agencja Wydawnicza.

affects lifestyle choices, and consequently many more boys and men die by smoking, excessive drinking, accidents, drunk driving, and violence.¹⁴

Lifestyle Factors

Certainly not all the reasons women live longer than men are biological. As previously mentioned, male behavioral patterns and lifestyle play a significant role in the shorter lifespans for males. One significant factor is that males work in more dangerous jobs, including police, firefighters, and construction, and they are more exposed to violence. According to the Federal Bureau of Investigation¹⁵ there were 11,961 homicides in the U.S. in 2014 (last year for full data) and of those 77% were males. Males are also more than three times as likely to commit suicide.¹⁶ Further, males serve in the military in much larger numbers than females. According to the Department of Defense,¹⁷ in 2014 83% of all officers in the Services (i.e., Navy, Army, Marine Corps and Air Force) were male, while 85% of all enlisted service members were male.

Additionally, men are less likely than women to have health insurance, develop a regular relationship with a doctor, or seek treatment for a medical condition.¹⁸ As mentioned in the middle adulthood chapter, women are more religious than men, which is associated with healthier behaviors.¹⁹ Lastly, social contact is also important as loneliness is considered a health hazard. Nearly 20% of men over 50 have contact with their friends less than once a month, compared to only 12% of women who see friends that infrequently.²⁰ Overall, men's lower life expectancy appears to be due to both biological and lifestyle factors.

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14. Shmerling, R. H. (2016). Why men often die earlier than women. Harvard Health Publications. <http://www.health.harvard.edu/blog/why-men-often-die-earlier-than-women-201602199137>
 15. Federal Bureau of Investigation. (2014). Crime in the United States. https://ucr.fbi.gov/crime-in-the-u.s/2014/crime-in-the-u.s.-2014/tables/expanded-homicide-data/expanded_homicide_data_table_1_murder_victims_by_race_ethnicity_and_sex_2014.xls
 16. Centers for Disease Control and Prevention. (2016a). Increase in Suicide in the United States, 1999–2014. <http://www.cdc.gov/nchs/products/databriefs/db241.htm>
 17. Department of Defense. (2015). Defense advisory committee on women in the services. http://dacowits.defense.gov/Portals/48/Documents/Reports/2015/Annual%20Report/2015%20DACOWITS%20Annual%20Report_Final.pdf
 18. Scott, P. J. (2015). Save the Males. Men's Health. <http://www.menshealth.com>
 19. Greenfield, E. A., Vaillant, G. E., & Marks, N. F. (2009). Do formal religious participation and spiritual perceptions have independent linkages with diverse dimensions of psychological well-being? *Journal of Health and Social Behavior*, 50, 196–212.
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Sexuality

According to Kane,²¹ older men and women are often viewed as genderless and asexual. There is a stereotype that elderly individuals no longer engage in sexual activity and when they do, they are perceived to have committed some kind of offense. These ageist myths can become internalized, and older people have a more difficult time accepting their sexuality.²² Additionally, some older women indicate that they no longer worry about sexual concerns anymore once they are past the childbearing years.

In reality, many older couples find greater satisfaction in their sex life than they did when they were younger. They have fewer distractions, more time and privacy, no worries about getting pregnant, and greater intimacy with a lifelong partner.²³ Results from the National Social Life Health, and Aging Project indicated that 72% of men and 45.5% of women aged 52 to 72 reported being sexually active.²⁴ Additionally, the National Survey of Sexual Health data indicated that 20%-30% of individuals remain sexually active well into their 80s.²⁵ However, there are issues that occur in older adults that can adversely affect their enjoyment of healthy sexual relationships.

Causes of Sexual Problems

According to the National Institute on Aging,²⁶ chronic illnesses including arthritis (joint pain), diabetes (erectile dysfunction), heart disease (difficulty achieving orgasm for both sexes), stroke (paralysis), and dementia (inappropriate sexual behavior) can all adversely affect sexual functioning. Hormonal changes, physical disabilities, surgeries, and medicines can also affect a senior's ability to participate in and enjoy sex. How one feels about sex can also affect performance. For example, a woman who is unhappy about her appearance as she ages may

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21. Kane, M. (2008). How are the sexual behaviors of older women and older men perceived by human service students? *Journal of Social Work Education*, 27(7), 723-743.
 22. Gosney, T. A. (2011). Sexuality in older age: Essential considerations for healthcare professionals. *Age Ageing*, 40(5), 538-543.
 23. National Institutes of Health. (2013). Hypothyroidism. <https://www.niddk.nih.gov/health-information/health-topics/endocrine/hypothyroidism/Pages/fact-sheet.aspx>
 24. Karraker, A., DeLamater, J., & Schwartz, C. R. (2011). Sexual frequency declines from midlife to later life. *The Journal of Gerontology, Series B: Psychological Sciences and Social Sciences*, 66B, 502-512.
 25. Schick, V., Herbenick, D., Reece, M., Sanders, S. A., Dodge, B., Middlestadt, S. E., & Fortenberry, J. D. (2010). Sexual behaviors, condom use, and sexual health of Americans over 50: Implications for sexual health promotion for older adults. *Journal of Sexual Medicine*, 7(5), 315-329.
 26. National Institutes of Health. (2013). Hypothyroidism. <https://www.niddk.nih.gov/health-information/health-topics/endocrine/hypothyroidism/Pages/fact-sheet.aspx>

think her partner will no longer find her attractive. A focus on youthful physical beauty for women may get in the way of her enjoyment of sex. Likewise, most men have a problem with erectile dysfunction (ED) once in a while, and some may fear that ED will become a more common problem as they age. If there is a decline in sexual activity for a heterosexual couple, it is typically due to a decline in the male's physical health.²⁷

Overall, the best way to experience a healthy sex life in later life is to keep sexually active while aging. However, the lack of an available partner can affect heterosexual women's participation in a sexual relationship. Beginning at age 40 there are more women than men in the population, and the ratio becomes 2 to 1 at age 85.²⁸ Because older men tend to pair with younger women when they become widowed or divorced, this also decreases the pool of available men for older women.²⁹

27. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

28. Karraker, A., DeLamater, J., & Schwartz, C. R. (2011). Sexual frequency declines from midlife to later life. *The Journal of Gerontology, Series B: Psychological Sciences and Social Sciences*, 66B, 502-512.

29. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

HEALTH IN LATE ADULTHOOD: PRIMARY AGING

Diana Lang; Nick Cone; Laura Overstreet; Martha Lally; and Suzanne Valentine-French

Normal Aging

The Baltimore Longitudinal Study on Aging (BLSA)¹ began in 1958 and has traced the aging process in 1,400 people from age 20 to 90. Researchers from the BLSA have found that the aging process varies significantly from individual to individual and from one organ system to another. Kidney function may deteriorate earlier in some individuals.²

Bone strength declines more rapidly in others. Much of this is determined by genetics, lifestyle, and disease. However, some generalizations about the aging process have been found:

- Heart muscles thicken with age
- Arteries become less flexible
- Lung capacity diminishes
- Brain cells lose some functioning but new neurons can also be produced
- Kidneys become less efficient in removing waste from the blood
- The bladder loses its ability to store urine
- Body fat stabilizes and then declines
- Muscle mass is lost without exercise
- Bone mineral is lost. Weight bearing exercise slows this down.

1. National Institute on Aging. (2011). Baltimore Longitudinal Study of Aging Home Page. (2011). <http://www.grc.nia.nih.gov/branches/blsa/blsa.htm>

2. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, adapted from Laura Overstreet's *Lifespan Psychology*.

Link to Learning

Watch this video clip from the National Institute of Health as it explains the research involved in the Baltimore Longitudinal Study on Aging. You'll see some of the tests done on individuals, including measurements on energy expenditure, strength, proprioception, and brain imaging and scans. Watch the The Baltimore Longitudinal Study of Aging (BLSA).

One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://iastate.pressbooks.pub/individualfamilydevelopment/?p=285#oembed-1>

Primary and Secondary Aging

Healthcare providers need to be aware of which aspects of aging are reversible and which ones are inevitable. By keeping this distinction in mind, caregivers may be more objective and accurate when diagnosing and treating older patients. And a positive attitude can go a long way toward motivating patients to stick with a health regime. Unfortunately, stereotypes can lead to misdiagnosis. For example, it is estimated that about 10 percent of older patients diagnosed with dementia are actually depressed or suffering from some other psychological illness.³ The failure to recognize and treat psychological problems in older patients may be one consequence of such stereotypes.



Figure 1. Primary aging includes inevitable changes such as skin that becomes more wrinkled and less elastic. (Image Source: PxHere)

Primary Aging

Senescence, or biological aging, is the gradual deterioration of functional characteristics. It is

3. Berger, K. S. (2004). *The developing person through the lifespan* (6th ed.). W.H. Freeman.

the process by which cells irreversibly stop dividing and enter a state of permanent growth arrest without undergoing cell death. This process is also referred to as **primary aging** and thus, refers to the inevitable changes associated with aging (Figure 1).⁴ These changes include changes in the skin and hair, height and weight, hearing loss, and eye disease. However, some of these changes can be reduced by limiting exposure to the sun, eating a nutritious diet, and exercising.

Skin and hair change with age. The skin becomes drier, thinner, and less elastic during the aging process. Scars and imperfections become more noticeable as fewer cells grow underneath the surface of the skin. Exposure to the sun, or photoaging, accelerates these changes. Graying hair is inevitable, and hair loss all over the body becomes more prevalent.

Height and weight vary with age. Older people are more than an inch shorter than they were during early adulthood.⁵ This is thought to be due to a settling of the vertebrae and a lack of muscle strength in the back. Older people weigh less than they did in mid-life. Bones lose density and can become brittle. This is especially prevalent in women. However, weight training can help increase bone density after just a few weeks of training.

Muscle loss occurs in late adulthood and is most noticeable in men as they lose muscle mass. Maintaining strong leg and heart muscles is important for independence. Weight-lifting, walking, swimming, or engaging in other cardiovascular and weight bearing exercises can help strengthen the muscles and prevent atrophy.

Vision

Some typical vision issues that arise along with aging include:

- Lens becomes less transparent and the pupils shrink.
- The optic nerve becomes less efficient.
- Distant objects become less acute.
- Loss of peripheral vision (the size of the visual field decreases by approximately one to three degrees per decade of life.)⁶
- More light is needed to see and it takes longer to adjust to a change from light to darkness and vice versa.

4. Busse, E. W. (1969). Theories of aging. In E. W. Busse & E. Pfeiffer (Eds.), *Behavior and adaptation in later life* (pp. 11-31). Boston, MA: Little Brown.

5. Berger, K. S. (2004). *The developing person through the lifespan* (6th ed.). W.H. Freeman.

6. Heiting, G. (2019). How vision changes as you age. All About Vision. <https://www.allaboutvision.com/over60/vision-changes.htm>.

- Driving at night becomes more challenging.
- Reading becomes more of a strain and eye strain occurs more easily.

The majority of people over 65 have some difficulty with vision, but most is easily corrected with prescriptive lenses. Three percent of those 65 to 74 and 8 percent of those 75 and older have hearing or vision limitations that hinder activity. The most common causes of vision loss or impairment are glaucoma, cataracts, age-related macular degeneration, and diabetic retinopathy.⁷

- **Glaucoma** occurs when pressure in the fluid of the eye increases, either because the fluid cannot drain properly or because too much fluid is produced. Glaucoma can be corrected with drugs or surgery. It must be detected early enough.
- **Cataracts** are cloudy or opaque areas of the lens of the eye that interfere with passing light, frequently develop. Cataracts can be surgically removed or intraocular lens implants can replace old lenses.
- **Macular degeneration** is the most common cause of blindness in people over the age of 60. Age-related macular degeneration (AMD) affects the macula, a yellowish area of the eye located near the retina at which visual perception is most acute. A diet rich in antioxidant vitamins (C, E, and A) can reduce the risk of this disease.
- **Diabetic retinopathy**, also known as diabetic eye disease, is a medical condition in which damage occurs to the retina due to diabetes mellitus. It is a leading cause of blindness. There are three major treatments for diabetic retinopathy, which are very effective in reducing vision loss from this disease: laser photocoagulation, medications, surgery.

Hearing

Hearing Loss, is experienced by 25% of people between ages 65 and 74, then by 50% of people above age 75.⁸ Among those who are in nursing homes, rates are even higher. Older adults are more likely to seek help with vision impairment than with hearing loss, perhaps due to the stereotype that older people who have difficulty hearing are also less mentally alert.

Conductive hearing loss may occur because of age, genetic predisposition, or environmental effects, including persistent exposure to extreme noise over the course of our lifetime, certain

7. Quillen, D. A. (1999). Common causes of vision loss in elderly patients. *American Family Physician*, 60(1), 99–108.

8. National Institute on Deafness and Other Communication Disorders. Quick Statistics on Hearing. <https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing>.

illnesses, or damage due to toxins. Conductive hearing loss involves structural damage to the ear such as failure in the vibration of the eardrum and/or movement of the ossicles (the three bones in our middle ear). Given the mechanical nature by which the sound wave stimulus is transmitted from the eardrum through the ossicles to the oval window of the cochlea, some degree of hearing loss is inevitable. These problems are often dealt with through devices like hearing aids that amplify incoming sound waves to make vibration of the eardrum and movement of the ossicles more likely to occur.

When the hearing problem is associated with a failure to transmit neural signals from the cochlea to the brain, it is called **sensorineural hearing loss**. This type of loss accelerates with age and can be caused by prolonged exposure to loud noises, which causes damage to the hair cells within the cochlea. **Presbycusis** is age-related sensorineural hearing loss resulting from degeneration of the cochlea or associated structures of the inner ear or auditory nerves. The hearing loss is most marked at higher frequencies. Presbycusis is the second most common illness next to arthritis in aged people.

One disease that results in sensorineural hearing loss is **Ménière's disease**. Although not well understood, Ménière's disease results in a degeneration of inner ear structures that can lead to hearing loss, tinnitus (constant ringing or buzzing), **vertigo** (a sense of spinning), and an increase in pressure within the inner ear.⁹ This kind of loss cannot be treated with hearing aids, but some individuals might be candidates for a cochlear implant as a treatment option. **Cochlear implants** are electronic devices consisting of a microphone, a speech processor, and an electrode array. The device receives incoming sound information and directly stimulates the auditory nerve to transmit information to the brain.

Being unable to hear causes people to withdraw from conversation and others to ignore them or shout. Unfortunately, shouting is usually high pitched and can be harder to hear than lower tones. The speaker may also begin to use a patronizing form of 'baby talk' known as **elderspeak**.¹⁰ This language reflects the stereotypes of older adults as being dependent, demented, and childlike. Hearing loss is more prevalent in men than women. And it is experienced by more white, non-Hispanics than by Black men and women. Smoking, middle ear infections, and exposure to loud noises increase hearing loss.

9. Semaan, M. T., & Megerian, C. A. (2011). Ménière's disease: A challenging and relentless disorder. *Otolaryngologic Clinics of North America*, 44(2), 383–403, ix. <https://doi.org/10.1016/j.otc.2011.01.010>

10. Kwong, T., & Ryan, E. (1999). Intergenerational communication: The survey interview as a social exchange. In S. See (Author) & N. Schwarz, D. C. Parker, B. Knauer, & Sudman (Eds.), *Cognition, aging, and self reports*. Philadelphia: Psychology Press.

Nutrition and Aging Research

The Jean Mayer Human Nutrition Research Center on Aging (HNRCA), located in Boston, Massachusetts, is one of six human nutrition research centers in the United States supported by the United States Department of Agriculture and Agricultural Research Service. The goal of the HNRCA, which is managed by Tufts University, is to explore the relationship between nutrition, physical activity, and healthy and active aging.

The HNRCA has made significant contributions to U.S. and international nutritional and physical activity recommendations, public policy, and clinical healthcare. These contributions include advancements in the knowledge of the role of dietary calcium and vitamin D in promoting nutrition and bone health, the role of nutrients in maintaining the optimal immune response, the prevention of infectious diseases, the role of diet in prevention of cancer, obesity research, modifications to the Food Guide Pyramid, contribution to USDA nutrient data bank, advancements in the study of sarcopenia, heart disease, vision, brain and cognitive function, front of packaging food labeling initiatives, and research of how genetic factors impact predisposition to weight gain and various health indicators. Research clusters within the HNRCA address four specific strategic areas: 1) cancer, 2) cardiovascular disease, 3) inflammation, immunity, and infectious disease and 4) obesity.

Video Example

Research done by T. Colin Campbell M.D., Michael Greger M.D., Neal Bernard M.D. and others have demonstrated the impact of diet upon longevity and quality of life. As discussed in the video below, consumption of less animal based protein has been linked with the slowing of degradation of function which was traditionally seen as part of the normal aging process.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=285#oembed-2>

You can view the transcript for “Caloric Restriction vs. Animal Protein Restriction” here (opens in new window).

Primary aging can be compensated for through exercise, corrective lenses, nutrition, and hearing aids. Just as important, by reducing stereotypes about aging, people of age can maintain self-respect, recognize their own strengths, and count on receiving the respect and social inclusion they deserve.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=285#h5p-38>

Sensory Changes in Late Adulthood

Vision

In late adulthood, all the senses show signs of decline, especially among the oldest-old. In the last chapter, you read about the visual changes that were beginning in middle adulthood, such as presbyopia, dry eyes, and problems seeing in dimmer light. By later adulthood these changes are much more common. Three serious eyes diseases are more common in older adults: Cataracts, macular degeneration, and glaucoma. Only the first can be effectively cured in most people.

Cataracts are a clouding of the lens of the eye (Figure 2). The lens of the eye is made up of mostly water and protein. The protein is precisely arranged to keep the lens clear, but with age some of the protein starts to clump. As more of the protein clumps together the clarity of the lens is reduced. While some adults in middle adulthood may show signs of cloudiness in the lens, the area affected is usually small enough to not interfere with vision. More people have problems with cataracts after age 60¹¹ and by age 75, 70% of adults will have problems with cataracts.¹² Cataracts also cause a discoloration of the lens, tinting it more yellow and then brown, which can interfere with the ability to distinguish colors such as black, brown, dark blue, or dark purple.

11. National Institutes of Health. (2014). Cataracts. <https://medlineplus.gov/cataract.html>

12. Boyd, K. (2014). What are cataracts? American Academy of Ophthalmology. <http://www.aao.org/eye-health/diseases/what-are-cataracts>

Risk factors besides age include certain health problems such as diabetes, high blood pressure, and obesity, behavioral factors such as smoking, other environmental factors such as prolonged exposure to ultraviolet sunlight, previous trauma to the eye, long-term use of steroid medication, and a family history of cataracts.^{13,14} Cataracts are treated by removing and replacing the lens of the eye with a synthetic lens. In developed countries, such as the United States, cataracts can be easily treated with surgery. However, in developing countries, access to such operations are limited, making cataracts the leading cause of blindness in late adulthood in Third World nations.¹⁵

Older adults are also more likely to develop **age-related macular degeneration**, which is *the loss of clarity in the center field of vision, due to the deterioration of the macula, the center of the retina* (Figure 2). Macular degeneration does not usually cause total vision loss, but the loss of the central field of vision can greatly impair day-to-day functioning. There are two types of macular degeneration: dry and wet.

The risk factors for macular degeneration include smoking, which doubles your risk;¹⁶ race, as it is more common among Caucasians than African Americans or Hispanics/Latinos; high cholesterol; and a family history of macular degeneration.¹⁷ At least 20 different genes have been related to this eye disease, but there is no simple genetic test to determine your risk, despite claims by some genetic testing companies.¹⁸

13. National Eye Institute. (2016a). Cataract. <https://nei.nih.gov/health/cataract/>

14. Boyd, K. (2014). What are cataracts? American Academy of Ophthalmology. <http://www.aao.org/eye-health/diseases/what-are-cataracts>

15. Resnikoff, S., Pascolini, D., Mariotti, S. P., & Pokharel, G. P. (2008). Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. *Bulletin of the World Health Organization*, 86(1), 63–70. <https://doi.org/10.2471/blt.07.041210>

16. National Institutes of Health. (2015a). Macular degeneration. <https://medlineplus.gov/maculardegeneration.html>

17. Boyd, K. (2014). What are cataracts? American Academy of Ophthalmology. <http://www.aao.org/eye-health/diseases/what-are-cataracts>

18. National Institutes of Health. (2015a). Macular degeneration. <https://medlineplus.gov/maculardegeneration.html>

A third vision problem that increases with age is **glaucoma**, which is *the loss of peripheral vision, frequently due to a buildup of fluid in eye that damages the optic nerve*. As you age the pressure in the eye may increase causing damage to the optic nerve. The exterior of the optic nerve receives input from retinal cells on the periphery, and as glaucoma progresses more and more of the peripheral visual field deteriorates toward the central field of vision. In the advanced stages of glaucoma, a person can lose their sight. Fortunately, glaucoma tends to progress slowly.¹⁹ Glaucoma is the most common cause of blindness in the U.S.²⁰ African Americans over age 40, and everyone else

over age 60 has a higher risk for glaucoma. Those with diabetes, and with a family history of glaucoma also have a higher risk.²¹ There is no cure for glaucoma, but its rate of progression can be slowed, especially with early diagnosis. Routine eye exams to measure eye pressure and examination of the optic nerve can detect both the risk and presence of glaucoma.²² Those with elevated eye pressure are given medicated eye drops.

Hearing

Our hearing declines both in terms of the frequencies of sound we can detect and the intensity of sound needed to hear as we age. These changes continue in late adulthood. Almost 1 in 4 adults aged 65 to 74 and 1 in 2 aged 75 and older have disabling hearing loss.²³ Some common signs of hearing loss include:



Figure 2 Normal Vision vs. Cataracts, Macular Degeneration and Glaucoma (Image adapted by Martha Lally and Valentine French, original source: Wikimedia Commons)

19. National Eye Institute. (2016b). Glaucoma. <https://nei.nih.gov/glaucoma/>

20. National Eye Institute. (2016b). Glaucoma. <https://nei.nih.gov/glaucoma/>

21. Owsley, C., Rhodes, L. A., McGwin, G., Jr, Mennemeyer, S. T., Bregantini, M., Patel, N., Wiley, D. M., LaRussa, F., Box, D., Saaddine, J., Crews, J. E., & Girkin, C. A. (2015). Eye Care Quality and Accessibility Improvement in the Community (EQUALITY) for adults at risk for glaucoma: study rationale and design. *International Journal for Equity in Health*, 14(1), 135. <https://doi.org/10.1186/s12939-015-0213-8>

22. National Eye Institute. (2016b). Glaucoma. <https://nei.nih.gov/glaucoma/>

23. National Institutes of Health. (2016). Quick statistics about hearing. <https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing>

- Having trouble hearing over the telephone
- Finding it hard to follow conversations when two or more people are talking
- Often asking people to repeat what they are saying
- Needing to turn up the TV volume so loud that others complain
- Having a problem hearing because of background noise
- Thinking that others seem to mumble
- Not being able to understand when those with quieter voices are speaking to you

Presbycusis is a *common form of hearing loss in late adulthood that results in a gradual loss of hearing*. It runs in families and affects hearing in both ears.²⁴ Older adults may also notice **tinnitus**, *a ringing, hissing, or roaring sound in the ears*. The exact cause of tinnitus is unknown, although it can be related to hypertension and allergies. It may come and go or persist and get worse over time.²⁵ The incidence of both presbycusis and tinnitus increase with age and males have higher rates of both around the world.²⁶ Your auditory system has two jobs: To help you to hear, and to help you maintain balance. Your balance is controlled by the brain receiving information from the shifting of hair cells in the inner ear about the position and orientation of the body. With age this function of the inner ear declines which can lead to problems with balance when sitting, standing, or moving.²⁷

Taste and Smell

Our sense of taste and smell are part of our *chemical sensing system*. Our sense of taste, or gustation, appears to age well. Normal taste occurs when molecules that are released by chewing food stimulate taste buds along the tongue, the roof of the mouth, and in the lining of the throat. These cells send messages to the brain, where specific tastes are identified. After age 50 we start to lose some of these sensory cells. Most people do not notice any changes in taste until ones 60s.²⁸ Given that the loss of taste buds is very gradual, even in late adulthood, many people are often surprised that their loss of taste is most likely the result of a loss of smell.

24. National Institute on Aging. (2015). Hearing loss. <https://www.nia.nih.gov/health/publication/hearing-loss>

25. National Institute on Aging. (2015). Hearing loss. <https://www.nia.nih.gov/health/publication/hearing-loss>

26. McCormak A., Edmondson-Jones M., Somerset S., & Hall D. (2016) A systematic review of the reporting of tinnitus prevalence and severity. *Hearing Research*, 337, 70-79.

27. Martin, L. J. (2014). Age changes in the senses. MedlinePlus. <https://medlineplus.gov/ency/article/004013.htm>

28. National Institutes of Health: Senior Health (2016b). Problems with taste. <https://nihseniorhealth.gov/problemswithtaste/aboutproblemswithtaste/01.html>

Table 1. Types of Smell Disorders, adapted from NIH Senior Health: Problems with Smell

Disorder	Description
Presbyosmia	Smell loss due to aging
Hyposmia	Loss of only certain odors
Anosmia	Total loss of smell
Dysosmia	Change in the perception of odors. Odors are distorted.
Phantosmia	Smelling odors that are not present.

Our sense of smell, or olfaction, decreases more with age, and problems with the sense of smell are more common in men than in women. Almost 1 in 4 males in their 60s have a disorder with the sense of smell, while only 1 in 10 women do.²⁹ This *loss of smell due to aging* is called **presbyosmia**. Olfactory cells are located in a small area high in the nasal cavity. These cells are stimulated by two pathways; when we inhale through the nose, or via the connection between the nose and the throat when we chew and digest food. It is a problem with this second pathway that explains why some foods such as chocolate or coffee seem tasteless when we have a head cold. There are several types of loss of smell. *Total loss of smell*, or **anosmia**, is extremely rare (Table 1).

Problems with our chemical senses can be linked to other serious medical conditions such as Parkinson's, Alzheimer's, or multiple sclerosis.³⁰ Any sudden change should be checked out. Loss of smell can change a person's diet, with either a loss of enjoyment of food and eating too little for balanced nutrition, or adding sugar and salt to foods that are becoming blander to the palette.

Touch and Pain

Research has found that with age, people may experience reduced or changed sensations of vibration, cold, heat, pressure, or pain.³¹ Many of these changes are also aligned with a number of medical conditions that are more common among the elderly, such as diabetes. However, there are changes in the touch sensations among healthy older adults.

29. National Institutes of Health: Senior Health (2016b). Problems with taste. <https://nihseniorhealth.gov/problemswithtaste/aboutproblemswithtaste/01.html>

30. National Institutes of Health: Senior Health (2016a). Problems with smell. <https://nihseniorhealth.gov/problemswithsmell/aboutproblemswithsmell/01.html>

31. Martin, L. J. (2014). Age changes in the senses. MedlinePlus. <https://medlineplus.gov/ency/article/004013.htm>

According to Molton and Terrill,³² approximately 60%-75% of people over the age of 65 report at least some chronic pain, and this rate is even higher for those individuals living in nursing homes. Although the presence of pain increases with age, older adults are less sensitive to pain than younger adults.³³ Farrell³⁴ looked at research studies that included neuroimaging techniques involving older people who were healthy and those who experienced a painful disorder. Results indicated that there were age-related decreases in brain volume in those structures involved in pain. Especially noteworthy were changes in the prefrontal cortex, brainstem, and hippocampus. Women are more likely to identify feeling pain than men.³⁵ Women have fewer opioid receptors in the brain, and women also receive less relief from opiate drugs.³⁶ Because pain serves an important indicator that there is something wrong, a decreased sensitivity to pain in older adults is a concern because it can conceal illnesses or injuries requiring medical attention.

Chronic health problems, including arthritis, cancer, diabetes, joint pain, sciatica, and shingles are responsible for most of the pain felt by older adults.³⁷ Cancer is a special concern, especially “breakthrough pain” which is a severe pain that comes on quickly while a patient is already medicated with a long-acting painkiller. It can be very upsetting, and after one attack many people worry it will happen again. Some older individuals worry about developing an addiction to pain medication, but if medicine is taken exactly as prescribed, addiction should not be a concern.³⁸ Lastly, side effects from pain medicine including constipation, dry mouth, and drowsiness may occur that can adversely affect the elder’s life. Some older individuals put off going to the doctor because they think pain is just part of aging and nothing can help. Of course this is not true. Managing pain is crucial to ensure feelings of well-being for the older adult. When chronic pain is not managed, the individual will restrict their movements for fear of feeling pain or injuring themselves further. This lack of activity will result in more restriction, further decreased participation, and greater disability.³⁹ A decline in physical

32. Molton, I. R., & Terrill, A. L. (2014). Overview of persistent pain in older adults. *American Psychologist*, 69(2), 197-207.

33. Harkins, S. W., Price, D. D. & Martinelli, M. (1986). Effects of age on pain perception. *Journal of Gerontology*, 41, 58-63.

34. Farrell, M. J. (2012). Age-related changes in the structure and function of brain regions involved in pain processing. *Pain Medication*, 2, S37-43. doi: 10.1111/j.1526-4637.2011.01287.x.

35. Tsang, A., Von Korff, M., Lee, S., Alonso, J., Karam, E., Angermeyer, M. C., . . . Watanabe, M. (2008). Common persistent pain conditions in developed and developing countries: Gender and age differences and comorbidity with depression- anxiety disorders. *The Journal of Pain: Official Journal of the American Pain Society*, 9(10), 883-891. <https://doi.org/10.1016/j.jpain.2008.05.005>

36. Garrett, B. (2015). *Brain and behavior* (4th ed.) Thousand Oaks, CA: Sage.

37. Molton, I. R., & Terrill, A. L. (2014). Overview of persistent pain in older adults. *American Psychologist*, 69(2), 197-207.

38. National Institutes of Health. (2015b). Pain: You can get help. <https://www.nia.nih.gov/health/publication/pain>

39. Jensen, M. P., Moore, M. R., Bockow, T. B., Ehde, D. M., & Engel, J. M. (2011). Psychosocial factors and adjustment to chronic

activity because of pain is also associated with weight gain and obesity in adults.⁴⁰ Additionally sleep and mood disorders, such as depression, can also occur.⁴¹ Learning to cope effectively with pain is an important consideration in late adulthood, and working with one's primary physician or a pain specialist is recommended.⁴²

pain in persons with physical disabilities: a systematic review. *Archives of Physical Medicine and Rehabilitation*, 92(1), 146–160. <https://doi.org/10.1016/j.apmr.2010.09.021>

40. Strine, T. W., Hootman, J. M., Chapman, D. P., Okoro, C. A., & Balluz, L. (2005). Health-related quality of life, health risk behaviors, and disability among adults with pain-related activity difficulty. *American Journal of Public Health*, 95(11), 2042–2048. <https://doi.org/10.2105/AJPH.2005.066225>

41. Molton, I. R., & Terrill, A. L. (2014). Overview of persistent pain in older adults. *American Psychologist*, 69(2), 197–207.

42. National Institutes of Health. (2015b). Pain: You can get help. <https://www.nia.nih.gov/health/publication/pain>

HEALTH IN LATE ADULTHOOD: SECONDARY AGING

Diana Lang; Nick Cone; Sonja Ann Miller; Martha Lally; and Suzanne Valentine-French

Secondary aging refers to changes that are caused by illness or disease (Figure 1). These illnesses reduce independence, impact quality of life, affect family members and other caregivers, and bring financial burden. The major difference between primary aging and secondary aging is that primary aging is irreversible and is due to genetic predisposition; secondary aging is potentially reversible and is a result of illness, health habits, and other individual differences.¹

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sonja Ann Miller for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia.

Chronic Illnesses



Figure 1. Secondary aging refers to the aspects of aging that are not universally shared by everyone, but are brought about by disease or chronic illness. (Image Source: PxHere)

In the United States, nearly one in two Americans (133 million) has at least one chronic medical condition, with most subjects (58%) between the ages of 18 and 64. The number is projected to increase by more than one percent per year by 2030, resulting in an estimated chronically ill population of 171 million. The most common chronic conditions are high blood pressure, arthritis, respiratory diseases like emphysema, and high cholesterol.

According to research by the Centers for Disease Control and Prevention, chronic disease is also especially a concern in the elderly population in America. Chronic

diseases like stroke, heart disease, and cancer are among the leading causes of death among Americans aged 65 or older. While the majority of chronic conditions are found in individuals between the ages of 18 and 64, it is estimated that at least 80% of older Americans are currently living with some form of a chronic condition, with 50% of this population having two or more chronic conditions. The two most common chronic conditions in the elderly are high blood pressure and arthritis, with diabetes, coronary heart disease, and cancer also being reported at high rates among the elderly population. The presence of type 2 diabetes, high blood pressure, and obesity, is termed “metabolic syndrome” and impacts 50% of individuals over the age of 60.²

Heart disease is the leading cause of death from chronic disease for adults older than 65, followed by cancer, stroke, diabetes, chronic lower respiratory diseases, influenza and pneumonia, and, finally, Alzheimer’s disease (which we’ll examine further when we talk about cognitive decline). Though the rates of chronic disease differ by race for those living with chronic illness, the statistics for leading causes of death among elderly are nearly identical across racial/ethnic groups.

2. Aguilar, M., Bhuket, T., Torres, S., Liu, B., & Wong, R. J. (2015). Prevalence of the metabolic syndrome in the United States, 2003-2012. *JAMA: The Journal of the American Medical Association*, 313(19), 1973. <https://doi.org/10.1001/jama.2015.4260>

Heart Disease

As stated above, heart disease is the leading cause of death from chronic disease for adults older than 65. Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels. CVD includes coronary artery diseases (CAD) such as angina and myocardial infarction (commonly known as a heart attack). Other CVDs include stroke, heart failure, hypertensive heart disease, rheumatic heart disease, cardiomyopathy, heart arrhythmia, congenital heart disease, valvular heart disease, carditis, aortic aneurysms, peripheral artery disease, thromboembolic disease, and venous thrombosis.

The underlying mechanisms vary depending on the disease. Coronary artery disease, stroke, and peripheral artery disease involve atherosclerosis. This may be caused by high blood pressure, smoking, diabetes mellitus, lack of exercise, obesity, high blood cholesterol, poor diet, and excessive alcohol consumption, among others. High blood pressure is estimated to account for approximately 13% of CVD deaths, while tobacco accounts for 9%, diabetes 6%, lack of exercise 6% and obesity 5%.

It is estimated that up to 90% of CVD may be preventable. Prevention of CVD involves improving risk factors through: healthy eating, exercise, avoidance of tobacco smoke and limiting alcohol intake. Treating risk factors, such as high blood pressure, blood lipids and diabetes is also beneficial. The use of aspirin in people, who are otherwise healthy, is of unclear benefit.

Cancer

Age in itself is one of the most important risk factors for developing cancer (Figure 2 & 3). Currently, 60% of newly diagnosed malignant tumors and 70% of cancer deaths occur in people aged 65 years or older. Many cancers are linked to aging; these include breast, colorectal, prostate, pancreatic, lung, bladder and stomach cancers. Men over 75 have the highest rates of cancer at 28 percent. Women 65 and older have rates of 17 percent. Rates for older non-Hispanic Whites are twice as high as for Hispanics and non-Hispanic Blacks. The most common types of cancer found in men are prostate and lung cancer. Breast and lung cancer are the most common forms in women.³

3. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute. (2018). U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2020 submission data (1999-2018). www.cdc.gov/cancer/dataviz, released in June 2021.

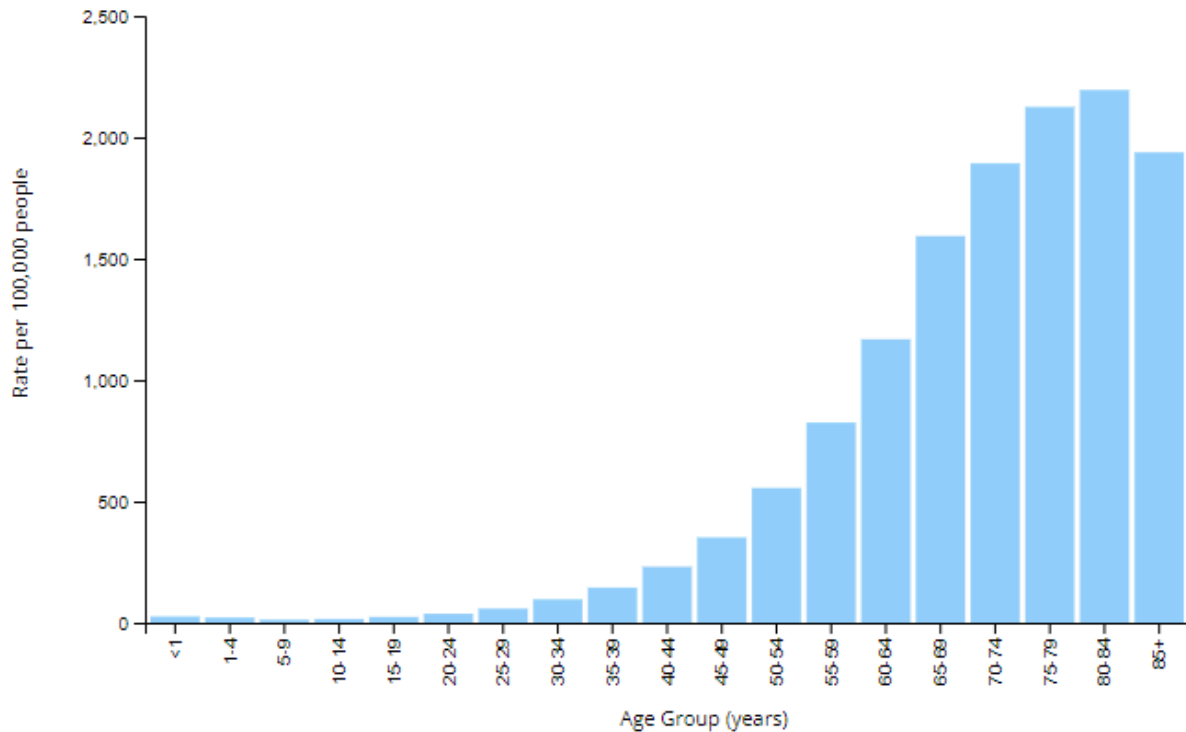


Figure 2. Age is a risk factor for cancer development. Source: Center for Disease Control.

For many reasons, older adults with cancer have different needs than younger adults with the disease. For example, older adults:

- May be less able to tolerate certain cancer treatments.
- Have a decreased reserve (the capacity to respond to disease and treatment).
- May have other medical problems in addition to cancer.
- May have functional problems, such as the ability to do basic activities (dressing, bathing, eating) or more advanced activities (such as using transportation, going shopping or handling finances), and have less available family support to assist them as they go through treatment.
- May not always have access to transportation, social support or financial resources.
- May have different views of quality versus quantity of life

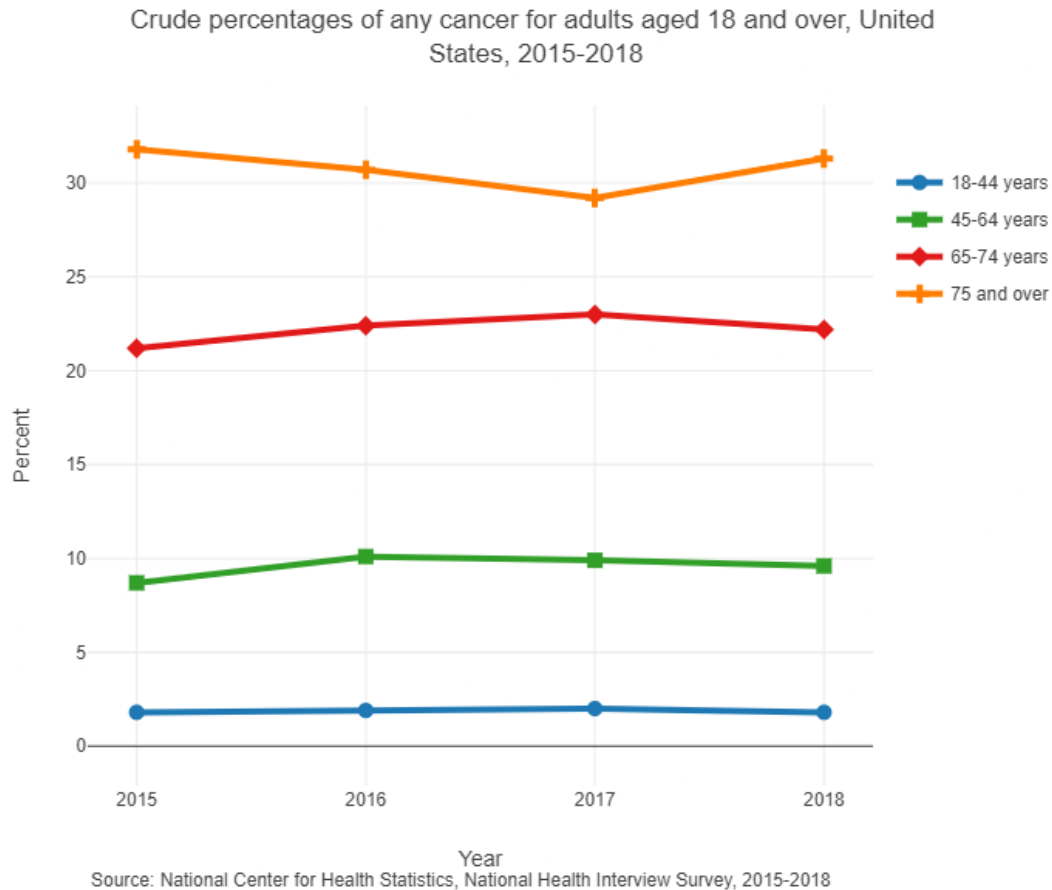


Figure 3. Crude percentages of any cancer for adults aged 18 and over, United States, 2015-2018 by age. Source: National Center for Health Statistics, 2019.

Hypertension and Stroke

Hypertension or high blood pressure and associated heart disease and circulatory conditions increase with age. Stroke is a leading cause of death and severe, long-term disability. Most people who've had a first stroke also had high blood pressure (HBP or hypertension). High blood pressure damages arteries throughout the body, creating conditions where they can burst or clog more easily. Weakened arteries in the brain, resulting from high blood pressure, increase the risk for stroke—which is why managing high blood pressure is critical to reduce the chance of having a stroke. Hypertension disables 11.1 percent of 65 to 74 year olds and 17.1 percent of people over 75. Rates are higher among women and blacks. Rates are highest for women over 75. Coronary disease and stroke are higher among older men than women. The incidence of

stroke is lower than that of coronary disease, but it is the No. 5 cause of death and a leading cause of disability in the United States.⁴⁵

Links in Learning

Older Americans & Cardiovascular Diseases

Visit this statistical fact sheet from the American Heart Association to learn more about some facts and figures related to heart disease.

Diabetes

Type 2 diabetes (T2D), formerly known as adult-onset diabetes, is a form of diabetes characterized by high blood sugar, insulin resistance, and relative lack of insulin (Figure 4). Common symptoms include increased thirst, frequent urination, and unexplained weight loss. Symptoms may also include increased hunger, feeling tired, and sores that do not heal. Often symptoms come on slowly. Long-term complications from high blood sugar include heart disease, strokes, diabetic retinopathy which can result in blindness, kidney failure, and poor blood flow in the limbs which may lead to amputations.

Type 2 diabetes primarily occurs as a result of obesity and lack of exercise. Some people are more genetically at risk than others. Type 2 diabetes makes up about 90% of cases of diabetes, with the other 10% due primarily to type 1 diabetes and gestational diabetes. In type 1 diabetes there is a lower total level of insulin to control blood glucose, due to an autoimmune-induced loss of insulin-producing beta cells in the pancreas. Diagnosis of diabetes is by blood tests such as fasting plasma glucose, oral glucose tolerance test, or glycated hemoglobin (A1C).

Type 2 diabetes is partly preventable by staying a normal weight, exercising regularly, and eating properly. Treatment involves exercise and dietary changes. If blood sugar levels are not adequately lowered, the medication metformin is typically recommended. Many people may eventually also require insulin injections. In those on insulin, routinely checking blood sugar

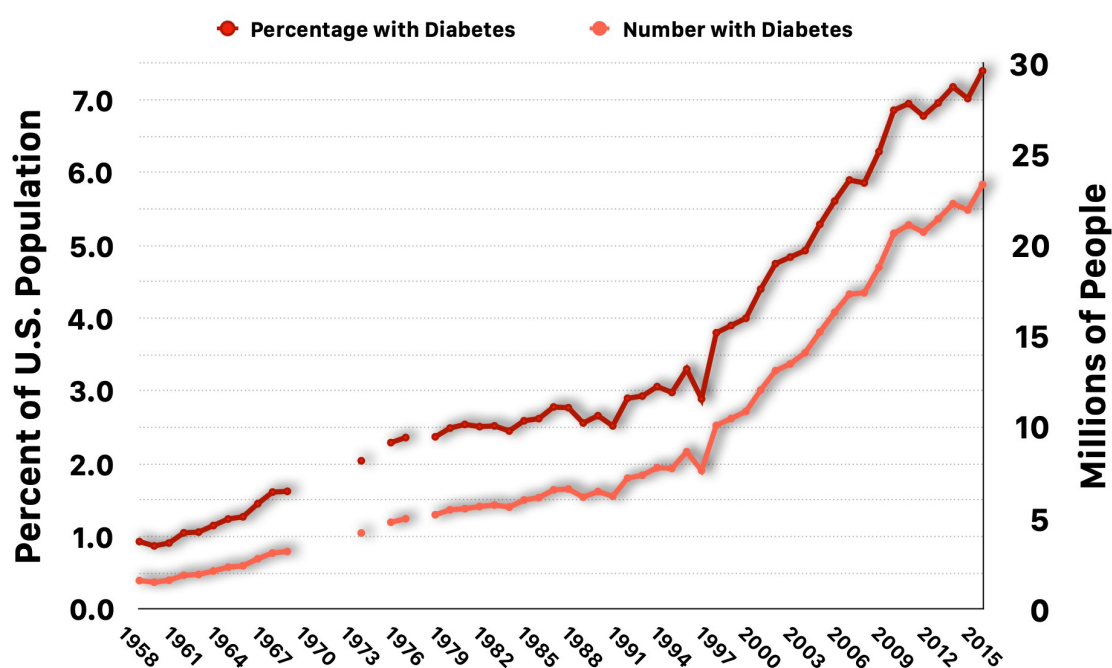
4. American Heart Association. (2016). How High Blood Pressure Can Lead to Stroke. <https://www.heart.org/en/health-topics/high-blood-pressure/health-threats-from-high-blood-pressure/how-high-blood-pressure-can-lead-to-stroke>

5. American Stroke Association. (n.d.) About Stroke. <https://www.strokeassociation.org/en/about-stroke>.

levels is advised; however, this may not be needed in those taking pills. Bariatric surgery often improves diabetes in those who are obese.

Rates of type 2 diabetes have increased markedly since 1960 in parallel with obesity. As of 2015, there were approximately 392 million people diagnosed with the disease compared to around 30 million in 1985. Typically it begins in middle or older age, although rates of type 2 diabetes are increasing in young people. Type 2 diabetes is associated with a ten-year-shorter life expectancy.

Number and Percentage of U.S. Population with Diagnosed Diabetes, 1958 - 2015



Source: CDC's Division of Diabetes Translation. United States Diabetes Surveillance System available at <http://www.cdc.gov/diabetes/data>

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Figure 4. In 1990, 2.52% of the total population had diabetes. It's now 9% of total, 12% of adults. It's estimated that 25% of adults will have diabetes in the US by 2030, 33% by 2050. (Source: US Diabetes Surveillance System, CC BY 4.0)

Parkinson's Disease

Parkinson's disease (PD) is a long-term degenerative disorder of the central nervous system which mainly affects the motor system, although as the disease worsens, non-motor

symptoms become increasingly common. Early in the disease, the most obvious symptoms are shaking, rigidity, slowness of movement, and difficulty with walking, but thinking and behavioral problems may also occur. Dementia becomes common in the advanced stages of the disease, and depression and anxiety also occur in more than a third of people with PD.

The cause of Parkinson's disease is generally unknown, but believed to involve both genetic and environmental factors. Those with a family member affected are more likely to get the disease themselves. There is also an increased risk in people exposed to certain pesticides and among those who have had prior head injuries, while there is a reduced risk in tobacco smokers (though smokers are at a substantially greater risk of stroke) and those who drink coffee or tea. The motor symptoms of the disease result from the death of cells in the substantia nigra, a region of the midbrain, which results in not enough dopamine in these areas. The reason for this cell death is poorly understood, but it involves the build-up of proteins into Lewy bodies in the neurons.

In 2015, PD affected 6.2 million people and resulted in about 117,400 deaths globally. Parkinson's disease typically occurs in people over the age of 60, of which about one percent are affected. Males are more often affected than females at a ratio of around 3:2. The average life expectancy following diagnosis is between 7 and 14 years. People with Parkinson's who have increased the public's awareness of the condition include actor Michael J. Fox, Olympic cyclist Davis Phinney, and professional boxer Muhammad Ali.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=287#h5p-39>

Arthritis



Figure 5. Arthritis can cause an individual to hunch in on themselves. (Image Source: Wikimedia Commons, CC BY SA 3.0)

While **arthritis** can affect children, it is predominantly a disease of the elderly. Arthritis is more common in women than men at all ages and affects all races, ethnic groups and cultures. In the United States a CDC survey based on data from 2007–2009 showed 22.2% (49.9 million) of adults aged ≥ 18 years had self-reported doctor-diagnosed arthritis, and 9.4% (21.1 million or 42.4% of those with arthritis) had arthritis-attributable activity limitation (AAAL). With an aging population, this number is expected to increase.

Arthritis is a term often used to mean any disorder that affects joints. Symptoms generally include joint pain and stiffness. Other symptoms may include redness, warmth, swelling, and decreased range of motion of the affected joints. In some types of arthritis, other organs are also affected. Onset can be gradual or sudden.

There are over 100 types of arthritis. The most common forms are osteoarthritis (degenerative joint disease) and rheumatoid arthritis. Osteoarthritis usually increases in frequency with age and affects the fingers, knees, and hips. Rheumatoid arthritis is an autoimmune disorder that

often affects the hands and feet. Other types include gout, lupus, fibromyalgia, and septic arthritis. They are all types of rheumatic disease

Treatment may include resting the joint and alternating between applying ice and heat. Weight loss and exercise may also be useful. Pain medications such as ibuprofen and paracetamol (acetaminophen) may be used. In some a joint replacement may be useful.

Over time a bent spine can make it hard to walk or even sit up. Adults can prevent the loss of bone mass by eating a healthy diet with enough calcium and vitamin D, regularly exercising, limiting alcohol, and not smoking.⁶

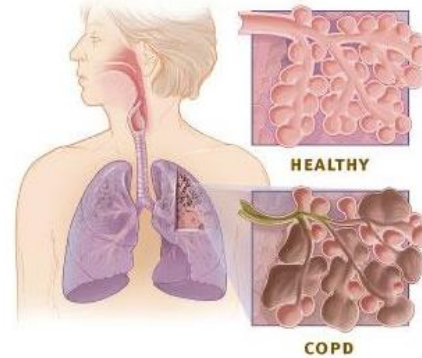
6. National Osteoporosis Foundation. (2016). Preventing fractures. <https://www.nof.org/prevention/preventing-fractures/>

COPD

Chronic obstructive pulmonary disease (COPD) is a progressive lung disease in which the airways become damaged making it difficult to breathe. COPD includes problems such as emphysema and chronic bronchitis.⁷ COPD is one of the leading causes of death. Figure 6 compares healthy to damaged lungs due to COPD. As COPD develops slowly, people may not notice the early signs, and may attribute the shortness of breath to age or lack of physical exercise. There is no cure as the damage cannot be reversed. Treatments aim at slowing further damage.

Cigarette smoking is the leading cause of COPD, but other types of tobacco smoking, such as a pipe or cigar, can cause COPD, especially if the smoke is inhaled. Heavy or long-term exposure to secondhand smoke can also lead to COPD.⁸ COPD can also occur in people who have long-term exposure to other environmental irritants, such as chemical fumes, and dust from the environment and workplace.

COPD: What is COPD?



Healthy airways and air sacs in the lungs are elastic—they try to bounce back to their original shape after being stretched or filled with air. In people with COPD, the air sacs no longer bounce back to their original shape. The airways can also become swollen or thicker than normal, and mucus production might increase.

Figure 6. Demonstration of COPD. (Image Source: National Institutes of Health)



Shingles

ADAM

Figure 7. Shingles Rash (Image Source: Medline Plus)

Shingles

According to the National Institute on Aging,⁹ **shingles** is a disease that affects your nerves (Figure 7). Shingles is caused by the same virus as chicken pox, the varicella-zoster virus (VZV). After you recover from chickenpox, the virus continues to live in some of your nerve cells. It is usually inactive, and most adults live with VZV in their bodies and never get shingles. However, the virus will become active in one in three adults. Instead of causing chickenpox again, it produces shingles.

7. National Institutes of Health: Senior Health. (2013). What is COPD? <http://nihseniorhealth.gov/copd/whatiscompd/01.html>

8. National Institutes of Health: Senior Health. (2013). What is COPD? <http://nihseniorhealth.gov/copd/whatiscompd/01.html>

9. National Institute on Aging. (2015). Shingles. <https://www.nia.nih.gov/health/publication/shingles>

A risk factor for shingles includes advanced age as people have a harder time fighting off infections as they get older. About half of all shingles cases are in adults age 60 or older, and the chance of getting shingles becomes much greater by age 70. Other factors that weaken an individual's ability to fight infections, such as cancer, HIV infections, or other medical conditions, can put one at a greater risk for developing shingles.

Shingles results in pain, burning, tingling, or itching in the affected area, as well as a rash and blisters. There is a shingles vaccine recommended for those aged 60 and older. Shingles is not contagious, but one can catch chickenpox from someone with shingles.

COGNITIVE DEVELOPMENT IN LATE ADULTHOOD

Diana Lang; Nick Cone; Sonja Ann Miller; Martha Lally; and Suzanne Valentine-French



Figure 1. Older adults sometimes need additional care to meet their daily needs, but this is not always the case. (Image Source: Pixabay)

There are numerous stereotypes regarding older adults as being forgetful and confused, but what does the research on memory and cognition in late adulthood actually reveal? In this

section, we will focus upon the impact of aging on memory, how age impacts cognitive functioning, and abnormal memory loss due to Alzheimer's disease, delirium, and dementia.¹

How does aging affect memory?

The Sensory Register

Aging may create small decrements in the sensitivity of the senses. And, to the extent that a person has a more difficult time hearing or seeing, that information will not be stored in memory. This is an important point, because many older people assume that if they cannot remember something, it is because their memory is poor. In fact, it may be that the information was never seen or heard.



Figure 2. During late adulthood, memory and attention decline, but continued efforts to learn and engage in cognitive activities can minimize aging effects on cognitive development.

The Working Memory

Older people have more difficulty using memory strategies to recall details.² **Working memory** is a cognitive system with a limited capacity responsible for temporarily holding information available for processing. As we age, the working memory loses some of its capacity. This makes it more difficult to concentrate on more than one thing at a time or to remember details of an event. However, people often compensate for this by writing down information and avoiding situations where there is too much going on at once to focus on a particular cognitive task.

When an elderly person demonstrates difficulty with multi-step verbal information presented quickly, the person is exhibiting problems with working memory. Working memory is among the cognitive functions most sensitive to decline in old age. Several explanations have been offered for this decline in memory functioning; one is the processing speed theory

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1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sonja Ann Miller for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia.
 2. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

of cognitive aging by Tim Salthouse. Drawing on the findings of general slowing of cognitive processes as people grow older, Salthouse argues that slower processing causes working-memory contents to decay, thus reducing effective capacity.³ For example, if an elderly person is watching a complicated action movie, they may not process the events quickly enough before the scene changes, or they may be processing the events of the second scene, which causes them to forget the first scene. The decline of working-memory capacity cannot be entirely attributed to cognitive slowing, however, because capacity declines more in old age than speed.

Another proposal is the inhibition hypothesis advanced by Lynn Hasher and Rose Zacks⁴. This theory assumes a general deficit in old age in the ability to inhibit irrelevant, or no-longer relevant, information. Therefore, working memory tends to be cluttered with irrelevant contents which reduce the effective capacity for relevant content. The assumption of an inhibition deficit in old age has received much empirical support but, so far, it is not clear whether the decline in inhibitory ability fully explains the decline of working-memory capacity.

An explanation on the neural level of the decline of working memory and other cognitive functions in old age was been proposed by Robert West. He argued that working memory depends to a large degree on the pre-frontal cortex, which deteriorates more than other brain regions as we grow old.⁵ Age related decline in working memory can be briefly reversed using low intensity transcranial stimulation, synchronizing rhythms in bilateral frontal and left temporal lobe areas.

The Long-Term Memory

Long-term memory involves the storage of information for long periods of time. Retrieving such information depends on how well it was learned in the first place rather than how long it has been stored. If information is stored effectively, an older person may remember facts, events, names and other types of information stored in long-term memory throughout life. The memory of adults of all ages seems to be similar when they are asked to recall names of teachers or classmates. And older adults remember more about their early adulthood and adolescence

3. Salthouse, T. A. (1996). The processing-speed theory of adult age differences in cognition. *Psychology Review*.
<https://www.ncbi.nlm.nih.gov/pubmed/8759042>.

4. Hasher, L. & Zacks, R. T. (1988). Working memory, comprehension, and aging: A review and a new view. In G.H. Bower (Ed.), *The Psychology of Learning and Motivation*, (Vol. 22, pp. 193–225). San Diego, CA: Academic Press.

5. West, R. (1996). An application of prefrontal cortex function theory to cognitive aging. *Psychological Bulletin*.
<https://www.ncbi.nlm.nih.gov/pubmed/8831298>.

than about middle adulthood.⁶ Older adults retain semantic memory or the ability to remember vocabulary.

Younger adults rely more on mental rehearsal strategies to store and retrieve information. Older adults focus rely more on external cues such as familiarity and context to recall information.⁷ And they are more likely to report the main idea of a story rather than all of the details.⁸

A positive attitude about being able to learn and remember plays an important role in memory. When people are under stress (perhaps feeling stressed about memory loss), they have a more difficult time taking in information because they are preoccupied with anxieties. Many of the laboratory memory tests require comparing the performance of older and younger adults on timed memory tests in which older adults do not perform as well. However, few real life situations require speedy responses to memory tasks. Older adults rely on more meaningful cues to remember facts and events without any impairment to everyday living.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=289#h5p-40>

New Research on Aging and Cognition

Can the brain be trained in order to build cognitive reserve to reduce the effects of normal aging? ACTIVE (Advanced Cognitive Training for Independent and Vital Elderly), a study conducted between 1999 and 2001 in which 2,802 individuals age 65 to 94, suggests that the answer is “yes.” These participants received 10 group training sessions and 4 follow up sessions to work on tasks of memory, reasoning, and speed of processing. These mental workouts improved cognitive functioning even 5 years later. Many of the participants believed that this improvement could be seen in everyday tasks as well.⁹ Learning new things, engaging in

6. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

7. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

8. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

9. Tennstedt, S., Morris, J., Unverzagt, F., Rebok, G., Willis, S., Ball, K., & Marsiske, M. (2006). ACTIVE: Advanced Cognitive

activities that are considered challenging, and being physically active at any age may build a reserve to minimize the effects of primary aging of the brain.

Video Example

Watch this video from SciShow Psych to learn about ways to keep the mind young and active.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=289#oembed-1>

You can view the transcript for “The Best Ways to Keep Your Mind Young” here (opens in new window).

Changes in Attention in Late Adulthood

Divided attention has usually been associated with significant age-related declines in performing complex tasks. For example, older adults show significant impairments on attentional tasks such as looking at a visual cue at the same time as listening to an auditory cue because it requires dividing or switching of attention among multiple inputs. Deficits found in many tasks, such as the Stroop task which measures selective attention, can be largely attributed to a general slowing of information processing in older adults rather than to selective attention deficits per se. They also are able to maintain concentration for an extended period of time. In general, older adults are *not* impaired on tasks that test sustained attention, such as watching a screen for an infrequent beep or symbol.

The tasks on which older adults show impairments tend to be those that require flexible control of attention, a cognitive function associated with the frontal lobes. Importantly, these types of tasks appear to improve with training and can be strengthened.¹⁰

An important conclusion from research on changes in cognitive function as we age is that attentional deficits can have a significant impact on an older person’s ability to function

Training for Independent and Vital Elderly Clinical Trial. Clinical Trials Database and Worldwide Listings.

<http://www.clinicaltrialssearch.org/active-advanced-cognitive-training-for-independent-and-vital-elderly- nct00298558.html>

10. Glisky, E. L. (2007). Changes in Cognitive Function in Human Aging. In: Riddle DR, editor. *Brain Aging: Models, Methods, and Mechanisms*. Boca Raton (FL): CRC Press/Taylor & Francis.

adequately and independently in everyday life. One important aspect of daily functioning impacted by attentional problems is driving. This is an activity that, for many older people, is essential to independence. Driving requires a constant switching of attention in response to environmental contingencies. Attention must be divided between driving, monitoring the environment, and sorting out relevant from irrelevant stimuli in a cluttered visual array. Research has shown that divided attention impairments are significantly associated with increased automobile accidents in older adults.¹¹ Therefore, practice and extended training on driving simulators under divided attention conditions may be an important remedial activity for older people.¹²

Problem Solving

Problem solving tasks that require processing non-meaningful information quickly (a kind of task which might be part of a laboratory experiment on mental processes) declines with age. However, real life challenges facing older adults do not rely on speed of processing or making choices on one's own. Older adults are able to resolve everyday problems by relying on input from others such as family and friends. They are also less likely than younger adults to delay making decisions on important matters such as medical care.^{13,14}

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=289#h5p-41>

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11. McDowd, J. M., & Shaw, R. J. (2000). Attention and aging: A functional perspective. In F. I. M. Craik & T. A. Salthouse (Eds.), *The handbook of aging and cognition* (pp. 221–292). Lawrence Erlbaum Associates Publishers.
 12. Park, D. C., & Gutchess, A. H. (2000). Cognitive aging and everyday life. In D. C. Park & N. Schwarz (Eds.), *Cognitive aging: A primer* (pp. 217–232). Psychology Press.
 13. Strough, J., Hicks, P. J., Swenson, L. M., Cheng, S., & Barnes, K. A. (2003). Collaborative everyday problem solving: Interpersonal relationships and problem dimensions. *International Journal of Aging and Human Development*, 56, 43–66.
 14. Meegan, S. P., & Berg, C. A. (2002). Contexts, functions, forms, and processes of collaborative everyday problem solving in older adulthood. *International Journal of Behavioral Development*, 26(1), 6–15. <https://doi.org/10.1080/01650250143000283>

Brain Functioning

Research has demonstrated that the brain loses 5% to 10% of its weight between 20 and 90 years of age.¹⁵ This decrease in brain volume appears to be due to the shrinkage of neurons, lower number of synapses, and shorter length of axons. According to Garrett,¹⁶ the normal decline in cognitive ability throughout the lifespan has been associated with brain changes, including reduced activity of genes involved in memory storage, synaptic pruning, plasticity, and glutamate and GABA (neurotransmitters) receptors. There is also a loss in white matter connections between brain areas. Without myelin, neurons demonstrate slower conduction and impede each other's actions. A loss of synapses occurs in specific brain areas, including the hippocampus (involved in memory) and the basal forebrain region. Older individuals also activate larger regions of their attentional and executive networks, located in the parietal and prefrontal cortex, when they perform complex tasks. This increased activation correlates with a reduced performance on both executive tasks and tests of working memory when compared to those younger.¹⁷

Despite these changes the brain exhibits considerable plasticity, and through practice and training, the brain can be modified to compensate for age-related changes.¹⁸ Park and Reuter-Lorenz¹⁹ proposed the **Scaffolding Theory of Aging and Cognition** which states that the brain adapts to neural atrophy (dying of brain cells) by building alternative connections, referred to as *scaffolding*. This scaffolding allows older brains to retain high levels of performance. Brain compensation is especially noted in the additional neural effort demonstrated by those individuals who are aging well. For example, older adults who performed just as well as younger adults on a memory task used both prefrontal areas, while only the right prefrontal cortex was used in younger participants.²⁰ Consequently, this decrease in brain lateralization appears to assist older adults with their cognitive skills.

Can we improve brain functioning? Many training programs have been created to improve brain functioning. ACTIVE (Advanced Cognitive Training for Independent and Vital Elderly), a study conducted between 1999 and 2001 in which 2,802 individuals age 65 to 94, suggests that

15. Fjell, A. M., & Walhovd, K. B. (2010). Structural brain changes in aging: Courses, causes, and cognitive consequences. *Reviews in the Neurosciences*, 21, 187-222.

16. Garrett, B. (2015). *Brain and behavior* (4th ed.). Thousand Oaks, CA: Sage.

17. Kolb, B., & Whishaw, I. Q. (2011). *An introduction to brain and behavior* (3rd ed.). New York, NY: Worth Publishers.

18. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

19. Park, D. C., & Reuter-Lorenz, P. (2009). The adaptive brain: Aging and neurocognitive scaffolding. *Annual Review of Psychology*, 60, 173-196.

20. Cabeza, R., Anderson, N. D., Locantore, J. K., & McIntosh, A. R. (2002). Aging gracefully: Compensatory brain activity in high-performing older adults. *NeuroImage*, 17, 1394-1402.

the answer is “yes”. These racially diverse participants received 10 group training sessions and 4 follow up sessions to work on tasks of memory, reasoning, and speed of processing. These mental workouts improved cognitive functioning even 5 years later. Many of the participants believed that this improvement could be seen in everyday tasks as well.²¹ However, programs for the elderly on memory, reading, and processing speed training demonstrate that there is improvement on the specific tasks trained, but there is no generalization to other abilities.²² Further, these programs have not been shown to delay or slow the progression of Alzheimer’s disease. Although these programs are not harmful, “physical exercise, learning new skills, and socializing remain the most effective ways to train your brain” (p. 207). These activities appear to build a reserve to minimize the effects of primary aging of the brain.

Parkinson’s disease

Parkinson’s disease is characterized by motor tremors, loss of balance, poor coordination, rigidity, and difficulty moving.²³ Parkinson’s affects approximately 1% of those over the age of 60, and it appears more frequently in family members in a little less than 10% of cases. Twenty-eight chromosomal areas have been implicated in Parkinson’s disease, but environmental factors have also been identified and include brain injury. Being knocked unconscious once increases the risk by 32%, and being knocked out several times increases the risk by 174%.²⁴ Other environmental influences include toxins, industrial chemicals, carbon monoxide, herbicides and pesticides.²⁵ The symptoms are due to the deterioration of the substantia nigra, an area in the midbrain whose neurons send dopamine-releasing axons to the basal ganglia which affects motor activity. Treatment typically includes the medication levodopa (L-dopa), which crosses the blood-brain barrier and is converted into dopamine in the brain. Deep brain stimulation, which involves inserting an electrode into the brain that provides electrical stimulation, has resulted in improved motor functioning.²⁶

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21. Tennstedt, S., Morris, J., Unverzagt, F., Rebok, G., Willis, S., Ball, K., & Marsiske, M. (2006). ACTIVE: Advanced Cognitive Training for Independent and Vital Elderly Clinical Trial. Clinical Trials Database and Worldwide Listings. <http://www.clinicaltrialssearch.org/active-advanced-cognitive-training-for-independent-and-vital-elderly- nct00298558.html>
 22. Jarrett, C. (2015). *Great myths of the brain*. West Sussex, UK: John Wiley & Sons.
 23. Garrett, B. (2015). *Brain and behavior* (4th ed.). Thousand Oaks, CA: Sage.
 24. Garrett, B. (2015). *Brain and behavior* (4th ed.). Thousand Oaks, CA: Sage.
 25. Olanow, C. W., & Tatton, W. G. (1999). Etiology and pathogenesis of Parkinson’s disease. *Annual Review of Neuroscience*, 22, 123-144.
 26. Garrett, B. (2015). *Brain and behavior* (4th ed.). Thousand Oaks, CA: Sage.

Sleep

Similar to other adults, older adults need between 7 to 9 hours of sleep per night, *but they tend to go to sleep earlier and get up earlier than those younger. This pattern is called **advanced sleep phase syndrome** and is based on changes in circadian rhythms.*²⁷ There are sleep problems in older adults, and insomnia is the most common problem in those 60 and older.²⁸ People with **insomnia** *have trouble falling asleep and staying asleep.* There are many reasons why older people may have insomnia, including certain medications, being in pain, having a medical or psychiatric condition, and even worrying before bedtime about not being able to sleep. Using over the counter sleep aids or medication may only work when used for a short time. Consequently, sleep problems should be discussed with a health care professional.

Also, common in older adults are sleep disorders, including sleep apnea, restless legs syndrome, periodic limb movement disorder, and rapid eye movement sleep behavior disorder.²⁹ **Sleep apnea** *refers to repeated short pauses in breathing, while an individual sleeps, that can lead to reduced oxygen in the blood.* Snoring is a common symptom of sleep apnea and it often worsens with age. Untreated sleep apnea can lead to impaired daytime functioning, high blood pressure, headaches, stroke, and memory loss. **Restless legs syndrome** *feels like there is tingling, crawling, or pins and needles in one or both legs, and this feeling is worse at night.* **Periodic limb movement disorder** *causes people to jerk and kick their legs every 20 to 40 seconds during sleep.* **Rapid eye movement sleep behavior disorder** *occurs when one's muscles can move during REM sleep and sleep is disrupted.*

According to the National Sleep Foundation,³⁰ there are many medical conditions that affect sleep and include gastroesophageal reflux disease, diabetes mellitus, renal failure, respiratory diseases such as asthma, and immune disorders. Diseases such as Parkinson's disease and multiple sclerosis also commonly cause problems sleeping. Lastly, Alzheimer's disease can interfere with sleeping patterns. Individuals may wake up many times during the night, wander when up, and yell which can alter the amount of time they sleep. Both minor and significant sleep problems in older adults can lead to increased risk of accidents, falls, chronic fatigue, decreased quality of life, cognitive decline, reduced immune function, and depression.³¹

Because of sleep problems experienced by those in late adulthood, research has looked into

27. National Sleep Foundation. (2009). Aging and sleep. <https://sleepfoundation.org/sleep-topics/aging-and-sleep>

28. National Institute on Aging. (2016). A good night's sleep. <https://www.nia.nih.gov/health/publication/good-nights-sleep>

29. National Institute on Aging. (2016). A good night's sleep. <https://www.nia.nih.gov/health/publication/good-nights-sleep>

30. National Sleep Foundation. (2009). Aging and sleep. <https://sleepfoundation.org/sleep-topics/aging-and-sleep>

31. Buman, M. P. (2013). Does exercise help sleep in the elderly? <https://sleepfoundation.org/ask-the-expert/does-exercise-help-sleep-the-elderly>

whether exercise can improve their quality of sleep. Results show that 150 minutes per week of exercise can improve sleep quality.³² This amount of exercise is also recommended to improve other health areas including lowering the risk for heart disease, diabetes, and some cancers. Aerobic activity, weight training, and balance programs are all recommended. For those who live in assisted living facilities even light exercise, such as stretching and short walks, can improve sleep. High intensity activity is not necessary to see improvements. Overall, the effects of exercise on sleep may actually be even larger for older adults since their sleep quality may not be ideal to start.

Intelligence and Wisdom

When looking at scores on traditional intelligence tests, tasks measuring verbal skills show minimal or no age-related declines, while scores on performance tests, which measure solving problems quickly decline with age.³³ This profile mirrors crystallized and fluid intelligence. As you recall from last chapter, crystallized intelligence encompasses abilities that draw upon experience and knowledge. Measures of crystallized intelligence include vocabulary tests, solving number problems, and understanding texts. Fluid intelligence refers to information processing abilities, such as logical reasoning, remembering lists, spatial ability, and reaction time. Baltes³⁴ introduced two additional types of intelligence to reflect cognitive changes in aging. **Pragmatics of intelligence** are cultural exposure to facts and procedures that are maintained as one ages and are similar to crystallized intelligence. **Mechanics of intelligence** are dependent on brain functioning and decline with age, similar to fluid intelligence. Baltes indicated that pragmatics of intelligence show little decline and typically increase with age. Additionally, pragmatics of intelligence may compensate for the declines that occur with mechanics of intelligence. In summary, global cognitive declines are not typical as one ages, and individuals compensate for some cognitive declines, especially processing speed.

Wisdom is the ability to use the accumulated knowledge about practical matters that allows for sound judgment and decision making. A wise person is insightful and has knowledge that can be used to overcome obstacles in living. Does aging bring wisdom? While living longer brings

32. Buman, M. P. (2013). Does exercise help sleep in the elderly? <https://sleepfoundation.org/ask-the-expert/does-exercise-help-sleep-the-elderly>

33. Botwinick, J. (1984). *Aging and behavior* (3rd ed.). New York: Springer.

34. Baltes, P. B. (1993). The aging mind: Potential and limits. *The Gerontologist*, 33, 580-594.

experience, it does not always bring wisdom. Paul Baltes and his colleagues^{35,36} suggest that wisdom is rare. In addition, the emergence of wisdom can be seen in late adolescence and young adulthood, with there being few gains in wisdom over the course of adulthood.³⁷ This would suggest that factors other than age are stronger determinants of wisdom. Occupations and experiences that emphasize others rather than self, along with personality characteristics, such as openness to experience and generativity, are more likely to provide the building blocks of wisdom.³⁸ Age combined with a certain types of experience and/or personality brings wisdom.

Attention and Problem Solving

Changes in Attention in Late Adulthood

Changes in sensory functioning and speed of processing information in late adulthood often translates into changes in attention.³⁹ Research has shown that older adults are less able to selectively focus on information while ignoring distractors,^{40,41} although Jefferies and her colleagues found that when given double time, older adults could perform at young adult levels. Other studies have also found that older adults have greater difficulty shifting their attention between objects or locations.⁴² Consider the implication of these attentional changes for older adults.

How do changes or maintenance of cognitive ability affect older adults' everyday lives?

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35. Baltes, P.B. & Kunzmann, U. (2004). The two faces of wisdom: Wisdom as a general theory of knowledge and judgment about excellence in mind and virtue vs. wisdom as everyday realization in people and products. *Human Development*, 47(5), 290-299.
 36. Baltes, P. B., & Staudinger, U. M. (2000). Wisdom: A metaheuristic (pragmatic) to orchestrate mind and virtue toward excellence. *American Psychologist*, 55(1), 122-136.
 37. Staudinger, U. M., & Gluck, J. (2011). Psychological wisdom research: Commonalities and differences in a growing field. *Annual Review of Psychology*, 62, 215-241.
 38. Baltes, P.B. & Kunzmann, U. (2004). The two faces of wisdom: Wisdom as a general theory of knowledge and judgment about excellence in mind and virtue vs. wisdom as everyday realization in people and products. *Human Development*, 47(5), 290-299.
 39. Jefferies, L. N., Roggeveen, A. B., Ennis, J. T., Bennett, P. J., Sekuler, A. B., & Dilollo, V. (2015). On the time course of attentional focusing in older adults. *Psychological Research*, 79, 28-41.
 40. Jefferies, L. N., Roggeveen, A. B., Ennis, J. T., Bennett, P. J., Sekuler, A. B., & Dilollo, V. (2015). On the time course of attentional focusing in older adults. *Psychological Research*, 79, 28-41.
 41. Wascher, E., Schneider, D., Hoffmann, S., Beste, C., & Sanger, J. (2012). When compensation fails: attentional deficits in healthy ageing caused by visual distraction. *Neuropsychologia*, 50(14), 3185-3192. <https://doi.org/10.1016/j.neuropsychologia.2012.09.033>
 42. Tales, A., Muir, J. L., Bayer, A., & Snowden, R. J. (2002). Spatial shifts in visual attention in normal aging and dementia of the Alzheimer type. *Neuropsychologia*, 40, 2000-2012.

Researchers have studied cognition in the context of several different everyday activities. One example is driving. Although older adults often have more years of driving experience, cognitive declines related to reaction time or attentional processes may pose limitations under certain circumstances.⁴³ In contrast, research on interpersonal problem solving suggested that older adults use more effective strategies than younger adults to navigate through social and emotional problems.⁴⁴ In the context of work, researchers rarely find that older individuals perform poorer on the job.⁴⁵ Similar to everyday problem solving, older workers may develop more efficient strategies and rely on expertise to compensate for cognitive decline.

Problem Solving

Problem solving tasks that require processing non-meaningful information quickly (a kind of task that might be part of a laboratory experiment on mental processes) declines with age. However, many real-life challenges facing older adults do not rely on speed of processing or making choices on one's own. Older adults resolve everyday problems by relying on input from others, such as family and friends. They are also less likely than younger adults to delay making decisions on important matters, such as medical care.^{46,47}

Deficit theories

The **processing speed theory**, proposed by Salthouse,^{48,49} suggests that as the nervous system slows with advanced age our ability to process information declines. This slowing of processing speed may explain age differences on many different cognitive tasks. For instance, as we age, working memory becomes less efficient.⁵⁰ Older adults also need longer time to complete mental tasks or make decisions. Yet, when given sufficient time older adults perform as competently as do

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- 43. Park, D. C. & Gutchess, A. H. (2000). Cognitive aging and everyday life. In D.C. Park & N. Schwarz (Eds.), *Cognitive Aging: A Primer* (pp. 217–232). New York: Psychology Press.
 - 44. Blanchard-Fields, F. (2007). Everyday problem solving and emotion: An adult development perspective. *Current Directions in Psychological Science*, 16, 26–31
 - 45. Park, D. C. & Gutchess, A. H. (2000). Cognitive aging and everyday life. In D.C. Park & N. Schwarz (Eds.), *Cognitive Aging: A Primer* (pp. 217–232). New York: Psychology Press.
 - 46. Strough, J., Hicks, P. J., Swenson, L. M., Cheng, S., & Barnes, K. A. (2003). Collaborative everyday problem solving: Interpersonal relationships and problem dimensions. *International Journal of Aging and Human Development*, 56, 43–66.
 - 47. Meegan, S. P., & Berg, C. A. (2002). Contexts, functions, forms, and processes of collaborative everyday problem solving in older adulthood. *International Journal of Behavioral Development*, 26(1), 6–15. <https://doi.org/10.1080/01650250143000283>
 - 48. Salthouse, T. A. (1996). The processing-speed theory of adult age differences in cognition. *Psychological Review*, 103, 403–428.
 - 49. Salthouse, T. A. (2004). What and when of cognitive aging. *Current Directions in Psychological Science*, 13(4), 140–144.
 - 50. Craik, F. I., & Bialystok, E. (2006). Cognition through the lifespan: mechanisms of change. *Trends in Cognitive Sciences*, 10, 131–138.

young adults.⁵¹ Thus, when speed is not imperative to the task healthy older adults do not show cognitive declines.

In contrast, **inhibition theory** argues that older adults have difficulty with inhibitory functioning, or the ability to focus on certain information while suppressing attention to less pertinent information tasks.⁵² Evidence comes from directed forgetting research. In **directed forgetting** people are asked to forget or ignore some information, but not other information. For example, you might be asked to memorize a list of words, but are then told that the researcher made a mistake and gave you the wrong list, and asks you to “forget” this list. You are then given a second list to memorize. While most people do well at forgetting the first list, older adults are more likely to recall more words from the “forget-to-recall” list than are younger adults.⁵³

Cognitive losses exaggerated

While there are information processing losses in late adulthood, overall loss has been exaggerated.⁵⁴ One explanation is that the type of tasks that people are tested on tend to be meaningless. For example, older individuals are not motivated to remember a random list of words in a study, but they are motivated for more meaningful material related to their life, and consequently perform better on those tests. Another reason is that the research is often cross-sectional. When age comparisons occur longitudinally, however, the amount of loss diminishes.⁵⁵ A third reason is that the loss may be due to a lack of opportunity in using various skills. When older adults practiced skills, they performed as well as they had previously. Although diminished performance speed is especially noteworthy in the elderly, Schaie⁵⁶ found that statistically removing the effects of speed diminished the individual’s performance declines significantly. In fact, Salthouse and Babcock⁵⁷ demonstrated that processing speed accounted for all but 1% of age-related differences in working memory when testing individuals from 18 to 82. Finally, it is well established that our hearing and vision

51. Salthouse, T. A. (1996). The processing-speed theory of adult age differences in cognition. *Psychological Review*, 103, 403-428.

52. Hasher, L. & Zacks, R. T. (1988). Working memory, comprehension, and aging: A review and a new view. In G.H. Bower (Ed.), *The Psychology of Learning and Motivation*, (Vol. 22, pp. 193-225). San Diego, CA: Academic Press.

53. Andrés, P., Van der Linden, M., & Parmentier, F. B. R. (2004). Directed forgetting in working memory: Age-related differences. *Memory*, 12, 248-256.

54. Garrett, B. (2015). *Brain and behavior* (4th ed.). Thousand Oaks, CA: Sage.

55. Schaie, K. W. (1994). The course of adult intellectual development. *American Psychologist*, 49, 304-311.

56. Schaie, K. W. (1994). The course of adult intellectual development. *American Psychologist*, 49, 304-311.

57. Salthouse, T. A., & Babcock, R. L. (1991). Decomposing adult age differences in working memory. *Developmental Psychology*, 27, 763-776.

decline as we age. Longitudinal research has proposed that deficits in sensory functioning explain age differences in a variety of cognitive abilities.⁵⁸

Abnormal Loss of Cognitive Functioning During Late Adulthood

Dementia

Historically, the term dementia was used to refer to an individual experiencing difficulties with memory, language, abstract thinking, reasoning, decision making, and problem-solving.⁵⁹ While the term dementia is still in common use, in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5)⁶⁰ the term dementia has been replaced by neurocognitive disorder. A **Major Neurocognitive Disorder** is diagnosed as a significant cognitive decline from a previous level of performance in one or more cognitive domains and interferes with independent functioning, while a **Minor Neurocognitive Disorder** is diagnosed as a modest cognitive decline from a previous level of performance in one or more cognitive domains and does not interfere with independent functioning. There are several different neurocognitive disorders that are typically demonstrated in late adulthood, and determining the exact type can be difficult because the symptoms may overlap with each other. Diagnosis often includes a medical history, physical exam, laboratory tests, and changes noted in behavior.

Common symptoms of dementia include emotional problems, difficulties with language, and a decrease in motivation. A person's consciousness is usually not affected. Globally, dementia affected about 46 million people in 2015. About 10% of people develop the disorder at some point in their lives, and it becomes more common with age. About 3% of people between the ages of 65–74 have dementia, 19% between 75 and 84, and nearly half of those over 85 years of age. In 2015, dementia resulted in about 1.9 million deaths, up from 0.8 million in 1990. As more people are living longer, dementia is becoming more common in the population as a whole.

Dementia generally refers to severely impaired judgment, memory or problem-solving ability. It can occur before old age and is not an inevitable development even among the very old. Dementia can be caused by numerous diseases and circumstances, all of which result in

58. Baltes, P. B. & Lindenberger, U. (1997). Emergence of powerful connection between sensory and cognitive functions across the adult life span: A new window to the study of cognitive aging? *Psychology and Aging*, 12, 12–21.

59. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

60. American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC: Author.

similar general symptoms of impaired judgment, etc. Alzheimer's disease is the most common form of dementia and is incurable, but there are also nonorganic causes of dementia which can be prevented. Malnutrition, alcoholism, depression, and mixing medications can also result in symptoms of dementia. If these causes are properly identified, they can be treated. Cerebral vascular disease can also reduce cognitive functioning.

Delirium

Delirium, also known as acute confusional state, is an organically caused decline from a previous baseline level of mental function that develops over a short period of time, typically hours to days. It is more common in older adults, but can easily be confused with a number of psychiatric disorders or chronic organic brain syndromes because of many overlapping signs and symptoms in common with dementia, depression, psychosis, etc. Delirium may manifest from a baseline of existing mental illness, baseline intellectual disability, or dementia, without being due to any of these problems.

Delirium is a syndrome encompassing disturbances in attention, consciousness, and cognition. It may also involve other neurological deficits, such as psychomotor disturbances (e.g. hyperactive, hypoactive, or mixed), impaired sleep-wake cycle, emotional disturbances, and perceptual disturbances (e.g. hallucinations and delusions), although these features are not required for diagnosis. Among older adults, delirium occurs in 15-53% of post-surgical patients, 70-87% of those in the ICU, and up to 60% of those in nursing homes or post-acute care settings. Among those requiring critical care, delirium is a risk for death within the next year.

Alzheimer's Disease

Alzheimer's disease (AD), also referred to simply as Alzheimer's, is the most common cause of dementia, accounting for 60-70% of its cases. Alzheimer's is a progressive disease causing problems with memory, thinking and behavior. Symptoms usually develop slowly and get worse over time, becoming severe enough to interfere with daily tasks.⁶¹

Alzheimer's disease is probably the most well-known and most common neurocognitive disorder for older individuals. In 2016, an estimated 5.4 million Americans were diagnosed with Alzheimer's disease,⁶² which was approximately one in nine aged 65 and over. By 2050, the

61. Alzheimer's Association. (n.d.) What is Alzheimer's? <https://www.alz.org/alzheimers-dementia/what-is-alzheimers>.

62. Alzheimer's Association. (2016). Know the 10 signs. Early detection matters. <http://www.alz.org/national/documents/tenwarnsigns.pdf>

number of people age 65 and older with Alzheimer's disease is projected to be 13.8 million if there are no medical breakthroughs to prevent or cure the disease. Alzheimer's disease is the 6th leading cause of death in the United States, but the 5th leading cause for those 65 and older. Among the top 10 causes of death in America, Alzheimer's disease is the only one that cannot be prevented, cured, or even slowed. Current estimates indicate that Alzheimer disease affects approximately 50% of those identified with a neurocognitive disorder.⁶³

Alzheimer's disease has a gradual onset with subtle personality changes and memory loss that differs from normal age-related memory problems occurring first. Confusion, difficulty with change, and deterioration in language, problem-solving skills, and personality become evident next. In the later stages, the individual loses physical coordination and is unable to complete everyday tasks, including self-care and personal hygiene.⁶⁴ Lastly, individuals lose the ability to respond to their environment, to carry on a conversation, and eventually to control movement (Alzheimer's Association, 2016). The disease course often depends on the individual's age and whether they have other health conditions.

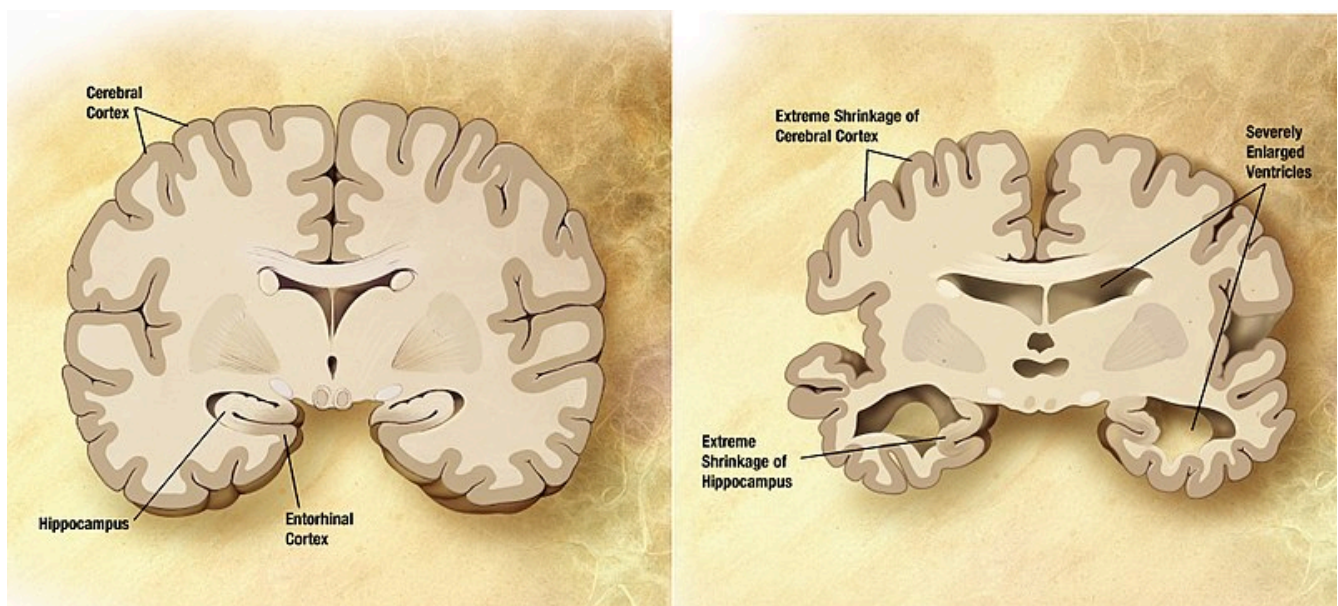


Figure 3. Alzheimer's disease is not simply part of the aging process. It is a disease with physiological symptoms and decay in the brain.

Alzheimer's is the sixth leading cause of death in the United States. On average, a person with Alzheimer's lives four to eight years after diagnosis, but can live as long as 20 years, depending

63. Cohen, D., & Eisdorfer, C. (2011). *Integrated textbook of geriatric mental health*. Baltimore: Johns Hopkins University Press.

64. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

on other factors. Alzheimer's is not a normal part of aging. The greatest known risk factor is increasing age, and the majority of people with Alzheimer's are 65 and older. But Alzheimer's is not just a disease of old age. Approximately 200,000 Americans under the age of 65 have younger-onset Alzheimer's disease (also known as early-onset Alzheimer's).⁶⁵

The cause of Alzheimer's disease is poorly understood. About 70% of the risk is believed to be inherited from a person's parents with many genes usually involved. Other risk factors include a history of head injuries, depression, and hypertension. The disease process is associated with plaques and neurofibrillary tangles in the brain. A probable diagnosis is based on the history of the illness and cognitive testing with medical imaging and blood tests to rule out other possible causes. Initial symptoms are often mistaken for normal aging, but examination of brain tissue, specifically of structures called plaques and tangles, is needed for a definite diagnosis. Though qualified physicians can be up to 90% certain of a correct diagnosis of Alzheimer's, currently, the only way to make a 100% definitive diagnosis is by performing an autopsy of the person and examining the brain tissue. In 2015, there were approximately 29.8 million people worldwide with AD. In developed countries, AD is one of the most financially costly diseases.

Video Example

This Ted-Ed video explains some of the history and biological diagnosis of Alzheimer's.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=289#oembed-2>

You can view the transcript for "What is Alzheimer's disease? – Ivan Seah Yu Jun" here.

65. Alzheimer's Association. (n.d.) What is Alzheimer's? <https://www.alz.org/alzheimers-dementia/what-is-alzheimers>.

Link to Learning

Samuel Cohen researches Alzheimer's disease and other neurodegenerative disorders. Listen to Cohen's TED Talk on Alzheimer's disease to learn more.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=289#h5p-42>

PSYCHOSOCIAL DEVELOPMENT IN LATE ADULTHOOD

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Laura Overstreet; and Sonja Ann Miller



Figure 1. Many people still see late adulthood as a time when “walks in the park” are a common pastime, though hobbies and lifestyles have changed over the years. (Image Source: Family out for a stroll... on Pixabay)

Our ideas about aging, and what it means to be over 50, over 60, or even over 90, seem to be stuck somewhere back in the middle of the 20th century. We still consider 65 as standard retirement age, and we expect everyone to start slowing down and moving aside for the next generation as their age passes the half-century mark. In this section we explore psychosocial developmental theories, including Erik Erikson’s theory on psychosocial development in late adulthood, and we look at aging as it relates to work, retirement, and leisure activities for older adult. We’ll also examine ways in which people are productive in late adulthood.¹

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and

Erikson: Integrity vs. Despair

As a person grows older and enters into the retirement years, the pace of life and productivity tend to slow down, granting a person time for reflection upon their life. They may ask the existential question, “It is okay to have been me?” If someone sees themselves as having lived a successful life, they may see it as one filled with productivity, or according to Erik Erikson, integrity.

Here integrity is said to consist of the ability to look back on one’s life with a feeling of satisfaction, peace and gratitude for all that has been given and received. Erikson (1959/1980) notes in this regard:

“The possessor of integrity is ready to defend the dignity of his own lifestyle against all physical and economic treats. For he knows that an individual life is the accidental coincidence of but one life cycle within but one segment of history; and that for him all human integrity stands and falls with the one style of integrity of which he partakes.” (p. 104)²³

Thus, persons derive a sense of meaning (i.e., integrity) through careful review of how their lives have been lived.⁴ Ideally, however, integrity does not stop here, but rather continues to evolve into the virtue of wisdom. According to Erikson, this is the goal during this stage of life.

If a person sees their life as unproductive, or feel that they did not accomplish their life goals, they may become dissatisfied with life and develop what Erikson calls despair, often leading to depression and hopelessness. This stage can occur out of the sequence when an individual feels they are near the end of their life (such as when receiving a terminal disease diagnosis).

Waymaker Lifespan Development, authored by Sonja Ann Miller for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet’s *Lifespan Psychology*. The section on Relationships in Late Adulthood is available under a Creative Commons-ShareAlike License, adapted from *Waymaker Lifespan Development* by Sonja Ann Miller with selections from Wikipedia.

2. Erikson, E. H. (1959). Identity and the life cycle: Selected papers. *Psychological Issues*, 1, 1–171.

3. Erikson, E. H. (1980). *Identity and the life cycle*. W W Norton & Co.

4. Krause, N. (2012). Meaning in life and healthy aging. In P. T. P. Wong (Ed.), *The human quest for meaning: Theories, research and application* (2nd ed., pp. 409–432). New York, NY: Routledge.

Erikson's Ninth Stage

Erikson (Figure 2) collaborated with his wife, Joan, through much of his work on psychosocial development. In the Erikson's older years, they re-examined the eight stages and created additional thoughts about how development evolves during a person's 80s and 90s. After Erik Erikson passed away in 1994, Joan published a chapter on the ninth stage of development, in which she proposed (from her own experiences and Erik's notes) that older adults revisit the previous eight stages and deal with the previous conflicts in new ways, as they cope with the physical and social changes of growing old. In the first eight stages, all of the conflicts are presented in a syntonic-dystonic matter, meaning that the first term listed in the conflict is the positive, sought-after achievement and the second term is the less-desirable goal (ie. trust is more desirable than mistrust and integrity is more desirable than despair).⁵ During the ninth stage, Erikson argues that the dystonic, or less desirable outcome, comes to take precedence again. For example, an older adult may become mistrustful (trust vs. mistrust), feel more guilt about not having the abilities to do what they once did (initiative vs. guilt), feel less competent compared with others (industry vs. inferiority), lose a sense of identity as they become dependent on others (identity vs. role confusion), become increasingly isolated (intimacy vs. isolation), feel that they have less to offer society (generativity vs. stagnation), or⁶ The Erikson's found that those who successfully come to terms with these changes and adjustments in later life make headway towards gerotranscendence, a term coined by gerontologist Lars Tornstam to represent a greater awareness of one's own life and connection to the universe, increased ties to the past, and a positive, transcendent, perspective about life.



Figure 2. Erikson emphasized the importance of integrity, and feeling a sense of accomplishment as an older person looks back on their life.

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5. Perry, T. E., Ruggiano, N., Shtompel, N., & Hassevoort, L. (2015). Applying Erikson's wisdom to self-management practices of older adults: findings from two field studies. *Research on aging*, 37(3), 253–274. <https://doi.org/10.1177/0164027514527974>
6. Gusky, J. (2012). Why aren't they screaming? A counselor's reflection on aging. *Counseling Today*. <https://ct.counseling.org/2012/04/why-arent-they-screaming-a-counselors-reflection-on-aging/>

Activity Theory

Developed by Havighurst and Albrecht in 1953⁷, activity theory addresses the issue of how persons can best adjust to the changing circumstances of old age—e.g., retirement, illness, loss of friends and loved ones through death, etc. In addressing this issue they recommend that older adults involve themselves in voluntary and leisure organizations, child care and other forms of social interaction. **Activity theory** thus strongly supports the avoidance of a sedentary lifestyle and considers it essential to health and happiness that the older person remains active physically and socially. In other words, the more active older adults are the more stable and positive their self-concept will be, which will then lead to greater life satisfaction and higher morale.⁸ Activity theory suggests that many people are barred from meaningful experiences as they age, but older adults who continue to want to remain active can work toward replacing opportunities lost with new ones.⁹

Disengagement Theory

Disengagement theory, developed by Cumming and Henry in the 1950s¹⁰, in contrast to activity theory, emphasizes that older adults should not be discouraged from following their inclination towards solitude and greater inactivity. While not completely discounting the importance of exercise and social activity for the upkeep of physical health and personal well being, disengagement theory is opposed to artificially keeping the older person so busy with external activities that they have no time for contemplation and reflection.¹¹ In other words, disengagement theory posits that older adults in all societies undergo a process of adjustment which involves leaving former public and professional roles and narrowing their social horizon to the smaller circle of family and friends. This process enables the older person to die more peacefully, without the stress and distractions that come with a more socially involved life. The theory suggests that during late adulthood, the individual and society mutually withdraw. Older people become more isolated from others and less concerned or involved with life in

7. Havighurst, R. J., Albrecht, R. E. (1953) *Older people*. Longmans: Green, New York

8. Havighurst, R.J., Albrecht, R.E. (1953) *Older people*. Longmans: Green, New York

9. Nilsson, H., Bülow, P. H., & Kazemi, A. (2015). Mindful sustainable aging: Advancing a comprehensive approach to the challenges and opportunities of old age. *Europe's Journal of Psychology*, 11(3), 494–508. <https://doi.org/10.5964/ejop.v11i3.949>

10. Cumming, E., & Henry, W. E. (1961). *Growing old: Process of disengagement*. Basic Books.

11. Cumming, E., & Henry, W. E. (1961). *Growing old: Process of disengagement*. Basic Books.

general. This once popular theory is now criticized as being ageist and used in order to justify treating older adults as second class citizens.¹²

Continuity Theory

Continuity theory suggests as people age, they continue to view the self in much the same way as they did when they were younger. An older person's approach to problems, goals, and situations is much the same as it was when they were younger. They are the same individuals, but simply in older bodies. Consequently, older adults continue to maintain their identity even as they give up previous roles. For example, a retired Coast Guard commander attends reunions with shipmates, stays interested in new technology for home use, is meticulous in the jobs he does for friends or at church, and displays mementos from his experiences on the ship. He is able to maintain a sense of self as a result. People do not give up who they are as they age. Hopefully, they are able to share these aspects of their identity with others throughout life. Focusing on what a person can do and pursuing those interests and activities is one way to optimize and maintain self-identity.

Generativity in Late Adulthood

People in late adulthood continue to be productive in many ways. These include work, education, volunteering, family life, and intimate relationships. Older adults also experience generativity (recall Erikson's previous stage of generativity vs. stagnation) through voting, forming and helping social institutions like community centers, churches and schools. Psychoanalyst Erik Erikson wrote "I am what survives me."¹³

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12. Nilsson, H., Bülow, P. H., & Kazemi, A. (2015). Mindful sustainable aging: Advancing a comprehensive approach to the challenges and opportunities of old age. *Europe's Journal of Psychology*, 11(3), 494–508. <https://doi.org/10.5964/ejop.v11i3.949>
 13. Havey, E. A. (2015). What's Generativity and Why It's Good for You. Huffington Post. https://www.huffpost.com/entry/whats-generativity-and-why-its-good-for-you_b_7629174?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2x1LmNvbS8&guce_referrer_sig=AQAAAISJrz_B9yl ovtOxRuUNpAiqTA6GZvMM8nUxuyG0eL1AwbMX0F2fEIL6QyV_FFfZfAf4oNBhRfajbOpAJu1L8tGsPe1My9RCv7X-hFjvhhNcr11Z5VRkfmim1nxpi2cA-cF4SYXbn9OyhdIzXtdHB-UwJqn73I0rFzpLKpv35gT

Productivity in Work



Figure 3. Many choose to retire at age 65, but some enjoy a productive work life well beyond their 60s. (Image Source: Elderly man working on Pixabay)

Some older adults continue to be productive in work (Figure 3). Mandatory retirement is now illegal in the United States. However, many do choose retirement by age 65 and most leave work by choice. Those who do leave by choice adjust to retirement more easily. Chances are, they have prepared for a smoother transition by gradually giving more attention to an avocation or interest as they approach retirement. And they are more likely to be financially ready to retire. Those who must leave abruptly for health reasons or because of layoffs or downsizing have a

more difficult time adjusting to their new circumstances. Men, especially, can find unexpected retirement difficult. Women may feel less of an identity loss after retirement because much of their identity may have come from family roles as well. But women tend to have poorer retirement funds accumulated from work and if they take their retirement funds in a lump sum (be that from their own or from a deceased husband's funds), are more at risk of outliving those funds. Women need better financial retirement planning.

Sixteen percent of adults over 65 were in the labor force in 2008.¹⁴ Globally, 6.2 percent are in the labor force and this number is expected to reach 10.1 million by 2016. Many adults 65 and older continue to work either full-time or part-time either for income or pleasure or both. In 2003, 39 percent of full-time workers over 55 were women over the age of 70; 53 percent were men over 70. This increase in numbers of older adults is likely to mean that more will continue to part of the workforce in years to come.¹⁵

Volunteering: Face-to-face and Virtually

About 40 percent of older adults are involved in some type of structured, face-to-face, volunteer work. But many older adults, about 60 percent, engage in a sort of informal type of

14. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22). Census Bureau Home Page. <http://www.census.gov/newsroom/rela...cb10-ff06.html>

15. He, W., Sengupta, M., Velkoff, V., & DeBarros, K. (2005.). U. S. Census Bureau, Current Population Reports, P23-209, 65+ in the United States: 2005 (United States, U. S. Census Bureau). <http://www.census.gov/prod/1/pop/p23-190/p23-190.html>

volunteerism helping out neighbors or friends rather than working in an organization.¹⁶ They may help a friend by taking them somewhere or shopping for them, etc. Some do participate in organized volunteer programs but interestingly enough, those who do tend to work part-time as well. Those who retire and do not work are less likely to feel that they have a contribution to make. (It's as if when one gets used to staying at home, their confidence to go out into the world diminishes.) And those who have recently retired are more likely to volunteer than those over 75 years of age.

New opportunities exist for older adults to serve as virtual volunteers by dialoguing online with others from around their world and sharing their support, interests, and expertise. According to an article from AARP (American Association of Retired Persons), virtual volunteerism has increased from 3,000 in 1998 to over 40,000 participants in 2005. These volunteer opportunities range from helping teens with their writing to communicating with 'neighbors' in villages of developing countries. Virtual volunteering is available to those who cannot engage in face-to-face interactions and opens up a new world of possibilities and ways to connect, maintain identity, and be productive.¹⁷

Education

Twenty percent of people over 65 have a bachelors or higher degree. And over 7 million people over 65 take adult education courses.¹⁸ Lifelong learning through continuing education programs on college campuses or programs known as "Elderhostels" which allow older adults to travel abroad, live on campus and study provide enriching experiences. Academic courses as well as practical skills such as computer classes, foreign languages, budgeting, and holistic medicines are among the courses offered. Older adults who have higher levels of education are more likely to take continuing education. But offering more educational experiences to a diverse group of older adults, including those who are institutionalized in nursing homes, can enhance the quality of life.

Religious Activities

People tend to become more involved in prayer and religious activities as they age. This

16. Berger, K. S. (2005). *The developing person through the life span* (6th ed.). New York: Worth.

17. Uscher, J. (2006, January). How to make a world of difference-without leaving home. AARP The Magazine – Feel Great. Save Money. Have Fun. http://www.aarpmagazine.org/lifestyle/virtual_volunteering.html

18. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22). Census Bureau Home Page. <http://www.census.gov/newsroom/relea...cb10-ff06.html>

provides a social network as well as a belief system which can combat the fear of death. Religious activities provide a focus for volunteerism and other activities as well. For example, one elderly woman prides herself on knitting prayer shawls that are given to those who are sick. Another serves on the altar guild and is responsible for keeping robes and linens clean and ready for communion.

Political Activism

The elderly are very politically active. They have high rates of voting and engage in letter writing to congress on issues that not only affect them, but on a wide range of domestic and foreign concerns. In the past three presidential elections, over 70 percent of people 65 and older showed up at the polls to vote.¹⁹

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=295#h5p-45>

Work and Retirement

Research suggests that generativity is not just a concern for midlife adults, but for many older adults, concerns about future generations continue into late adulthood. As previously discussed, some older adults are continuing to work beyond age 65. Additionally, they are volunteering in their community, and raising their grandchildren in greater numbers.

Volunteering

Many older adults spend time volunteering. Hooyman and Kiyak²⁰ found that religious organizations are the primary settings for encouraging and providing opportunities to

19. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22). Census Bureau Home Page. <http://www.census.gov/newsroom/relea...cb10-ff06.html>

20. Hooyman, N. R., & Kiyak, H. A. (2011). *Social gerontology: A multidisciplinary perspective* (9th Ed.). Boston, MA: Pearson

volunteer. Hospitals and environmental groups also provide volunteer opportunities for older adults.

Volunteering aids older adults as much as it does the community at large. Older adults who volunteer experience more social contact, which has been linked to higher rates of life satisfaction, and lower rates of depression and anxiety (Pilkington, Windsor, & Crisp, 2012). Longitudinal research also finds a strong link between health in later adulthood and volunteering.²¹ Lee and colleagues found that even among the oldest-old, the death rate of those who volunteer is half that of non-volunteers.²² However, older adults who volunteer may already be healthier, which is why they can volunteer compared to their less healthy age mates.

Grandparents raising Grandchildren

According to the 2014 American Community Survey,²³ over 5.5 million children under the age of 18 were living in families headed by a grandparent. This was more than a half a million increase from 2010. While most grandparents raising grandchildren are between the ages of 55 and 64, approximately 25% of grandparents raising their grandchildren are 65 and older.²⁴ For many grandparents, parenting a second time can be harder. Older adults have far less energy, and often the reason why they are now acting as parents to their grandchildren is because traumatic events. A survey by AARP²⁵ found that grandparents were raising their grandchildren because the parents had problems with drugs and alcohol, had a mental illness, were incarcerated, had divorced, had a chronic illness, were homeless, had neglected or abused the child, were deployed in the military, or had died. While most grandparents state they gain great joy from raising their grandchildren, they also face greater financial, health, education, and housing challenges that often derail their retirement plans than do grandparents who do not have primary responsibility for raising their grandchildren.

21. Kahana, E., Bhatta, T., Lovegreen, L. D., Kahana, B., & Midlarsky, E. (2013). Altruism, helping, and volunteering: Pathways to well-being in late life. *Journal of Aging and Health*, 25(1), 159-187.

22. Lee, S. J., Steinman, M., & Tan, E. J. (2011). Volunteering, driving status, and mortality in U.S. retirees. *Journal of the American Geriatric Society*, 59(2), 274-280. <https://doi.org/10.1111/j.1532-5415.2010.03265x>

23. United States Census Bureau. (2014a). American Community Survey, 2014 Estimates: table B10001.

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_B10001&prodType=table

24. Office on Women's Health. (2010a). Raising children again. <http://www.womenshealth.gov/aging/caregiving/raising-children-again.html>

25. Goyer, A. (2010). More grandparents raising grandkids: New census data shows and increase in children being raised by extended family. AARP. http://www.aarp.org/relationships/grandparenting/info-12-2010/more_grandparents_raising_grandchildren.html

Attitudes about Aging

Stereotypes about people in late adulthood lead many to assume that aging automatically brings poor health and mental decline (Figure 4). These stereotypes are reflected in everyday conversations, the media, and even in greeting cards.²⁶ The following examples serve to illustrate:

1. Grandpa, fishing pole in one hand, pipe in the other, sits on the ground and completes a story being told to his grandson with “. . . and that, Jimmy, is the tale of my very first colonoscopy.” The message inside the card reads, “Welcome to the gross personal story years.” (Shoebox, A Division of Hallmark Cards.)
2. An older woman in a barbershop cuts the hair of an older, dozing man. “So, what do you say today, Earl?” she asks. The inside message reads, “Welcome to the age where pretty much anyplace is a good place for a nap.” (Shoebox, A Division of Hallmark Cards.)
3. A crotchety old man with wire glasses, a crumpled hat, and a bow tie grimaces and the card reads, “Another year older? You’re at the age where you should start eatin’ right, exercisin’, and takin’ vitamins . . .” The inside reads, “Of course you’re also at the age where you can ignore advice by actin like you can’t hear it.” (Hallmark Cards, Inc.)

26. Overstreet, L. (2006). Unhappy birthday: Stereotypes in late adulthood. Unpublished manuscript, Texas Woman’s University.



Figure 4. Word used to describe the elderly are often negative and biased. Research by the Australian Human Rights Commission polled people on the following question: “Thinking about everything you see and hear in the media (including on TV, online, on the radio and in newspapers and magazines), how does the media portray older people?” Their responses are listed here, with the larger words being listed more often. (Image data taken from the Australian Human Rights Commission).

Of course, these cards are made because they are popular. Age is not revered in the United States, and so laughing about getting older is one way to get relief. The attitudes above are examples of ageism, prejudice based on age. **Ageism** is prejudice and discrimination that is directed at older people. The term ageism was first used in 1969, and according to Nelson,²⁷ ageism remains one of the most institutionalized forms of prejudice today. Nelson²⁸ reviewed the research on ageism and concluded that when older individuals believed their culture's negative stereotypes about those who are old, their memory and cognitive skills declined. In contrast, older individuals in cultures, such as China, that held more positive views on aging did not demonstrate cognitive deficits. This view suggests that older people are less in command of their mental faculties. Older people are viewed more negatively than younger people on a variety of traits, particularly those relating to general competence and attractiveness. Stereotypes such as these can lead to a self-fulfilling prophecy in which beliefs about one's ability results in actions that make it come true.

27. Nelson, T. D. (2016). Promoting healthy aging by confronting ageism. *American Psychologist*, 71(4), 276-282.

28. Nelson, T. D. (2016). Promoting healthy aging by confronting ageism. *American Psychologist*, 71(4), 276-282.

Ageism is a modern and predominately western cultural phenomenon—in the American colonial period, long life was an indication of virtue, and Asian and Native American societies view older people as wise, storehouses of information about the past, and deserving of respect. Many preindustrial societies observed **gerontocracy**, a type of social structure wherein the power is held by a society's oldest members. In some countries today, the elderly still have influence and power and their vast knowledge is respected, but this reverence has decreased in many places due to social factors. A positive, optimistic outlook about aging and the impact one can have on improving health is essential to health and longevity. Removing societal stereotypes about aging and helping older adults reject those notions of aging is another way to promote health in older populations.

In addition to ageism, racism is yet another concern for minority populations as they age. The number of black Americans above the age of 65 is projected to grow from around 4 million now to 12 million by 2060. Racism towards black people and other minoritized groups throughout the lifetime results in many older minoritized people having fewer resources, more chronic health conditions, and significant health disparities when compared to older white Americans. Racism towards older adults from diverse backgrounds has resulted in them having limited access to community resources such as grocery stores, housing, health care providers, and transportation.²⁹



Figure 5. What comes to mind when you think about an elderly person? Do you view this picture of an older gentleman as positive or negative, capable and independent or frail and needing assistance? (Image Source: Pixabay)

Elderly Abuse

Nursing homes have been publicized as places where older adults are at risk of abuse. Abuse and neglect of nursing home residents is more often found in facilities that are run down and understaffed. However, older adults are more frequently abused by family members. The most commonly reported types of abuse are financial abuse and neglect. Victims are usually very frail and impaired and perpetrators are usually dependent on the victims for support.

29. American Psychological Association. (n.d.) African American older adults and race-related stress: How aging and health-care providers can help. <https://www.apa.org/pi/aging/resources/african-american-stress.pdf>.

Prosecuting a family member who has financially abused a parent is very difficult. The victim may be reluctant to press charges and the court dockets are often very full resulting in long waits before a case is heard. “Granny dumping” or the practice of family members abandoning older family members with severe disabilities in emergency rooms is a growing problem; an estimated 100,000 and 200,000 are dumped each year.³⁰

Video Example

This clip from the Big Think examines some of the negative prejudices about the elderly.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=295#oembed-1>

You can view the transcript for “Ageism in the USA: The paradox of prejudice against the elderly” here (opens in new window).

You can watch another video from Ashton Applewhite in this TED talk “Let’s End Ageism.”

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=295#h5p-44>

Relationships in Late Adulthood

During late adulthood, many people find that their relationships with their adult children, siblings, spouses, or life partners change. Roles may also change, as many are grandparents

30. Berk, L. (2007). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

or great-grandparents, caregivers to even older parents or spouses, or receivers of care in a nursing home or other care facility.³¹

Grandparenting

It has become increasingly common for grandparents to live with and raise their grandchildren, or also to move back in with adult children in their later years (Figure 6). According to the U.S. Census Bureau, there were 2.7 million grandparents raising their grandchildren in 2009. The dramatic increase in grandparent-headed households has been attributed to many factors including parental substance abuse.

Grandparenting typically begins in midlife rather than late adulthood, but because people are living longer, they can anticipate being grandparents for longer periods of time. Cherlin and Furstenberg³² describe three styles of grandparents:

1. **Remote Grandparents:** These grandparents rarely see their grandchildren. Usually they live far away from the grandchildren, but may also have a distant relationship. Contact is typically made on special occasions such as holidays or birthdays. Thirty percent of the grandparents studied by Cherlin and Furstenberg were remote.³³

2. **Companionate Grandparents:** Fifty-five percent of grandparents studied were



Figure 6. Grandparenting styles can vary depending on a variety of factors such as relationships, personality, and proximity. (Image Source: Pixabay)

31. This section on Relationships in Late Adulthood is available under a Creative Commons-ShareAlike License, adapted from Waymaker Lifespan Development by Sonja Ann Miller with selections from Wikipedia's article on "Extended Family."

32. Cherlin, A. J., & Furstenberg, F. F. (1986). *The new American grandparent: A place in the family, a life apart*. New York: Basic Books.

33. Cherlin, A. J., & Furstenberg, F. F. (1986). *The new American grandparent: A place in the family, a life apart*. New York: Basic Books.

described as companionate. These grandparents do things with the grandchild but have little authority or control over them. They prefer to spend time with them without interfering in parenting. They are more like friends to their grandchildren.

3. Involved Grandparents: Fifteen percent of grandparents were described as involved. These grandparents take a very active role in their grandchild's life. The grandchildren might even live with the grandparent. The involved grandparent is one who has frequent contact with and authority over the grandchild.

An increasing number of grandparents are raising grandchildren today. Issues such as custody, visitation, and continued contact between grandparents and grandchildren after parental divorce are contemporary concerns.

Marriage and Divorce

Most males and females aged 65 and older had been married at some point in their lives. According to the U.S. Census Bureau, 2016 American Community Survey, among the population 65 and older, males were significantly more likely to be married (70 percent) compared with females (44 percent) in the same age group. Even at the oldest age group, 85 and older, 54 percent of males were still married compared with 15 percent of females.³⁴

34. Roberts, A. & Stella, O. U. (2016). The Population 65 Years and Older in the United States: 2016 American Community Survey Reports. <https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-38.pdf>



Figure 7. Both divorce and remarriage are on the rise for older Americans.
(Image Source: “It’s all about love” by Candida Performa, CC BY 2.0)

Twelve percent of older men and 15% percent of older women have been divorced and about 6 percent of older adults have never married.³⁵ Many married couples feel their marriage has improved with time and the emotional intensity and level of conflict that might have been experienced earlier, has declined. This is not to say that bad marriages become good ones over the years, but that those marriages that were very conflict-ridden may no longer be together, and that many of the disagreements couples might have had earlier in their marriages may no longer be concerns. Children have grown and the division of labor in the home has probably been established. Men tend to report being satisfied with marriage more than do women. Women are more likely to complain about caring for a spouse who is ill or accommodating a retired husband and planning activities. Older couples continue to engage in sexual activity, but with less focus on intercourse and more on cuddling, caressing, and oral sex.³⁶

Divorce after long-term marriage does occur, but is not as common as earlier divorces, despite rising divorce rates for those above age 65. Older adults who have been divorced since midlife tend to have settled into comfortable lives and, if they have raised children, to be proud of their accomplishments as single parents. Remarriage is also on the rise for older adults; in

35. Roberts, A. & Stella, O. U. (2016). The Population 65 Years and Older in the United States: 2016 American Community Survey Reports. <https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-38.pdf>

36. Carroll, J. (2007). *Sexuality now: Embracing diversity* (2nd ed.). Belmont, CA: Wadsworth.

2014, 50% of adults ages 65 and older had remarried, up from 34% in 1960. Men are also more likely to remarry than women.³⁷

Widowhood

With increasing age, women were less likely to be married or divorced but more likely to be widowed, reflecting a longer life expectancy relative to men. About 2 out of 10 women aged 65 to 74 were widowed compared with 4 out of 10 women aged 75 to 84 and 7 out of 10 women 85 and older. More than twice as many women 85 and older were widowed (72 percent) compared to men of the same age (35 percent).³⁸ The death of a spouse is one of life's most disruptive experiences. It is especially hard on men who lose their wives. Often widowers do not have a network of friends or family members to fall back on and may have difficulty expressing their emotions to facilitate grief. Also, they may have been very dependent on their mates for routine tasks such as cooking, cleaning, etc.

Widows may have less difficulty because they do have a social network and can take care of their own daily needs. They may have more difficulty financially if their husband's have handled all the finances in the past. They are much less likely to remarry because many do not wish to and because there are fewer men available. At 65, there are 73 men to every 100 women. The sex ratio becomes even further imbalanced at 85 with 48 men to every 100 women.³⁹

Loneliness or solitude?

Loneliness is a discrepancy between the social contact a person has and the contacts a person wants.⁴⁰ It can result from social or emotional isolation. Women tend to experience loneliness as a result of social isolation; men from emotional isolation. Loneliness can be accompanied by a lack of self-worth, impatience, desperation, and depression. This can lead to suicide, particularly in older, white men who have the highest suicide rates of any age group; higher

37. Livingston, G. (2014). Chapter 2: The Demographics of Remarriage. Pew Research Center. <https://www.pewsocialtrends.org/2014/11/14/chapter-2-the-demographics-of-remarriage/>.

38. Roberts, A. & Stella, O. U. (2016). The Population 65 Years and Older in the United States: 2016 American Community Survey Reports. <https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-38.pdf>

39. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22). Census Bureau Home Page. <http://www.census.gov/newsroom/relea...cb10-ff06.html>

40. Brehm, S. S., Miller, R., Perlman, D., & Campbell, S. (2002). *Intimate relationships* (3rd ed.). Boston: McGraw-Hill Higher Education.

than Blacks, and higher than for females. Rates of suicide continue to climb and peaks in males after age 85.⁴¹

Being alone does not always result in loneliness. For some, it means solitude. Solitude involves gaining self-awareness, taking care of the self, being comfortable alone, and pursuing one's interests.⁴²

Couples who remarry after midlife, tend to be happier in their marriages than in first marriage. These partners are likely to be more financially independent, have children who are grown, and enjoy a greater emotional wisdom that comes with experience.

Single, Cohabiting, and Remarried Older Adults

About 6 percent of adults never marry. Many have long-term relationships, however. The never married tend to be very involved in family and care giving and do not appear to be particularly unhappy during late adulthood, especially if they have a healthy network of friends. Friendships tend to be an important influence in life satisfaction during late adulthood. Friends may be more influential than family members for many older adults. According to **socioemotional selectivity theory**, older adults become more selective in their friendships than when they were younger.⁴³ Friendships are not formed in order to enhance status or careers, and may be based purely on a sense of connection or the enjoyment of being together. Most elderly people have at least one close friend. These friends may provide emotional as well as physical support. Being able to talk with friends and rely on others is very important during this stage of life.

About 4 percent of older couples chose cohabitation over marriage.⁴⁴ The Pew Research Center reported in 2017 that the number of cohabiters over age 50 rose to 4 million from 2.3 million over the decade, and found the number over age 65 doubled to about 900,000.⁴⁵ As discussed in our lesson on early adulthood, these couples may prefer cohabitation for financial

41. United States, National Center for Health Statistics. (2002). National Vital Statistics Report, 50(16). http://www.cdc.gov/nchs/data/dvs/LCWK1_2000.pdf

42. Brehm, S. S., Miller, R., Perlman, D., & Campbell, S. (2002). *Intimate relationships* (3rd ed.). Boston: McGraw-Hill Higher Education.

43. Carstenson, L. L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion*, 27, 103-123.

44. Chevan, A. (1996). As cheaply as one: Cohabitation in the older population. *Journal of Marriage and the Family*, 58, 656-667.

45. Stepler, R. (2017). Number of U.S. adults cohabiting with a partner continues to rise, especially among those 50 and older. Pew Research Center. <https://www.pewresearch.org/fact-tank/2017/04/06/number-of-u-s-adults-cohabiting-with-a-partner-continues-to-rise-especially-among-those-50-and-older/>

reasons, may be same-sex couples who cannot legally marry, or couples who do not want to marry because of previous dissatisfaction with marital relationships.

LGBTQ+ Older Adults

There has been a growth of interest in lesbian, gay, bisexual, transgender, and queer (LGBTQ+) aging in recent years. Many retirement issues for lesbian, gay, bisexual, transgender (LGBT) and intersex people are unique from their non-LGBTI counterparts and these populations often have to take extra steps addressing their employment, health, legal and housing concerns to ensure their needs are met. Throughout the United States, there are 1.5 million adults over the age of 65 who identify as lesbian, gay, or bisexual, and two million people above the age of 50 who identify as such. That number is expected to double by 2030, as estimated in a study done by the Institute for Multigenerational Health at the University of Washington. While LGBTQ+ people have increasingly become more visible and accepted into mainstream cultures, LGBTQ+ elders and retirees are still considered a newer phenomenon, which creates both challenges and opportunities as they redefine some commonly held beliefs about aging.

LGBTQ+ individuals are less likely to have strong family support systems in place to have relatives to care for them during aging. They are twice as likely to enter old age living as a single person; and two and a half times more likely to live alone. Because institutionalized homophobia as well as cultural discrimination and harassment still exist, they are less likely to access health care, housing, or social services or when they do, find the experience stressful or demeaning. Joel Ginsberg, executive director of the Gay Lesbian Medical Association, asserts “only by pursuing both strategies, encouraging institutional change and encouraging...and empowering individuals to ask for what they want will we end up with quality care for LGBT people.”⁴⁶

These older adults have concerns over health insurance, being able to share living quarters in nursing homes and assisted living residences where staff members tend not to be accepting of homosexuality and bisexuality. SAGE (Senior Action in a Gay Environment) is an advocacy group working on remedying these concerns. Same-sex couples who have endured prejudice and discrimination through the years and can rely upon one another continue to have support through late adulthood.

LGBTQ+ Aging Centers have opened in several major metropolitan areas with the goal of training long-term care providers about LGBT-specific issues, an area of frequent

46. Cassell, H. (2007). "LGBT Health Care Movement Gains Momentum". Bay Area Reporter. <https://www.ebar.com/news///238394>

discrimination. Legislative solutions are available as well: “California is the only state with a law saying the gay elderly have special needs, like other members of minority groups. A new law encourages training for employees and contractors who work with the elderly and permits state financing of projects like gay senior centers.”⁴⁷ Twenty states prohibit discrimination in housing and public accommodation on the basis of sexual orientation.

Older Adults, Caregiving, and Long-Term Care

Older adults do not typically relocate far from their previous places of residence during late adulthood. A minority lives in planned retirement communities that require residents to be of a certain age. However, many older adults live in age-segregated neighborhoods that have become segregated as original inhabitants have aged and children have moved on. A major concern in future city planning and development will be whether older adults wish to live in age-integrated or age-segregated communities.

Over 60 million Americans, or 19% of the population, lived in multigenerational households, or homes with at least two adult generations in 2016 (Figure 8). It has become an ongoing trend for elderly generations to move in and live with their children, as they can give them support and help with everyday living.⁴⁸

Most (70 percent) of older adults who require care receive that care in the home. Most are cared for by their spouse, or by a daughter or daughter-in-law. However, those who are not cared for at home are institutionalized. In 2008, 1.6 million out of the total 38.9 million

Population rising in different types of multigenerational households

In millions

	2012	2016
Two adult generations	27.4	32.3
Three or more generations	26.5	28.4
Skipped generations	2.9	3.2

Note: Skipped generation households include grandparents and grandchildren younger than 25.

Source: Pew Research Center analysis of 2012 and 2016 American Community Survey (IPUMS).

PEW RESEARCH CENTER

Figure 8. More elderly are living in homes with their children or grandchildren. (Image Source: Pew Research Center, 2018)

47. Gross, J. (2007). "Aging and Gay, and Facing Prejudice in Twilight". The New York Times. <https://www.nytimes.com/2007/10/09/us/09aged.html>

48. Passel, J. & Cohn, D. (2018). A record 64 million Americans live in multigenerational households. Pew Research Center. <https://www.pewresearch.org/fact-tank/2018/04/05/a-record-64-million-americans-live-in-multigenerational-households/>.

Americans age 65 and older were nursing home residents.⁴⁹ Among 65-74, 11 per 1,000 adults aged 65 and older were in nursing homes. That number increases to 182 per 1,000 after age 85. More residents are women than men, and more are Black than white. As the population of those over age 85 continues to increase, more will require nursing home care. Meeting the psychological and social as well as physical needs of nursing home residents is a growing concern. Rather than focusing primarily on food, hygiene, and medication, the quality of life for the seniors within these facilities is important as well. Residents of nursing homes are sometimes stripped of their identity as their personal possessions and reminders of their life are taken away. A rigid routine in which the residents have little voice can be alienating to anyone, but more so for an older adult. Routines that encourage passivity and dependence can be damaging to self-esteem and lead to further deterioration of health. Greater attention needs to be given to promoting successful aging within institutions.

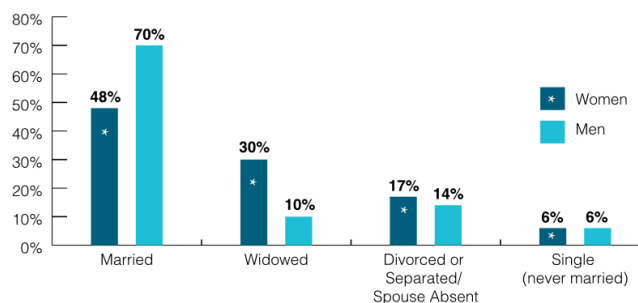
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<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=295#h5p-43>

49. Newsroom: Facts for Features & Special Editions: Facts for Features: Older Americans Month: May 2010. (2011, February 22). Census Bureau Home Page. <http://www.census.gov/newsroom/relea...cb10-ff06.html>

Late Adult Lifestyles

Marital Status of Persons Age 65 and Older, 2020



Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement

Figure 9. Marital Status of adults Age 65+ in 2020
(Image Source: 2020 Profile on Older Americans)

Marriage

As shown in Figure 9, the most common living arrangement for older adults in 2020 was marriage,⁵⁰ although this was more common for older men.

Widowhood

Losing one's spouse is one of the most difficult transitions in life. The Social Readjustment Rating Scale, commonly known as the Holmes- Rahe Stress Inventory, rates the death of a spouse as the most significant stressor.⁵¹ The loss of a spouse after many years of marriage may make an older adult feel adrift in life. They must remake their identity after years of seeing themselves as a husband or wife. Approximately, 1 in 3 women aged 65 and older are widowed, compared with about 1 in 10 men.

Loneliness is the biggest challenge for those who have lost their spouse.⁵² However, several factors can influence how well someone adjusts to this life event. Older adults who are more extroverted⁵³ and have higher self-efficacy,⁵⁴ often fare better. Positive support from adult children is also associated with fewer symptoms of depression and better overall adjustment in the months following widowhood.⁵⁵

The context of the death is also an important factor in how people may react to the death of a spouse. The stress of caring for an ill spouse can result in a mixed blessing when the ill partner dies.⁵⁶ The death of a spouse who died after a lengthy illness may come as a relief

50. Administration on Aging. (2021). A profile of older Americans, 2020. https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2020ProfileOlderAmericans.Final_.pdf

51. Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, 11, 213.

52. Kowalski, S. D., & Bondmass, M. D. (2008). Physiological and psychological symptoms of grief in widows. *Research in Nursing and Health*, 31(1), 23-30.

53. McCrae, R. R., & Costa, P. T. (1988). Physiological resilience among widowed men and women: A 10 year follow-up study of a national sample. *Journal of Social Issues*, 44(3), 129-142.

54. Carr, D. (2004b). Gender, preloss marital dependence, and older adults' adjustment to widowhood. *Journal of Marriage and Family*, 66, 220-235.

55. Ha, J. H. (2010). The effects of positive and negative support from children on widowed older adults' psychological adjustment: A longitudinal analysis. *Gerontologist*, 50, 471-481.

56. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

for the surviving spouse, who may have had the pressure of providing care for someone who was increasingly less able to care for themselves. At the same time, this sense of relief may be intermingled with guilt for feeling relief at the passing of their spouse.

Divorce

Older adults are divorcing at higher rates than in prior generations. Divorce poses a number of challenges for older adults, especially women, who are more likely to experience financial difficulties and are more likely to remain single than are older men.⁵⁷ However, in both America⁵⁸ and England⁵⁹ studies have found that the adult children of divorced parents offer more support and care to their mothers than their fathers. While divorced, older men may be better off financially and are more likely to find another partner, they may receive less support from their adult children.

Dating

Due to changing social norms and shifting cohort demographics, it has become more common for single older adults to be involved in dating and romantic relationships.⁶⁰ Older adults, much like those younger, are increasing their social networks using technologies, including e-mail, chat rooms, and online dating sites.^{61,62}

Older dating adults also need to know about threats to sexual health, including being at risk for sexually transmitted diseases, including chlamydia, genital herpes, and HIV. Nearly 25% of people living with HIV/AIDS in the United States are 50 or older.⁶³ Githens and Abramsohn⁶⁴ found that only 25% of adults 50 and over who were single or had a new sexual partner indicated

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57. McDonald, L., & Robb, A. L. (2004). The economic legacy of divorce and separation for women in old age. *Canadian Journal on Aging*, 23, 83-97.
 58. Lin, I. F. (2008). Consequences of parental divorce for adult children's support of their frail parents. *Journal of Marriage and Family*, 70(1), 113-128.
 59. Glaser, K., Stuchbury, R., Tomassini, C., & Askham, J. (2008). The long-term consequences of partnership dissolution for support in later life in the United Kingdom. *Ageing & Society*, 28(3), 329-351.
 60. Alterovitz, S. S., & Mendelsohn, G. A. (2011). Partner preferences across the lifespan: Online dating by older adults. *Psychology of Popular Media Culture*, 1, 89-95.
 61. Fox, S. (2004). Older Americans and the Internet. PEW Internet & American Life Project. http://www.pewinternet.org/report_display.asp?r_117
 62. Wright, K. B., & Query, J. L. (2004). Online support and older adults: A theoretical examination of benefits and limitations of computer-mediated support networks for older adults and possible health outcomes. In J. Nussbaum & J. Coupland (Eds.), *Handbook of communication and aging research* (2nd ed., pp. 499-519). Mahwah, NJ: Erlbaum.
 63. Office on Women's Health. (2010b). Sexual health. <http://www.womenshealth.gov/aging/sexual-health/>
 64. Githens, K., & Abramsohn, E. (2010). Still got it at seventy: Sexuality, aging, and HIV. *Achieve*, 1, 3-5.

that they have used a condom the last time they had sex. Robin⁶⁵ stated that 40% of those 50 and over have never been tested for HIV. These results indicated that educating all individuals, not just adolescents, on healthy sexual behavior is important.

Remarriage and Cohabitation

Older adults who remarry often find that their remarriages are more stable than those of younger adults. Kemp and Kemp⁶⁶ suggest that greater emotional maturity may lead to more realistic expectations regarding marital relationships, leading to greater stability in remarriages in later life. Older adults are also more likely to be seeking companionship in their romantic relationships. Carr⁶⁷ found that older adults who have considerable emotional support from their friends were less likely to seek romantic relationships. In addition, older adults who have divorced often desire the companionship of intimate relationships without marriage. As a result, cohabitation is increasing among older adults, and like remarriage, cohabitation in later adulthood is often associated with more positive consequences than it is in younger age groups.⁶⁸ No longer being interested in raising children, and perhaps wishing to protect family wealth, older adults may see cohabitation as a good alternative to marriage. In 2014, 2% of adults age 65 and up were cohabitating.⁶⁹

Social Networks in Late Adulthood

A person's social network consists of the people with whom one is directly involved, such as family, friends, and acquaintances.⁷⁰ As individuals age, changes occur in these social networks, and The Convoy Model of Social Relations and Socioemotional Selectivity Theory address these changes.⁷¹ Both theories indicate that less close relationships will decrease as one ages,

65. Robin, R. C. (2010). Grown-up, but still irresponsible. *New York Times*. <http://www.nytimes.com/2010/10/10/weekinreview/10rabin.html>.

66. Kemp, E. A., & Kemp, J. E. (2002). *Older couples: New romances: Finding and keeping love in later life*. Berkeley, CA: Celestial Arts.

67. Carr, D. (2004a). The desire to date and remarry among older widows and widowers. *Journal of Marriage and Family*, 66, 1051–1068.

68. King, V., & Scott, M. E. (2005). A comparison of cohabitating relationships among older and younger adults. *Journal of Marriage and Family*, 67(2), 271–285.

69. Stepler, R. (2016b). Living arrangements of older adults by gender. Pew Research Center. <http://www.pewsocialtrends.org/2016/02/18/2-living-arrangements-of-older-americans-by-gender/>

70. Fischer, C. S. (1982). *To dwell among friends: Personal networks in town and city*. Chicago, IL: University of Chicago Press.

71. Wrzus, C., Hanel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the lifespan: A meta-analysis. *Psychological Bulletin*, 139(1), 53–80.

while close relationships will persist. However, the two theories differ in explaining why this occurs.

The **Convoy Model of Social Relations** suggests that the social connections that people accumulate differ in levels of closeness and are held together by exchanges in social support.^{72,73} According to the Convoy Model, relationships with a spouse and family members, people in the innermost circle of the convoy, should remain stable throughout the life span. In contrast, coworkers, neighbors, and acquaintances, people in the periphery of the convoy, should be less stable. These peripheral relationships may end due to changes in jobs, social roles, location, or other life events. These relationships are more vulnerable to changing situations than family relationships. Therefore, the frequency, type, and reciprocity of the social exchanges with peripheral relationships decrease with age.

The **Socioemotional Selectivity Theory** focuses on changes in motivation for actively seeking social contact with others.^{74,75} This theory proposes that with increasing age, our motivational goals change based on how much time one has left to live. Rather than focusing on acquiring information from many diverse social relationships, as noted with adolescents and young adults, older adults focus on the emotional aspects of relationships. To optimize the experience of positive affect, older adults actively restrict their social life to prioritize time spent with emotionally close significant others. Research showing that older adults have smaller networks compared to young adults, and tend to avoid negative interactions, also supports this theory.

Relationship with adult children

Many older adults provide financial assistance and/or housing to adult children. There is more support going from the older parent to the younger adult children than in the other direction.⁷⁶ In addition to providing for their own children, many older adults are raising their grandchildren. Consistent with socioemotional selectivity theory, older adults seek, and are

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72. Antonucci, T. C. (2001). Social relations: An examination of social networks, social support and sense of control. In J.E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (5th ed., pp. 427–453). New York: Academic Press.
 73. Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles, and social support. In P. B. Baltes & O. Brim (Eds.), *Life-span development and behavior* (Vol. 3, pp. 253–286). New York: Academic Press.
 74. Carstensen, L. L. (1993). Motivation for social contact across the life span: A theory of socioemotional selectivity. In J. E. Jacobs (Ed.), *Nebraska Symposium on Motivation, 1992: Developmental perspectives on motivation* (pp. 209–254). Lincoln, NE: University of Nebraska Press.
 75. Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181.
 76. Fingerman, K. L., & Birditt, K. S. (2011). Relationships between adults and their aging parents. In K. W. Schaie & S. I Willis (Eds.), *Handbook of the psychology of aging* (7th ed.) (pp 219–232). SanDiego: Elsevier Academic Press.

helped by, their adult children providing emotional support.⁷⁷ Lang and Schütze,⁷⁸ as part of the Berlin Aging Study (BASE), surveyed adult children (mean age 54) and their aging parents (mean age 84). They found that the older parents of adult children who provided emotional support, such as showing tenderness toward their parent, cheering up parents when they were sad, tended to report greater life satisfaction. In contrast, older adults whose children provided informational support, such as providing advice to the parent, reported less life satisfaction. Lang and Schütze found that older adults wanted their relationship with their children to be more emotionally meaningful.⁷⁹

Friendships

Friendships are not formed in order to enhance status or careers, and may be based purely on a sense of connection or the enjoyment of being together. Most elderly people have at least one close friend. These friends may provide emotional as well as physical support. Being able to talk with friends and rely on others is very important during this stage of life. Bookwala, Marshall, and Manning⁸⁰ found that the availability of a friend played a significant role in protecting the health from the impact of widowhood. Specifically, those who became widowed and had a friend as a confidante, reported significantly lower somatic depressive symptoms, better self-rated health, and fewer sick days in bed than those who reported not having a friend as a confidante. In contrast, having a family member as a confidante did not provide health protection for those recently widowed.

Loneliness or solitude?

Loneliness is the discrepancy between the social contact a person has and the contacts a person wants.⁸¹ It can result from social or emotional isolation. Women tend to experience loneliness due to social isolation; men from emotional isolation. Loneliness can be accompanied by

77. Lang, F. R., & Schütze, Y. (2002). Adult children's supportive behaviors and older adults' subjective well-being: A developmental perspective on intergenerational relationships. *Journal of Social Issues*, 58, 661-680.

78. Lang, F. R., & Schütze, Y. (2002). Adult children's supportive behaviors and older adults' subjective well-being: A developmental perspective on intergenerational relationships. *Journal of Social Issues*, 58, 661-680.

79. Lang, F. R., & Schütze, Y. (2002). Adult children's supportive behaviors and older adults' subjective well-being: A developmental perspective on intergenerational relationships. *Journal of Social Issues*, 58, 661-680.

80. Bookwala, J., Marshall, K. I., & Manning, S. W. (2014). Who needs a friend? Marital status transitions and physical health outcomes in later life. *Health Psychology*, 33(6), 505-515.

81. Brehm, S. S., Miller, R., Perlman, D., & Campbell, S. (2002). *Intimate relationships* (3rd ed.). Boston: McGraw-Hill Higher Education.

feelings of low self-worth, impatience, desperation, and depression. Being alone does not always result in loneliness. For some, it means solitude. Solitude involves gaining self-awareness, taking care of the self, being comfortable alone, and pursuing one's interests.⁸²

Living Arrangements

Living Alone

Do those in late adulthood primarily live alone? No. In 2014, of those 65 years of age and older, approximately 72% of men and 46% of women lived with their spouse.⁸³ Between 1900 and 1990 the number of older adults living alone increased, most likely due to improvements in health and longevity during this time (see Figure 9). Since 1990 the number of older adults living alone has declined, because of older women more likely to be living with their spouse or children.⁸⁴

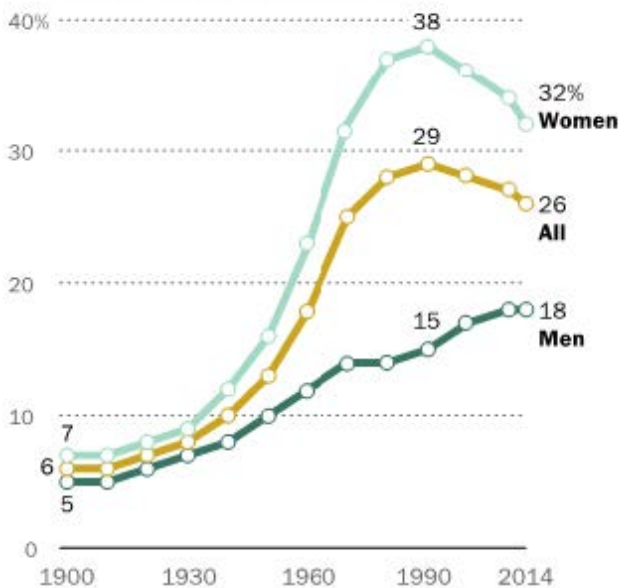
82. Brehm, S. S., Miller, R., Perlman, D., & Campbell, S. (2002). *Intimate relationships* (3rd ed.). Boston: McGraw-Hill Higher Education.

83. Vespa, J. & Schondelmyer, E. (2014). A gray revolution in living arrangements. <http://blogs.census.gov/2015/07/14/a-gray-revolution-in-living-arrangements/>

84. Stepler, R. (2016c). Smaller share of women 65 or older are living alone. Pew Research Center. <http://www.pewsocialtrends.org/2016/02/18/smaller-share-of-women-ages-65-and-older-are-living-alone/>

After rising for nearly a century, share of older women living alone is on decline

% of adults ages 65 and older living alone



Note: Data labels are for 1900, 1990 and 2014. Older adults living alone reside in a household. The share living alone is based on the total population ages 65 and older.

Source: Pew Research Center analysis of 1900-2000 decennial censuses and 2010 and 2014 American Community Surveys (IPUMS)

PEW RESEARCH CENTER

Figure 10. Percentage of older adult living alone
(Image Source: Pew Research Center, 2016)

Women continue to make up the majority of older adults living alone in the U.S., although that number has dropped from those living alone in 1990.⁸⁵ Older women are more likely to be unmarried, living with children, with other relatives or non-relatives. Older men are more likely to be living alone than they were in 1990, although older men are more likely to reside with their spouse. The rise in divorce among those in late adulthood, along with the drop-in remarriage rate, has resulted in slightly more older men living alone today than in the past.⁸⁶

Older adults who live alone report feeling more financially strapped than do those living with others.⁸⁷ According to a Pew Research Center Survey, only 33% of those living alone reported they were living comfortably, while nearly 49% of those living with others said they were living comfortably. Similarly, 12% of those living alone, but only 5% of those living with others, reported that they lacked money for basic needs.⁸⁸

Living with Family

Do those in late adulthood primarily live with family members? No. There are significantly

85. Stepler, R. (2016a). Gender gap in share of older adults living alone narrows. Pew Research Center.

<http://www.pewsocialtrends.org/2016/02/18/1-gender-gap-in-share-of-older-adults-living-alone-narrows/>

86. Stepler, R. (2016c). Smaller share of women 65 or older are living alone. Pew Research Center. <http://www.pewsocialtrends.org/2016/02/18/smaller-share-of-women-ages-65-and-older-are-living-alone/>

87. Stepler, R. (2016d). Well-being of older adults living alone. Pew Research Center. <http://www.pewsocialtrends.org/2016/02/18/3-well-being-of-older-adults-living-alone/>

88. Stepler, R. (2016d). Well-being of older adults living alone. Pew Research Center. <http://www.pewsocialtrends.org/2016/02/18/3-well-being-of-older-adults-living-alone/>

fewer older adults living in multigenerational housing; that is three generations living together, than in previous generations.⁸⁹ According to the Pew Research Center,⁹⁰ nearly 17% of the population lived in a house with at least two adult generations based on the 2010 census results. However, ethnic differences are noted in the percentage of multigenerational households with Hispanic (22%), Black (23%), and Asian (25%) families living together in greater numbers than White families (13%). Consequently, with the exception of some cultural groups, the majority of older adults wish to live independently for as long as they are able.

Moving after retirement

Do those in late adulthood move after retirement? No. According to Erber and Szuchman,⁹¹ the majority of those in late adulthood remain in the same location, and often in the same house, where they lived before retiring. Although some younger late adults (65-74 years) may relocate to warmer climates, once they are older (75-84 years) they often return to their home states to be closer to adult children.⁹² Despite the previous trends, however, the recent housing crisis has kept those in late adulthood in their current suburban locations because they are unable to sell their homes.⁹³

Living in institutions

Do those in late adulthood primarily live in institutions? No. Only a small portion (3.2%) of adults older than 65 lived in an institution in 2015.⁹⁴ However, as individuals increase in age the percentage of those living in institutions, such as a nursing home, also increases. Specifically: 1% of those 65-74, 3% of those 75-84, and 10% of those 85 years and older lived in an institution in 2015. Due to the increasing number of baby boomers reaching late adulthood, the number of people who will depend on long-term care is expected to rise from 12 million in 2010 to

89. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

90. Pew Research Center. (2011). Fighting poverty in a tough economy. Americans move in with their relatives. Retrieved from <http://www.pewsocialtrends.org/files.2011/10.Multigenerationsl-Households-Final1.pdf>

91. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

92. Stoller, E. P., & Longino, C. F. (2001). "Going home" or "leaving home"? The impact of person and place ties on anticipated counterstream migration. *Gerontologist*, 41, 96-102.

93. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: John Wiley & Sons.

94. Administration on Aging. (2016). A profile of older Americans, 2015. http://www.aoa.acl.gov/Aging_Statistics/Profile/index.aspx

27 million in 2050.⁹⁵ To meet this higher demand for services, a focus on the least restrictive care alternatives has resulted in a shift toward home and community-based care instead of placement in a nursing home.⁹⁶

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95. United States Senate Commission on Long-Term Care. (2013). Report to the Congress. Washington, DC: U. S. Government Printing Office.
96. Gatz, M., Smyer, M. A., & DiGilio, D. A. (2016). Psychology's contribution to the well-being of older Americans. *American Psychologist*, 71(4), 257-267.

PUTTING IT TOGETHER: LATE ADULTHOOD

Diana Lang and Nick Cone



(Image Source: Smiling African grandmother with other women enjoying a walk in the sunshine on Pixabay)

The period of late adulthood, which starts around age 65, is characterized by great changes and ongoing personal development. Older adults face profound physical, cognitive, and social changes, and many figure out strategies for adjusting to them and successfully cope with old age. In late adulthood people begin the decline that will be part of their lives until death. The declines in the senses—vision, hearing, taste, and smell—can have major psychological consequences. Most illnesses and diseases of late adulthood are not particular to old age, but the incidences of cancer and heart disease rise with age. People in late adulthood are also more prone to develop arthritis, hypertension, major neurocognitive disorders, and Alzheimer’s disease. Proper diet, exercise, and avoidance of health risks can all lead to overall well-being

during old age, and sexuality can continue throughout the lifespan in healthy adults. Thus, many older adults can maintain physical and mental strength until they die, and their social worlds can also remain as vital and active as they want.¹

Cognitively, we find that older people adjust quite well to the challenges of aging by adopting new strategies for solving problems and compensating for loss abilities. Although some intellectual abilities gradually decline throughout adulthood, starting at around the age 25, others stay relatively steady. For example, research shows that while fluid intelligence declines with age, crystallized intelligence remains steady, and may even improve, in late adulthood. Many cognitive abilities can be maintained with stimulation, practice, and motivation. Declines in memory affect mainly episodic memory and short-term memory, or working memory. Explanations of memory changes in old age focus upon environmental factors, information processing declines, and biological factors. Due to this perceived loss of abilities by others, older people are often subject to ageism, or prejudice and discrimination against people based on their age.

Socially, many of older adults become adept at coping with the changes in their lives, such as death of a spouse and retirement from work. Erikson calls older adulthood the integrity vs. despair stage. According to Erikson, individuals in late adulthood engage in looking back over their lives, evaluating their experiences and coming to terms with decisions. Other theorists focus on the tasks that define late adulthood and suggest that older people can experience liberation and self-regard. Marriages in older adulthood are generally happy, but the many changes in late adulthood can cause stress which may result in divorce. The death of a spouse has major psychological, social, and material effects on the surviving widow and makes the formation and continuation of friendships highly important. Family relationships are a continuing part of most older people's lives, especially relationships with siblings, children and grandchildren. Friendships, an important source of social support, are not only valued, but needed in late adulthood.

Whether death is caused by genetic programming or by general physical wear-and-tear is an unresolved question. Life expectancy, which has risen for centuries, varies with gender, race, and ethnicity and new approaches to increasing life expectancy is a growing topic of research.

1. This chapter was adapted from *Waymaker Lifespan Development*, by Lumen Learning and available under a Creative Commons Attribution license. The discussion questions were produced by Julie Lazzara for Lumen Learning.

Discussion: Late Adulthood

DISCUSSION: In this discussion, reflect upon and discuss BOTH of the following questions:

- Q1: What do you think helps make a successful transition into old age?
- Q2: Write a letter to your 65-year-old self. Where do you think you will be and what do you hope to accomplish by that time?

STEP 1: First, write a response with at least EIGHT substantial sentences for each question, integrating concepts you learned from the reading and other materials (include links when necessary). Show that you can think critically on the topic by integrating your own thoughts, analysis, or experiences.

STEP 2: Then return to the discussion to comment on at least TWO classmates' posts (in at least FIVE sentences). Expand on a classmate's comments in a value-adding, topic-related way. Promote a collaborative, supportive community, and advance the dialogue through follow-up questions. Reply posts cannot be one-liners, off-topic posts, vague statements, unsupported opinions, inadequate explanations or simply say, "I agree" or "good job."

DEATH, DYING, AND MOURNING

WHY IT MATTERS: DEATH AND DYING

Diana Lang; Nick Cone; Sarah Carter; and Laura Overstreet

Learning Objectives

- Describe the leading causes and types of deaths
- Examine the leading causes of death in the United States and worldwide
- Explain physiological death
- Describe social and psychological death
- Examine emotions related to death and dying
- Explain common perceptions and attitudes toward death
- Explain bereavement and types of grief
- Explain Kübler-Ross' stages of loss
- List and describe the stages of grief based on various models
- Examine care and practices related to death
- Explain the philosophy and practice of palliative care
- Describe hospice care
- Differentiate attitudes toward hospice care based on race and ethnicity
- Describe and contrast types of euthanasia and physician-assisted suicide
- Describe euthanasia types

Why learn about experiences and emotions related to death and dying?

“Everything has to die,” he told her during a telephone conversation.

“I want you to know how much I have enjoyed being with you, having you as my friend, and confidant and what a good father you have been to me. Thank you so much.” she told him.

“You are entirely welcome.” he replied.

He had known for years that smoking will eventually kill him. But he never expected that lung cancer would take his life so quickly or be so painful. A diagnosis in late summer was followed with radiation and chemotherapy during which time there were moments of hope interspersed with discussions about where his wife might want to live after his death and whether or not he would have a blood count adequate to let him proceed with his next treatment. Hope and despair exist side by side. After a few months, depression and quiet sadness preoccupied him although he was always willing to relieve others by reporting that he ‘felt a little better’ if they asked. He returned home in January after one of his many hospital stays and soon grew worse. Back in the hospital, he was told of possible treatment options to delay his death. He asked his family members what they wanted him to do and then announced that he wanted to go home. He was ready to die. He returned home. Sitting in his favorite chair and being fed his favorite food gave way to lying in the hospital bed in his room and rejecting all food. Eyes closed and no longer talking, he surprised everyone by joining in and singing “Happy birthday” to his wife, son, and daughter-in-law who all had birthdays close together. A pearl necklace he had purchased 2 months earlier in case he died before his wife’s birthday was retrieved



Figure 1. Some form of marker is used in cemeteries to identify who is buried there. Headstones such as this one may vary by religion with prayers and symbols, as well as the deceased’s name, years of birth and death, and family relationships. More elaborate stones and statues often reflect family prominence or wealth. Photo Courtesy Robert Paul Young

*and she told him how proud she would be as she wore it. He kissed her once and then again as she said goodbye. He died a few days later.*¹

A dying process that allows an individual to make choices about treatment, to say goodbyes and to take care of final arrangements is what many people hope for. Such a death might be considered a “good death.” But of course, many deaths do not occur in this way. Not all deaths include such a dialogue with family members or being able to die in familiar surroundings; people may die suddenly and alone, or people may leave home and never return (Figure 1). Children sometimes precede parents in death; wives precede husbands, and the homeless are bereaved by strangers.²

In this module, we will look at death and dying, grief and bereavement, palliative care, and hospice to better understand these last stages of life.

1. Overstreet, Laura. Personal Notes. Psyc 200 Lifespan Psychology.

2. This chapter was adapted from *Waymaker Lifespan Development*, authored by Sarah Carter for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology*.

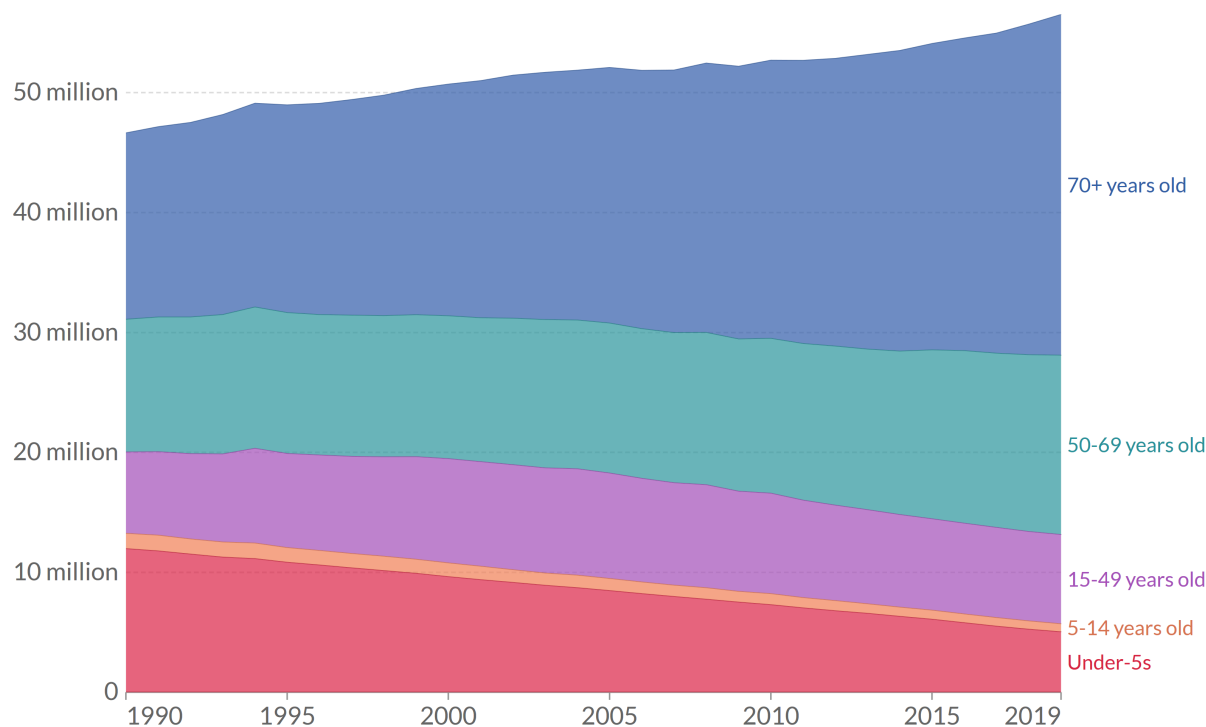
UNDERSTANDING DEATH

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Sarah Carter

Deaths by age, World, 1990 to 2019

Total annual number of deaths from all causes, broken down by broad age categories.

Our World
in Data



Source: IHME, Global Burden of Disease (GBD)

OurWorldInData.org/ • CC BY

Figure 1. With advances in health care, nutrition, and technology, fewer young people are dying. With an aging population, this means that the death rate for those above the age of 70 is steadily growing throughout the world. (Image Source: Our World in Data, CC BY)

While death has always been a universal component in the human experience, its prevalence and circumstances have changed over the years. Today, we associate death with the elderly, but looking back even one hundred years ago, death was more common among children and in various age ranges.¹ At that time, it was not uncommon for American families to lose a child

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and

during childbirth or infancy. Today less than 10% of all deaths worldwide occur to children under the age of 5, but as recently as 1990, that number was nearly 25%.²

The graph above shows data from 2016 (Figure 1), which reveal that nearly half of the 55 million global deaths occurred to those aged 70 years or older. There is still a great amount of disparity in death statistics based on location and access to medical care. In the United States, for example, deaths in that same age group of 70 years old or older accounted for 65% of total deaths. In this section, we'll look more closely at the leading causes of deaths in the United States and throughout the globe.

Death Defined

According to the Uniform Determination of Death Act (UDDA),³ death is defined clinically as the following:

An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards.

The UDDA was approved for the United States in 1980 by a committee of national commissioners, the American Medical Association, the American Bar Association, and the President's Commission on Medical Ethics. This act has since been adopted by most states and provides a comprehensive and medically factual basis for determining death in all situations.

Causes of Death in the United States

In 1900, the most common causes of death were infectious diseases, which brought death quickly. Due to advances in healthcare and medicine over the years, this has changed, alongside an increase in average life expectancy. According to national data, chronic diseases, or those in which a slow and steady decline causes health deterioration, were the most common causes of

Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sarah Carter for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Wikipedia.

2. Ritchie, H. and Roser, M. (2019) "Causes of Death" Published online at OurWorldInData.org. Retrieved from: '<https://ourworldindata.org/causes-of-death>' [Online Resource]
3. Uniform Law Commissioners. (1980). Defining death: medical, legal and ethical issues in the definition of death. Washington, DC: US Government Printing Office, 1981159-166.166

death in the United States in 2016⁴ In addition, accidents were more common than in previous years, often resulting in quick or unexpected death. How might this impact the way we think of death, the way we grieve, and the amount of control a person has over his or her own dying process, in comparison to the infectious diseases that were prevalent in 1900?

The 10 leading causes of death and number of deaths per category in 2018 and 2019 in the United States are listed below.⁵

Table 1. Leading Causes of Death in the United States

Rank	Cause of Death	Percentage of total deaths 2019	Percentage of total deaths 2018
1	Heart disease	23.1	23.1
2	Cancer	21.0	21.1
3	Accidents	6.1	5.9
4	Chronic lower respiratory diseases	5.5	5.6
5	Cerebrovascular diseases	5.3	5.2
6	Alzheimer's Disease	4.3	4.3
7	Diabetes	3.1	3.0
8	Nephritis, nephrotic syndrome and nephrosis	1.8	1.8
9	Influenza and Pneumonia	1.7	2.1
10	Suicide	1.7	1.7

All of these top causes of death, with the exception of two—accidents and suicides—continue to be related to physical illnesses. Many are linked at least in part to lifestyle choices, including diet, exercise, and substance abuse. Similarly, many are preventable, to some extent, and some are avoidable if the proper actions are taken. Although these causes of death remain very similar to what they were in 2004, the order has changed for several of them by 2019/2018. For example, accidents and unintentional injuries shifted from #5 in 2004 to #3 in 2019. Suicide moved from #11 to #10. In contrast, strokes became slightly less common, moving from #3 to #5, along with diabetes, which moved from #6 to #7. Septicemia (blood disease) followed a

4. Xu, J., Murphy, S. L., Kochanek, K. D., Bastian, B., & Arias, E. (2018). Deaths: Final data for 2016. *National Vital Statistics Reports* 67(5), 1-76.

5. Heron, M. (2021). Deaths: Leading causes for 2019. *National Vital Statistics Reports*, 70(9): <https://dx.doi.org/10.15620/cdc:107021>

similar trend, shifting from #10 to #11. These changes are likely attributable to a variety of factors, including lifestyle choices, social pressures and norms, and changes in responsibilities and obligations.

COVID-19

The COVID-19 pandemic, also known as the coronavirus pandemic, is an ongoing global pandemic of coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The World Health Organization declared the outbreak a Public Health Emergency of International Concern on 30 January 2020 and a pandemic on 11 March. As of 10 August 2020, more than 20.1 million cases of COVID-19 have been reported in more than 188 countries and territories, resulting in more than 737,000 deaths; more than 12.3 million people have recovered. Some estimates have Covid-19 becoming a top three leading cause of death in the United States in 2020, behind only heart disease and cancer.⁶

Deadliest Diseases Worldwide

The top 10 deadliest diseases in the world from 2020 are listed below, along with the percentage of deaths for which they were accountable. These reflect disease-related deaths only, and do not reflect deaths due to violence or suicide.⁷ Notice there are several similarities between these and the top 10 causes of death in the United States described above.

1. Ischaemic heart disease 13.2%
2. Stroke 10.7%
3. Neonatal conditions 6.2%
4. Lower respiratory infections 6.0%
5. Chronic obstructive pulmonary disease 5.8%
6. Diarrhoeal diseases 5.2%
7. Tuberculosis 3.4%

6. USAFacts.org. (2020, July 14). Top causes of death in the United States in 2020: Heart disease, cancer and COVID-19.

<https://usafacts.org/articles/top-causes-death-united-states-heart-disease-cancer-and-covid-19/>.

7. World Health Organization. (2020). Global Health Estimates 2019: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019.

8. HIV/AIDS 2.7%
9. Trachea, bronchus, lung cancers 2.4%
10. Road injury 2.3%

Similar to the top 10 general causes of death listed above, these remained fairly consistent over the years, despite increases and decreases in each. Deaths caused by heart disease, for example, from 2000 to 2019 increased by 2.1 million, and deaths caused by stroke increased by .7 million.⁸ Lung disorders and cancers also rose by .6 million deaths, while diabetes rose by .7 million. Alzheimer's disease and other forms of dementia also accounted for an additional 1 million deaths. Decreases were seen in lower respiratory infections, which decreased by .4 million, as well as dehydration due to diarrheal diseases, which decreased by 1.1 million. Furthermore, tuberculosis deaths decreased by 1 million, and cirrhosis deaths decreased by .5 million.

While the top 10 causes of death presented previously were only for the United States, these top 10 deadliest diseases are for the entire world, including both developed and undeveloped nations. Differences in various factors including but not limited to economic status, access to medical care, belief systems, and natural resources play a major role in many of these causes of death, and tend to vary substantially between countries. This presents challenges for the interpretation of this list, making it difficult to determine the true prevalence of each in specific locations.

Video Example

Watch this video to learn about another way to measure and compare life expectancies, known as years of life lost, which measures how many years short of the life expectancy people die. Looking at these data reveals some of the leading causes of death across the globe.

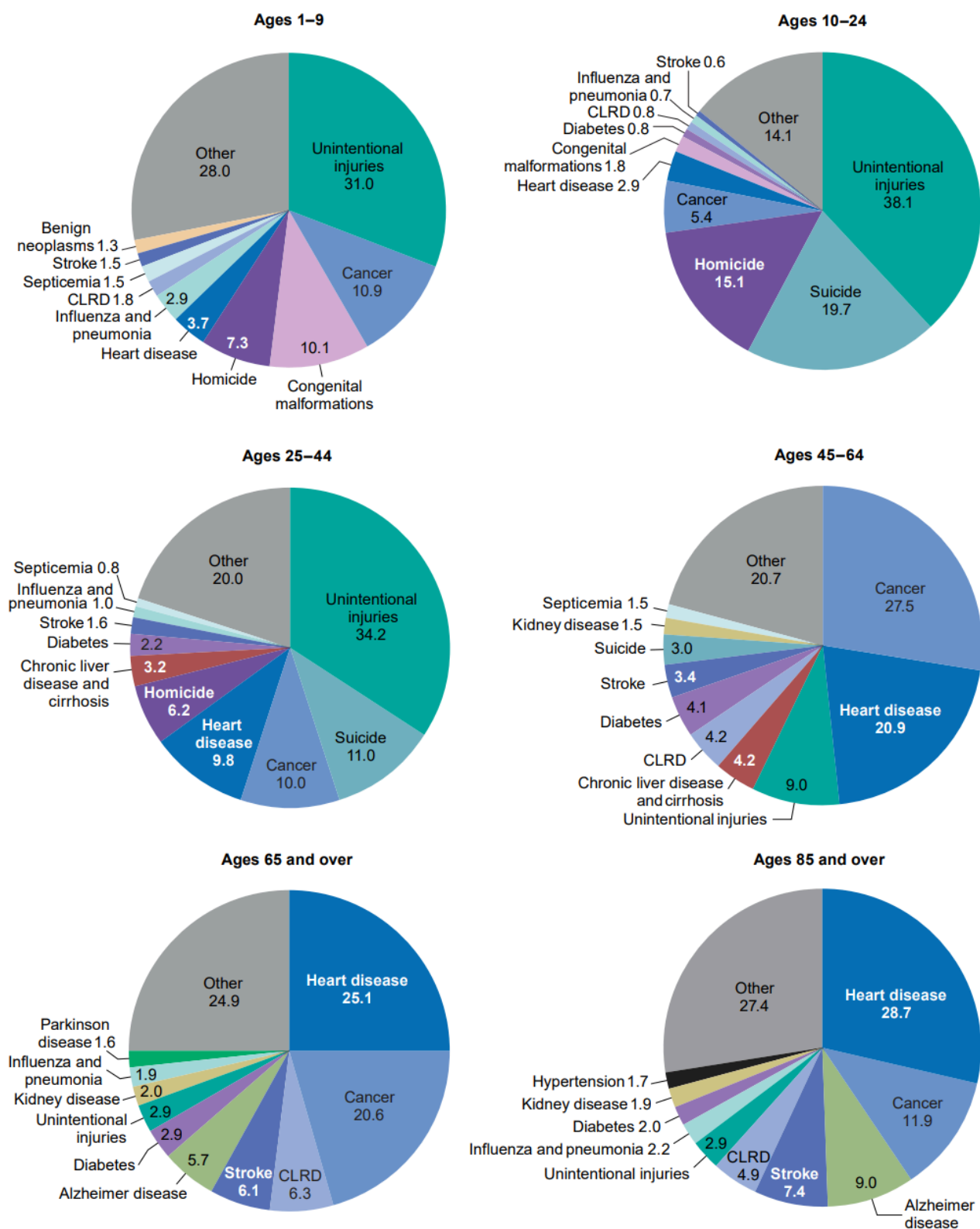
One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=338#oembed-1>

You can view the transcript for “The #1 reason people die early, in each country” here (opens in new window).

8. World Health Organization. (2020). Global Health Estimates 2019: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019.

A Comparison of Death by Age in the United States

The major causes of death vary significantly among age groups. As you can see in Figure 2, congenital diseases and accidents are major causes of death among children, then accidents and suicides are the leading causes of death between ages 10 and 24. This changes again in middle and late-adulthood, as heart disease and cancer combined cause over 50% of deaths for those aged between 45 and 65.



NOTES: CLRD is Chronic lower respiratory diseases. Values show percentage of total deaths.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Figure 2. Percent distribution of the 10 leading causes of death, by age group. (Data Source: National Center for Health Statistics, 2018)

Notice that unintentional injuries are the leading cause of death for the widest variety of ages, and recall from the previous section above that accidents were also found to have become increasingly common as causes of death within the United States population.⁹ For example, these were the top causes of death for various age groups in the United States in the year 2016 were:

- < 1 year – Congenital anomalies
- 1 – 4 years – Unintentional Injury
- 5 – 9 years – Unintentional Injury
- 10 – 14 years – Unintentional Injury
- 15 – 24 years – Unintentional Injury
- 25 – 34 years – Unintentional Injury
- 35 – 44 years – Unintentional Injury
- 45 – 54 years – Malignant Neoplasms (cancer)
- 55 – 64 years – Malignant Neoplasms (cancer)
- 65 + – Heart Disease

The causes of death on this list resemble the causes presented in the previous sections, but the breakdown of these causes by age group highlights the true prevalence of each. Unintentional injury (accidents), for example, was found to be the third most common cause of death within the United States population, but it becomes apparent from this list that it is the most common for the widest range of age groups or developmental stages.¹⁰ Heart disease was found to be the most common cause of death overall, but this list shows that it is more restricted to one age group (65+) than other causes. Similarly, cancer was found to be the second most common cause of death within the United States population, but this list reveals that it is most prevalent for individuals in middle to late adulthood.

9. Centers for Disease Control and Prevention. (2018). Diseases and Conditions. <https://www.cdc.gov/diseasesconditions/index.html>

10. Xu, J., Murphy, S. L., Kochanek, K. D., Bastian, B., & Arias, E. (2018). Deaths: Final data for 2016. *National Vital Statistics Reports* 67(5), 1-76.

Death and The Media

Does the news reflect what we die from?

Our World
in Data

Comparison of the share of deaths from 13 different causes in the US to the share of media coverage these topics get in the *New York Times* and *The Guardian* newspapers.

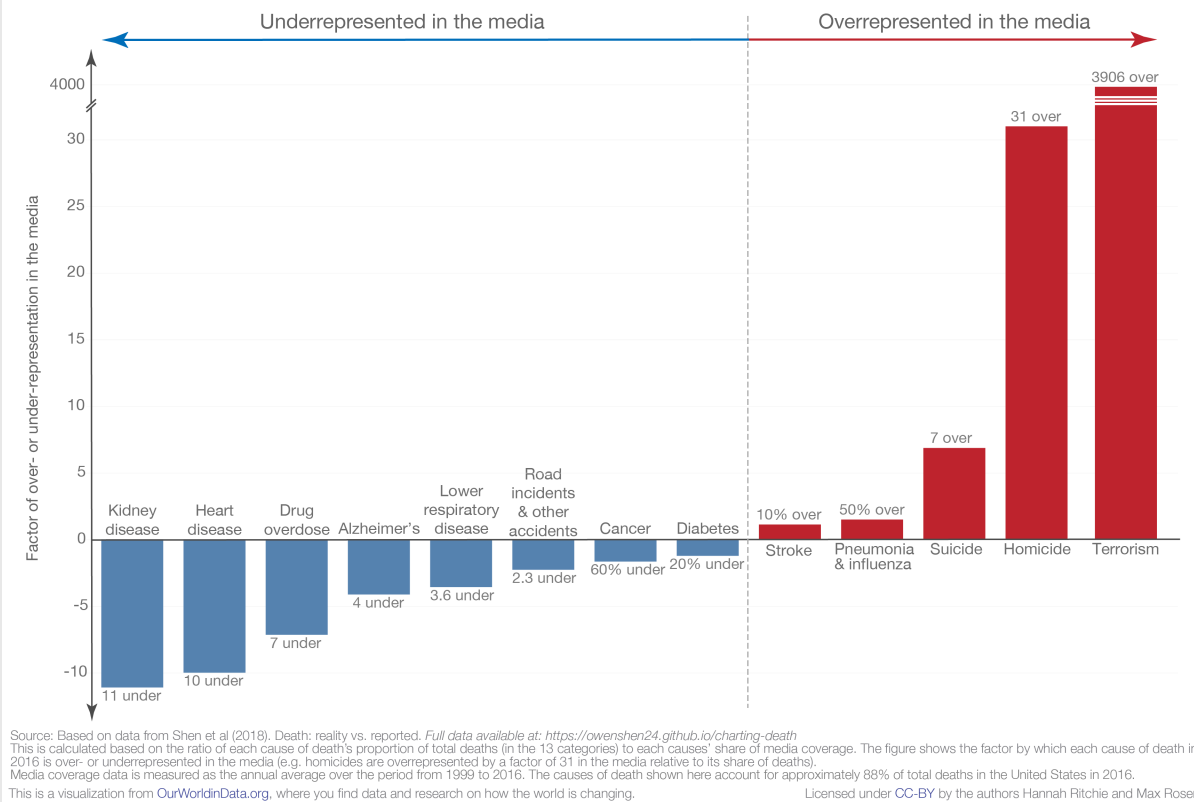


Figure 3. Comparison: Percent Cause of Death, Percent of Google Searches, and Percent of Media Coverage by the New York (Image Source: Our World in Data, 2019).

Interestingly, the things that actually result in death are not often the things we hear about on the news (Figure 3).¹¹ Because of the availability heuristic—a cognitive shortcut in which people rely heavily on information that is most readily available in their mind, people may erroneously be more afraid of sensational deaths than death by more normal causes, such as heart disease.

11. Ritchie, H. (2019). Does the news reflect what we die from? Our World in Data. <https://ourworldindata.org/does-the-news-reflect-what-we-die-from?linkId=68864855>

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=338#h5p-46>

Aspects of Death

One way to understand death and dying is to look more closely at physiological death, social death, and psychological death. These deaths do not occur simultaneously, nor do they always occur in a set order. Rather, a person's physiological, social, and psychological deaths can occur at different times.¹²

Physiological death

Physiological death occurs when the vital organs no longer function. The digestive and respiratory systems begin to shut down during the gradual process of dying. A dying person no longer wants to eat as digestion slows, the digestive track loses moisture, and chewing, swallowing, and elimination become painful processes. Circulation slows and mottling, or the pooling of blood, may be noticeable on the underside of the body, appearing much like bruising. Breathing becomes more sporadic and shallow and may make a rattling sound as air travels through mucus-filled passageways. **Agonal breathing** refers to gasping, labored breaths caused by an abnormal pattern of brainstem reflex. The person often sleeps more and more and may talk less, although they may continue to hear. The kinds of symptoms noted prior to death in patients under hospice care (care focused on helping patients die as comfortably as possible) are noted below (Figure 4).¹³

12. Butow, P. (2017). Psychology and end of life. *Australian Psychologist*, 52(5), 331-334.

13. Kehl, K. A., & Kowalkowski, J. A. (2013). A systematic review of the prevalence of signs of impending death and symptoms in the last 2 weeks of life. *The American Journal of Hospice & Palliative Care*, 30(6), 601-616. <https://doi.org/10.1177/1049909112468222>

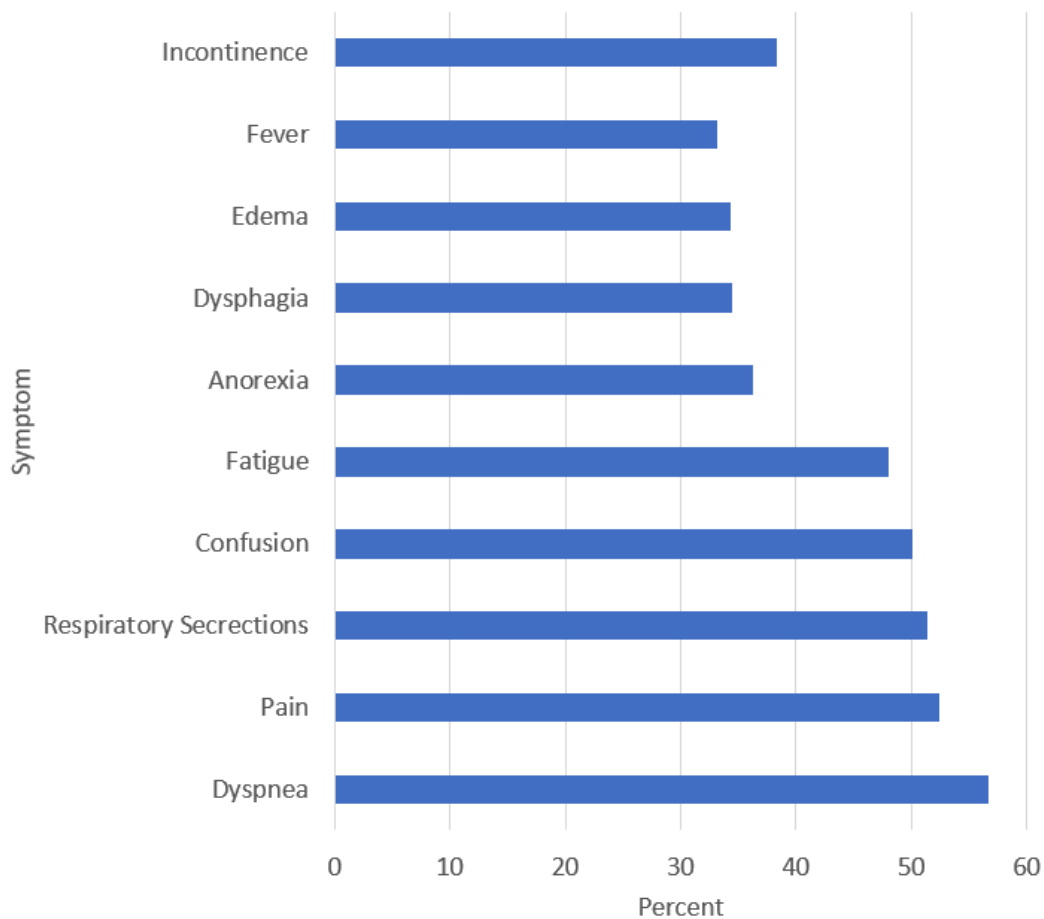


Figure 4. Prevalence of Signs of Impending Death in the Last Two Weeks

When a person is **brain dead**, or no longer has brain activity, they are clinically dead. Physiological death may take 72 or fewer hours. This is different than a **vegetative state**, which occurs when the cerebral cortex no longer registers electrical activity but the brain stem continues to be active. Individuals who are kept alive through life support may be classified this way.

Video Example

This video explains the difference between a vegetative state, a coma, and being brain dead.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=338#oembed-2>

You can view the transcript for “Is A Brain Dead Person Actually Dead?” here (opens in new window).

Social death

Social death begins much earlier than physiological death. Social death occurs when others begin to withdraw from someone who is terminally ill or has been diagnosed with a terminal illness. Those diagnosed with conditions such as AIDS or cancer may find that friends, family members, and even health care professionals begin to say less and visit less frequently. Meaningful discussions may be replaced with comments about the weather or other topics of light conversation. Doctors may spend less time with patients after their prognosis becomes poor. Why do others begin to withdraw? Friends and family members may feel that they do not know what to say or that they can offer no solutions to relieve suffering. They withdraw to protect themselves against feeling inadequate or from having to face the reality of death. Health professionals, trained to heal, may also feel inadequate and uncomfortable facing decline and death. A patient who is dying may be referred to as “circling the drain,” meaning that they are approaching death. People in nursing homes may live as socially dead for years with no one visiting or calling. Social support is important for quality of life and those who experience social death are deprived from the benefits that come from loving interaction with others.

Psychological death

Psychological death occurs when the dying person begins to accept death and to withdraw from others and regress into the self. This can take place long before physiological death (or even social death if others are still supporting and visiting the dying person) and can even bring physiological death closer. People have some control over the timing of their death and can hold on until after important occasions or die quickly after having lost someone important to

them. In some cases, individuals can give up their will to live. This is often at least partially attributable to a lost sense of identity.¹⁴ The individual feels consumed by the reality of making final decisions, planning for loved ones—especially children, and coping with the process of his or her own physical death.

Interventions based on the idea of self-empowerment enable patients and families to identify and ultimately achieve their own goals of care, thus producing a sense of empowerment. Self-empowerment for terminally ill individuals has been associated with a perceived ability to manage and control things such as medical actions, changing life roles, and psychological impacts of the illness.¹⁵

Treatment plans that are able to incorporate a sense of control and autonomy into the dying individual's daily life have been found to be particularly effective in regards to general attitude as well as depression level. For example, it has been found that when dying individuals are encouraged to recall situations from their lives in which they were active decision makers, explored various options, and took action, they tend to have better mental health than those who focus on themselves as victims. Similarly, there are several theories of coping that suggest **active coping** (seeking information, working to solve problems) produces more positive outcomes than **passive coping** (characterized by avoidance and distraction). Although each situation is unique and depends at least partially on the individual's developmental stage, the general consensus is that it is important for caregivers to foster a supportive environment and partnership with the dying individual, which promotes a sense of independence, control, and self-respect.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=338#h5p-47>

The Process of Death

For those individuals who are terminal and death is expected, a series of physical changes

14. Butow, P. (2017). Psychology and end of life. *Australian Psychologist*, 52(5), 331-334.

15. Butow, P. (2017). Psychology and end of life. *Australian Psychologist*, 52(5), 331-334.

occur. Bell¹⁶ identifies some of the major changes that occur in the weeks, days, and hours leading up to death:

- Weeks Before Passing
 - Minimal appetite; prefer easily digested foods
 - Increase in the need for sleep
 - Increased weakness
 - Incontinence of bladder and/or bowel
 - Restlessness or disorientation
 - Increased need for assistance with care
- Days Before Passing
 - Decreased level of consciousness
 - Pauses in breathing
 - Decreased blood pressure
 - Decreased urine volume and urine color darkens
 - Murmuring to people others cannot see
 - Reaching in air or picking at covers
 - Need for assistance with all care
- Days to Hours Before Passing
 - Decreased level of consciousness or comatose-like state
 - Inability to swallow
 - Pauses in breathing become longer
 - Shallow breaths
 - Weak or absent pulse
 - Knees, feet, and/or hands becoming cool or cold
 - Knees, feet, and/or hand discoloring to purplish hue
 - Noisy breathing due to relaxed throat muscles, often called a “death rattle”
 - Skin coloring becoming pale, waxen (Bell, 2010, pp. 5, 176-177)

16. Bell, K. W. (2010). *Living at the end of life*. New York: Sterling Ethos.

EMOTIONS AND ATTITUDES RELATED TO DEATH

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Sarah Carter; and Margaret Clark-Plaskie



Figure 1. Emotional distress is a common reaction to the death of a loved one, but there are various reactions one might exhibit to this situation. (Image Source: A woman sitting dejectedly... on Pixabay)

While death is inevitable, our emotional responses and reactions to it vary dramatically. In this section, we'll take a closer look at the emotions that are involved in death, both for the individual who is dying as well as their family and friends. We'll also learn more about the stages of grief and how to cope with death.¹

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sarah Carter and Margaret Clark-Plaskie for Lumen Learning and available under a Creative Commons Attribution-ShareAlike license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia. The section on Attitudes about Death

Attitudes about Death

Bereavement refers to outward expressions of grief. Mourning and funeral rites are expressions of loss that reflect personal and cultural beliefs about the meaning of death and the afterlife. When asked what type of funeral they would like to have, students responded in a variety of ways; each expressing both their personal beliefs and values and those of their culture.

I would like the service to be at a Baptist church, preferably my Uncle Ike's small church. The service should be a celebration of life . . . I would like there to be hymns sung by my family members, including my favorite one, "It is Well With my Soul". . . At the end, I would like the message of salvation to be given to the attendees and an altar call for anyone who would like to give their life to Christ. . .

I want a very inexpensive funeral-the bare minimum, only one vase of flowers, no viewing of the remains and no long period of mourning from my remaining family . . . funeral expenses are extremely overpriced and out of hand. . .

When I die, I would want my family members, friends, and other relatives to dress my body as it is usually done in my country, Ghana. Lay my dressed body in an open space in my house at the night prior to the funeral ceremony for my loved ones to walk around my body and mourn for me. .

I would like to be buried right away after I die because I don't want my family and friends to see my dead body and to be scared.

In my family we have always had the traditional ceremony-coffin, grave, tombstone, etc. But I have considered cremation and still ponder which method is more favorable. Unlike cremation, when you are 'buried' somewhere and family members have to make a special trip to visit, cremation is a little more personal because you can still be in the home with your loved ones . . .

I would like to have some of my favorite songs played . . . I will have a list made ahead of time. I want a peaceful and joyful ceremony and I want my family and close friends to gather to support one another. At the end of the celebration, I want everyone to go to the Thirsty Whale for a beer and Spang's for pizza!

When I die, I want to be cremated . . . I want it the way we do it in our culture. I want to have a three day funeral and on the 4th day, it would be my burial/cremation day . . . I want everyone to wear white instead of black, which means they already let go of me. I also want to have a mass on my cremation day.

When I die, I would like to have a befitting burial ceremony as it is done in my Igbo customs. I chose this kind of funeral ceremony because that is what every average person wishes to have.

I want to be cremated . . . I want all attendees wearing their favorite color and I would like the song “Riders on the Storm” to be played . . . I truly hope all the attendees will appreciate the bass. At the end of this simple, short service, attendees will be given multi-colored helium filled balloons . . . released to signify my release from this earth. . . They will be invited back to the house for ice cream cones, cheese popcorn and a wide variety of other treats and much, much, much rock music . . .

I want to be cremated when I die. To me, it’s not just my culture to do so but it’s more peaceful to put my remains or ashes to the world. Let it free and not stuck in a casket.

These statements reflect a wide variety of conceptions and attitudes toward death. Culture plays a key role in the development of these conceptions and attitudes, and it also provides a framework within which they are expressed. However, it is important to note that culture does not provide set rules for how death is viewed and experienced, and there tends to be as much variation within cultures as well as between.

Video Example

What happens after death? This question has plagued humans since the beginning, and there are countless numbers of philosophies and religions that attempt to explain the next life (if there is one). Some, like Buddhism, Jainism, Hinduism, and Sikhism, support the idea of reincarnation, or the idea that a living being starts a new life in a different physical body or form after each biological death. Some belief systems, such as those in the Abrahamic tradition (Christians, Jews, and Muslims), hold that the dead go to a specific plane of existence after death, as determined by God, or other divine judgment, based on their actions or beliefs during life.

The following video presents philosophical views of death from well-known figures throughout history, including Socrates and Epicurus.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=344#oembed-1>

You can view the transcript for “Perspectives on Death: Crash Course Philosophy #17” here (opens in new window).

You can watch this video, “Social Attitudes Toward Death” to learn more about various perspectives on death.



Figure 2. Ceremonies, such as this burial service, are customary in nearly every culture to celebrate or honor those who have passed.

Another important consideration related to conceptions and attitudes toward death involves social attitudes. Death, in many cases, can be the “elephant in the room,” a concept that remains ever present but continues to be taboo for most individuals. Talking openly about death tends to be viewed negatively, or even as socially inappropriate. Specific social norms and standards regarding death vary between groups, but on a larger societal level, death is usually a topic reserved only for when it becomes absolutely necessary to bring up.

Regardless of variations in conceptions and attitudes toward death, ceremonies provide survivors a sense of closure after a loss. These rites and ceremonies send the message that the death is real and allow friends and loved ones to express their love and duty to those who die. Under circumstances in which a person has been lost and presumed dead or when family members were unable to attend a funeral, there can continue to be a lack of closure that makes it difficult to grieve and to learn to live with loss. And although many people are still in shock when they attend funerals, the ceremony still provides a marker of the beginning of a new period of one’s life as a survivor.

The Body After Death

In most cultures, after the last offices have been performed and before the onset of significant decay, relations or friends arrange for ritual disposition of the body, either by destruction, or by preservation, or in a secondary use. In the U.S., this frequently means either cremation or interment in a tomb.

There are various methods of destroying human remains, depending on religious or spiritual beliefs, and upon practical necessity. Cremation is a very old and quite common custom. For some people, the act of cremation exemplifies the belief of the Christian concept of “ashes to ashes”. On the other hand, in India, cremation and disposal of the bones in the sacred river Ganges is common. Another method is sky burial, which involves placing the body of the deceased on high ground (a mountain) and leaving it for birds of prey to dispose of, as in Tibet. In some religious views, birds of prey are carriers of the soul to the heavens. Such practice may also have originated from pragmatic environmental issues, such as conditions in which the terrain (as in Tibet) is too stony or hard to dig, or in which there are few trees around to burn. As the local religion of Buddhism, in the case of Tibet, believes that the body after death is only an empty shell, there are more practical ways than burial of disposing of a body, such as leaving it for animals to consume. In some fishing or marine communities, mourners may put the body into the water, in what is known as burial at sea. Several mountain villages have a tradition of hanging the coffin in woods.

Since ancient times, in some cultures efforts have been made to slow, or largely stop the body's decay processes before burial, as in mummification or embalming. This process may be done before, during or after a funeral ceremony. The Toraja people of Indonesia are known to mummify their deceased loved ones and keep them in their homes for weeks, months, and sometimes even years, before holding a funeral service. Read more about that in this Post Magazine article “Living with Corpses: How Indonesian's Toraja People Deal with Their Dead.”

Watch this TED talk, “The Corpses that Changed my Life” by Caitlin Doughty, a mortician and activist, who strives to encourage Americans to overcome their phobia of death and to be more open and involved in dealing with their deceased loved ones.

Developmental Perspectives on Death

Another key factor in individuals' attitudes towards death and dying is where they are in their

own lifespan development. First of all, individuals' attitudes are linked to their cognitive ability to understand death and dying. Infants and toddlers cannot understand death. They function in the present and are aware of loss and separation, as well as disruptions in their routines. They are also attuned to the emotions and behaviors of significant adults in their lives, so a death of a loved one may cause a young child to become anxious and irritable, cry, or change their sleeping and eating habits.

A preschooler may approach death by asking when a deceased person is coming back and might search for them, thinking that death is temporary and reversible. They may experience brief but intense reactions, such as tantrums, or other behaviors like frightening dreams and disrupted sleep, bedwetting, clinging, and thumbsucking. Similarly, those in early childhood (age 4-7), might also ask where the deceased person is and search for them, as well as regress to younger behaviors. They might also think that the person's death is their own fault, as per their belief in the power of their own thoughts and "magical thinking." Their grief might be expressed through play, rather than verbally.²

Those in middle childhood (ages 7-10) begin to see death as final, not reversible, and universal. Developing Piaget's concrete operational thinking, they may engage in personification, seeing death as a human figure who carried their loved one away. They may not really believe that death could happen to them or their family, maybe only to the very old or sick—they may also view death as a punishment. They might act out in school or they might try to keep a bond with the deceased by taking on that person's role or behaviors.³

Preadolescents (ages 10-12) try to understand both biological and emotional processes of death. But they try to hide their feelings and not seem different from their peers; they may seem indifferent, or they may have outbursts.⁴ As Amsler⁵ noted, children's and teens' experiences with death and what adults tell them about death will also influence their comprehension. As teens develop formal operational thinking (ages 12-18), they can apply logic to abstractions; they spend more time pondering the meaning of life and death and what comes after death. Their understanding of death becomes more complex as they move from a binary logical

2. Amsler, K. (2015). Conceptualizations of death in middle childhood and adolescence. Childlife Resources. <http://www.childlifersources.com/conceptualizations-of-death-in-middle-childhood-and-adolescence/>

3. Amsler, K. (2015). Conceptualizations of death in middle childhood and adolescence. Childlife Resources. <http://www.childlifersources.com/conceptualizations-of-death-in-middle-childhood-and-adolescence/>

4. Children's Developmental Stages Concepts of Death and Responses. Vitas Healthcare. <https://www.vitas.com/family-and-caregiver-support/grief-and-bereavement/children-and-grief/childrens-developmental-stages-concepts-of-death-and-responses/>

5. Amsler, K. (2015). Conceptualizations of death in middle childhood and adolescence. Childlife Resources. <http://www.childlifersources.com/conceptualizations-of-death-in-middle-childhood-and-adolescence/>

concept (alive or dead) to a fuzzy logical concept with potential life after death, for instance. Adolescents are also tasked with integrating these beliefs into their own identity development.⁶

What about attitudes toward death in adulthood? We've learned about adults becoming more concerned with their own mortality during middle adulthood, particularly as they experience the deaths of their own parents. Recently, research on thanatophobia, or death anxiety, found differences in death anxiety between elderly patients and their adult children.⁷ Death anxiety may entail two different parts—being anxious about death and being anxious about the process of dying. The elderly were only anxious about the process of dying (i.e., suffering), but their adult children were very anxious about death itself and mistakenly believed that their parents were also anxious about death itself. This is an important distinction and can make a significant difference in how medical information and end-of-life decisions are communicated within families.⁸ Consistent with this, if elders resolve Erikson's final psychosocial crisis, ego integrity versus despair, in a positive way, they may not fear death, but gain the virtue of wisdom. If they are not feeling desperate ("despair" with time running out), then they may not be anxious or fearful about death.

Developmental Perceptions of Death

The concept of death changes as we develop from early childhood to late adulthood. Cognitive development, societal beliefs, familial responsibilities, and personal experiences all shape an individual's view of death.^{9,10,11}

- **Infancy:** Certainly infants do not comprehend death, however, they do react to the separation caused by death. Infants separated from their mothers may become sluggish and quiet, no longer smile or coo, sleep less, and develop physical symptoms such as weight loss.
- **Early Childhood:** As you recall from Piaget's preoperational stage of cognitive

6. Amsler, K. (2015). Conceptualizations of death in middle childhood and adolescence. Childlife Resources. <http://www.childlifersources.com/conceptualizations-of-death-in-middle-childhood-and-adolescence/>

7. Sinoff, G. (2017). Thanatophobia (death anxiety) in the elderly: The problem of the children's inability to assess their parents' death anxiety state. *Frontiers in Medicine*, 4.11. <https://doi.org/10.3389/fmed.2017.00011>

8. Sinoff, G. (2017). Thanatophobia (death anxiety) in the elderly: The problem of the children's inability to assess their parents' death anxiety state. *Frontiers in Medicine*, 4.11. <https://doi.org/10.3389/fmed.2017.00011>

9. Batts, J. (2004). Death and grief in the family: Tips for parents. <https://www.nasponline.org/search/search->

10. Erber, J. T., & Szuchman, L. T. (2015). *Great myths of aging*. West Sussex, UK: Wiley & Sons.

11. National Cancer Institute. (2013). Grief, bereavement, and coping with loss. https://www.cancer.gov/about-cancer/advanced-cancer/caregivers/planning/bereavement-pdq#section/_62

development, young children experience difficulty distinguishing reality from fantasy. It is therefore not surprising that young children lack an understanding of death. They do not see death as permanent, assume it is temporary or reversible, think the person is sleeping, and believe they can wish the person back to life. Additionally, they feel they may have caused the death through their actions, such as misbehavior, words, and feelings.

- **Middle Childhood:** Although children in middle childhood begin to understand the finality of death, up until the age of 9 they may still participate in magical thinking and believe that through their thoughts they can bring someone back to life. They also may think that they could have prevented the death in some way, and consequently feel guilty and responsible for the death.
- **Late Childhood:** At this stage, children understand the finality of death and know that everyone will die, including themselves. However, they may also think people die because of some wrong doing on the part of the deceased. They may develop fears of their parents dying and continue to feel guilty if a loved one dies.
- **Adolescence:** Adolescents understand death as well as adults. With formal operational thinking, adolescents can now think abstractly about death, philosophize about it, and ponder their own lack of existence. Some adolescents become fascinated with death and reflect on their own funeral by fantasizing on how others will feel and react. Despite a preoccupation with thoughts of death, the personal fable of adolescence causes them to feel immune to the death. Consequently, they often engage in risky behaviors, such as substance use, unsafe sexual behavior, and reckless driving thinking they are invincible.
- **Early Adulthood:** In adulthood, there are differences in the level of fear and anxiety concerning death experienced by those in different age groups. For those in early adulthood, their overall lower rate of death is a significant factor in their lower rates of death anxiety. Individuals in early adulthood typically expect a long life ahead of them, and consequently do not think about, nor worry about death.
- **Middle Adulthood:** Those in middle adulthood report more fear of death than those in either early and late adulthood. The caretaking responsibilities for those in middle adulthood is a significant factor in their fears. As mentioned previously, middle adults often provide assistance for both their children and parents, and they feel anxiety about leaving them to care for themselves.
- **Late Adulthood:** Contrary to the belief that because they are so close to death, they must fear death, those in late adulthood have lower fears of death than other adults. Why would this occur? First, older adults have fewer caregiving responsibilities and are not worried about leaving family members on their own. They also have had more time to complete activities they had planned in their lives, and they realize that the future will

not provide as many opportunities for them. Additionally, they have less anxiety because they have already experienced the death of loved ones and have become accustomed to the likelihood of death. It is not death itself that concerns those in late adulthood; rather, it is having control over how they die.

Religious Practices after Death

Funeral rites are expressions of loss that reflect personal and cultural beliefs about the meaning of death and the afterlife. Ceremonies provide survivors a sense of closure after a loss. These rites and ceremonies send the message that the death is real and allow friends and loved ones to express their love and duty to those who die. Under circumstances in which a person has been lost and presumed dead or when family members were unable to attend a funeral, there can continue to be a lack of closure that makes it difficult to grieve and to learn to live with loss. Although many people are still in shock when they attend funerals, the ceremony still provides a marker of the beginning of a new period of one's life as a survivor. The following are some of the religious practices regarding death, however, individual religious interpretations and practices may occur.¹²¹³

- **Hindu:** The Hindu belief in reincarnation accelerates the funeral ritual, and deceased Hindus are cremated as soon as possible. After being washed, the body is anointed, dressed, and then placed on a stand decorated with flowers ready for cremation. Once the body has been cremated, the ashes are collected and, if possible, dispersed in one of India's holy rivers.
- **Judaism:** Among the Orthodox, the deceased is first washed and then wrapped in a simple white shroud. Males are also wrapped in their prayer shawls. Once shrouded the body is placed into a plain wooden coffin. The burial must occur as soon as possible after death, and a simple service consisting of prayers and a eulogy is given. After burial the family members typically gather in one home, often that of the deceased, and receive visitors. This is referred to as "sitting shiva".
- **Muslim:** In Islam the deceased are buried as soon as possible, and it is a requirement that the community be involved in the ritual. The individual is first washed and then wrapped in a plain white shroud called a kafan. Next, funeral prayers are said followed by the burial. The shrouded dead are placed directly in the earth without a casket and deep

12. Dresser, N. & Wasserman, F. (2010). *Saying goodbye to someone you love*. New York: Demos Medical Publishing.

13. Schechter, H. (2009). *The whole death catalog*. New York: Ballantine Books.

enough not to be disturbed. They are also positioned in the earth, on their right side, facing Mecca, Saudi Arabia.

- **Roman Catholic:** Before death an ill Catholic individual is anointed by a priest commonly referred to as the Anointing of the Sick. The priest recites a prayer and applies consecrated oil to the forehead and hands of the ill person. The individual also takes a final communion consisting of consecrated bread and wine. The funeral rites consist of three parts. First is the wake that usually occurs in a funeral parlor. The body is present and prayers and eulogies are offered by family and friends. The funeral mass is next which includes an opening prayer, bible readings, liturgy, communion, and a concluding rite. The funeral then moves to the cemetery where a blessing of the grave, scripture reading, and prayers conclude the funeral ritual.

GRIEF, BEREAVEMENT, AND MOURNING

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; Sarah Carter;
and Sarah Hoiland

Grief is the psychological, physical, and emotional experience and reaction to loss. People may experience grief in various ways, but several theories, such as Kübler-Ross' stages of loss theory, attempt to explain and understand the way people deal with grief. Kübler-Ross' famous theory, which we'll examine in more detail soon, describes five stages of grief: denial, anger, bargaining, depression, and acceptance.¹



Figure 1. Bereavement is the term to describe those who have lost a loved one—everyone deals with this in different ways, although there are some common threads shared by many who experience this loss. (Image Source: Pixabay)

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sarah Carter and Sarah Hoiland for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia.

Grief reactions vary depending on whether a loss was anticipated or unexpected, (parents do not expect to lose their children, for example), and whether or not it occurred suddenly or after a long illness, and whether or not the survivor feels responsible for the death. Struggling with the question of responsibility is particularly felt by those who lose a loved one to suicide.² These survivors may torment themselves with endless “what ifs” in order to make sense of the loss and reduce feelings of guilt. And family members may also hold one another responsible for the loss. The same may be true for any sudden or unexpected death, making conflict an added dimension to grief. Much of this laying of responsibility is an effort to think that we have some control over these losses; the assumption being that if we do not repeat the same mistakes, we can control what happens in our life. While grief describes the response to loss, **bereavement** describes the state of being following the death of someone (Figure 1).

As we’ve already learned in terms of attitudes toward death, individuals’ own lifespan developmental stage and cognitive level can influence their emotional and behavioral reactions to the death of someone they know. But what about the impact of the type of death or age of the deceased or relationship to the deceased upon bereavement?

Death of a child

Death of a child can take the form of a loss in infancy such as miscarriage or stillbirth or neonatal death, SIDS, or the death of an older child. In most cases, parents find the grief almost unbearably devastating, and it tends to hold greater risk factors than any other loss. This loss also bears a lifelong process: one does not get ‘over’ the death but instead must assimilate and live with it. Intervention and comforting support can make all the difference to the survival of a parent in this type of grief but the risk factors are great and may include family breakup or suicide. Feelings of guilt, whether legitimate or not, are pervasive, and the dependent nature of the relationship disposes parents to a variety of problems as they seek to cope with this great loss. Parents who suffer miscarriage or a regretful or coerced abortion may experience resentment towards others who experience successful pregnancies.

Suicide

Suicide rates are growing worldwide and over the last thirty years there has been international research trying to curb this phenomenon and gather knowledge about who is “at-risk”. When

2. Gibbons, J. A., Lee, S. A., Fehr, A. M., Wilson, K. J., & Marshall, T. R. (2018). Grief and avoidant death attitudes combine to predict the fading affect bias. *International Journal of Environmental Research and Public Health*, 15(1736), 1-19.

a parent loses their child through suicide it is traumatic, sudden, and affects all loved ones impacted by this child. Suicide leaves many unanswered questions and leaves most parents feeling hurt, angry and deeply saddened by such a loss. Parents may feel they can't openly discuss their grief and feel their emotions because of how their child died and how the people around them may perceive the situation. Parents, family members and service providers have all confirmed the unique nature of suicide-related bereavement following the loss of a child. They report a wall of silence that goes up around them and how people interact towards them. One of the best ways to grieve and move on from this type of loss is to find ways to keep that child as an active part of their lives. It might be privately at first but as parents move away from the silence they can move into a more proactive healing time.

Death of a spouse

The death of a spouse is usually a particularly powerful loss. A spouse often becomes part of the other in a unique way: many widows and widowers describe losing 'half' of themselves. The days, months and years after the loss of a spouse will never be the same and learning to live without them may be harder than one would expect. The grief experience is unique to each person. Sharing and building a life with another human being, then learning to live singularly, can be an adjustment that is more complex than a person could ever expect. Depression and loneliness are very common. Feeling bitter and resentful are normal feelings for the spouse who is "left behind". Oftentimes, the widow/widower may feel it necessary to seek professional help in dealing with their new life.

After a long marriage, at older ages, the elderly may find it a very difficult assimilation to begin anew; but at younger ages as well, a marriage relationship was often a profound one for the survivor.

Furthermore, most couples have a division of 'tasks' or 'labor', e.g., the husband mows the yard, the wife pays the bills, etc. which, in addition to dealing with great grief and life changes, means added responsibilities for the bereaved. Immediately after the death of a spouse, there are tasks that must be completed. Planning and financing a funeral can be very difficult if pre-planning was not completed. Changes in insurance, bank accounts, claiming of life insurance, securing childcare are just some of the issues that can be intimidating to someone who is grieving. Social isolation may also become imminent, as many groups composed of couples find it difficult to adjust to the new identity of the bereaved, and the bereaved themselves have great challenges in reconnecting with others. Widows of many cultures, for instance, wear black for the rest of their lives to signify the loss of their spouse and their grief. Only in more recent decades has this tradition been reduced to shorter periods of time.

Death of a parent

For a child, the death of a parent, without support to manage the effects of the grief, may result in long-term psychological harm. This is more likely if the adult carers are struggling with their own grief and are psychologically unavailable to the child. There is a critical role of the surviving parent or caregiver in helping the children adapt to a parent's death. Studies have shown that losing a parent at a young age did not just lead to negative outcomes; there are some positive effects. Some children had an increased maturity, better coping skills and improved communication. Adolescents valued other people more than those who have not experienced such a close loss.³

When an adult child loses a parent in later adulthood, it is considered to be “timely” and to be a normative life course event. This allows the adult children to feel a permitted level of grief. However, research shows that the death of a parent in an adult's midlife is not a normative event by any measure, but is a major life transition causing an evaluation of one's own life or mortality. Others may shut out friends and family in processing the loss of someone with whom they have had the longest relationship.⁴ However, the sibling relationship tends to be the longest significant relationship of the lifespan and siblings who have been part of each other's lives since birth, such as twins, help form and sustain each other's identities; with the death of one sibling comes the loss of that part of the survivor's identity because “your identity is based on having them there.”

The sibling relationship is a unique one, as they share a special bond and a common history from birth, have a certain role and place in the family, often complement each other, and share genetic traits. Siblings who enjoy a close relationship participate in each other's daily lives and special events, confide in each other, share joys, spend leisure time together (whether they are children or adults), and have a relationship that not only exists in the present but often looks

3. Ellis, J. & Lloyd-Williams, M. (2008). Perspectives on the impact of early parent loss in adulthood in the UK: narratives provide the way forward. (2008). *European Journal of Cancer Care*, 17(4), 317–318. <https://doi.org/10.1111/j.1365-2354.2008.00963.x>

4. Marshall, H. (2004). Midlife loss of parents: The transition from adult child to orphan. *Ageing International*, 29(4), 351–367. [https://doi.org/10.1007/s12126-004-1004-5/\[footnote\]](https://doi.org/10.1007/s12126-004-1004-5/[footnote])

Death of a sibling

The loss of a sibling can be a devastating life event. Despite this, sibling grief is often the most disenfranchised or overlooked of the four main forms of grief, especially with regard to adult siblings. Grieving siblings are often referred to as the 'forgotten mourners' who are made to feel as if their grief is not as severe as their parents' grief.[footnote]Cancer.Net (2013) Grieving the loss of a sibling. <https://www.cancer.net/coping-with-cancer/managing-emotions/grief-and-loss/grieving-loss-sibling>

toward a future together (even into retirement). Surviving siblings lose this “companionship and a future” with their deceased siblings.⁵

Loss during childhood

When a parent or caregiver dies or leaves, children may have symptoms of psychopathology, but they are less severe than in children with major depression. The loss of a parent, grandparent or sibling can be very troubling in childhood, but even in childhood there are age differences in relation to the loss. A very young child, under one or two, may be found to have no reaction if a carer dies, but other children may be affected by the loss.

At a time when trust and dependency are formed, a break even of no more than separation can cause problems in well-being; this is especially true if the loss is around critical periods such as 8–12 months, when attachment and separation are at their height information, and even a brief separation from a parent or other person who cares for the child can cause distress.

Even as a child grows older, death is still difficult to fathom and this affects how a child responds. For example, younger children see death more as a separation, and may believe death is curable or temporary. Reactions can manifest themselves in "acting out" behaviors: a return to earlier behaviors such as sucking thumbs, clinging to a toy or angry behavior; though they do not have the maturity to mourn as an adult, they feel the same intensity. As children enter pre-teen and teen years, there is a more mature understanding.

Children can experience grief as a result of losses due to causes other than death. For example, children who have been physically, psychologically or sexually abused often grieve over the damage to or the loss of their ability to trust. Since such children usually have no support or acknowledgement from any source outside the family unit, this is likely to be experienced as disenfranchised grief.

Relocations can also cause children significant grief particularly if they are combined with other difficult circumstances such as neglectful or abusive parental behaviors, other significant losses, etc.

Loss of a friend or classmate

Children may experience the death of a friend or a classmate through illness, accidents, suicide, or violence. Initial support involves reassuring children that their emotional and physical feelings are normal. Schools are advised to plan for these possibilities in advance.

5. Gill White, P. (2008). *Sibling grief: Healing after the death of a sister or brother*. iUniverse.

Types of Grief

Survivor guilt

Survivor guilt (or survivor's guilt; also called survivor syndrome or survivor's syndrome) is a mental condition that occurs when a person perceives themselves to have done wrong by surviving a traumatic event when others did not. It may be found among survivors of combat, natural disasters, epidemics, among the friends and family of those who have died by suicide, and in non-mortal situations such as among those whose colleagues are laid off.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=348#h5p-49>

Anticipatory grief

Anticipatory grief occurs when a death is expected and survivors have time to prepare to some extent before the loss. Anticipatory grief can include the same denial, anger, bargaining, depression, and acceptance experienced in loss one might experience after a death; this can make adjustment after a loss somewhat easier, although a person may then go through the stages of loss again after the death. A death after a long-term, painful illness may bring family members a sense of relief that the suffering is over or the exhausting process of caring for someone who is ill is over.

Complicated grief

Complicated grief involves a distinct set of maladaptive or self-defeating thoughts, emotions, and behaviors that occur as a negative response to a loss.⁶ From a cognitive and emotional

6. Boelen, P. A., & Prigerson, H. G. (2007). The influence of symptoms of prolonged grief disorder, depression, and anxiety on quality of life among bereaved adults: a prospective study: A prospective study. *European Archives of Psychiatry and Clinical Neuroscience*, 257(8), 444–452. <https://doi.org/10.1007/s00406-007-0744-0>

perspective, these individuals tend to experience extreme bitterness over the loss, intense preoccupation with the deceased, and a need to feel connected to the deceased. These feelings often lead the grieving individual to engage in problematic behaviors that further prevent positive coping and delay the return to normalcy. He or she may spend excessive amounts of time visiting the deceased person's grave, talking to the deceased person, or trying to connect with the deceased person on a spiritual level, often forgoing other responsibilities or tasks to do so. The extreme nature of these thoughts, emotions, and behaviors separate this type of grief from the normal grieving process.

Disenfranchised grief

Disenfranchised grief may be experienced by those who have to hide the circumstances of their loss or whose grief goes unrecognized by others. Loss of an ex-spouse, lover, or pet may be examples of disenfranchised grief.

It has been said that intense grief lasts about two years or less, but grief is felt throughout life. One loss triggers the feelings that surround another. People grieve with varied intensity throughout the remainder of their lives. It does not end. But it eventually becomes something that a person has learned to live with. As long as we experience loss, we experience grief.

There are layers of grief. Initial denial, marked by shock and disbelief in the weeks following a loss may become an expectation that the loved one will walk in the door. And anger directed toward those who could not save our loved one's life, may become anger that life did not turn out as we expected. There is no right way to grieve. A bereavement counselor expressed it well by saying that grief touches us on the shoulder from time to time throughout life.

Grief and mixed emotions go hand in hand. A sense of relief is accompanied by regrets and periods of reminiscing about our loved ones are interspersed with feeling haunted by them in death. Our outward expressions of loss are also sometimes contradictory. We want to move on but at the same time are saddened by going through a loved one's possessions and giving them away. We may no longer feel sexual arousal or we may want sex to feel connected and alive. We need others to befriend us but may get angry at their attempts to console us. These contradictions are normal and we need to allow ourselves and others to grieve in their own time and in their own ways.

The "death-denying, grief-dismissing world" is often the approach to grief in our modern world. We are asked to grieve privately, quickly, and to medicate our suffering. Employers grant us 3 to 5 days for bereavement, if our loss is that of an immediate family member. And such leaves are sometimes limited to no more than one per year. Yet grief takes much longer and the bereaved are seldom ready to perform well on the job. It becomes a clash between life having to continue, and the individual being ready for it to do so. One coping mechanism that can

help smooth out this conflict is called the **fading affect bias**. Based on a collection of similar findings, the fading affect bias suggests that negative events, such as the death of a loved one, tend to lose their emotional intensity at a faster rate than pleasant events.⁷ This is believed to help enhance pleasant experiences and avoid the negative emotions associated with unpleasant ones, thus helping the individual return to his or her normal daily routines following a loss.

Link to Learning

Sociologist Nancy Berns explains that in the United States and other western societies, people are encouraged to deal with grief or loss through closure. She contradicts this advice and explains that people do not necessarily need closure in order to "move on." Watch Nancy Berns' TED talk "Beyond Closure" to learn more.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here: <https://iastate.pressbooks.pub/individualfamilydevelopment/?p=348#h5p-48>

Grief: Loss of Children and Parents

Loss of a Child: According to Parkes and Prigerson,⁸ the loss of a child at any age is considered “the most distressing and long-lasting of all griefs” (p. 142). Bereaved parents suffer an increased risk to both physical and mental health and exhibit an increased mortality rate. Additionally, they earn higher scores on inventories of grief compared to other types of

7. Walker, W. R., Skowronski, J., Gibbons, J., Vogl, R., & Thompson, C. (2003). On the emotions that accompany autobiographical memories: Dysphoria disrupts the fading affect bias. *Cognition & Emotion*, 17(5), 703–723. <https://doi.org/10.1080/02699930302287>

8. Parkes, C. M., & Prigerson, H. G. (2010). *Bereavement: Studies of grief in adult life*. New York: Routledge.

bereavement. Of those recently diagnosed with depression, a high percentage had experienced the death of child within the preceding six months, and 8 percent of women whose child had died attempted or committed suicide. Archer⁹ found that the intensity of grief increased with the child's age until the age of 17, when it declined. Archer explained that women have a greater chance of having another child when younger, and thus with added age comes greater grief as fertility declines. Certainly, the older the child the more the mother has bonded with the child and will experience greater grief.

Even when children are adults, parents may experience intense grief, especially when the death is sudden. Adult children dying in traffic accidents was associated with parents experiencing more intense grief and depression, greater symptoms on a health check list, and more guilt than those parents whose adult children died from cancer.¹⁰ Additionally, the deaths of unmarried adult children still residing at home and those who experienced alcohol and relationship problems were especially difficult for parents. Overall, in societies in which childhood deaths are statistically infrequent, parents are often unprepared for the loss of their daughter or son and suffer high levels of grief.

Loss of Parents in Adulthood: In contrast to the loss of a child, the loss of parents in adult life is much more common and results in less suffering. In their literature review, Moss and Moss (1995) found that the loss of a parent in adult life is “rarely pathological.” Those adult children who appear to have the most difficulty dealing with the loss of a parent are adult men who remain unmarried and continue to live with their mothers. In contrast, those who are in satisfying marriages are less likely to require grief assistance (Parkes & Prigerson, 2010). To determine the effects of gender on parental death, Marks, Jun and Song¹¹ analyzed longitudinal data from the National Survey of Families and Households that assessed multiple dimensions of psychological well-being in adulthood including depression, happiness, self-esteem, mastery, psychological wellness, alcohol abuse, and physical health. Findings indicated that a father's death led to more negative effects for sons than daughters, and a mother's death lead to more negative effects for daughters.

Loss of Parents in Childhood: Parental deaths in childhood have been associated with adjustment problems that may last into adulthood. Ellis, Dowrick and Lloyd-Williams¹² identified several negative outcomes associated with childhood grief including increased

9. Archer, J. (1999). *The nature of grief: The evolution and psychology of reactions to loss*. London and New York: Routledge.

10. Parkes, C. M., & Prigerson, H. G. (2010). *Bereavement: Studies of grief in adult life*. New York: Routledge.

11. Marks, N. F., Jun, H., & Song, J. (2007). Death of parents and adult psychological and physical well-being: A prospective U. S. national study. *Journal of Family Issues*, 28(12), 1611-1638.

12. Ellis, J., Dowrick, C., & Lloyd-Williams, M. (2013). The long-term impact of early parental death: Lessons from a narrative study. *The Journal of the Royal Society of Medicine*, 106(2), 57-67.

chance of substance abuse, greater susceptibility to depression, higher chance of criminal behavior, school underachievement, and lower employment rates. Typically, professional help is not required in helping children and teens who are dealing with the death of a loved one. However, Worden¹³ identified ten “red flags” displayed by grieving children that may indicate the need for professional assistance:

- Persistent difficulty in talking about the dead person
- Persistent or destructive aggressive behavior
- Persisting anxiety, clinging, or fears
- Somatic complaints (stomachaches, headaches)
- Sleeping difficulties
- Eating disturbance
- Marked social withdrawal
- School difficulties or serious academic reversal
- Persistent self-blame or guilt
- Self-destructive behavior

As parents may also be dealing with funeral arrangements and other end of life matters, they may not always have the time to address questions and concerns that children may have. When explaining death to children it is important to use real words, such as died and death.¹⁴ Children do not understand the meanings of such phrases as “passed away”, “left us”, or “lost”, and they can become confused as to what happened. Saying a loved one died of a disease called cancer, is preferable to saying he was “very sick”. The child may become worried when others become sick that they too will die. Consequently, it is important that children have someone who will listen to, and accurately address their concerns.

Mourning

As a society, are we given the tools and time to adequately mourn? Not all researchers agree that we do. The “death-denying, grief-dismissing world” is the modern world (p. 205).¹⁵ We often grieve privately, quickly, and medicate our suffering with substances or activities. Employers grant 3 to 5 days for bereavement, if the loss is that of an immediate family member,

13. Worden, J. W. (2002). *Children and grief: When a parent dies*. London: Guilford Press.

14. Dresser, N. & Wasserman, F. (2010). *Saying goodbye to someone you love*. New York: Demos Medical Publishing.

15. Kübler-Ross, E., & Kessler, D. (2005). *On grief and grieving*. New York: Schribner.

and such leaves are sometimes limited to no more than one per year. Yet grief takes much longer and the bereaved are seldom ready to perform well on the job after just a few days. Obviously life does have to continue, but we need to acknowledge and make more caring accommodations for those who are in grief.

Four Tasks of Mourning

Worden¹⁶ identified four tasks that facilitate the mourning process. Worden believes that all four tasks must be completed, but they may be completed in any order and for varying amounts of time. These tasks include:

- Acceptance that the loss has occurred
- Working through the pain of grief
- Adjusting to life without the deceased
- Starting a new life while still maintaining a connection with the deceased

Support Groups

Support groups are helpful for grieving individuals of all ages, including those who are sick, terminal, caregiving, or mourning the loss of a loved one. Support groups reduce isolation, connect individuals with others who have similar experiences, and offer those grieving a place to share their pain and learn new ways of coping.¹⁷ Support groups are available through religious organizations, hospitals, hospice, nursing homes, mental health facilities, and schools for children.

Viewing death as an integral part of the lifespan will benefit those who are ill, those who are bereaved, and all of us as friends, caregivers, partners, family members and humans in a global society.

Stages of Loss

The complex construct of death is associated with a variety of thoughts, emotions, and behaviors, that vary between individuals and groups. To some, death is the final end, when the

16. Worden, J. W. (2008). *Grief counseling and grief therapy: A handbook for the mental health practitioner* (4th ed.). New York: Springer Publishing company.

17. Lynn, J., & Harrold, J. (2011). *Handbook for mortals* (2nd ed.). New York: Oxford University Press.

body ceases to function, with nothing occurring next. To others, death is the start of a new journey, and is its own beginning. These varying viewpoints are shaped by numerous factors related to culture, religion, social norms, personal experiences, and more. It is no surprise then that multiple theories have been created to understand the occurrence of death on cognitive, emotional, and behavioral levels; each offering different explanations for what individuals go through during death.

Kübler-Ross' Stages of Loss

Kübler-Ross¹⁸ described five stages of loss experienced by someone who faces the news of their impending death (based on her work and interviews with terminally ill patients; Figure 2). These "stages" are not really stages that a person goes through in order or only once; nor are they stages that occur with the same intensity. Indeed, the process of death is influenced by a person's life experiences, the timing of their death in relation to life events, the predictability of their death based on health or illness, their belief system, and their assessment of the quality of their own life. Nevertheless, these stages provide a framework to help us to understand and recognize some of what a dying person experiences psychologically. And by understanding, we are more equipped to support that person as they die.



Figure 2. Elizabeth Kübler-Ross developed her theory of grief based on work with those facing their own death, but the theory has been broadly applied to anyone dealing with grief or loss. According to Kübler-Ross, the five stages of loss are denial, anger, bargaining, depression, and acceptance. (Image Source: Pixabay)

1. **Denial** is often the first reaction to overwhelming, unimaginable news. Denial, or disbelief or shock, protects us by allowing such news to enter slowly and to give us time to come to grips with what is taking place. The person who receives positive test results for life-threatening conditions may question the results, seek second opinions, or may simply feel a sense of disbelief psychologically even though they know that the results are true.

18. Kübler-Ross, E. (1975). *Death; The final stage of growth*. Englewood Cliffs, N. J.: Prentice-Hall.

2. **Anger** also provides us with protection in that being angry energizes us to fight against something and gives structure to a situation that may be thrusting us into the unknown. It is much easier to be angry than to be sad or in pain or depressed. It helps us to temporarily believe that we have a sense of control over our future and to feel that we have at least expressed our rage about how unfair life can be. Anger can be focused on a person, a health care provider, at God, or at the world in general. And it can be expressed over issues that have nothing to do with our death; consequently, being in this stage of loss is not always obvious.
3. **Bargaining** involves trying to think of what could be done to turn the situation around. Living better, devoting self to a cause, being a better friend, parent, or spouse, are all agreements one might willingly commit to if doing so would lengthen life. Asking to just live long enough to witness a family event or finish a task are examples of bargaining.
4. **Depression** is sadness and sadness is appropriate for such an event. Feeling the full weight of loss, crying, and losing interest in the outside world is an important part of the process of dying. This depression makes others feel very uncomfortable and family members may try to console their loved one. Sometimes hospice care may include the use of antidepressants to reduce depression during this stage.
5. **Acceptance** involves learning how to carry on and to incorporate this aspect of the life span into daily existence. Reaching acceptance does not in any way imply that people who are dying are happy about it or content with it. It means that they are facing it and continuing to make arrangements and to say what they wish to say to others. Some terminally ill people find that they live life more fully than ever before after they come to this stage.

In some ways, these five stages serve as cognitive defense mechanisms, allowing the individual to make sense of the situation while coming to terms with what is happening. They are, in other words, the mind's way of gradually recognizing the implications of one's impending death and giving him or her the chance to process it. These stages provide a type of framework in which dying is experienced, although it is not exactly the same for every individual in every case.

Since Kübler-Ross presented these stages of loss, several other models have been developed. These subsequent models, in many ways, build on that of Kübler-Ross, offering expanded views of how individuals process loss and grief. While Kübler-Ross' model was restricted to dying individuals, subsequent theories tended to focus on loss as a more general construct. This ultimately suggests that facing one's own death is just one example of the grief and loss that human beings can experience, and that other loss or grief-related situations tend to be processed in a similar way.

Video Example

Watch the first six minutes of this video to learn more about how the Kübler-Ross model evolved since its inception. The latter half of the video focuses on several other models that focus on how people can deal with the loss of loved one, or with grief in general. While the Kübler-Ross model remains important and useful today, it does not fit everyone's experience with grief, and research continues today to understand how people cope with grief.

One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://iastate.pressbooks.pub/individualfamilydevelopment/?p=348#oembed-1>

You can view the transcript for "The Truth About the Five Stages of Grief" here (opens in new window).

Other Models on Grief

One such model was presented by Worden,¹⁹ which explained the process of grief through a set of four different tasks that the individual must complete in order to resolve the grief. These tasks included: (a) accepting that the loss has occurred, (b) working through and experiencing the pain associated with grief, (c) adjusting the changes that the loss created in the environment, and (d) moving past the loss on an emotional level.²⁰

Another model is that of Parkes (1998), which broke down grief into four stages, including: (a) shock, (b) yearning, (c) despair, and (d) recovery. Although comprised of somewhat different stages than those of Kübler-Ross' model, Parkes' stages still reflected an ongoing process that the individual goes through, each of which was characterized by different thoughts, emotions, and behaviors. Throughout this process, the individual gradually moves closer to accepting the situation, and being able to continue with his or her daily life to the greatest extent possible.²¹

A different approach was proposed by Stroebe and Schut,²² which suggested that individuals cope with grief through an ongoing set of processes related to both loss and restoration. The

19. Worden, J. (1991). *Grief counseling and grief therapy: A handbook for the mental health practitioner* (2nd ed.). New York: Springer.

20. Buglass, E. (2010). Grief and bereavement theories. *Nursing Standard*, 24(41), 44-47.

21. Buglass, E. (2010). Grief and bereavement theories. *Nursing Standard*, 24(41), 44-47.

22. Stroebe, M., & Schut, H. (1999). The dual process model of coping with bereavement: rationale and description. *Death Studies*, 23(3), 197-224. <https://doi.org/10.1080/074811899201046>

loss-oriented processes included: (a) grief work, (b) intrusion on grief, (c) denying or avoiding changes toward restoration, and (d) the breaking of bonds or ties. The restoration-oriented processes included: (a) attending to life changes, (b) distracting oneself from grief, (c) doing new things, and (d) establishing new roles, identities, and relationships. Since each individual experiences grief and loss differently, in light of personal, cultural, and environmental factors, these processes often occur simultaneously, and not in a set order.²³

Link to Learning

Visit "Grief Reactions Over the Life Span" from the American Counseling Association to consider how various age groups deal with the death of a loved one.

We no longer think that there is a "right way" to experience grief and loss. People move through a variety of stages with different frequency and in different ways. The theories that have been developed to help explain and understand this complex process have shifted over time to encompass a wider variety of situations, as well as to present implications for helping and supporting the individual(s) who are going through it. Stroebe et al.²⁴ cautions health-care professionals working from a grief stage model. Such models can attempt to categorize, or assign, people to a stage. Alternatively, abnormality in grief stage progression may suggest the need to wrongly diagnosis with a mental health disorder. They make points to suggest that grieving is not stage-like, varies largely by individual and cultural factors, and individuals, or groups, will adjust to the loss in their own way in their own time. The American Psychological Association²⁵ suggests the following strategies have been identified as effective in the support of healthy grieving:

- **Talk about the death.** This will help the surviving individuals understand what happened and remember the deceased in a positive way. When coping with death, it can

23. Buglass, E. (2010). Grief and bereavement theories. *Nursing Standard*, 24(41), 44-47.

24. Stroebe, M., Schut, H., & Boerner, K. (2017). Cautioning health-care professionals: Bereaved persons are misguided through the stages of grief. *Omega*, 74(4), 455-473. <https://doi.org/10.1177/0030222817691870>

25. American Psychological Association. (2019). Grief: Coping with the loss of your loved one. <https://www.apa.org/helpcenter/grief>.

be easy to get wrapped up in denial, which can lead to isolation and lack of a solid support system.

- **Accept the multitude of feelings.** The death of a loved one can, and almost always does, trigger numerous emotions. It is normal for sadness, frustration, and in some cases exhaustion to be experienced.
- **Take care of yourself and your family.** Remembering to keep one's own health and the health of their family a priority can help with moving through each day effectively. Making an conscious effort to eat well, exercise regularly, and obtain adequate rest is important.
- **Reach out and help others dealing with the loss.** It has long been recognized that helping others can enhance one's own mood and general mental state. Helping others as they cope with the loss can have this effect, as can sharing stories of the deceased.
- **Remember and celebrate the lives of your loved ones.** This can be a great way to honor the relationship that was once had with the deceased. Possibilities can include donating to a charity that the deceased supported, framing photos of fun experiences with the deceased, planting a tree or garden in memory of the deceased, or anything else that feels right for the particular situation.

Criticisms of Kübler-Ross's Five Stages of Grief

Some researchers have been skeptical of the validity of there being stages to grief among the dying.²⁶ As Kübler- Ross notes in her own work, it is difficult to empirically test the experiences of the dying. “How do you do research on dying,...? When you cannot verify your data and cannot set up experiments?” (p. 19).²⁷ She and four students from the Chicago Theology Seminary in 1965 decided to listen to the experiences of dying patients, but her ideas about death and dying are based on the interviewers' collective “feelings” about what the dying were experiencing and needed.²⁸ While she goes on to say in support of her approach that she and her students read nothing about the prior literature on death and dying, so as to have no preconceived ideas, a later work revealed that her own experiences of grief from childhood undoubtedly colored her perceptions of the grieving process.²⁹ Kübler-Ross is adamant in her

26. Friedman, R., & James, J. W. (2008). The myth of the stages of loss, death, and grief. *Skeptic Magazine*, 14(2), 37-41.

27. Kübler-Ross, E. (1969). *On death and dying*. New York: Macmillan.

28. Kübler-Ross, E. (1969). *On death and dying*. New York: Macmillan.

29. Kübler-Ross, E., & Kessler, D. (2005). *On grief and grieving*. New York: Schribner.

theory that the one stage that all those who are dying go through is anger. It is clear from her 2005 book that anger played a central role in “her” grief, and did so for many years.³⁰

There have been challenges to the notion that denial and acceptance are beneficial to the grieving process.³¹ Denial can become a barrier between the patient and health care specialists, and reduce the ability to educate and treat the patient. Similarly, acceptance of a terminal diagnosis may also lead patients to give up and forgo treatments to alleviate their symptoms. In fact, some research suggests that optimism about one’s prognosis may help in one’s adjustment and increase longevity.³²

A third criticism is not so much of Kübler-Ross’s work, but how others have assumed that these stages apply to anyone who is grieving. Her research focused only on those who were terminally ill. This does not mean that others who are grieving the loss of someone would necessarily experience grief in the same way. Friedman and James³³ and Telford et al.³⁴ expressed concern that mental health professionals, along with the general public, may assume that grief follows a set pattern, which may create more harm than good.

Lastly, the Yale Bereavement Study, completed between January 2000 and January 2003, did not find support for Kübler-Ross’s five stage theory of grief.³⁵ Results indicated that acceptance was the most commonly reported reaction from the start, and yearning was the most common negative feature for the first two years. The other variables, such as disbelief, depression, and anger, were typically absent or minimal.

30. Friedman, R., & James, J. W. (2008). The myth of the stages of loss, death, and grief. *Skeptic Magazine*, 14(2), 37-41.

31. Telford, K., Kralik, D., & Koch, T. (2006). Acceptance and Denial: Implications for People Adapting to chronic illness: Literature review. *Journal of Advanced Nursing*, 55, 457-464.

32. Taylor, S. E., Kemeny, M. E., Reed, G. M., Bower, J. E., & Gruenewald, T. L. (2000). Psychological resources, positive illusions, and health. *American Psychologist*, 55(1), 99-109.

33. Friedman, R., & James, J. W. (2008). The myth of the stages of loss, death, and grief. *Skeptic Magazine*, 14(2), 37-41.

34. Telford, K., Kralik, D., & Koch, T. (2006). Acceptance and Denial: Implications for People Adapting to chronic illness: Literature review. *Journal of Advanced Nursing*, 55, 457-464.

35. Maciejewski, P. K., Zhang, B., Block, S. D., & Prigerson, H. G. (2007). An empirical examination of the stage theory of grief. *Journal of the American Medical Association*, 297(7), 716-723.

FACING DEATH

Diana Lang; Nick Cone; Martha Lally; Suzanne Valentine-French; and Sarah Carter



Figure 1. Supporting someone coming face to face with death can be a difficult process. (Image Source: A person holds the hand of a man... on Pixabay)

In this section, we'll turn our attention from the process of dying to the actual death of the individual. We'll examine various ways in which in which deliberate death can occur, along with the supportive practices that are available for those who are dying. We will also take a closer look at cultural and legal implications of end-of-life practices.¹

1. This chapter was adapted from select chapters in Lumen Learning's *Lifespan Development*, authored by Martha Lally and Suzanne Valentine-French available under a Creative Commons Attribution-NonCommercial-ShareAlike license, and *Waymaker Lifespan Development*, authored by Sarah Carter for Lumen Learning and available under a Creative Commons Attribution license. Some selections from Lumen Learning were adapted from previously shared content from Laura Overstreet's *Lifespan Psychology* and Wikipedia.

Advanced Directives

Advanced care planning refers to all documents that pertain to end-of-life care. These include advance directives and medical orders. **Advance directives** include documents that mention a health care agent and living wills. These are initiated by the patient. **Living wills** are written or video statements that outline the health care initiatives the person wishes under certain circumstances (Figure 1). **Durable power of attorney for health care** names the person who should make health care decisions in the event that the patient is incapacitated. In contrast, **medical orders** are crafted by a medical professional on behalf of a seriously ill patient. Unlike advanced directives, as these are doctor's orders, they must be followed by other medical personnel. Medical orders include Physician Orders for Life-sustaining Treatment (POLST), do-not-resuscitate, do-not-incubate, or do-not-hospitalize. In some instances, medical orders may be limited to the facility in which they were written. Several states have endorsed POLST so that they are applicable across health care settings.²

Despite the fact that many Americans worry about the financial burden of end-of-life care, “more than one-quarter of all adults, including those aged 75 and older, have given little or no thought to their end-of-life wishes, and even fewer have captured those wishes in writing or through conversation” (p. 18).³

Palliative Care

Palliative care is an interdisciplinary approach to specialized medical and nursing care for people with life-limiting illnesses. It focuses on providing relief from the symptoms, pain, physical stress, and mental stress at any stage of illness, with a goal of improving the quality of life for both the person and their family. Doctors who specialize in palliative care have had



Figure 2. Living Wills help identify what treatments are acceptable to the patient or which are refused. (Image Source: “refusal of treatment” by Jacob Windham, CC BY.)

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2. Institute of Medicine. (2015). Dying in America: Improving quality and honoring individual preferences near end of life. Washington, DC: The National Academies Press.
 3. Institute of Medicine. (2015). Dying in America: Improving quality and honoring individual preferences near end of life. Washington, DC: The National Academies Press.

training tailored to helping patients and their family members cope with the reality of the impending death and make plans for what will happen after.⁴

Palliative care is provided by a team of physicians, nurses, physiotherapists, occupational therapists, speech-language pathologists, and other health professionals who work together with the primary care physician and referred specialists or other hospital or hospice staff to provide additional support to the patient. It is appropriate at any age and at any stage in a serious illness and can be provided as the main goal of care, or along with curative treatment. Although it is an important part of end-of-life care, it is not limited to that stage. Palliative care can be provided across multiple settings including in hospitals, at home, as part of community palliative care programs, and in skilled nursing facilities. Interdisciplinary palliative care teams work with people and their families to clarify goals of care and provide symptom management, psychosocial, and spiritual support.

Hospice

In many other countries, no distinction is made between palliative care and hospice, but in the United States, the terms have different meanings and usages. They both share similar goals of providing symptom relief and pain management, but **hospice care** is a type of care involving palliation without curative intent. Usually, it is used for people with no further options for curing their disease or in people who have decided not to pursue further options that are arduous, likely to cause more symptoms, and not likely to succeed. The biggest difference between hospice and palliative care is the type of illness people have, where they are in their illness especially related to prognosis, and their goals/wishes regarding curative treatment. Hospice care under the Medicare Hospice Benefit requires that two physicians certify that a person has less than six months to live if the disease follows its usual course. This does not mean, though, that if a person is still living after six months in hospice he or she will be discharged from the service.

4. National Institute on Aging. (2019). What are palliative care and hospice care? <http://www.nia.nih.gov/health/what-are-palliative-care-and-hospice-care>

Video Example

Watch this video to better understand the setting, circumstances, and services associated with hospice care.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=352#oembed-1>

You can view the transcript for “Understanding Hospice Care” here (opens in new window).

Hospice care involves caring for dying patients by helping them be as free from pain as possible, providing them with assistance to complete wills and other arrangements for their survivors, giving them social support through the psychological stages of loss, and helping family members cope with the dying process, grief, and bereavement. It focuses on five topics: communication, collaboration, compassionate caring, comfort, and cultural (spiritual) care. Most hospice care does not include medical treatment of disease or resuscitation although some programs administer curative care as well. The patient is allowed to go through the dying process without invasive treatments. Family members who have agreed to put their loved one on hospice may become anxious when the patient begins to experience death. They may believe that feeding or breathing tubes will sustain life and want to change their decision. Hospice workers try to inform the family of what to expect and reassure them that much of what they see is a normal part of the dying process.

Video Example

One aspect of palliative and hospice care is helping dying individuals and their families understand what is happening, and what it may imply for their lives. The following video provides an example of palliative care in a hospital setting.

One or more interactive elements has been excluded from this version of the text. You can view them online here:

<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=352#oembed-2>

You can view the transcript for “How Doctors Tell Patients They’re Dying | Being Mortal | FRONTLINE” here (opens in new window).

Try It

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The History of Hospice

Dame Cicely Saunders was a British registered nurse whose chronic health problems had forced her to pursue a career in medical social work. The relationship she developed with a dying Polish refugee helped solidify her ideas that terminally ill patients needed compassionate care to help address their fears and concerns as well as palliative comfort for physical symptoms. After the refugee’s death, Saunders began volunteering at St Luke’s Home for the Dying Poor, where a physician told her that she could best influence the treatment of the terminally ill as a physician. Saunders entered medical school while continuing her volunteer work at St. Joseph’s. When she achieved her degree in 1957, she took a position there.

Saunders emphasized focusing on the patient rather than the disease and introduced the notion of ‘total pain’, which included psychological, spiritual, emotional, intellectual, and interpersonal aspects of pain, the physical aspects, and even financial and bureaucratic aspects. This focus on the broad effects of death on dying individuals and their families has provided

the foundation for modern day practices related to hospice care services.⁵ Saunders experimented with a wide range of opioids for controlling physical pain but also considered the needs of the patient's family.

Saunders disseminated her philosophy internationally in a series of tours of the United States that began in 1963. In 1967, Saunders opened St. Christopher's Hospice. Florence Wald, the Dean of Yale School of Nursing who had heard Saunders speak in America, spent a month working with Saunders there in 1969 before bringing the principles of modern hospice care back to the United States, establishing Hospice, Inc. in 1971. Another early hospice program in the United States, Alive Hospice, was founded in Nashville, Tennessee on November 14, 1975. By 1977 the National Hospice Organization had been formed.

Try It

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Hospice Care in Practice

The early established hospices were independently operated and dedicated to giving patients as much control over their own death process as possible. Today, it is estimated that over 40 million individuals require palliative care, with over 78% of them being of low-income status or living in low-income countries.⁶ It is also estimated, however, that less than 14% of these individuals receive it. This gap is created by restrictive regulatory laws regarding controlled substance medications for pain management, as well as a general lack of adequate training in regards to palliative care within the health professional community. Although hospice care has become more widespread, these new programs are subjected to more rigorous insurance guidelines that dictate the types and amounts of medications used, length of stay, and types of patients who are eligible to receive hospice care. Thus, more patients are being served, but providers have less control over the services they provide, and lengths of stay are more limited. Patients receive palliative care in hospitals and in their homes.

5. Richmond, C. (2005). Dame Cicely Saunders. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1179787/>.

6. World Health Organization. (2019). Palliative care. <https://www.who.int/news-room/fact-sheets/detail/palliative-care>.

The majority of patients on hospice are cancer patients and they typically do not enter hospice until the last few weeks prior to death. The average length of stay is less than 30 days and many patients are on hospice for less than a week. Oftentimes medications are rubbed into the skin or given in drop form under the tongue to relieve the discomfort of swallowing pills or receiving injections. A hospice care team includes a chaplain as well as nurses and grief counselors to assist spiritual needs in addition to physical ones. When hospice is administered at home, family members may also be part, and sometimes the biggest part, of the care team. Certainly, being in familiar surroundings is preferable to dying in an unfamiliar place. But about 60 to 70 percent of people die in hospitals and another 16 percent die in institutions such as nursing homes. Most hospice programs serve people over 65; few programs are available for terminally ill children.⁷

Hospice care focuses on alleviating physical pain and providing spiritual guidance. Those suffering from Alzheimer's also experience intellectual pain and frustration as they lose their ability to remember and recognize others. Depression, anger, and frustration are elements of emotional pain, and family members can have tensions that a social worker or clergy member may be able to help resolve. Many patients are concerned with the financial burden their care will create for family members. And bureaucratic pain is also suffered while trying to submit bills and get information about health care benefits or to complete requirements for other legal matters. All of these concerns can be addressed by hospice care teams.

The Hospice Foundation of America notes that not all racial and ethnic groups feel the same way about hospice care.⁸ Certain groups may believe that medical treatment should be pursued on behalf of an ill relative as long as possible and that only God can decide when a person dies. Others may feel very uncomfortable discussing issues of death or being near the deceased family member's body. The view that hospice care should always be used is not held by everyone and health care providers need to be sensitive to the wishes and beliefs of those they serve. Similarly, the population of individuals using hospice services is not divided evenly by race. Approximately 81% of hospice patients are White, while 8.7% are African American, 8.7% are multiracial, 1.9% are Pacific Islander, and only 0.2% are Native American.⁹

7. World Health Organization. (2019). Access to palliative care. <https://www.who.int/news-room/fact-sheets/detail/palliative-care>.

8. Hospice Foundation of America. (2019). Aging America. <https://hospicefoundation.org/>.

9. Campbell, C., Baernholdt, M., Yan, G., Hinton, I. D., & Lewis, E. (2014). Racial/ethnic perspectives on the quality of hospice care. *American Journal of Palliative Care*, 30(4), 347-353.

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Family Caregivers

According to the Institute of Medicine,¹⁰ it is estimated that 66 million Americans, or 29% of the adult population, are caregivers for someone who is dying or chronically ill. Two-thirds of these caregivers are women. This care takes its toll physically, emotionally, and financially. Family caregivers may face the physical challenges of lifting, dressing, feeding, bathing, and transporting a dying or ill family member. They may worry about whether they are performing all tasks safely and properly, as they receive little training or guidance. Such caregiving tasks may also interfere with their ability to take care of themselves and meet other family and workplace obligations. Financially, families may face high out of pocket expenses.¹¹

As can be seen in Table 1, most family caregivers are employed, are providing care by themselves with little professional intervention, and there are high costs in lost productivity. As the prevalence of chronic disease rises, the need for family caregivers is growing. Unfortunately, the number of potential family caregivers is declining as the large baby boomer generation enters into late adulthood.¹²

10. Institute of Medicine. (2015). *Dying in America: Improving quality and honoring individual preferences near end of life*. Washington, DC: The National Academies Press.

11. Institute of Medicine. (2015). *Dying in America: Improving quality and honoring individual preferences near end of life*. Washington, DC: The National Academies Press.

12. Redfoot, D., Feinberg, L., & Houser, A. (2013). *The aging of the baby boom and the growing care gap: A look at future declines in the availability of family caregivers*. AARP. http://www.aarp.org/content/dam/aarp/research/public_policy_institute/ltc/2013/baby-boom-and-the-growing-care-gap-insight-AARP-ppi-ltc.pdf

Table 1 Characteristics of Family Caregivers in the United States, adapted from IOM, 2015

Characteristic	
No home visits by health care professionals	69%
Caregivers are also employed	72%
Caregivers for the elderly	67%
Duration of employed workers who have been caregiving for 3+ years	55%
Annual cost of lost productivity due to absenteeism from working due to providing care	\$25.2 billion

Euthanasia and Physician-Assisted Suicide

Euthanasia, or helping a person fulfill their wish to die, can happen in two ways: voluntary euthanasia and physician-assisted suicide. **Voluntary euthanasia** refers to helping someone fulfill their wish to die by acting in such a way to help that person's life end. This can be **passive euthanasia** such as no longer feeding someone or giving them food. Or it can be **active euthanasia** such as administering a lethal dose of medication to someone who wishes to die. In some cases, a dying individual who is in pain or constant discomfort will ask this of a friend or family member, as a way to speed up what he or she has already accepted as being inevitable. This can have lasting effects on the individual or individuals asked to help, including but not limited to prolonged guilt.¹³

Physician-Assisted Suicide: Physician-assisted suicide occurs when a physician prescribes the means by which a person can end his or her own life.¹⁴ This differs from euthanasia, in that it is mandated by a set of laws and is backed by legal authority. Physician-assisted suicide is legal in the District of Columbia and several states, including Oregon, Hawaii, Vermont, and Washington. It is also legal in the Netherlands, Switzerland, and Belgium.

13. Meier, D. E., Emmons, C. A., Wallenstein, S., Quill, T., Morrison, R. S., & Cassell, C. K. (2009). A national survey of physician-assisted suicide and euthanasia in the united states. *New England Journal of Medicine*, 338(17), 1193-1201.

14. Collier, R. (2017). Assisted death gaining acceptance in the US. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5250524/>

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Link to Learning

Dr. Jack Kevorkian is the individual most commonly associated with physician-assisted suicide. He was a pioneer in this practice, sparking ethical, moral, and legal debates that continue to this day. This video from the New York Times “Jack Kevorkian and the Right to Die” provides an overview of his work, and his role in the beginning of physician-assisted suicide.

The specific laws that govern the practice of physician-assisted suicide vary between states. Oregon, Vermont, and Washington, for example, require the prescription to come from either a Doctor of Medicine (M.D.) or a Doctor of Osteopathy (D.O.).¹⁵ These state laws also include a clause about the designated medical practitioner being willing to participate in this act. In Colorado, terminally ill individuals have the option to request and self-administer life-ending medication if their medical prognosis gives them six months or less to live. In the District of Columbia and Hawaii, the individual is required to make two requests within predefined periods of time and also complete a waiting period, and in some cases undergo additional evaluations before the medication can be provided.

A growing number of the population support physician-assisted suicide. In 2000, a ruling of the U.S. Supreme Court upheld the right of states to determine their laws on physician-assisted suicide despite efforts to limit physicians’ ability to prescribe barbiturates and opiates for their

15. Theil-Reiter, S., Wetterauer, C., & Frei, I. A. (2018). Taking one’s own life in hospital? Patients and health care professionals vis-a-vis the tension between assisted suicide and suicide prevention in Switzerland. *International Journal of Environmental Research and Public Health*, 15(6).

patients requesting the means to end their lives.¹⁶ The position of the Supreme Court is that the debate concerning the morals and ethics surrounding the right to die is one that should be continued. As an increasing number of the population enters late adulthood, the emphasis on giving patients an active voice in determining certain aspects of their own death is likely.

Physician-Assisted Suicide

In a recent example of physician-assisted death, David Goodall, a 104 year old professor, ended his life by choice in a Swiss clinic in May 2018. Having spent his life in Australia, Goodall traveled to Switzerland to do this, as the laws in his country do not allow for it. Swiss legislation does not openly permit physician-assisted suicide, but it does not forbid an individual with “commendable motives” from assisting another person in taking his or her own life.¹⁷ Watch this video of a news conference with Goodall “104-year-old Australian Promotes Right to Assisted Suicide” that took place the day before he ended his life with physician-assisted suicide.

Another public advocate for physician-assisted suicide and death with dignity was 29-year old Brittany Maynard, who after being diagnosed with terminal brain cancer, decided to move to Oregon so that she could end her life with physician-assisted suicide. You can watch this video “The Brittany Maynard Story” to learn more about Brittany’s story.

Try It

An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://iastate.pressbooks.pub/individualfamilydevelopment/?p=352#h5p-53>

16. Collier, R. (2017). Assisted death gaining acceptance in the U.S. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5250524/>

17. Bever, L. (2018). David Goodall, 104, just took his own life, after making a powerful statement about assisted death. https://www.washingtonpost.com/news/to-your-health/wp/2018/05/09/this-104-year-old-plans-to-die-tomorrow-and-hopes-to-change-views-on-assisted-suicide/?utm_term=.236176920e3c

Cultural Differences in End-of-Life Decisions

According to Searight and Gafford,¹⁸ cultural factors strongly influence how doctors, other health care providers, and family members communicate bad news to patients, the expectations regarding who makes the health care decisions, and attitudes about end-of-life care. In the United States, doctors take the approach that patients should be told the truth about their health. Outside the United States and among certain racial and ethnic groups within the United States, doctors and family members may conceal the full nature of a terminal illness as revealing such information is viewed as potentially harmful to the patient, or at the very least, is seen as disrespectful and impolite. Holland et al.¹⁹ found that many doctors in Japan and in numerous African nations used terms such as “mass,” “growth,” and “unclean tissue” rather than referring to cancer when discussing the illness to patients and their families. Family members actively protect terminally ill patients from knowing about their illness in many Hispanic, Chinese, and Pakistani cultures.^{20,21}

In the United States, we view the patient as autonomous in health care decisions,²² while in other nations the family or community plays the main role, or decisions are made primarily by medical professionals, or the doctors in concert with the family make the decisions for the patient. For instance, in comparison to European Americans and African Americans, Koreans and Mexican-Americans are more likely to view family members as the decision makers rather than just the patient.^{23,24} In many Asian cultures, illness is viewed as a “family event”, not just something that impacts the individual patient.²⁵ Thus, there is an expectation that the family has a say in the health care decisions. As many cultures attribute high regard and respect for

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18. Searight, H. R., & Gafford, J. (2005a). Cultural diversity at end of life: Issues and guidelines for family physicians. *American Family Physician*, 71(3), 515-522.
 19. Holland, J. L., Geary, N., Marchini, A., & Tross, S. (1987). An international survey of physician attitudes and practices in regard to revealing the diagnosis of cancer. *Cancer Investigation*, 5, 151-154.
 20. Kaufert, J. M., & Putsch, R. W., (1997). Communication through interpreters in healthcare: Ethical dilemmas arising from differences in class, culture, language, and power. *Journal of Clinical Ethics*, 8, 71-87.
 21. Herndon, E., & Joyce, L. (2004). Getting the most from language interpreters. *Family Practice Management*, 11, 37-40.
 22. Searight, H. R., & Gafford, J. (2005a). Cultural diversity at end of life: Issues and guidelines for family physicians. *American Family Physician*, 71(3), 515-522.
 23. Berger, J. T. (1998). Cultural discrimination in mechanisms for health decisions: A view from New York. *Journal of Clinical Ethics*, 9, 127-131.
 24. Searight, H. R., & Gafford, J. (2005a). Cultural diversity at end of life: Issues and guidelines for family physicians. *American Family Physician*, 71(3), 515-522.
 25. Candib, L. M. (2002). Truth telling and advanced planning at end of life: problems with autonomy in a multicultural world. *Family System Health*, 20, 213-228.

doctors, patients and families may defer some of the end-of-life decision making to the medical professionals.²⁶

According to a Pew Research Center Survey,²⁷ while death may not be a comfortable topic to ponder, 37% of their survey respondents had given a great deal of thought about their end-of-life wishes, with 35% having put these in writing. Yet, over 25% had given no thought to this issue. Lipka (2014)²⁸ also found that there were clear racial and ethnic differences in end-of-life wishes. Whites are more likely than Blacks and Hispanics to prefer to have treatment stopped if they have a terminal illness. While the majority of Blacks (61%) and Hispanics (55%) prefer that everything be done to keep them alive. Searight and Gafford²⁹ suggest that the low rate of completion of advanced directives among non-whites may reflect a distrust of the U.S. health care system as a result of the health care disparities non-whites have experienced. Among Hispanics, patients may also be reluctant to select a single family member to be responsible for end-of-life decisions out of a concern of isolating the person named and of offending other family members, as this is commonly seen as a “family responsibility.”³⁰

26. Searight, H. R., & Gafford, J. (2005b). “It’s like playing with your destiny”: Bosnian immigrants’ views of advance directives and end-of-life decision-making. *Journal of Immigrant Health*, 7(3), 195-203.

27. Lipka, M. (2014). 5 facts about Americans’ views on life and death issues. Pew Research Institute. <http://www.pewresearch.org/fact-tank/2014/01/07/5-facts-about-americans-views-on-life-and-death-issues/>

28. Lipka, M. (2014). 5 facts about Americans’ views on life-and-death issues. Pew Research Institute <https://www.pewresearch.org/fact-tank/2014/01/07/5-facts-about-americans-views-on-life-and-death-issues/>

29. Searight, H. R., & Gafford, J. (2005a). Cultural diversity at end of life: Issues and guidelines for family physicians. *American Family Physician*, 71(3), 515-522.

30. Morrison, R. S., Zayas, L. H., Mulvihill, M., Baskin, S. A., & Meier, D. E. (1998). Barriers to completion of healthcare proxy forms: A qualitative analysis of ethnic differences. *Journal of Clinical Ethics*, 9, 118-126.

PUTTING IT TOGETHER: DEATH AND DYING

Diana Lang; Nick Cone; and Sarah Carter



Figure 1. Comfort is often the only thing we can provide for one another when dealing with grief over the loss of a loved one. (Image Source: PxHere)

Death is something we all must face at some point. It occurs on physiological, psychological, and social levels, each of which have unique implications for the dying individuals and those close to them. Physiological death occurs as the body ceases to function, eventually rendering the individual unable to engage in basic necessary processes, such as breathing and eating. Psychological death occurs when the individual begins to face his or her impending death and consequently regresses into the self. Societal death occurs when others withdraw from the individual, perhaps unable to effectively cope with the impending loss and its implications. In some cases, palliative care or hospice services are utilized to assist both the dying individual and his or her family throughout the dying process. These services include care for the dying individual, as well as support for the family. In addition, several states allow terminally ill

or dying individuals to utilize physician-assisted suicide, in which a medical practitioner prescribes and/or administers life-ending medication at the individual's request. The utilization of palliative or hospice care services, as well as physician assisted suicide, vary between individuals, cultures, and racial groups, ultimately reflecting the legal, ethical, and moral complexity of both types of practices.¹

The way in which we view death, talk about it, prepare for it, and what we do when it happens, vary both within and between cultures. Coping with the grief that is associated with death and loss is a complex but necessary process, with a number of strategies for working through the situation in a healthy and positive way. Several theories have been created to explain how grieving happens, some including stages of grief that the individual experiences, others including tasks that the individual must complete. These stages and tasks on their own are neutral, with the potential to facilitate positive coping, but can also become maladaptive if the individual does not work through them in a healthy way. Death is ultimately the end of lifespan development, an occurrence that takes place for everyone at some time. It is the culmination of the other stages of development, many of which play a role in shaping how the individual handles death when the time comes, both for the self and for loved ones.

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