

# Psychology Through the Lifespan



# Psychology Through the Lifespan

*2nd Edition*

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# About: Psychology Through the Lifespan

*PSY240MM*

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A print version of the text can be purchased through [lulu.com for the cost of printing and shipping \(no revenue is made\)](#).

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# Chapter 1: Intro to Lifespan Growth and Development



## Objectives:

*At the end of this chapter, you should be able to...*

1. Explain the study of human development.
2. Define physical, cognitive, and psychosocial development.
3. Differentiate periods of human development.
4. Analyze your location in the lifespan.
5. Contrast social classes concerning life chances.
6. Explain the meaning of social cohort.
7. Critique stage theory models of human development.
8. Define culture and ethnocentrism and describe ways that culture impacts development.
9. Explain the reasons scientific methods are more objective than

- personal knowledge.
10. Contrast qualitative and quantitative approaches to research.
  11. Compare research methods, noting the advantages and disadvantages of each.
  12. Differentiate between independent and dependent variables.

***The objectives are indicated in the reading sections below.***

## Introduction (*Ob 1, Ob 2, Ob 7*)

Welcome to the study of human growth and development, commonly referred to as the “womb to tomb” course because it is the story of our journeys from conception to death. Human development is the study of how we change over time.

**Development is multidimensional.** We change across three general domains/dimensions; physical, cognitive, and psychosocial. Think about how you were 5, 10, or even 15 years ago. In what ways have you changed? In what ways have you remained the same? You have probably changed physically; perhaps you have grown taller and become heavier. However, you may have also experienced changes in the way you think and solve problems. **Cognitive** change is noticeable when we compare how 6-year-olds, 16-year-olds, and 46-year-olds think and reason, for example. Their thoughts about others and the world are probably quite different. Consider friendship for instance. The 6-year-old may think that a friend is someone with whom you can play and have fun. A 16-year-old may seek friends who can help them gain status or popularity. Also, the 46-year-old may have acquaintances but rely more on family members to do things with and confide in. These examples portray psychosocial change. **Psychosocial development** refers to developmental changes in emotions and psychological concerns as well as social relationships. We will explore these domains more thoroughly throughout the course.

**Development is lifelong, and change is apparent across the lifespan** (Baltes, 1987; Baltes et al., 2006). Our academic knowledge of the lifespan has changed. At first, the focus of development was mostly in childhood and classifying developmental change as stages of development. Freud, Erikson, and Piaget are the three classic stage theorists whose models depict development as occurring in a series of predictable stages. **Stage theorists** see developmental change often occurs in distinct stages that are qualitatively different from each other, and in a set, universal sequence. This viewpoint is considered a stage theory. Freud and Piaget present a series of stages that mostly end during adolescence. For Freud, we enter the genital stage in which much of our motivation is focused on sex and reproduction, and this stage continues through adulthood. Piaget's fourth stage, formal operational thought, begins in adolescence and continues through adulthood. Again, neither of these theories highlights developmental changes during adulthood. Furthermore, developmental psychologists have concerns and criticisms for sections of each of Freud's and Piaget's theories. Erikson, however, presents eight developmental stages throughout the lifespan describing our struggles with issues of independence, trust, and intimacy. Erikson is known as the "father" of developmental psychology for encompassing the entire lifespan in his theory, and his psychosocial theory forms a foundation for much of our discussion of psychosocial development.

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Stage theories had a certain appeal to an American culture experiencing a dramatic change in the early part of the 20th century. However, that sense of security was not without its costs; those who did not develop in predictable ways were often thought of as delayed or abnormal. Moreover, Freudian interpretations of problems in childhood development, such as autism, held that such difficulties were in response to poor parenting. Imagine the despair experienced by mothers accused of causing their child's autism by being cold and unloving. It was not until the 1960s that more medical explanations of autism began to replace Freudian assumptions.

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**Development is multidirectional.** Humans change in many directions. We may show gains in some areas of development while showing losses in other areas. Every change, whether it is finishing high school, getting married, or becoming a parent, entails both growth and loss. Today we are more aware of the variations in development. We no longer assume that those who develop in predictable ways are normal and those who do not are abnormal. So the assumption that early childhood experiences dictate our future is also being called into question. Instead, we have come to appreciate that growth and change continue throughout life and experience continues to have an impact on who we are and how we relate to others. Moreover, we recognize that adulthood is also a dynamic period of life marked by continued cognitive, social, and psychological development.

**Development is multidisciplinary.** Developmental psychology is related to other applied fields. The field informs several applied fields in psychology, including, educational psychology, psychopathology, and forensic developmental psychology. It also complements several other basic research fields including social psychology, cognitive psychology, gerontology, and child

development. Many academic disciplines contribute to the study of life span, and this course is offered in some schools as psychology; in other schools, it is taught under sociology or human development. Lastly, it draws from the theories and research of several scientific fields, and 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 in this text are rich and well-rounded and the theories and findings can be part of a collaborative effort to understand human lives.

**Development occurs in many contexts.** Our journeys through life are more than biological; they are shaped by culture, history, economic, and political realities as much as they are influenced by physical change. This is an exciting and practical course because it is about us and those with whom we live and work. One of the best ways to gain perspective on our own lives is to compare our experiences with that of others. By periodically making cross-cultural and historical comparisons and by presenting a variety of views on issues such as healthcare, aging, education, gender, and family roles, we hope to give you many eyes with which to see your development. Being self-conscious can enhance our ability to think critically about the systems we live in and open our eyes to new courses of action to benefit the quality of life. Moreover, knowing about other people and their circumstances can help us live and work with them more effectively. An appreciation of diversity enhances the social skills needed in nursing, education, or any other field.

## Many Contexts (*Ob 5, Ob 6, Ob 8*)

Development is multicontextual. People are best understood in context. What is meant by the word “context”? It means that we are influenced by when and where we live, and our actions, beliefs,

and values are a response to circumstances surrounding us. Robert Sternberg, a famous psychologist whose theory of intelligence is based on three factors. Sternberg describes a type of intelligence known as “contextual” intelligence as the ability to understand what is called for in a situation (Sternberg, 1996). 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. Our social locations include cohort, social class, gender, race, ethnicity, and age. Let us explore two of these: cohort and social class.

## The Cohort Effect (*Ob 6*)

One crucial context that is sometimes mistaken for age is the cohort effect. A **cohort** is a group of people who are born at roughly the same 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. Consider a young boy's concerns as he grows up in the United States during World War II. What his family buys is limited by their small budget and by a national 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 he grows up and has a family of his own, he is motivated by images of success tied to his experience: a successful man is one who can provide for his family financially, who has a wife who stays at home, 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 can do so during the prosperous

postwar economics of the 1950s in America. However, economic conditions change in the mid-1960s and through the 1970s. His wife 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 living room of the war in Vietnam, and they fear the draft. Moreover, they are part of a middle-class youth culture that is very visible and vocal. His 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; instead, it is a story shared by many members of his cohort. Historic contexts shape our life choices and motivations as well as our final assessments of success or failure during our existence.

**Table. Description of Cohorts in the United States**

Generational Cohorts in U.S.	Birth Years	Defining Technology	Broad traits
Greatest Generation	1900-1929	Radio	Great Depression survival, integrity, work ethic, prudence
Silent Generation	1929-1945	Fax machine	Loyalty, respect for authority, sacrifice
Baby Boomers: Traditionals	1946-1954	Personal computer	Social causes, hardworking and long hours, idealistic
Baby Boomers: Generation Jones	1955-1964	Laptop computer	Pragmatic, need to complete and get ahead
Generation X	1965-1979	Mobile phone	Self-reliance, work/life balance, skepticism
Generation Y (Millennials)	1980-1994	Google	Immediacy, confidence, tolerance, social connection
iGen/Gen Z	1995-2012	Smartphone	More tolerant of others, more cautious, more social media usage
Gen Alpha	2013-2025	Artificial Intelligence	Tech savvy, global and diverse, collaborative, mental health awareness



*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, and Generation M.)*

## Socioeconomic Status (*Ob 5*)

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 undoubtedly 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. (Consider, for example, some terms that have been used in marketing to refer to different consumer groups: the “truck and trailer” or the “pool and poodle” group referring to working class and upper-middle-class groups.) All of us born into a class system or are socially located and may move up or down depending on a combination of both socially and individually created limits and opportunities. Below is a model of the class system identified in the United States (Gilbert 2003; Gilbert & Kahl, 1998), a description of these social classes, and a partial listing of the impact that social class can have on individual and family life (Seccombe & Warner, 2004).

## Model of Social Class Based on Socioeconomic

## Status in the U.S.

**Upper-Income Households:** Upper-income households have incomes that are more than double the median. the median income of upper-income households increased 78%, from about \$144,100 to \$256,900. (Incomes are scaled to a three-person household and expressed in 2023 dollars.) The upper class is subdivided into “upper-upper” and “lower-upper” categories based on how money and wealth were acquired. The “upper-upper class” (0.5%) has money from investments or inheritance and tend to be stewards of the family fortune. This “old money” brings a sense of polish and sophistication now shared by those with “new money.” The newly rich (0.5%) have made their fortunes as personalities in sports and media or as entrepreneurs. Members of the newly rich tend to flaunt their wealth; a practice looked upon with disdain by old money.

**Middle-Income Households:** Middle-income households are defined as those with an income that is two-thirds to double that of the U.S. median household income, after incomes have been adjusted for household size. In 1971, 61% of Americans lived in middle-class households. By 2023, the share had fallen to 51%, according to a new Pew Research Center analysis of government data. These individuals work in lower-paying, less autonomous white-collar jobs such as teaching and nursing or as lower-level managers. Members of the middle class may hold 2 or 4-year degrees, but often from less prestigious, state-supported schools. The median income of middle-class households increased from about \$66,400 in 1970 to \$106,100 in 2022, or 60%. They own less property and have less discretionary income than members of the upper class. Acquiring larger homes, newer vehicles, and pursuing travel, paying for health care and dental expenses often means taking on substantial debt. This problem is not unique to the United States, however.

The average amount of credit card debt in American households

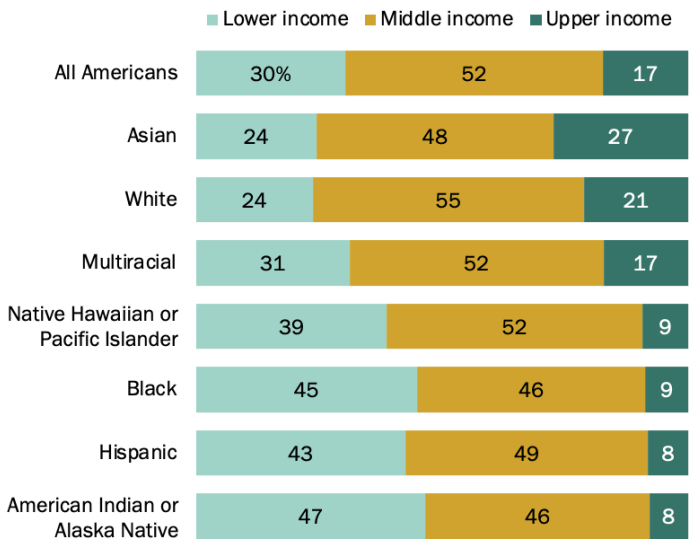
is \$5,551 (Sullivan, 2018). Additionally, 144 million Americans who carry an “all-purpose” credit card, while only 55 million pay their entire balance off each month. The industry refers to these people as “deadbeats” and prefers the almost 90 million customers who extend their payment over months. These “revolvers” create nearly \$30 billion in profits for the industry (Frontline, 2004). Carrying debt can be extremely stressful and have a negative effect on health and social well-being. The consequences of such debt are still being explored.

**Lower-Income Households:** Lower-income households have incomes less than two-thirds of the median. The median income of lower-income households grew more slowly than that of other households, increasing from about \$22,800 in 1970 to \$35,300 in 2022, or 55%. The share of people in the U.S. middle class varied from 46% to 55% across racial and ethnic groups in 2022. Black and Hispanic Americans, Native Hawaiians or Pacific Islanders, and American Indians or Alaska Natives were more likely than others to be in lower-income households. Not surprisingly, lower-income status is correlated with the likelihood of living in poverty. According to the Census Bureau, the poverty rate among Black (17.1%) and Hispanic (16.9%) Americans and American Indians or Alaska Natives (25%) was greater than the rate among White and Asian Americans (8.6% for each).

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# Black, Hispanic, Native Hawaiian/Pacific Islander and American Indian/Alaska Native people are more likely than others to live in lower-income U.S. households

*% of U.S. population in each income tier, by race and ethnicity, 2022*



Note: People are assigned to income tiers based on their household incomes, after incomes have been adjusted for the number of people living in each household and the local area cost of living. Shares may not total 100% due to rounding. White, Black, Asian, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander are people who identified with a single major racial group and who are not Hispanic. Multiracial includes people who identified with more than one major racial group and are not Hispanic. Hispanics are of any race. Groups are sorted by the share in the upper-income tier.

Source: Pew Research Center analysis of the American Community Survey (IPUMS), 2022.

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**The Working Class:** Thirty percent of Americans are considered members of the working class. The working class is comprised of those working in occupations such as retail, clerical or factory jobs. Their jobs are typically routine and more heavily supervised than those of the middle class and require less formal education than

do white-collar jobs. Members of the working class are subject to plant closings, lower pay, and more frequent layoffs, and may rely on fewer workers contributing to the family income. Fewer earners and less job stability impact not only family income, but it also impacts the likelihood of having adequate health care. Being employed does not ensure adequate healthcare; in fact, 69 percent of the 45 million Americans who lack any medical insurance live in households where there is at least one full-time employee (Kaiser Commission on Medicaid and the Uninsured, 2004). Americans who are self-employed or working in companies with fewer than 200 employees are less likely to have health insurance benefits than those who work in companies with 200 or more employees (Weitz, 2007). Also, the cost of obtaining even minimal health insurance as an individual is often prohibitive.

Social class differences go beyond financial concerns, however. In a classic study on parenting styles and social class, Kohn (1977) found that working-class parents emphasize obedience, honesty, and conformity in their children while middle-class parents valued independence, initiative, and self-reliance. These differences are attributed to the expectations made of parents as workers; blue-collar workers are rewarded for conformity while white-collar workers are rewarded for their initiative.

**The Working Poor:** Fifteen percent of Americans are categorized as the working poor. These people live near the poverty level and hold seasonal or temporary jobs as unskilled laborers. This includes migrant farm workers, temporary employees in service industries such as restaurants or retail typically for minimum wage. The poor and working poor experience many of the same problems that can have an impact on development. We will examine this list after describing the next social class.

**The Underclass:** Approximately five percent of Americans are part of the underclass described as temporary workers, part-time workers, those who are chronically unemployed or underemployed (Gilbert, 2003). They may receive some government assistance and tend to be looked down upon by other members of society. The

national unemployment rates in the United States is around six percent, ranging from 3 to 10 percent over the past 20 years (USBLS, 2018). Many of the underclass are children or are disabled. It is estimated that there are about 3.5 million homeless people in the United States and 1.5 of them are children (Urban Institute, 2000). Life on the streets can be hazardous involving addiction, deceit, violence, sexual assault, and prostitution or “survival sex” which refers to exchanging food for shelter (Davis, 1999).

**Other Consequences of Poverty: Poverty level** is an income amount established by the Social Security Administration that is based on a formula called the “thrifty food plan” that allows one-third of income for food. It is based on a set of income thresholds set by the government that varies by family size (United States Census Bureau, 2016). Those living at or near poverty level may find it extremely difficult to sustain a household with this amount of income. Buying the least expensive, most filling foods typically means buying foods high in fat, starch, and sugar. Living in inadequate housing with the fear of eviction or poor plumbing and disruptive neighbors can also be stressful. Poverty is associated with poor health and a lower life expectancy due to a deficient diet, less healthcare, more significant stress, working in more dangerous occupations, higher infant mortality rates, inadequate prenatal care, iron deficiencies, greater difficulty in school, and many other problems. Members of the middle class may fear losing status, but the poor may have more significant concerns over losing housing. Moreover, while those in the middle class are more likely to use shopping or travel as a way to cope with stressors, the poor are more likely to eat or smoke in response to stress (Seccombe & Warner, 2004).



***Think about how social class might impact the life of someone with whom you are working in a hospital, school, or another setting. What should you consider in order to be most effective in helping that person or family?***

## Many Cultures (*Ob 8*)

**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 society and to value their society. We tend to believe that our own culture's practices and expectations are the right ones – this is **ethnocentrism**. For example, if English say that American's drive on the wrong side of the road (or vice versa), this is one's culture as a frame of reference. Believing one's culture is superior to another (ethnocentrism) is a normal byproduct of growing up in a culture. Ethnocentrism becomes a roadblock when it inhibits understanding of cultural practices from other societies. On the other hand, when an individual can view situations outside the lens of their own culture, they are practicing cultural relativism. **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 essential 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 developmental theorists have described in the past has been culturally bound and difficult to apply to various cultural



Even the most biological events can be viewed in cultural contexts that vary immensely. Consider two very different cultural responses to menstruation in young girls. In the United States, girls in public school often receive information on menstruation in around 5th grade. The extent to which they are also taught about sexual intercourse, reproduction, or sexually transmitted infections depends on the policy of the school district guided by state and local community standards and sentiments. However, menstruation is addressed, and girls receive information and a kit containing feminine hygiene products, brochures, and other items. For example, menstruation is interpreted as an event that can affect the mood of a young girl and temporarily render her difficult, hostile, or simply hard to be around. However, she is encouraged to have a “happy” period with this product and is also encouraged to wish her friends a happy period as well through a product-sponsored positive message marketing. Contrast this with the concern that a lack of sanitary “towels” or feminine napkins causes many girls across Africa to miss more than a month of school each year during menstruation. Education is essential in these countries for moving ahead, and the lack of sanitary towels places these girls at a tremendous educational disadvantage. The one-dollar price tag on towels is prohibitive in countries such as Kenya where most families

earn about 54 cents per day. The lack of towels also results in unsanitary practices such as the use of blankets or old cloths to manage the menstrual flow. In some parts of Africa, reusable or washable sanitary towels are used, but in countries such as Kenya where there is little water, this would not be a solution. Moreover, in instances where towels were donated and given out without educating girls on how to use them, girls have folded them up and used them as tampons, a practice that can lead to acute infection (Mawathe, 2006).



***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?***

## Periods of Development (*Ob 3*)

Think about the life span and make a list of what you would consider the periods of development. How many stages are on your list? Perhaps you have three: childhood, adulthood, and old age. Or maybe four: infancy, childhood, adolescence, and adulthood. Developmentalists break the lifespan into 10 periods of development:

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

9. Late Adulthood
10. Death and Dying

This list (also described in the following table) reflects unique aspects of the various stages of childhood and adulthood that will be explored in this text. The text takes a chronological approach with an organization from each of these periods. So, while both an 8-month-old and 8-year-old are considered children, they have very different motor abilities, social relationships, and cognitive skills. 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. However, first, here is a brief overview of the stages.

**Table. Different Lifespan Periods**

Age Period	Description
<b>Prenatal</b>	Starts at conception and continues through implantation in the uterine wall by the embryo and ends at birth.
<b>Infancy and Toddlerhood</b>	Starts at birth and continues to two years of age
<b>Early Childhood</b>	Starts at two years of age until six years of age
<b>Middle and Late Childhood</b>	Starts at six years of age and continues until the onset of puberty
<b>Adolescence</b>	Starts at the onset of puberty until 18
<b>Emerging Adulthood</b>	Starts at 18 until 25
<b>Early Adulthood</b>	Starts at 25 until 40-45
<b>Middle Adulthood</b>	Starts at 40-45 to 60-65

## Prenatal Development



Conception occurs, and development begins. Prenatal Development is the first period which will be discussed in chapter 3, and is considered human development within the womb. All of the major structures of the body are forming, and the health of the mother is of primary concern. Understanding nutrition, teratogens (or environmental factors that can lead to congenital disabilities), and labor and delivery are primary concerns. You will read more about Prenatal Development in chapter 3.

# Infancy and Toddlerhood



The first year and a half to two years of life are ones of dramatic growth and change, this period is known as infancy and toddlerhood. A newborn, with a keen sense of hearing but poor vision, is transformed into a walking, talking toddler within a relatively short period. Caregivers are also transformed from someone who manages feeding and sleeping schedules to a continually moving guide and safety inspector for a mobile, energetic child. You will read more about Infancy and Toddlerhood in chapter 4.

## Early Childhood



Early childhood is also referred to as the preschool years consisting of the years which follow toddlerhood and precede formal schooling. As a 3 to 5-year-old, the child is busy learning language, 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 have initially had unusual conceptions of size, time, space, and distance such as fearing that they may go down the drain if they sit at the front of the bathtub or by 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 4-year-old's sense of guilt for doing something that brings the disapproval of others. You will read more about Early Childhood in chapter 5.

## Middle Childhood



The ages of six through eleven comprise middle childhood, and much of what children experience at this age is connected to their involvement in the early grades of school. Now the world becomes one of learning and testing new academic skills and by assessing one's abilities and accomplishments by making comparisons between self and others. Schools compare students and make these comparisons public through team sports, test scores, and other forms of recognition. Growth rates slow down and children can refine their motor skills at this point in life. Moreover, children begin to learn about social relationships beyond the family through interaction with friends and fellow students. You will read more about Middle Childhood in chapter 6.

## Adolescence



Adolescence is a period of dramatic physical change marked by an overall physical growth spurt and sexual maturation, known as puberty. Adolescence typically spans around the ages 11 to 18. 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. Ironically, adolescents have a sense of invincibility that puts them at higher risk of dying from accidents or contracting sexually transmitted infections that can have lifelong consequences. You will read more about Adolescence in chapter 7.

# Emerging Adulthood



Emerging Adulthood is considered a period of development between adolescence and adulthood, lasting roughly from ages 18 to 25. It is a time when we are at our physiological peak but are most at risk for involvement in violent crimes and substance abuse. Five features make emerging adulthood distinctive: identity explorations, instability, self-focus, feeling in-between adolescence and adulthood, and a sense of immense possibilities for the future. Emerging adulthood is found mainly in developed countries, where most young people obtain tertiary education and median ages of entering marriage and parenthood are around 30. You will read more about Emerging Adulthood in chapter 8.

## Early Adulthood



The mid-twenties and thirties are often thought of as early adulthood. (Students who are in their mid-30s tend to love to hear that they are a young adult!) It is a time of focusing on the future and

putting much energy into making choices that will help one earn the status of a full adult in the eyes of others. Love and work are the primary concerns at this stage of life. You will read more about Early Adulthood in chapter 9.

## Middle Adulthood



The forties through the mid-sixties is referred to as middle adulthood. This is a period in which 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 specific 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 previously considered; of recognizing the difference between what is possible and what is likely. This is also the age group hardest hit by the AIDS epidemic in Africa resulting in a substantial decrease

in the number of workers in those economies (Weitz, 2007). You will read more about Middle Adulthood in chapter 10.

## Late Adulthood



This period of the life span has increased in the last 100 years, particularly in industrialized countries. Late adulthood is sometimes subdivided into two categories such as the “young old” (65–84) and “oldest old” (85+). One of the primary differences between these groups is that the young old may still working, still relatively healthy, and still interested in being productive and active. The “oldest old” remain productive and active, and the majority continues to live independently, but risks of the diseases of old age such as arteriosclerosis, cancer, and cerebral vascular disease increase substantially for this age group. Issues of housing, healthcare, and extending active life expectancy are only a few of the topics of concern for this age group. A better way to appreciate the diversity

of people in late adulthood is to go beyond chronological age and examine whether a person is experiencing **optimal aging** (like the gentleman pictured above 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). You will read more about Late Adulthood in chapter 11.

## Death and Dying



This topic is seldom given the amount of coverage it deserves. Of course, there is a certain discomfort in thinking about death, but there is also absolute confidence and acceptance that can come from studying death and dying. We will examine the physical, psychological, and social aspects of death, exploring grief or bereavement, and addressing ways in which helping professionals

work in death and dying. Moreover, we will discuss cultural variations in mourning, burial, and grief.

## Research Methods: How do we know what we know? (Ob 9)

An essential 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 precisely 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 parenting advice. So, think of learning about human development as a lifelong endeavor.



*One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=679#oembed-1>*

Watch this short video on experts defining developmental science and sharing stories about work in their field from the Society for Research in Child Development (2.5 min).

# 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 history (experiential reality) or based on what others have told you or cultural ideas (agreement reality) (Secombe & Warner, 2004). There are several problems with personal inquiry.

Read the following sentence aloud:

**Paris in the  
the spring**

Are you sure that is what it said? Reread it:

**Paris in the  
the spring**

If you read it differently the second time (adding the second “the”) you just experienced one of the problems with personal inquiry; that is, the tendency to see what we believe. Our assumptions very often guide our perception; consequently, when we believe something, we tend to see it even if it is not there. This problem may be a result of cognitive ‘blindness,’ or it may be part of a more conscious attempt to support our views. **Confirmation bias** is the tendency to look for evidence that we are right, and in so doing, we ignore contradictory evidence. Popper, a famous philosopher of science, suggests that the distinction between that which is scientific and that which is unscientific is that science is falsifiable; scientific inquiry involves attempts to reject or refute a theory or set of assumptions (Thornton, 2005). A theory that cannot be falsified is not scientific. Moreover, much of what we do in personal inquiry involves drawing conclusions based on what we have personally experienced or validating our own experience by discussing what we think is right with others who share the same views.

Science offers a more systematic way to make comparisons and guard against bias. First researchers taking a scientific approach

define concepts being studied and call them variables. A **variable** is the information you are collecting or anything that changes in value (e.g., asking hours slept last night is a variable, so is measuring your height, or asking you how extroverted you are). Variables must be operationalized. Operationalization of variables is when the researcher specifically defines how the concept/construct 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 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 (authentic) or accurate indicators of marital satisfaction. These are the kinds of considerations researchers must make when working through the design. We will take a look at different methods that can be used to measure variables later in this section.



**What do you think? How would you operationalize marital satisfaction? Romantic love? Extroversion?**

What if you just ask people around you about their marital satisfaction? What if you only ask newly weds?

Both of these could be considered **sampling bias**. An additional consideration to studies is examining the possibility of sampling bias. Scientific research works to avoid sampling bias that might come from only using personal experiences or only asking friends and family about what variables you are interested in studying (e.g., sleep, marital satisfaction, extroversion). 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. Many more elaborate techniques can be used to obtain samples that represent the composition of the population we are studying. However, 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.)

## Scientific Methods (*Obj 9*)

The **scientific method** is the set of assumptions, rules, and procedures scientists use to conduct research.

One method of scientific investigation involves the following steps:

- 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 results
- Drawing conclusions; stating limitations of the study and suggestions for future research
- Making your findings available to others (both to share information and to have your work scrutinized by others)

Your findings can then be used by others as they explore the area of interest and 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. Moreover, it typically involves quantitative research or using statistics to understand and report what has been studied. Many academic journals publish reports on studies conducted in this manner and an excellent way to become more familiar with these steps is to look at journal articles which will be written in sections that follow these steps. For example, after a section entitled “Statement of the Problem,” you might find a second section entitled, “Literature Review.” Other headings will reflect the stages of research mentioned above.

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

- Begin with a broad area of interest
- 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 relevant 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 (Glazer & Strauss, 1967). Researchers are to be aware of their own biases and assumptions, acknowledge them, and bracket them in efforts to keep them from limiting accuracy in reporting. Sometimes qualitative studies are used initially to explore

a topic, and more quantitative studies are used to test or explain what was first described.

## Types of Studies (*Ob 10, Ob 11*)

Not all studies are designed to reach the same goal. **Descriptive studies** focus on describing an occurrence. Some examples of descriptive questions include “How much time do parents spend with children?”; “How many times per week do couples have intercourse?”; or “When is marital satisfaction greatest?”. Descriptive studies can be exploratory or designed to share information from non-experimental designs (studies that do not have an experimental design which will be explained soon). **Explanatory studies** are efforts to answer the question “why” such as “Why have rates of divorce leveled off?” or “Why are teen pregnancy rates down?” **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 wear their helmets? Do parents use car seats properly? If not, why not?

Just as there are different goals of research, there are also different research designs that correspond to the research goal. The following is a comparison of research methods or techniques used to describe, explain, or evaluate. Each of these designs has strengths and weaknesses and is sometimes used in combination with other designs within a single study.

## Research methods/techniques (*Ob 10, Ob 11*)

**Observational studies** involve watching and recording the actions

of participants. Observational studies are typically for descriptive or non-experimental designs. Observations may take place in the natural setting, such as observing children at play at 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? Consider the strengths and weaknesses of not participating. In general, observational studies have the strength of allowing the researcher to see how people behave rather than relying on self-report. What people do and what they say they do are often very different. A significant weakness of observational studies is that they do not allow the researcher to explain causal relationships. Observational studies are useful and widely used when studying children. Children tend to change their behavior when they know they are being watched (known as the **Hawthorne effect**) and may not survey well.



*Example of observational study of parent-child interactions for an observational study.*

**Case studies** involve exploring a single case or situation in great detail. Case studies are used typically for descriptive research. 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. Moreover, they are often used by clinicians who conduct case studies as part of their standard 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 an excellent example of the case study approach.

The book shares case studies of individuals with interesting neurological disorders like patients who no longer recognize people or common objects.)

**Surveys** are familiar to most people because they are so widely used. Surveys enhance accessibility to individuals because they can be conducted in person, over the phone, through the mail, or online. Surveys gather information from many individuals in a short period, which is the most significant benefit for surveys. Additionally, surveys are inexpensive to administer. 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 independent and dependent variables in a relatively short period. Surveys typically yield surface information on a wide variety of factors, but may not allow for an in-depth understanding of human behavior. Of course, surveys can be designed in several ways depending on the research goal. They may include *forced-choice questions* (must pick from selection) and *semi-structured questions* in which the researcher allows the respondent to describe or give details about certain events. Surveys can also be set up for an experimental design (method described later).



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 differently. 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. Surveys typically yield surface information on a wide variety of factors, but may not allow for an in-depth understanding of human behavior. Another problem is that respondents may lie because they want to present themselves in the most favorable light, known as social desirability. They also may be embarrassed to answer truthfully or are worried that their results will not be kept confidential.

**Interviews** involve the participant being directly questioned by a researcher. Depending on the goal of the study, interviews can be used for experimental, but are typically used in descriptive or non-experimental designs. Interviewing participants on their behaviors or beliefs can solve the problem of misinterpreting the questions posed on surveys. The examiner can explain the questions and further probe responses for greater clarity and understanding. Older children and adults are commonly asked to use language to discuss their thoughts and knowledge about the world. These verbal report paradigms are among the most widely used in psychological research. For instance, a researcher might present a child with a vignette or short story, and the child would be asked to give their thoughts and beliefs. Although this can yield more accurate results, interviews take longer and are more expensive to administer than surveys. Participants can also demonstrate social desirability, which will affect the accuracy of the responses.

**Psychophysiological Assessment** may also be completed and may provide information from infants, and very young children are unable to talk about their thoughts and behaviors. These assessments involve systematic processes or testing to provide information about participants' behaviors or capabilities. During psychophysiological assessments, researchers may also record psychophysiological data, such as measures of heart rate, hormone levels, or brain activity to help explain development. These measures may be recorded by themselves or in combination with behavioral data to understand the bidirectional relations between biology and behavior better. Special equipment has been developed to allow researchers to record the brain activity of the very young.

One manner of understanding associations between brain development and behavioral advances is through the recording of event-related potentials (ERPs). ERPs are recorded by fitting a research participant with a stretchy cap that contains many small sensors or electrodes. These electrodes record tiny electrical currents on the scalp of the participant in response to the presentation of stimuli, such as a picture or a sound. The use of

ERPs has provided valuable insight as to how infants and children understand the world around them.



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#### **Research with Psychophysiological Assessment**

Webb et al. (2006) examined face and object processing in children with autism spectrum disorders, those with developmental delays, and those who were typically developing. The children wore electrode caps and had their brain activity recorded as they watched still photographs of faces of their mother or a stranger, and objects, including those that were familiar or unfamiliar to them. The researchers examined differences in face and object processing by group by observing a component of the brainwaves. Findings suggest that children with autism are in some way processing faces differently than typically developing children and those with more general developmental delays.

---

**Secondary analysis** involves analyzing information that has already been collected or examining documents or media to uncover

attitudes, practices, or preferences. There are several data sets available to those who wish to conduct this type of research. For example, the U. S. Census Data is available and widely used to look at trends and changes taking place in the United States. Several other agencies collect data on family life, sexuality, and many other areas of interest in human development. 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.

A specific type of secondary analysis is 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 Aries (1962) called “Centuries of Childhood” or the analysis of television commercials for sexual or violent content. Passages in text or programs that air 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 on the other hand, the researcher cannot know how accurately the media reflects the actions and sentiments of the population.

## Experimental research designs (*Ob 11, Ob 12*)

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. Researcher use an experimental design to determine cause and effect. In order to draw causal conclusions, the researchers must have an independent variable and a dependent variable. The independent variable is something altered or introduced by the researcher. The dependent variable is the

outcome or the factor affected by the introduction of the independent variable.

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

1. The **independent and dependent variables must be related**. In other words, when one is altered, the other changes in response. (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.)
2. The **cause must come before the effect**. Experiments involve measuring 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 designs.)
3. The **cause must be isolated**. The researcher must ensure that no outside, perhaps unknown variables are 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 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. 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. 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:

		Measure DV	Introduce IV	Measure DV
Sample is	Experimental Group	X	X	X
Randomly→				
Assigned	Control Group	X	–	X

*Basic experimental model*

The significant 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. I hope this brief description of experimental design helps you appreciate both the difficulty and the rigor of conducting an experiment.

## Developmental research designs(*Ob 11*)

*Developmental research designs* are techniques used in lifespan research (and other areas as well). These techniques try to examine how age, cohort, gender, and social class impact development.

**Cross-sectional research** involves beginning with a sample that represents a cross-section of the population. Participants are

divided into groups based on demographics (such as different age groups). Respondents who vary in age, gender, ethnicity, and social class might be asked to complete a survey about television program preferences or attitudes toward the use of the Internet. The attitudes of males and females could then be compared, as should attitude based on age. In cross-sectional research, respondents are measured only once. This method is much less expensive as other developmental methods but does not allow the researcher to distinguish between the impact of age and the cohort effect. A research is also unable to identify individual change that happens as the participant is only measures one time. Different attitudes about the Internet, for example, might not be altered by a person’s biological age as much as their life experiences as members of a cohort.

In another example for cross-sectional research, a researcher might want to examine hide-and-seek behaviors in children to find out whether older children more often hide in unique locations (those in which another child in the same game has never hidden before) when compared to younger children. In this case, the researcher might observe 2, 4, and 6-year-old children as they play the game (the various age groups represent the “cross sections”). This research is cross-sectional because the researcher plans to examine the behavior of children of different ages within the same study at the same time.

Cohort tracked in 2019	Age
A	2- year-olds
B	6-year-olds
C	8-year-olds

Example of cross-sectional study tracking 3 groups of children in the same time period. Based on [chart](#).

**Longitudinal research** involves beginning with a group of people who may be of the same age and background and measuring them repeatedly over a long period. One of the benefits of this type of research is that people can be followed through time and be compared with them when they were younger. A problem with this type of research is that it is costly and subjects may drop out over time.

The same example of the hide-and-seek study, can also be run as a longitudinal. A researcher might conduct a longitudinal study to examine whether 2-year-olds develop into better hidere over time. To this end, a researcher might observe a group of 2-year-old children playing hide-and-seek with plans to observe them again when they are 4 years old – and again when they are 6-years old. This study is longitudinal because the researcher plans to study the same children as they age. Based on her data, the researcher might conclude that 2-year-olds develop more mature hiding abilities with age. Remember, researchers examine games, such as hide-and-seek, not because they are interested in the games themselves, but because they offer clues to how children think, feel and behave at various ages.

Child “A” 2-years-old 2004	Child “A” 4-years-old 2006	Child “A” 6-years-old 2008	Child “A” 8-years-old 2010
----------------------------------	----------------------------------	----------------------------------	----------------------------------

Example of longitudinal study – tracking same group of children over time. Based on the [chart](#)



**What would be the drawbacks of being in a longitudinal study? What would be the advantages and disadvantages? Can you imagine why some would continue, and others drop out of the project?**

**Cross-sequential research** involves combining aspects of the previous two techniques; beginning with a cross-sectional sample and measuring them through time. Similar to longitudinal designs, cross-sequential research features

participants who are followed over time; similar to cross-sectional designs, sequential work includes participants of different ages. This research design is also distinct from those that have been discussed previously in that children 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 account for the possibility of cohort effects. This is the perfect model for looking at age, gender, social class, and ethnicity. However, the drawbacks include high costs and low rates of attrition.

Consider, once again, our example of hide-and-seek behaviors. In a study with a sequential design, a researcher might enroll three separate groups of children (Groups A, B, and C). Children in Group A would be enrolled when they are 2 years old and would be tested again when they are 4 and 6 years old (similar in design to the longitudinal study described previously). Children in Group B would be enrolled when they are 4 years old and would be tested again when they are 6 and 8 years old. Finally, children in Group C would be enrolled when they are 6 years old and would be tested again when they are 8 and 10 years old.

	2002	2004	2006
Cohort A	Age 2	Age 4	Age 6
Cohort B	—	Age 2	Age 4
Cohort C	—	—	Age 2

Example of cross-sectional study tracking groups across time.  
Based on the [chart](#)

## Conducting Ethical Research

One of the issues that all scientists must address concerns the ethics of their research. Research in psychology may cause some stress, harm, or inconvenience for the people who participate in that research. Psychologists may induce stress, anxiety, or negative moods in their participants, expose them to weak electrical shocks, or convince them to behave in ways that violate their moral standards. Additionally, researchers may sometimes use animals, potentially harming them in the process.

Decisions about whether research is ethical are made using established ethical codes developed by scientific organizations, such as the American Psychological Association, and federal governments. In the United States, the Department of Health and Human Services provides the guidelines for ethical standards in research. The following are the American Psychological Association code of ethics when using humans in research (APA, 2002).

**No Harm:** The most direct ethical concern of the scientist is to prevent harm to the research participants.

**Informed Consent:** Researchers must obtain informed consent, which explains as much as possible about the true nature of the study, particularly everything that might be expected to influence willingness to participate. Participants can withdraw their consent to participate at any point.

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 often required to obtain written informed consent from the parent or legal guardian of the child participant. Further, this adult is almost always present as the study is conducted. Children are not asked to indicate whether they would like to

be involved in a study until they are approximately 7 years old. Because infants and young children also 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, such as determining whether a child is too tired or upset to continue, as well as to what the 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.

**Confidentiality:** Researchers must also protect the privacy of the research participants' responses by not using names or other information that could identify the participants.

**Deception:** Deception occurs whenever research participants are not completely and fully informed about the nature of the research project before participating in it. Deception may occur when the researcher tells the participants that a study is about one thing when in fact it is about something else, or when participants are not told about the hypothesis.

**Debriefing:** At the end of a study debriefing, which is a procedure designed to fully explain the purposes and procedures of the research and remove any harmful after-effects of participation, must occur.

## Conclusion

As we conclude this first chapter of our journey through developmental psychology, remember this: you are not a finished

product. You are a work in progress, continually shaped by the fascinating forces of change that unfold across your entire lifespan.

We've begun to explore the intricate ways humans grow and develop, from mastering motor skills and language to navigating complex social and emotional landscapes. We've seen how our physical bodies, cognitive abilities, and sense of self are intricately interwoven and influenced by factors like socioeconomic status and culture. And we've dipped our toes into the world of research, recognizing its vital role in uncovering the secrets of human development.

But this is just the beginning! We've laid the groundwork with research methods and ethics, and in the next chapter, we'll delve into the major theories that attempt to explain this incredible journey. As you move forward in this course and beyond, keep questioning, keep observing, and keep marveling at the complexities of human development. After all, it's a journey we're all on together, constantly evolving and discovering who we are.

## *Chapter Review Practice Quiz*



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

<https://open.maricopa.edu/psy240mm/?p=679#h5p-2>

## Chapter 1 Key Terms (featured in Glossary)

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case study	
Cognitive	Hypotheses
cohort	Impaired aging
confirmation bias	independent variable
Content analysis	informed consent
Continuous development	interview
cross-sectional research	longitudinal research
cross-sequential research	Non-experimental design
cultural relativity	Normal aging
culture	observation
Debriefing	Optimal aging
Deception	Psychological assessment
dependent variable	Psychosocial development
Dependent variable	Qualitative
Descriptive studies	quantitative
Developmental (research) designs	research design
Discontinuous development	sample
ethnicity	sampling bias
ethnocentrism	scientific method
Evaluation research	Secondary analysis

Experimental or control group (experimental study design)      socioeconomic status (social class)

experimental research method      Stage theory

Explanatory studies      survey

Hawthorne effect      variable

human development

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# Chapter 2: Developmental Theories



## Objectives:

*At the end of this lesson, you will be able to...*

1. Define theory.
2. List key considerations for lifespan theories.
3. Describe Freud's theory of development including parts of self (id, ego, superego).
4. Appraise the strengths and weaknesses of Freud's theory.
5. List and apply Erikson's eight stages of psychosocial development to examples of people in various stages of the lifespan.
6. Appraise the strengths and weaknesses of Erikson's theory of

psychosocial development.

7. Describe the principles of classical conditioning including unconditioned stimulus, conditioned stimulus, and conditioned response.
8. Describe the principles of operant conditioning including punishment and reinforcement.
9. Describe social learning theory.
10. Describe Piaget's theory of cognitive development including schema, assimilation, and accommodation.
11. Describe Piaget's stages of cognitive development.
12. Describe Vygotsky's sociocultural theory of cognitive development including the zone of proximal development, guided participation, and scaffolding.
13. Describe the information processing model of cognitive development.
14. Describe Bronfenbrenner's ecological systems model.
15. Describe key current models for understanding development.

***The objectives are indicated by the reading sections below.***

## Introduction

In this chapter, we will start to examine theories of human development. As discussed in chapter one, human development describes the growth throughout their lifespan, from conception to death. Psychologists strive to understand and explain how and why people change throughout life. We will see that different theories cover different aspects of growth — like how we think, process and remember information changes across the lifespan. Much of what is covered in developmental theory is what expected, typical growth is. Some of the theories presented in this chapter are considered classic theories that have now been debated. They are still taught for historical purposes, and each holds important underlying

concepts to understanding others. We will first cover the basics of what a theory is and then review several major theories in human development.

## What is a theory? (*Ob 1*)

Students sometimes feel intimidated by theory; even the phrase, “Now we are going to look at some theories . . .” is met with blank stares and other indications that the audience is now lost. However, theories are valuable tools for understanding human behavior; in fact, they are proposed explanations for the “how” and “whys” of development. Have you ever wondered, “Why is my 3-year-old so inquisitive?” or “Why are some fifth graders rejected by their classmates?” Theories can help explain these and other occurrences. **Developmental theories** offer explanations about how we develop, why we change over time and the kinds of influences that impact development.

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. Think of theories as guidelines much like directions that come with an appliance or other objects that required assembly. The instructions can help one piece together smaller parts more quickly than if trial and error are used.

Theories can be developed using induction in which several 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 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.

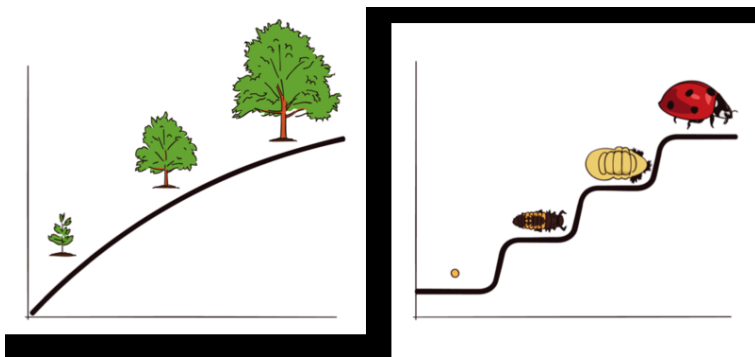
## Theoretical Considerations for Lifespan Development Theories (Ob 2)

At the heart of all of these developmental theories are two main questions: (1) How do nature and nurture interact in development? (2) Does development progress through qualitatively distinct stages? In the remainder of this chapter, we examine the answers that are emerging regarding these questions

**Nature and Nurture:** Why are you the way you are? As you consider some of your features (height, weight, personality, being diabetic, etc.), ask yourself whether these features are a result of heredity or environmental factors, or both. Chances are, you can see how both heredity and environmental factors (such as lifestyle, diet, and so on) have contributed to these features. Nature refers to our biological endowment, the genes we receive from our parents. Nurture refers to the environments, social, as well as physical that influence our development, everything from the womb in which we develop before birth to the homes in which we grow up, the schools we attend, and the many people with whom we interact. Most scholars agree that there is a constant interplay between the two forces. It is difficult to isolate the root of any single behavior as a result solely of nature or nurture.

**Continuity versus Discontinuity:** Is human development best characterized as a slow, gradual process, or is it best viewed as one of more abrupt change? The answer to that question often depends on which developmental theorist you ask and what topic is being studied. The classical theories of Freud, Erikson, Piaget, and Kohlberg are called **stage theories**. Stage theories, which emphasize **discontinuous development**, assume that developmental change often occurs in distinct stages that are qualitatively different from each other, and in a set, universal sequence. An example of this is in the figure below with the different stages of development for a ladybug or consider the lifecycle of a butterfly. At each stage of development, children and adults have different qualities and

characteristics. Thus, stage theorists assume that development is more discontinuous. Others, such as the behaviorists, Vygotsky, and information processing theorists, assume development is a more slow and gradual process known as **continuous development** (non-stage theories see development as continuous). For instance, they would see the adult as not possessing new skills, but more advanced skills that were already present in some form in the child. Brain development and environmental experiences contribute to the acquisition of more advanced skills.



*Development can be viewed as a continuous gradual process, much like a maple tree growing steadily in height and cross-sectional area. Development can also be seen as a progression of discontinuous stages, involving rapid, discontinuous changes, such as those in the life cycle of a ladybug, separated by more extended periods of slow, gradual change.*

**Active versus Passive:** How much do you play a role in your developmental path? Are you at the whim of your genetic inheritance or the environment that surrounds you? Some theorists see humans as playing a much more active role in their development. For example, Piaget, the classical stage theorist for cognitive development, believed that children actively explore their world and construct new ways of thinking to explain the things they experience. If you have an active view of development you would see the individual as more in control with surroundings (choosing

toy, activity, extra curricular activities, and friends to play with). In contrast, many behaviorists view humans as being more passive in the developmental process. A passive view sees individuals as having less control with behaviors. One might see development as more a product of the environment or social influences or due to biological changes.

## Why do we do what we do? Exploring Motivation

### Freud's Psychodynamic Theory (*Ob 2*)

We begin with the often-controversial figure, Sigmund Freud. Sigmund Freud (1856-1939) was a Viennese M. D. 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. 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 and desires, fears, and anxieties drive our actions.

Freud has been a very influential figure in the area of development; his view of development and psychopathology dominated the field of psychiatry until the growth of behaviorism in the 1950s. His assumptions that personality forms during the first few years of life and that how 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 (O'Grady & Metz, 1987). Freud has 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. At the conclusion of this section on Freud we will identify the worthwhile contributions of his work.

## Theory of the mind

Freud believed that most of our mental processes, motivations, and desires are outside of our awareness. Our *consciousness*, that of which we are aware, represents only the tip of the iceberg that comprises our mental state. The *preconscious* represents that which can easily be called into the conscious mind. During development, our motivations and desires are gradually pushed into the *unconscious* because raw desires are often unacceptable in society.

## Theory of the self (*Ob 3*)

According to **Freud's theory of the self**, as adults, our personality or self consists of three main parts: the *id*, the *ego*, and the *superego*. The *Id* 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. According to Freud, an infant is all Id. The *ego* is the part of the self that develops as we learn that there are limits on what is acceptable to do and that often, we must wait to have our needs satisfied. This part of the self is realistic and reasonable. It knows how to make compromises. It operates under the reality principle or the recognition that sometimes need gratification must be postponed for practical reasons. It acts as a mediator between the Id and the Superego and is viewed as the healthiest part of the self.

If the ego is strong, the individual is realistic and accepting of reality and remains more logical, objective, and reasonable. Building ego strength is an important goal of psychoanalysis (Freudian psychotherapy). So, for Freud, having a big ego is a good thing because it does not refer to being arrogant; it refers to being able to accept reality.

The *superego* is the part of the self that develops as we learn the rules, standards, and values of society. This part of the self considers the ethical guidelines that are a part of our culture. It is a rule-governed part of the self that operates under a sense of guilt (guilt is a social emotion—it is a feeling that others think less of you or believe you to be wrong). If a person violates the superego, he or she feels guilty. The superego is useful but can be too strong; in this case, a person might feel overly anxious and guilty about circumstances over which they had no control. Such a person may experience high levels of stress and inhibition that keeps them from living well. The id is inborn, but the ego and superego develop during our first interactions with others. These interactions occur against a backdrop of learning to resolve new biological and social challenges and play a key role in our personality development.

Freud is also known for explaining defense mechanisms. *Defense mechanisms* emerge to help a person distort reality so that the truth is less painful because we feel threatened, or because our id or superego becomes too demanding. Defense mechanisms include repression which means to push the painful thoughts out of consciousness (in other words, think about something else). Denial

is not accepting the truth or lying to the self. 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. Sublimation involves 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. Displacement involves taking out frustrations onto 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 is a defense mechanism in which a person attributes their unacceptable thoughts onto others. If someone is frightened, for example, he or she accuses someone else of being afraid. This is a partial listing of defense mechanisms suggested by Freud.

## Strengths and Weaknesses of Freud’s Theory(Ob 4)

Freud’s theory has been heavily criticized for several reasons. One is that it is challenging to test scientifically. How can parenting in infancy be traced to personality in adulthood? Are there other variables that might better explain development? 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 focuses on the darker side of human nature and suggests that much of what determines our actions is unknown to us. 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 elaborates and modifies subsequent theories of development. Many later theories, particularly behaviorism and humanism, were challenges

to Freud's views. Now, let's turn to a less controversial psychodynamic theorist, the father of developmental psychology, Erik Erikson.

## Erikson and Psychosocial Theory (*Ob 5*)



Erik Erikson

## The Ego Rules (*Ob 5, Ob 6*)

Erik Erikson (1902–1994) was a student of Freud's and expanded on his theory by emphasizing the importance of culture in parenting practices and motivations and adding three stages of adult development (Erikson, 1950; 1968). He believed that we are aware of what motivates us throughout life and 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 specific 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 divided the lifespan into eight stages forming a *psychosocial stage theory of development*. In each stage, we have a primary psychosocial task to accomplish or crisis to overcome. Erikson believed that our personality continues to take shape throughout our lifespan as we face these challenges in living.

## Psychosocial Stages

**Erikson's psychosocial theory** has 8 stages. We will discuss each of these stages in length as we explore each period of the life span, but here is a brief overview:

1. **Trust vs. mistrust** (0–1 years old/infancy): the infant must have basic needs met consistently in order to feel that the world is a trustworthy place
2. **Autonomy vs. shame and doubt** (1–2 years old/toddlerhood): mobile toddlers have newfound freedom they like to exercise, and by being allowed to do so, they learn some basic independence

3. **Initiative vs. Guilt** (3-5 years old/early childhood): preschoolers like to initiate activities and emphasize doing things “all by myself”
4. **Industry vs. inferiority** (6-11 years old/middle childhood): school-aged children focus on accomplishments and begin making comparisons between themselves and their classmates
5. **Identity vs. role confusion** (adolescence): teenagers are trying to gain a sense of identity as they experiment with various roles, beliefs, and ideas
6. **Intimacy vs. Isolation** (young/early adulthood): in our 20s and 30s we are making some of our first long-term commitments in intimate relationships
7. **Generativity vs. stagnation** (middle adulthood): the 40s through the early 60s we focus on being productive at work and home and are motivated by wanting to feel that we’ve contributed to society
8. **Integrity vs. Despair** (late adulthood): we look back on our lives and hope to like what we see, that we have lived well and have a sense of integrity because we lived according to our beliefs.

**Table. Erikson’s Psychosocial Stages of Development across the Lifespan**

<b>Age Period</b>	<b>Psychosocial Stage</b>	<b>Main Developmental Challenge</b>
Infancy	Trust vs. mistrust	Establish a bond with a trusted caregiver
Toddlerhood	Autonomy vs. shame and doubt	Develop a healthy sense of self as distinct from others
Early Childhood	Initiative vs. Guilt	Initiate activities in a purposeful way
Middle Childhood	Industry vs. Inferiority	Begin to learn knowledge and skills of culture
Adolescence	Identity vs. identity confusion	Develop a secure and coherent identity
Early Adulthood	Intimacy vs. isolation	Establish a committed, long-term love relationship
Middle Adulthood	Generativity vs. stagnation	Care for others and contribute to the well-being of the young
Late Adulthood	Ego integrity vs. despair	Evaluate lifetime, accept it as it is

These eight stages form a foundation for discussions on emotional and social development during the life span. Keep in mind, however, that these stages or crises can occur more than once. For instance, a person may struggle with a lack of trust beyond infancy under

certain circumstances. 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.



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## How Do We Act? Exploring Behavior

Learning theories focus on how we respond to events or stimuli rather than emphasizing what motivates our actions. These theories explain how experience can change what we are capable of doing or feeling.

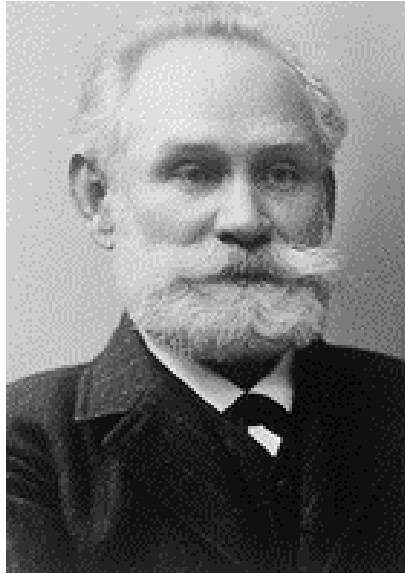
### Classical Conditioning and Emotional Responses (Ob 7)

*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

(elementary school cafeterias smell like milk and mildew!). If you went to a new cafeteria with the same smell, it might evoke 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 (John 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, 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 has tried to quit smoking can tell you. When you try to quit, everything that was associated with smoking makes you crave a cigarette.

## Pavlov (*Ob 7, Ob 8*)



*Ivan Pavlov*

Ivan Pavlov (1880–1937) first studied **classical conditioning**. He was a Russian physiologist interested in studying digestion. As he recorded the amount of salivation his laboratory dogs produced as they ate, he noticed that they 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 salivate when the food hit their palate automatically, but BEFORE the food comes? Of course, what had happened was . . . you tell me. That’s right! The dogs knew that the food was coming because they had learned to associate the footsteps with the food. The key word 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, before introducing the food.

Sure enough, after making this connection several times, the dogs could be made to salivate to the 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 (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 stimulus**), and one is learned (**conditioned stimulus**).

## Pavlov's classical conditioning

**Table. Process of Classical Conditioning**

start US → UR	The stimulus (S) is naturally paired with a response (R). Both have U for unconditioned (not learned).
Training/ conditioning N/CS + US → UR	A new stimulus (N/CS) is introduced before the original pairing. This is repeated until the new stimulus becomes conditioned (CS).
conditioned CS → CR	After repeated pairings, the once new stimulus becomes conditioned and now produces the original response.

Let's think about how classical conditioning is used on us. Another example you are probably very familiar with involves your alarm

clock. If you are like most people, waking up early usually makes you unhappy. In this case, waking up early (US) produces a natural sensation of grumpiness (UR). Rather than waking up early on your own, though, you likely have an alarm clock that plays a tone to wake you. Before setting your alarm to that particular tone, let's imagine you had neutral feelings about it (i.e., the tone had no prior meaning for you). However, now that you use it to wake up every morning, you psychologically “pair” that tone (CS) with your feelings of grumpiness in the morning (UR). After enough pairings, this tone (CS) will automatically produce your natural response of grumpiness (CR). Thus, this linkage between the unconditioned stimulus (US; waking up early) and the conditioned stimulus (CS; the tone) is so strong that the unconditioned response (UR; being grumpy) will become a conditioned response (CR; e.g., hearing the tone at any point in the day—whether waking up or walking down the street—will make you grumpy). Modern studies of classical conditioning use a vast range of CS's and US's and measure a wide range of conditioned responses.



**Let's think about how classical conditioning is used on us. Did you know emotions and fears can be classically conditioned? One of the most widespread applications of classical conditioning principles was brought to us by the psychologist, John B. Watson.**

## Watson and Behaviorism (*Ob 7*)

Watson believed that most of our fears and other emotional responses are classically conditioned. He had 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. However, 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 magazines and gained much popularity among parents eager to apply science to household order. Parenting advice was not the legacy Watson left us, however. Where he 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!

## Operant Conditioning and Repeating Actions(Ob 8)

*Operant Conditioning* is another learning theory that emphasizes a more conscious type of learning than that of classical conditioning. A person (or animal) does something (operates something) to see what effect it might bring. Simply said, operant conditioning describes how we repeat behaviors because they pay off for us. It is based on a principle authored by a psychologist named Thorndike (1874-1949) called the law of effect. The law of effect suggests that we will repeat an action if a good effect follows it. However, when a behavior has a negative (painful/annoying) consequence, it is less likely to be repeated in the future. Effects that increase behaviors are referred to as reinforcers, and effects that decrease them are

referred to as punishers. Operant conditioning occurs when a behavior (as opposed to a stimulus) is associated with the occurrence of a significant event. This voluntary behavior is called an operant behavior, because it “operates” on the environment (i.e., it is an action that the animal itself makes).

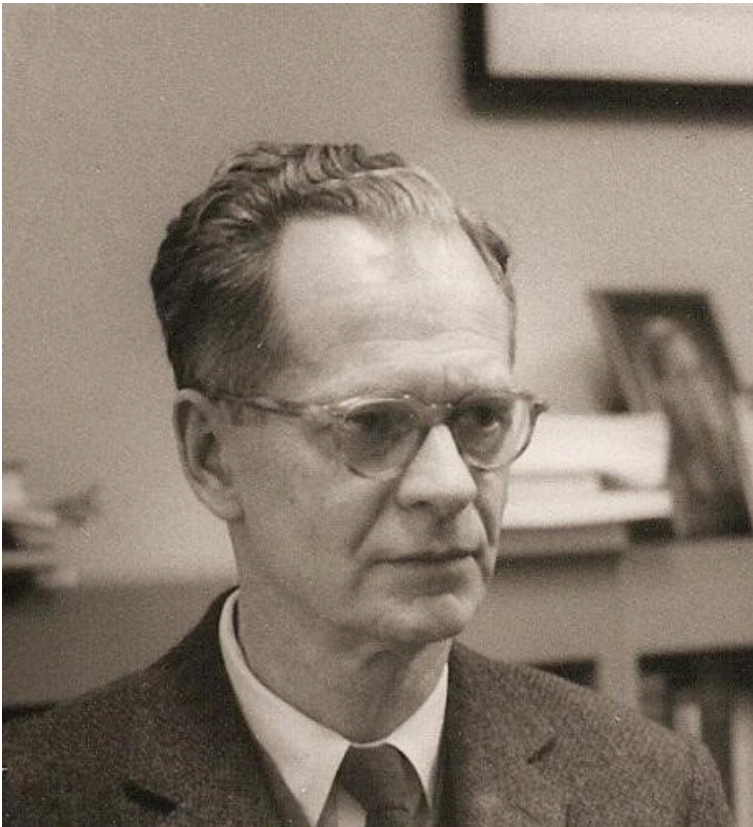


*When the dog does a trick, he receives a treat.*



**Let's think about how operant conditioning is used on us. Have you ever done something to get a reward or not done something to avoid punishment? This is operant conditioning!**

## Skinner and Reinforcement(*Ob 8*)



*B.F. Skinner*

B.F. Skinner (1904-1990) continued the expansion on Thorndike's principle and outlined the principles of **operant conditioning**. 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 rewarding because it can be exchanged for what one wants (such as using money to buy a cookie). Such reinforcers are referred to as secondary reinforcers or extrinsic reinforcers.

## Positive and negative reinforcement *(Ob 8)*

Sometimes, adding something to the situation is reinforcing as in the cases we described above with cookies, praise, and money. **Positive reinforcement** involves adding something to the situation in order to encourage a behavior. Other times, taking something away from a situation can be reinforcing. For example, the loud, annoying buzzer on your alarm clock encourages you to get up so that you can turn it off and get rid of the noise. Children whine in order to get their parents to do something and often, parents give in to stop the whining. In these instances, **negative reinforcement** has been used.

Operant conditioning tends to work best if you focus on trying to encourage a behavior or move a person into the direction you want them to go rather than telling them what not to do. **Reinforcers** are used to encourage behavior; punishers are used to stop a behavior. A **punisher** is anything that follows an act and decreases the chance it will reoccur. However, often a punished behavior does not go away. It is just suppressed and may reoccur whenever the threat of

punishment is removed. For example, a child may not cuss around you because you have washed his mouth out with soap, but he may cuss around his friends. Alternatively, a motorist may only slow down when the trooper is on the side of the freeway. Another problem with punishment is that when a person focuses on punishment, they may find it hard to see what the other does right or well. Moreover, the punishment is stigmatizing; when punished, some start to see themselves as bad and give up trying to change.

**Table. Positive and Negative Reinforcement and Punishment**

	<b>Positive (+) ADD</b>	<b>Negative (-) REMOVE</b>
Reinforcement (increase behavior that follows it)	Positive Reinforcement (pleasant consequence to reward) Example: dog gets treat for doing trick	Negative Reinforcement (remove aversive stimulus to reward) Example: buckle up to avoid car seat alarm
Punishment (decrease behavior)	Positive Punishment (add aversive stimulus to punish) Example: pay fine for late library book	Negative Punishment (remove pleasant stimuli to punish)Example: Taken out of game for rough behavior

Reinforcement can occur in a predictable way, such as after every desired action is performed, or intermittently after the behavior is performed a number of times or the first time it is performed after a certain amount of time. The schedule of reinforcement has an impact on how long a behavior continues after reinforcement is discontinued. So, a parent who has rewarded a child's actions each time may find that the child gives up very quickly if a reward is not immediately forthcoming. A lover who is warmly regarded now and then may continue to seek out his or her partner's attention long after the partner has tried to break up. Think about the kinds of behaviors you may have learned through classical and operant conditioning. You may have learned many things in this way. However, sometimes we learn very complex behaviors quickly and without direct reinforcement. Bandura explains how.

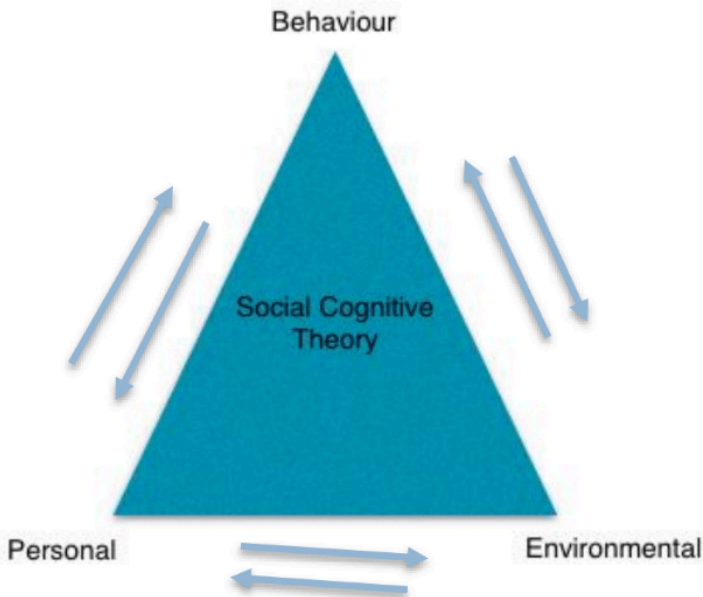
## Social Learning Theory(Ob 9)

Albert Bandura is a leading contributor to **social learning theory**. He calls our attention to how many of our actions are not learned through conditioning; instead, they are learned by watching others (1977). Young children frequently learn behaviors through imitation. Sometimes, particularly when we do not know what else to do, we learn by modeling or copying the behavior of others. An employee on his or her first day of a new job might eagerly look at how others are acting and try to act the same way to fit in more quickly. Adolescents struggling with their identity rely heavily on their peers to act as role-models. Newly married couples often rely on roles they may have learned from their parents and begin to act in ways they did not while dating and then wonder why their relationship has changed. Sometimes we do things because we have seen it pay off for someone else. They were operantly conditioned, but we engage in the behavior because we hope it will pay off for us as well. This is referred to as **vicarious reinforcement** (Bandura et al., 1963).



**Let's think about social learning theory. Do parents socialize children or do children socialize parents?**

Bandura (1986) suggests that there is an interplay between the environment and the individual. 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**.



*In reciprocal determinism, there are bi-directional influences between how a person thinks and feels with the environment, his/her actions.*

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 both of themselves and their child. Our environment creates us, and we create our environment. Other social influences: TV or not TV? (Bandura et al., 1963) began a series of studies to look at the impact of television, particularly commercials, have on the behavior of children. Are children more likely to act out aggressively when they see this behavior modeled? What if they see it being reinforced? Bandura began by conducting an experiment in which he showed children a film of a woman hitting an inflatable clown or “Bobo” doll. Then the children were allowed in the room where they found the doll and immediately began to hit it. This was without any reinforcement whatsoever. Later they viewed a woman hitting a real clown, and sure enough, when allowed in the room, they too began to hit the clown! Not only that, but they found new ways to behave aggressively. It is as if they learned an aggressive role.



Children view far more television today than in the 1960s; so much, in fact, that they have been referred to as Generation M (media). Based on a study of a national representative sample of over 7,000 8 to 18-year-olds, the Kaiser Foundation (2010) reports that children spend just over 7 hours a day involved with media outside of schoolwork. This includes almost 4 hours of television viewing and over an hour on the computer. Two-thirds have a television in their room, and those children watch an average of 1.27 hours more of television per day than those that do not have a television in their bedroom (Kaiser Family Foundation, 2005). The prevalence of violence, sexual content, and messages promoting foods high in fat and sugar in the media are certainly cause for concern and the subjects of ongoing research and policy review. Many children spend even more time on the computer viewing content from the internet. Moreover, the amount of time spent connected to the internet continues to increase with the use of smartphones that primarily serve as mini-computers. What are the implications of this?

## What do we think? Exploring Cognition

Cognitive theories focus on how our mental processes or cognitions change over time. We will examine the ideas of two cognitive theorists: Jean Piaget and Lev Vygotsky.

### Piaget: Changes in thought with maturation (*Ob 10*)

Jean Piaget (1896-1980) is one of the most influential cognitive theorists in development inspired to explore children's ability to think and reason by watching his own children's development. He

was one of the first to recognize and map out how children's intelligence differs from that of adults. He became interested in this area when he was asked to test the IQ of children and began to notice that there was a pattern in their wrong answers! He believed that children's intellectual skills change over time and that maturation rather than training brings about that change. Children of differing ages interpret the world differently.

## Making sense of the world(*Ob 10*)

Piaget believed that we are continuously trying to maintain cognitive equilibrium or a balance or cohesiveness in what we see and what we know. Children have much more of a challenge in maintaining this balance because they are continually being confronted with new situations, new words, new objects, etc. When faced with something new, a child may either fit it into an existing framework (schema) and match it with something known (**assimilation**) such as calling all animals with four legs “doggies” because he or she knows the word doggie, or expand the framework of knowledge to accommodate the new situation (**accommodation**) by learning a new word to more accurately name the animal. This is the underlying dynamic in our cognition. Even as adults we continue to try and “make sense” of new situations by determining whether they fit into our old way of thinking or whether we need to modify our thoughts.



*An individual can be in a state of disequilibrium when new information does not match the knowledgebase. In order to equalize, the new information is either accommodated (change to knowledge base) or assimilated (fits within knowledgebase).*



**If a child saw a moth but said it was a butterfly, did the child assimilate or accommodate? If a child saw an ant and said bug, did the child assimilate or accommodate?**

## Stages of Cognitive Development (*Ob 11*)

Piaget outlined *four major stages of cognitive development*. Let me briefly mention them here, but we will discuss them in detail throughout the course. For about the first two years of life, the child

experiences the world primarily through their senses and motor skills. Piaget referred to this type of intelligence as sensorimotor intelligence. During the preschool years, the child begins to master the use of symbols or words and can think of the world symbolically but not yet logically. This stage is the preoperational stage of development. The concrete operational stage in middle childhood is marked by an ability to use logic in understanding the physical world. In the final stage, the formal operational stage the adolescent learns to think abstractly and to use logic in both concrete and abstract ways.

**Table. Piaget’s Stage Theory of Cognitive Development**

<b>Typical Age Range</b>	<b>Stage – descriptor</b>
<b>Birth to ~ 2 years</b>	Sensorimotor – learning through senses and actions/ motor skills (touch, look, put in mouth, grasp, etc.)
<b>2 to ~ 6-7 years</b>	Preoperational – using symbols (language, imaginative play), lack logical reasoning
<b>~7 to 11 years</b>	Operational – logical thought for concrete events, understanding categories, hierarchies and arithmetic operations
<b>~ 12 to adulthood</b>	Formal Operational – abstract reasoning



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here: <https://open.maricopa.edu/psy240mm/?p=694#oembed-2>

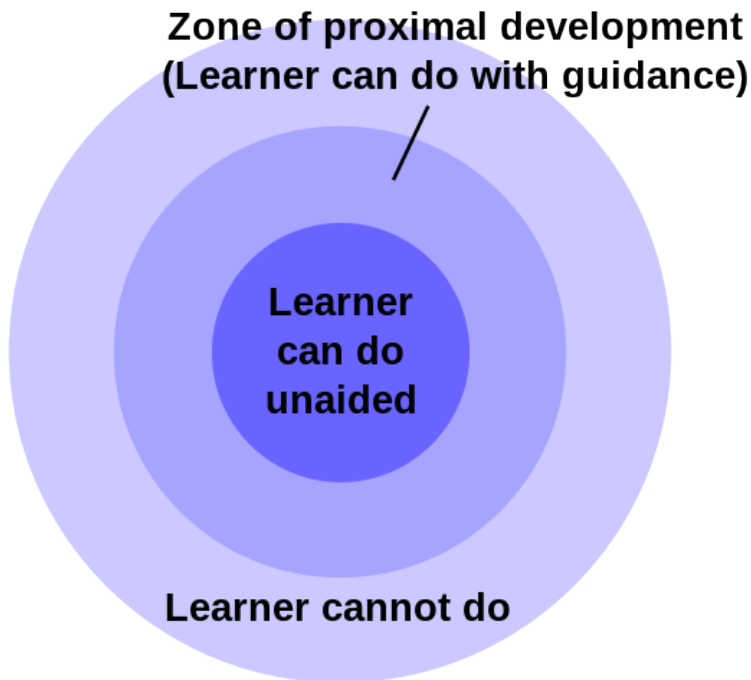
## Criticisms of Piaget's Theory (*Ob 11*)

Piaget has been criticized for overemphasizing the role that physical maturation plays in cognitive development and in underestimating the role that culture and interaction (or experience) plays in cognitive development. Looking across cultures reveals considerable variation in what children can do at various ages. Piaget may have underestimated what children are capable of given the right circumstances. For example, we will learn more about more current research examining infant cognition and babies' understanding of the world in chapter 3.

## Vygotsky: Changes in thought with guidance(*Ob 12*)

Lev Vygotsky (1896-1934) was a Russian psychologist who wrote in the early 1900s but whose work was discovered in the United States in the 1960s but became more widely known in the 1980s. Vygotsky differed with Piaget in that he believed that a person has not only a set of abilities but also a set of inherent abilities that can be realized if given the proper guidance from others. His sociocultural theory emphasizes the importance of culture and interaction in the development of cognitive abilities. He believed that through **guided participation**, also known as **scaffolding**, with a teacher or capable peer, a child could learn cognitive skills within a certain range known as the **zone of proximal development**. Have you ever taught a child to perform a task? Maybe it was brushing their teeth or 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 all through the process. You assisted them when they seemed to need it, but once they knew what to do-you stood back and let them go. This is scaffolding and can be seen

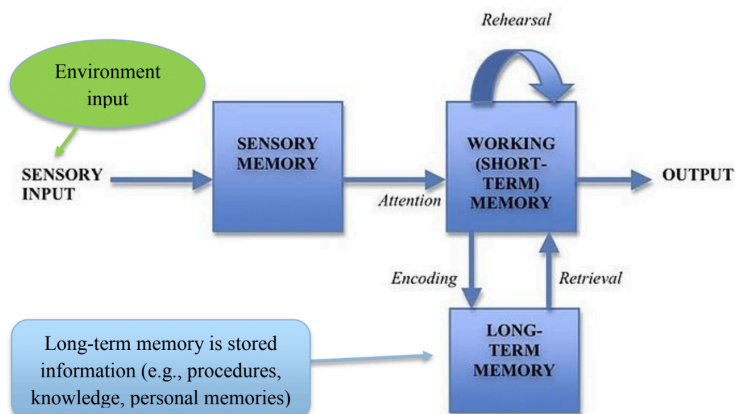
demonstrated throughout the world. The individual learning that needs more guidance or scaffolding has a larger zone of proximal development (more room for growth in learning the task or skill independently). Someone who already can do the task or skill with little help is said to have a smaller zone of proximal development (needs less 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. You can see how Vygotsky would be very popular with modern day educators. We will discuss Vygotsky in greater depth in upcoming lessons.



*Vygotsky's Zone of Proximal Development. The individual learning that needs more guidance or scaffolding has a larger zone of proximal development (more room for growth in learning the task or skill independently). Someone who already can do the task or skill with little help is said to have a smaller zone of proximal development (needs less scaffolding).*

**Information Processing** is not the work of a single theorist, but based on the ideas and research of several cognitive scientists studying how individuals perceive, analyze, manipulate, use, and remember information. The information processing model theorizes that information made available by the environment is processed by a series of processing systems (e.g. attention, perception, aspects of memory). This approach assumes that humans gradually improve in their processing skills; that is, development is continuous rather than stage-like. The information processing model is analogous to computer functioning in that we combine information presented with stored information like you are able to as you edit and resave files on a computer. However, humans do have limitations in how well we process information and we may not recall or restore information as efficiently as a computer. Additionally, humans are not serial processors and are more complex than computers (for example, consider our emotional and motivational factors).

The image below shows a version of the information processing model. The processors that are shown (sensory memory, working (short-term) memory, long term memory) are used as we attend, store, and retrieve information. We first notice stimuli through our senses and then we begin to process information in our working (short-term) memory. Once memory has been stored, it is in our long-term memories. Working (short-term) memory has a limited capacity. We first notice stimuli through our senses and then we begin to process information in our working (short-term) memory. Once memory has been stored, it is in our long-term memories.



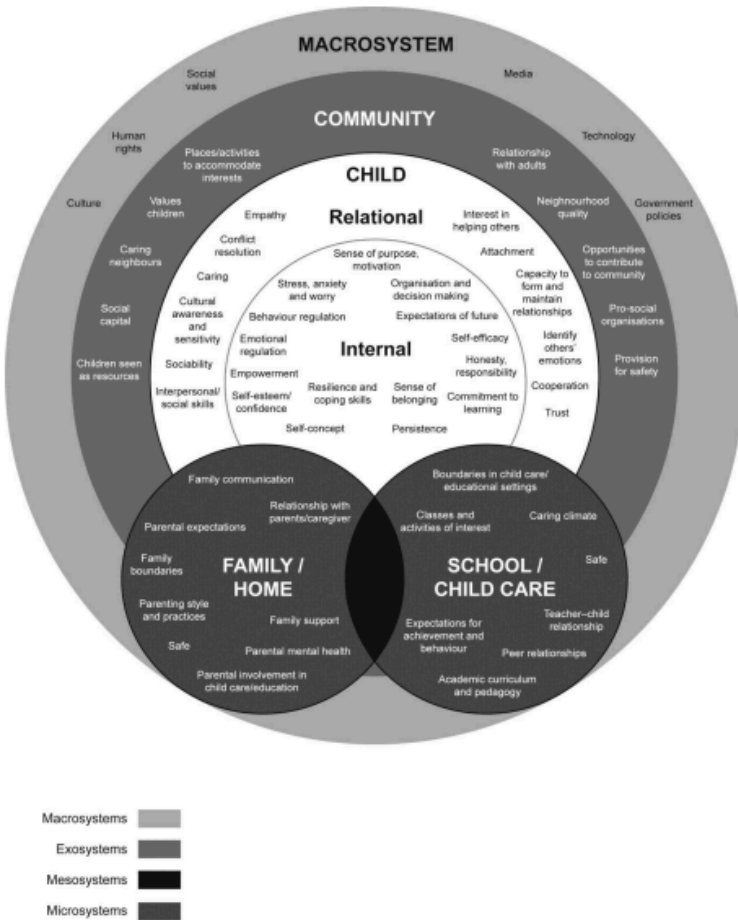
Example of the information processing model based from Atkinson and Shiffrin (1968)

Information processing theories see the more complex mental skills of adults being built from the primitive abilities of children in a continuously developing process. We are born with the ability to notice stimuli, store, and retrieve information. Brain maturation enables advancements in our information processing system. At the same time, interactions with the environment also aid in our development of more effective strategies for processing information.

## Putting it all together: Ecological Systems Model(Ob 14)

Urie Bronfenbrenner (1917-2005) provides a model of human development, the **ecological systems model**, that addresses its many influences. Bronfenbrenner recognized that larger social forces influence human interaction and that an understanding of those forces is essential for understanding an individual.

- **Microsystem** includes the individual's setting and those who have direct, significant contact with the person, such as parents or siblings. The input of those 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 him or her.
- **Mesosystem** consists of the interactions between the different parts of microsystem of person. These could include interactions between the microsystems, such as the interaction between different family members and individual's within organizational structures, such as school, the family, or religion (e.g., parent and teacher, .
- **Exosystem** includes the broader contexts of the community. A community's values, history, and economy can impact the organizational structures it houses. Mesosystems both influence and are influenced by the exosystem.
- **Macrosystem** includes cultural elements, such as global economic conditions, war, technological trends, values, philosophies, and society's responses to the global community.
- **Chronosystem** is the historical context in which these experiences occur. This relates to the different generational periods previously discussed such as the baby boomers and millennials.



## Ecological Systems Theory



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can view them online here:

<https://open.maricopa.edu/psy240mm/?p=694#oembed-3>

Watch this short video for a brief explanation and history of Bronfenbrenner's theory (Sprouts, 2021).

In sum, a child's experiences are shaped by larger forces such as the family, schools, and religion, and culture. All of this occurs in a historical context or chronosystem. Bronfenbrenner's model helps us combine each of the other theories described above and gives us a perspective that brings it all together. Despite its comprehensiveness, Bronfenbrenner's ecological system's theory is not easy to use. Taking into consideration all the different influences makes it difficult to research and determine the impact of all the different variables (Dixon, 2003). Consequently, psychologists have not fully adopted this approach, although they recognize the importance of the ecology of the individual. The figure below is an expanded version of Bronfenbrenner's model including examples for each system.

## Current theoretical considerations (*Ob 15*)

The field of developmental psychology has evolved significantly

since the foundational theories such as Piaget, Vygotsky, and Erikson were first introduced. While these classic theories continue to provide valuable insights, contemporary approaches have expanded our understanding of human development in important ways. As research methods and technologies have advanced, newer theories emphasize the complex, dynamic nature of development across the lifespan. Three key contemporary approaches are dynamic systems theory, neurodevelopmental theories, and epigenetics. These modern perspectives build on the groundwork laid by earlier theorists while incorporating new findings about the intricate interplay between biology, experience, and environment in shaping development.

*Dynamic systems theory:* views development as an ongoing process of complex interactions between multiple components, rather than a predetermined, linear progression. This theory offers a more flexible and comprehensive view of development than traditional stage theories. The theory emphasizes that development can vary significantly between individuals, skills and behaviors might appear, disappear, and reappear during development. Also, interventions that focus on one area (e.g., nutrition) can have greater effect on development (e.g., cognitive benefits of changes in nutrition).

*Neurodevelopmental theories:* integrate findings from neuroscience to understand how brain development relates to cognitive, emotional, and behavioral growth. Neurodevelopmental theories provide a framework for understanding how the brain and nervous system develop and influence behavior, cognition, and emotions throughout childhood and adolescence. This framework takes into account brain development timing, sensitive periods for acquiring specific skills (e.g., language exposure for language development, brain plasticity, and gene-environment interactions).

**Epigenetics** specifically focus on gene-environment interactions. Epigenetics bridges the gap between nature and nurture in developmental psychology. Epigenetics examines how environmental factors can influence gene expression and,

consequently, developmental outcomes. Epigenetics plays a role in gene expression. Epigenetics controls which genes are active (expressed) or inactive (silenced) in different cells and at different times (National Scientific Council on the Developing Child, 2010). Epigenetics changes can also be reversed (unlike genetic changes). Factors like diet, stress, and exposure to toxins can trigger epigenetic changes (NSCDC, 2010). Epigenetics helps explain how early life experiences can have long-lasting effects on development and behavior (NSCDC, 2010).



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can view them online here:

<https://open.maricopa.edu/psy240mm/?p=694#oembed-4>

Watch this from Penn State for a brief explanation about epigenetics (Penn Medicine, 2021).

All three of these contemporary share some common themes that distinguish them from classic stage theories: They emphasize continuous, multidirectional change rather than discrete stages. They recognize development as a product of interactions between multiple levels of organization, from genes to culture. Finally, they highlight the importance of both stability and plasticity in developmental processes.

## Conclusion

This chapter has provided a foundational overview of the major theories that have shaped our understanding of human development. From Freud's psychoanalytic perspective on the unconscious forces driving behavior to Bronfenbrenner's ecological systems model encompassing the multifaceted influences on the individual, we've seen how these theories offer unique lenses through which to understand the complexities of human growth.

Keep in mind that these theories are not competing for a single "truth" about development. Rather, they each offer valuable insights into different facets of the human experience, highlighting the interplay of biological, cognitive, social, and emotional factors across the lifespan. As you delve deeper into the study of human development, remember to consider these diverse perspectives and how they can inform your understanding of the intricate processes that shape who we are and how we change over time.

Moving forward, we'll explore these theories in greater depth, examining their applications to specific developmental stages and challenges. By integrating these theoretical frameworks with empirical research, we can gain a richer and more nuanced appreciation for the remarkable journey of human development.

## Chapter Review Practice Quiz



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<https://open.maricopa.edu/psy240mm/?p=694#h5p-3>

## Chapter 2 Key Terms (see Glossary for definitions)

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acomodation	information processing
assimilation	negative reinforcement
classical conditioning	positive reinforcement
conditioned stimulus	punisher
continuous development	reciprocal determinism
developmental theories	reinforcer
discontinuous development	social learning theory
ecological systems model	theory
epigenetics	unconditioned stimulus
Erikson's psychosocial theory	vicarious reinforcement
Freud's theory of self (id, ego, superego)	zone of proximal development
guided participation	

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# Chapter 3: Heredity, Prenatal Development, and Birth



## Objectives:

*At the end of this chapter, you will be able to...*

1. Define gene, chromosome, and gamete.
2. Distinguish between mitosis and meiosis, genotype and phenotype, homozygous and heterozygous, and dominant and recessive.
3. Question the assertion that human traits are genetic. Define genotype-environment correlations and genotype-environment interactions, and define epigenetics.
4. Differentiate between genetic disorders and chromosomal

- abnormalities. Describe Trisomy 21.
5. Describe the function of genetic counseling.
  6. Describe human development during the germinal, embryonic, and fetal periods and differentiate between the three periods of development.
  7. Describe a normal delivery and complications of pregnancy and delivery.
  8. Predict the risks to prenatal development posed by exposure to teratogens.
  9. Interpret APGAR scores.
  10. Discover the sensory abilities and risks of newborns

***The objectives are indicated in the reading sections below.***

## Introduction

In this chapter, we will begin by examining some of how heredity helps to shape the way we are. We will look at what happens genetically during conception, and describe some known genetic and chromosomal disorders. Next, we will consider what happens during prenatal development, including the impact of teratogens. We will also discuss the impact that both partners (e.g., mother and father) have on the developing fetus. 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 essential to understand how genes and chromosomes affect development.

# Heredity: The Epigenetic Framework (*Ob 3*)

## Nature and Nurture

In this lesson, we will look at some of how heredity helps to shape the way we are. We will look at what happens genetically during conception and take a brief look at some genetic abnormalities. Before going into these topics, however, it is essential to emphasize the interplay between heredity and the environment. Why are you the way you are? As you consider some of your features (height, weight, personality, being diabetic, etc.), ask yourself whether these features are a result of heredity or environmental factors, or both. Chances are, you can see the ways in which both heredity and environmental factors (such as lifestyle, diet, and so on) have contributed to these features. For decades, scholars have carried on the “nature/nurture” debate. For any particular feature, those on the “**nature**” side would argue that heredity plays the most important role in bringing about that feature. Those on the “**nurture**” side would argue that one’s environment is most significant in shaping the way we are. This debate continues in questions about what makes us masculine or feminine (Lippa, 2002), concerns about vision (Mutti et al., 1996), and many other developmental issues. Most scholars agree that there is a constant interplay between the two forces. It is difficult to isolate the root of any single behavior as a result solely of nature or nurture, and most scholars believe that even determining the extent to which nature or nurture impacts a human feature is difficult to answer. Almost all human features are **polygenic** (a result of many genes) and **multifactorial** (a result of many factors, both genetic and environmental). It is as if one’s genetic make-up sets up a range of possibilities, which may or may not be realized depending upon one’s environmental experiences. For instance, a person might be

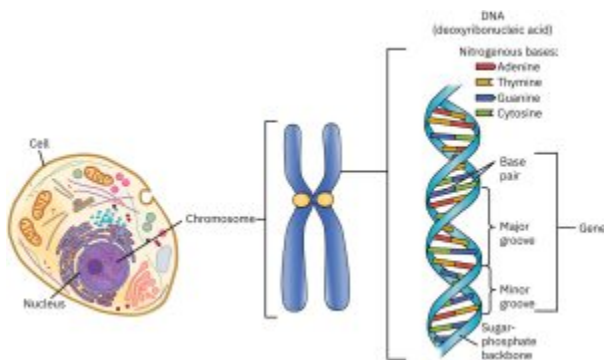
genetically predisposed to develop diabetes, but the person's lifestyle may help bring about the disease.

## The Epigenetic Framework

Gottlieb (1998, 2000, 2002) suggests an analytic framework for the nature/nurture debate that recognizes the interplay between the environment, behavior, and genetic expression. This bidirectional interplay suggests that the environment can affect the expression of genes just as genetic predispositions can impact a person's potentials. Moreover, 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. Gottlieb's developmental research framework emphasized aspects of **epigenetics**, the importance of multiple levels of analysis, and the diverse roles of experience in development.

## The Human Genome Project (*Ob 1, Ob 2*)

The Human Genome Project is an internationally funded effort to map the locations of human genes and understand the role these genes play in development, health, and illness. **Genes** are segments of **chromosomes** (46 strands of a chemical substance called DNA (*deoxyribonucleic acid*) that is contained in the nucleus of each normal human cell) that vary in length. DNA (*deoxyribonucleic acid*) molecules contain an individual's genetic information; they coil around each other to form a double helix, a twisted ladderlike structure.



There are an estimated 25,000 to 30,000 genes on each chromosome (far below the estimate of 100,000-150,000 held before the work of the Human Genome Project.) Understanding the role of genes in health and illness can bring about both harm and good (Weitz, 2007). A person who knows that they are at risk for developing a genetic disorder may be able to adopt lifestyle practices that minimize the risk and a person who discovers that they are not at risk may find comfort in knowing that they do not have to fear a particular disease. However, a person who finds out that they are at risk and there is nothing that can be done about it may experience years of fear and anxiety. Moreover, the availability of genetic testing may be more widespread than the availability of genetic counseling which can be very expensive. The possible stigma and discrimination that those with illness or at risk for illness must also be considered. In light of the high costs of health insurance, many companies are starting to offer benefits contingent on health assessments and lifestyle recommendations; and continued coverage depends on an employee following these recommendations. So, a smoker may have to pay a higher premium than a non-smoker, or a person who is overweight may be required to engage in a program of exercise and be monitored for improvement. What if a person finds out that they carry the gene for Huntington's disease (a neurological disorder that is ultimately fatal)

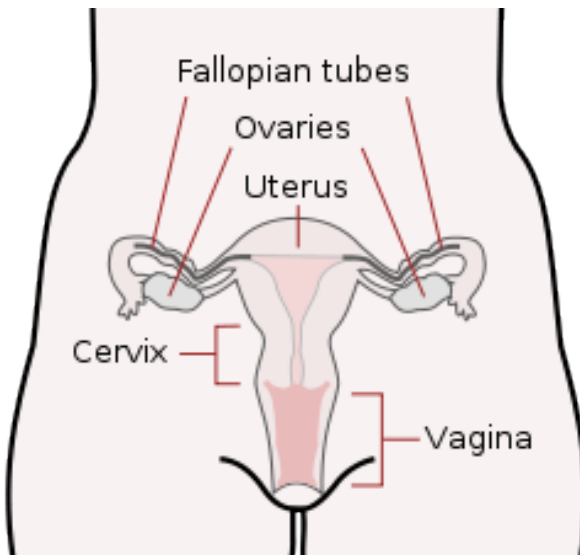
which may surface when a person reaches their 40s? The impact this knowledge will have on health care remains unknown.

LINK TO LEARNING: [The Human Genome Project \(HGP\)](#) was an inward voyage of discovery led by an international team of researchers looking to sequence and map all of the genes — together known as the genome — of members of our species, *Homo sapiens*. Beginning in October 1990 and completed in April 2003, the HGP gave us the ability, for the first time, to read nature’s complete genetic blueprint for building a human being



**Who should know what is on your genome? Do you think this information should be shared between mates? What about employers? What would be the advantages and disadvantages?**

## The Female Reproductive System



The cells used in sexual reproduction are called **gametes**. There are two types of sex cells or gametes involved in reproduction: the male gametes or sperm and female gametes or ova. The male gametes are produced in the testes in a process called **spermatogenesis** which begins at about 12 years of age. The female gametes or ova which are stored in the ovaries are present at birth but are immature. Each ovary contains about 250,000 (Rome, 1998) but only about 400 of these will become mature eggs (Mackon & Fauser, 2000). Beginning at puberty, one ovum ripens and is released about every 28 days, a process called **oogenesis**.

Chromosomes contain genetic information from each parent. While other normal human cells have 46 chromosomes (or 23 pair), gametes contain 23 chromosomes. In a process called **meiosis**, segments of the chromosomes from each parent form pairs and genetic segments are exchanged as determined by chance. (For

normal human cells the process is called **mitosis** as the cell's nucleus making an exact copy of all the chromosomes and splitting into two new cells). Because of the unpredictability of this exchange, the likelihood of having offspring that are genetically identical (and not monozygotic twins) is one in trillions (Gould & Keeton, 1997).

## Determining the Sex of the Child (*Ob 4*)

Twenty-two of those chromosomes from each parent are similar in length to a corresponding chromosome from the other parent. However, the remaining chromosome looks like an X or a Y. Half of the male's sperm contains a Y chromosome, and half contain an X. All of the ova contain two X chromosomes. If the child receives the combination of XY, the child will be genetically male. If it receives the XX combination, the child will be genetically female. Sex-linked chromosomal abnormalities are discussed later in the chapter (i.e., not having XX or XY).

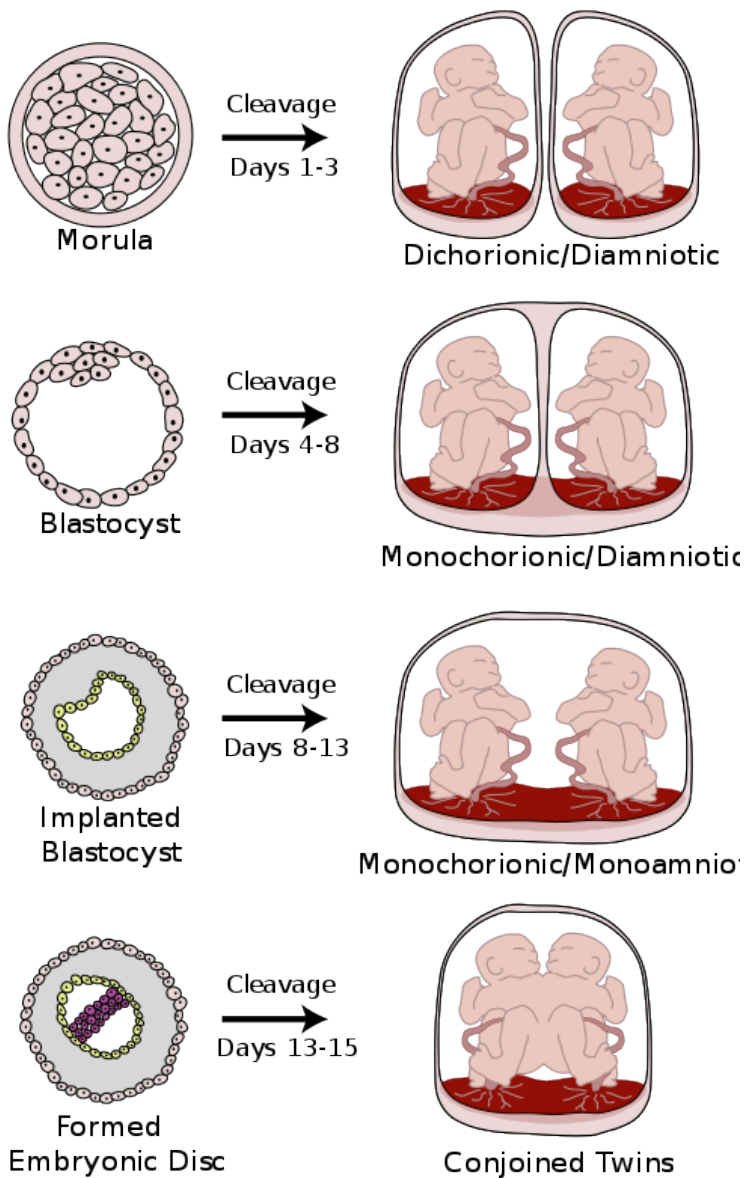
## Monozygotic and Dizygotic Twins

Monozygotic twins occur when a single zygote or fertilized egg split apart in the first two weeks of development. The result is the creation of two separate but genetically identical offspring. About one-third of twins are monozygotic twins (identical twins). Are you an identical twin?

Sometimes, however, two eggs or ova are released and fertilized by two separate sperm. The result is dizygotic or fraternal twins. About two-thirds of twins are dizygotic. These two individuals share the same amount of genetic material as would any two children from the same mother and father. 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 in recent years (Bortolus et al., 1999).

What are the other possibilities? Various degrees of sharing the placenta can occur depending on the timing of the separation and duplication of cells. This is known as placentation. Here is a diagram that illustrates various types of twins.



Cellular changes in the formation of different types of twins. In some cases twins share the same amniotic sac and other cases they are in separate amniotic sacs with individual placentas.

# Genotypes and Phenotypes (or why what you get is not always what you see) (Ob 2)

The word **genotype** refers to the total of all the genes a person inherits. The word **phenotype** refers to the features that are expressed. Look in the mirror. What do you see, your genotype, or your phenotype? What determines whether or not genes are expressed? Actually, this is quite complicated (Berger, 2005).

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.

**Table Examples of Single-Gene Dominant-Recessive Inheritance**

Dominant	Recessive
widow's peak	no widow's peak
freckles	no freckles
unattached ear lobe	attached ear lobe
See more examples <a href="#">here</a>	

*Source: Genovesi et al. (2022)*

Geneticists refer to different versions of a gene as alleles. Some single-gene dominant traits include having facial dimples, normal vision, and dark hair. Some single-gene recessive traits include red hair and being nearsighted. Sometimes the dominant gene does not entirely suppress the recessive gene; this is called **incomplete dominance**. An example of this is hair being curly or straight. If you have straight hair you have SS, curly hair is CC and Wavy hair is CS.

Most characteristics are not the result of a single gene; they are **polygenic** meaning they are the result of several genes. Consider eye color. Eye color is influenced mainly by two genes, with smaller contributions from several others. People with light eyes tend to carry recessive alleles of the major genes; people with dark eyes tend to carry dominant alleles. Also, the dominant and recessive patterns described above are usually not that simple either. The words dominant and recessive of polygenes are not truly dominant and recessive. Some features follow the additive pattern which means that many different genes contribute to an outcome. Height, weight, skin tone, and intelligence are examples of polygenic inheritance. Take for example, skin, where an individual would have a combination of 3 gene pairs (e.g., AABBCc). Off spring then would have combinations of each parent's genes (aaBBcC x AABBCc). If you look at each of these, you would see that the offspring (e.g., kids) contain ten different shades of skin color based on the number of capital letters in each genotype.

AABBCC is one possible combination for skin that has 6 different shade possibilities

	<i>ABC</i>	<i>ABc</i>	<i>AbC</i>	<i>aBC</i>	<i>Abc</i>	<i>aBc</i>	<i>abC</i>	<i>abc</i>
<i>ABC</i>	6	5	5	5	4	4	4	3
<i>ABc</i>	5	4	4	4	3	3	3	2
<i>AbC</i>	5	4	4	4	3	3	3	2
<i>aBC</i>	5	4	4	4	3	3	3	2
<i>Abc</i>	4	3	3	3	2	2	2	1
<i>aBc</i>	4	3	3	3	2	2	2	1
<i>abC</i>	4	3	3	3	2	2	2	1
<i>abc</i>	3	2	2	2	1	1	1	0

This is an example of skin color polygenic inheritance.

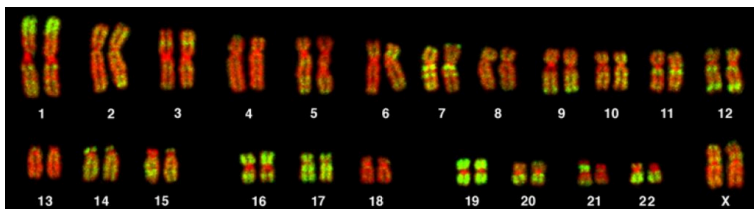
In some cases, a gene might either be turned on or off depending on the gene with which it is paired. Some genes are considered dominant because they will be expressed regardless if the pairing is heterozygous. Others, termed recessive, are only expressed in the absence of a dominant gene. An example of this can be found in the recessive gene disorder, sickle cell anemia. Sickle cell disease is a condition that is determined by a single pair of genes (one from each parent). 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. 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 (Berk, 2004). Interestingly, the single gene does not determine the entire story. Sickle cell disease is quite

variable in itself. Some variability is genetic (having a thalassemia trait, hemoglobin C) and other variations involve environmental influences. To find out more about more about sickle cell disease, check out the Center for Disease Control (CDC) website.

## Chromosomal Abnormalities and Genetic Disorders (*Ob 4*)

A **chromosomal abnormality** occurs when a child inherits too many or too few chromosomes. The most common cause of chromosomal abnormalities 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 before ovulation each month. As the mother ages, the ovum is more likely to suffer abnormalities at this time.

Some gametes (reproductive cells that contain half the genetic material of a complete organism formed through meiosis) do not divide evenly when they are forming. Therefore, some cells have more than 46 chromosomes. This image shows a full set of twenty-three pairs of chromosomes (1 set from sperm and 1 set from egg). Chromosomes one through twenty-two are the autosomes, and the chromosomes at the bottom right show the pairing for a biological female (XX) at conception.



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. An autosomal chromosome disorders is if individual inherits too many or too few chromosomes not linked to pair 23 (sex chromosomes).

One of the most common chromosomal abnormalities is on pair 21. **Trisomy 21** occurs when there are three rather than two chromosomes on pair 21. A person with Down syndrome experiences problems such as intellectual disabilities and certain physical features such as having short fingers and toes, having folds of skin over the eyes, and a protruding tongue. 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.

#### **Table Autosomal Chromosomal Abnormalities**

Autosomal Chromosome Disorders: The individual inherits too many or too few chromosomes	Cases per Birth
<b>Down Syndrome/ Trisomy 21 is caused by an extra chromosome 21 and includes a combination of congenital disabilities.</b>	1 in 691 1 in 300 births at age 35
<b>Trisomy 13 is caused by an extra chromosome 13. Affected individuals have multiple congenital disabilities and early death.</b>	1 in 7,906
<b>Trisomy 18 is caused by an extra chromosome 18, and the affected individual also has multiple congenital disabilities and early death</b>	1 in 3,762

*Source: Lally & Valentine, 2016*

When the abnormality is on pair #23, the result is a **sex-linked chromosomal abnormality**. A person might have XXY, XYY, XXX, XO, or 45 or 47 chromosomes as a result. Two of the more common sex-linked chromosomal disorders are **Turner's syndrome** and

Klinefelter's syndrome. Turner's syndrome occurs in 1 of every 2,500 live female births (Carroll, 2007) when a sperm fertilizes an ovum which lacks a chromosome with an X chromosome. The resulting zygote has an XO composition. Fertilization by a Y sperm is not viable. Turner syndrome affects cognitive functioning and sexual maturation. The external genitalia appears normal, but breasts and ovaries do not develop fully, and the woman does not menstruate. Turner's syndrome also results in short stature and other physical characteristics. **Klinefelter's syndrome (XXY)** occurs in 1 out of 700 live male births and results when an ovum containing an extra X chromosome is fertilized by a Y sperm. The Y chromosome stimulates the growth of male genitalia, but the extra X chromosome inhibits this development. An individual with Klinefelter's syndrome has some breast development, infertility (this is the most common cause of infertility in males), and has low levels of testosterone.

#### **Table Sex-Linked Chromosomal Abnormalities**

<b>Sex-Linked Chromosomal Disorders: The disorder occurs on chromosome pair #23 or the sex chromosomes.</b>	<b>Cases per Birth</b>
<b>Trisomy X (XXX)</b>	1 in 1,000 females
<b>XYY syndrome (XXY)</b>	1 in 1,000 males
<b>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 extra X chromosome inhibits this development. The male can have some breast development, infertility, and low levels of testosterone.</b>	1 in 500-1000 males
<b>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 affects cognitive functioning and sexual maturation in girls. Infertility and short stature may be noted.</b>	1 in 2,500 females

*Sources: Gottlieb et al., 2023; Skuse et al., 2018*

Most of the known genetic disorders are dominant gene-linked; however, the vast majority of dominant gene-linked disorders are not severe disorders, or if they are, they may still not be debilitating. For example, the majority of those with Tourette's syndrome suffer only minor tics from time to time and can easily control or cover up 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 less likely to be detected as people are unaware that they are

carriers of the disease. However, mandatory newborn screening has helped with early diagnosis and treatment for such diseases. If the genes inherited from each parent are the same, the child is **homozygous** for a particular trait and will inherit the trait. If, however, the child inherits a gene from one parent but not the other, the child is **heterozygous**, and interaction between the genes will in part determine whether or not that trait is expressed (Berk, 2004).

**Table of Different Genetic Disorders, Cases per Birth,  
Symptoms and Treatments**

Disorder	Prevalence
<b>Recessive Disorders (Homozygous):</b>	
Phenylketonuria (PKU)	1 in 10,000 to 15,000 live births
Tay-Sachs disease	1 in 320,000 live births; more frequent in people of central or eastern European Jewish descent
Cystic fibrosis	1 in 3,200 live births; people of European ancestry at highest risk
Sickle cell anemia	1 in 365 live births; Black and African American individuals at greatest risk
Albinism	Fewer than 20,000 US Cases per year
<b>Autosomal Dominant Disorders (Heterozygous):</b>	
Huntington's Disease	1 in 10,000
Tourette Syndrome	1 in 250
Achondroplasia	1 in 15,000-40,000
<b>Other Disorders</b>	
Fragile X syndrome	1 in 7,000 male and 1 in 11,000 female live births
Down syndrome (Trisomy 21)	1 in 1,000 live births

Adapted from [OpenStax](#)

## Genetic Counseling (*Ob 5*)

Genetic counseling refers to a service that assists individuals in identifying, test for, and explain possible genetic conditions that could adversely affect themselves or their offspring (CDC, 2015). The common reasons for genetic counseling include:

- Family history of a genetic condition
- Membership in a particular 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 congenital disabilities, experiences infertility, or has a medical condition

## Behavioral Genetics (*Ob 3*)

**Behavioral Genetics[/pb\_glossary] is the scientific study of the interplay between the genetic and environmental contributions to behavior. Often referred to as the nature/nurture debate, Gottlieb (1998, 2000, 2002) suggests an analytic framework for this debate that recognizes the interplay between the environment, behavior, and genetic expression. 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. [pb\_glossary id="1183"]**Genotype-Environment Correlations** refer to the processes by which genetic factors contribute to variations in the environment (Plomin et al., 2013). There are three types of genotype-environment correlations:

1. **Passive genotype-environment correlation** occurs when children passively inherit the genes and the environments their family provides. Specific behavioral characteristics, such as being athletically inclined, may run in families. The children have inherited both the genes that would enable success at these activities, and given the environmental encouragement to engage in these actions. For example, this could be demonstrated by a family passes on water skiing skills through both genetics and environmental opportunities.
2. **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 he or she is treated by others.
3. **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 (Leve et al., 2010) followed 360 adopted children and their adopted and biological parents in a longitudinal study. Results had shown 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 show how environmental effects on behavior differ based on the genotype, especially stressful environments on genetically at-risk children.

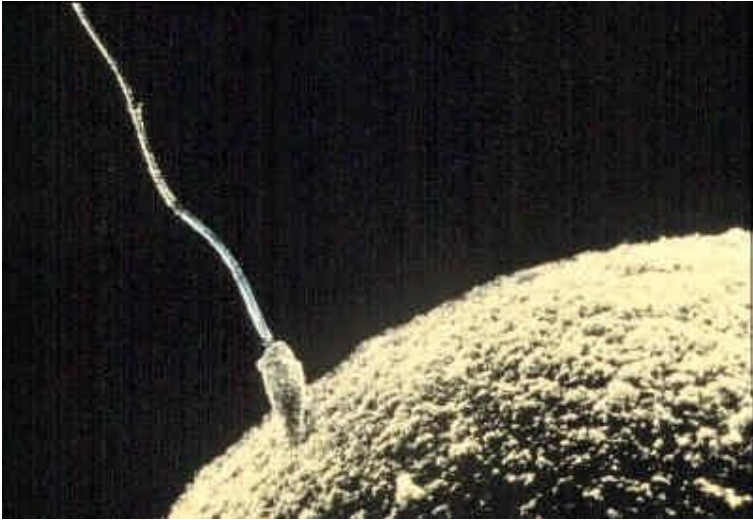
Lastly, **epigenetics** studies indicate modifications in DNA that affect gene expression and are passed on when the cells divide. Epigenetic modifications do not alter the DNA sequence itself. Environmental factors and experiences, such as nutrition, stress, trauma, lifestyle choices, and exposure to harmful substances while in utero (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. 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.

### **Link to Learning**

Watch this [TED-Ed brief overview of epigenetics](#) to learn more (TedEd, 2018).

## Prenatal Development (*Ob 6*)

### Periods of Prenatal Development



Now we turn our attention to prenatal development which is divided into three periods: the germinal period, the embryonic period, and the fetal period. While medical doctors 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.

## The Germinal Period

The **germinal period** starts at conception. At ejaculation, millions of sperm are released into the vagina, but only a few reach the egg, and typically, only one fertilizes the egg. For conception to happen, the ovum or egg needs to be released from the fallopian tube. After the ovum or egg ripens and is released from the ovary, it is drawn into the fallopian tube and in 3 to 4 days, reaches the uterus. The ovum/egg is typically fertilized by the sperm in the fallopian tube and continues its journey to the uterus. Once a single sperm has entered the wall of the egg, the wall becomes hard and prevents other sperm from entering. After the sperm has entered the egg, the tail of the sperm breaks off and the head of the sperm, containing the genetic information from the father, unites with the nucleus of the egg. As a result, a new cell is formed, and this is considered. This cell, containing the combined genetic information from both parents, is referred to as a **zygote**. The germinal period (about 14 days in length) lasts from conception to implantation of the zygote (fertilized egg) in the lining of the uterus. 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.

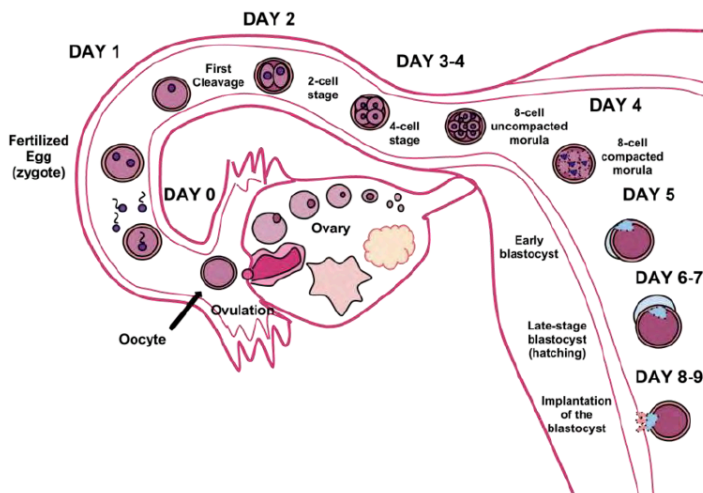


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During this time, the organism begins cell division through mitosis. After five days of mitosis, there are 100 cells, which is now called a *blastocyst*. The blastocyst consists of both an inner and an outer group of cells. The inner group of cells 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 (U.S. National Library of Medicine, 2015).

Less than one-half of all zygotes survive beyond the first two weeks (Hall, 2004). Some of the reasons for this include the egg and sperm do not join properly. Thus 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 failure rate is higher for in vitro conceptions. The figure below illustrates the journey of the ova from its release to its fertilization, cell duplication, and implantation into the uterine lining.



*Germinal stage day by day with progression of the fertilized egg. Note that an unfertilized egg would follow the same path but no implantation leading to menses.*

## The Embryonic Period

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*"The body of the unborn baby is more complex than ours. The preborn baby has several extra parts to his body which he needs only so long as he lives inside his mother. He has his own space capsule, the amniotic sac. He has his own lifeline, the umbilical cord, and he has his own root system, the placenta. These all belong to the baby himself, not to his mother. They are all developed from his original cell."*

*Day & Liley, The Secret World of a Baby, Random House, 1968, p. 13*

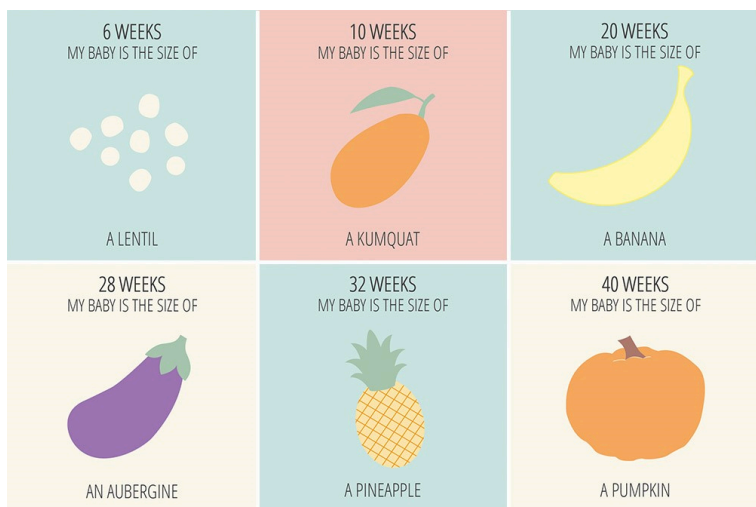
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Embryo is 1" long 8-weeks post conception.

The *embryonic period* begins once the multi-cellular organism is implanted in the uterine wall. It lasts from the third through the eighth week after conception. The organism is now called an **embryo**. The embryo develops within the amniotic sac, under the lining of the uterus on one side. 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 and at 22 days after conception the neural tube forms which will become the brain and spinal column. Growth during prenatal development occurs in two primary 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). 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. However, by the end of this stage, they disappear, and the organism takes on a more human appearance. 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 most significant amount of damage if exposed to harmful substances. (We will look at this in the section on teratology below.) Potential mothers are not often aware of the risks they introduce to the developing child during this time. The embryo is approximately 1 inch in length and weighs about 4 grams at the end of this period (8 weeks post conception). The embryo can move and respond to touch at this time.



*Approximate size of developing fetus analogous to food.*

## The Fetal Period

The *fetal period* lasts from the ninth week until birth. During this period, the organism is referred to as a **fetus**. During this stage, the major structures are continuing to develop. 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.

**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. The first chance of survival outside the womb, known as the **age of viability** is reached between 22 and 26 weeks (Moore & Persaud, 1998; Morgan et al.,

2008). Many practitioners hesitate to resuscitate before 24 weeks. 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 (Royal College of Obstetricians and Gynecologists, 1997).

**Between the 7th and 9th 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 8th month. This layer of fat serves as insulation and helps the baby regulate body temperature after birth.



*Approximate size differences and physical features during pregnancy.*

Watch this [short video](#) that highlights a week-by-week breakdown of fetal development, focusing on the first 8 weeks (embryonic stage) and key milestones thereafter (Scientist Cindy, 2021).



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can view them online here:

<https://open.maricopa.edu/psy240mm/?p=722#oembed-2>

## Prenatal Brain Development

Fetal 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 (Stiles & Jernigan, 2010). 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 with the neural plate first forming the neural groove and then the 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 mid-gestation, 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 primarily completed after 5 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.

## Environmental Risks during Prenatal Development (*Ob 8*)

### Teratology

Good prenatal care is essential. The developing child is most at risk for some of the most severe problems during the first three months of development. Unfortunately, this is a time at which most mothers are unaware that they are pregnant. Today, we know many of the factors that can jeopardize the health of the developing child. The study of factors that contribute to **congenital disabilities** is called teratology. A **teratogen** is a substance, agent, or factor that can cause abnormalities, birth defects, or developmental disorders in a developing embryo or fetus when exposed during pregnancy. Teratogens include some maternal diseases, pollutants, drugs, and alcohol. Teratogens can interfere with normal fetal development and may lead to various adverse outcomes, including:

1. Physical malformations
2. Growth retardation
3. Functional defects
4. Behavioral or emotional developmental issues
5. Decreased intellectual capacity

The outcome of the exposure is related to a number of factors.

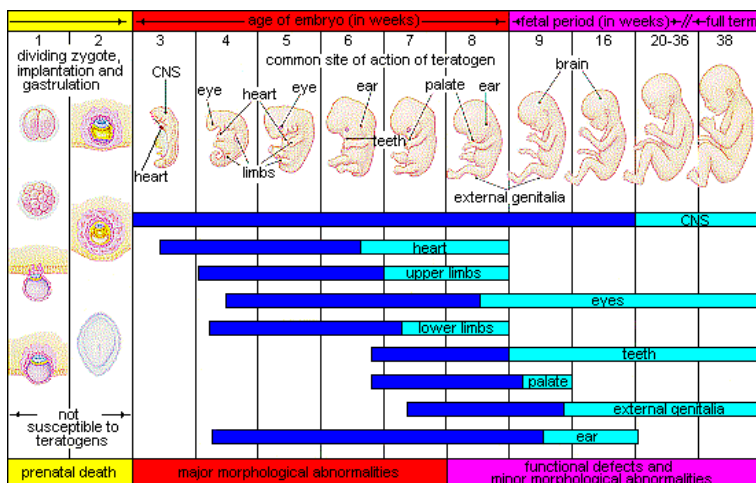
**Factors influencing prenatal risks:** There are several considerations in determining the type and amount of damage that might result from exposure to a particular teratogen (Berger, 2004). These include:

- **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 mother 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.

- **Being male or female:** 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.

## Critical Periods of Development

The potential impact of a teratogen varies based on a range of factors including the specific teratogen, the length and amount of exposure, genetic susceptibility, and the quality of the prenatal environment. The longer the exposure or the higher the dose of a teratogen, the greater the likelihood of it doing harm. This is known as the **dose-duration-timing impact** of teratogens on prenatal development. Some teratogens can cause a range of developmental issues, and in some cases, different teratogens contribute to a specific disorder. Embryos and fetuses can be harmed by teratogens to which their biological fathers were exposed, as well as by those to which they are exposed via the birth mother's body during gestation.



**Critical Periods of Prenatal Development.** The three periods of development are summarized along with major growth phases for different parts of the body. Note that in the first 2 weeks, the developing zygote is not susceptible to teratogens. Areas in blue indicate major development formation (first shaded area for each body part).

The figure above summarizes the critical periods of development during the 3 periods of prenatal development. You will notice that during the germinal stage (first part of graph), teratogens are not an issue with development (rather risk is more genetic). The next stage (embryonic) is where the majority of development occurs. The darker areas for each show critical development and the lighter areas indicate more refinement of that organ/body part.

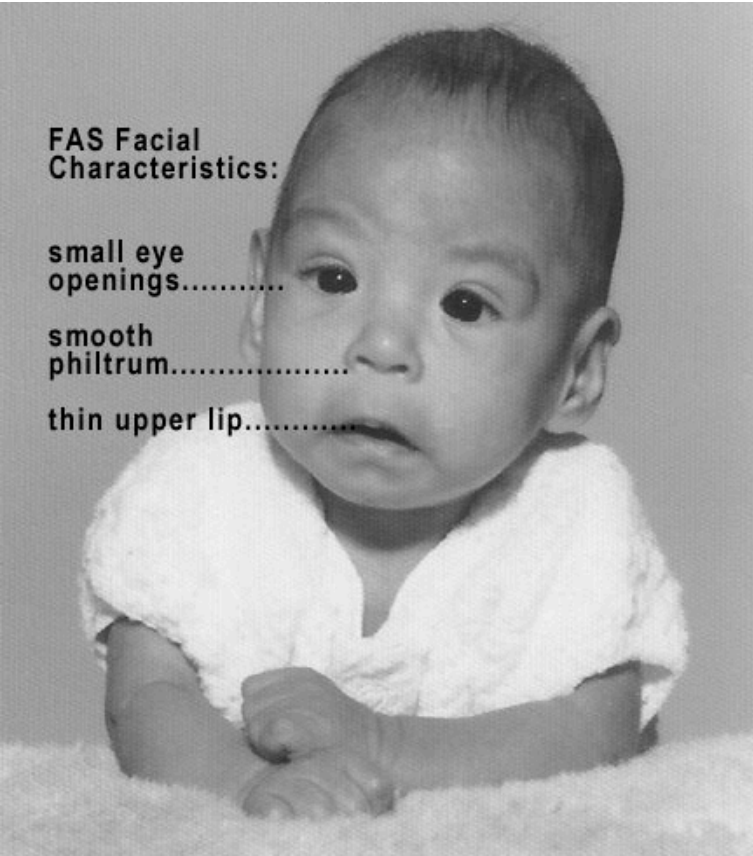
## A look at some teratogens

Alcohol is one of the most commonly used teratogens is alcohol, and because half of all pregnancies in the United States are unplanned, it is recommended that women of childbearing age take great caution against drinking alcohol when not using birth control

or when pregnant (Surgeon General's Advisory on Alcohol Use During Pregnancy, 2005). Alcohol consumption, particularly during the second month of prenatal development but at any point during pregnancy may lead to neurocognitive and behavioral difficulties that can last a lifetime. Binge drinking (five or more on a single occasion) or seven or more drinks during a single week place a child at risk.

In extreme cases, alcohol consumption can lead to fetal death, but more frequently it can result in **fetal alcohol spectrum disorders (FASD)**, an umbrella term for a range of effects of exposure and replaces the term fetal alcohol syndrome. It is preferred because it recognizes that symptoms occur on a spectrum and that all individuals do not have the same characteristics. The most severe form of FASD is Fetal Alcohol Syndrome (FAS). Children with FAS share certain physical features such as flat noses, small eye holes, and small heads (see Figure). Cognitively, these children have poor judgment, poor impulse control, higher rates of ADHD, learning issues, and lower IQ scores. These developmental problems and delays persist into adulthood (Streissguth et al., 1996) and can include criminal behavior, psychiatric problems, and unemployment (CDC, 2016a). Based on animal studies, it has been hypothesized that a mother's alcohol consumption during pregnancy may predispose her child to like alcohol (Youngentob et al., 2007).

- The prevalence of FASD in the US is estimated to be between one and five percent, in other words, in 11 and 50 cases per 1000 children (May et al., 2018).



*An infant with FAS.*

**Table of possible features of Fetal Alcohol Syndrome**

<b>Facial Feature</b>	<b>Potential Effect of Fetal Alcohol Syndrome</b>
<b>Head size</b>	Below-average head circumference
<b>Eyes</b>	Smaller than average eye-opening, skin folds at corners of eyes
<b>Nose</b>	Low nasal bridge, short nose
<b>Midface</b>	Smaller than average midface size
<b>Lip and philtrum</b>	Thin upper lip, indistinct philtrum

*Features of FAS.* [Source](#)

Tobacco is the second most widely used teratogen, and the number of adolescent females who smoke is increasing. In fact, among adolescents, females are just as likely to smoke as are males.

Tobacco use during pregnancy has been associated with low birth weight, placenta previa, preterm delivery, fetal growth restriction, and sudden infant death syndrome (Center for Disease Control, 2023). According to the CDC (2023), in 2021, 5.4% of pregnant women smoked cigarettes during pregnancy, down from 7.2% in 2016. By 2022, this declined further to 3.7%. Additionally, Approximately 56% of women who smoked before pregnancy quit during pregnancy, though 7.2% resumed smoking postpartum. Secondhand smoke affects fetal growth, increasing risks for low birth weight (up to 20% higher risk) and preterm delivery (Martin

et al, 2023). While cigarette smoking during pregnancy has declined significantly since 2016—partially attributed to public health interventions—tobacco use remains concentrated among those with lower education levels, non-Hispanic American Indian/Alaska Native mothers, and residents of Appalachian states.

When a pregnant woman smokes the fetus is exposed to dangerous chemicals including nicotine, carbon monoxide, and tar, which lessen the amount of oxygen available to the fetus. Oxygen is essential for overall growth and development. Tobacco use during pregnancy has been associated with low birth weight, ectopic pregnancy (fertilized egg implants itself outside of the uterus), placenta previa (placenta lies low in the uterus and covers all or part of the cervix), placental abruption (placenta separates prematurely from the uterine wall), preterm delivery, stillbirth, fetal growth restriction, sudden infant death syndrome (SIDS), birth defects, learning disabilities, and early puberty in girls (Center for Disease Control, 2015d). A woman being exposed to second-hand smoke during pregnancy has also been linked to low-birth-weight infants.



*Prescription/Over-the-counter Drugs* are other possible teratogens. About 70% of pregnant women take at least one prescription drug (March of Dimes, 2016e). A woman should not be taking any prescription drug during pregnancy unless it was prescribed by a health care provider who knows she is pregnant. Some prescription drugs can cause congenital disabilities, problems in overall health, and development of the fetus. Over-the-counter drugs are also a concern during the prenatal period because they may cause specific health problems. For example, the pain reliever ibuprofen can cause severe blood flow problems to the fetus during the last three months.

*Common illicit drugs* include cocaine, ecstasy, heroin, marijuana, and prescription drugs that are abused. It is difficult to ultimately determine the effects of a particular illicit drug on a developing child because most mothers who use, use more than one substance and have other unhealthy behaviors. These include smoking, drinking alcohol, not eating healthy meals, and being more likely to get a sexually transmitted disease. However, several problems seem clear. The use of cocaine is connected with low birth weight, stillbirths, and spontaneous abortion. Heavy marijuana use is associated with problems in brain development (March of Dimes, 2016c). If a baby's mother used an addictive drug during pregnancy, that baby can get addicted to the drug before birth and go through drug withdrawal after birth, also known as Neonatal Abstinence Syndrome (March of Dimes, 2015d). Other complications of illicit drug use include premature birth, smaller than average head size, congenital disabilities, heart defects, and infections. Additionally, babies born to mothers who use drugs may have problems later in life, including learning and behavior difficulties, slower than average growth, and die from Sudden Infant Death Syndrome. Children of substance abusing parents are also considered at high risk for a range of biological, developmental, academic, and behavioral problems, including developing substance abuse problems of their own (Conners et al., 2003).

*Pollutants* are another possible teratogen. There are more than

83,000 chemicals used in the United States with little information on the effects of them during pregnancy (March of Dimes, 2016b). An environmental pollutant of significant concern is lead poisoning, which is connected with low birth weight and slowed neurological development. The chemicals in certain pesticides are also potentially damaging and may lead to congenital disabilities, learning problems, low birth weight, miscarriage, and premature birth (March of Dimes, 2014). Prenatal exposure to bisphenol A (BPA), a chemical commonly used in plastics and food and beverage containers, may disrupt the action of specific genes contributing to certain congenital disabilities (March of Dimes, 2016b). Radiation is another environmental hazard. If a mother is exposed to radiation, it can get into the bloodstream and pass through the umbilical cord to the baby. Radiation can also build up in body areas close to the uterus, such as the bladder. Exposure to radiation can slow the baby's growth, cause congenital disabilities, affect brain development, cause cancer, and result in a miscarriage. Mercury, a heavy metal, can cause brain damage and affect the baby's hearing and vision. This is why women are cautioned about the amount and type of fish they consume during pregnancy.

*Toxoplasmosis* is a concern for congenital disabilities. The tiny parasite, *Toxoplasma gondii*, causes an infection called *Toxoplasmosis*. According to the March of Dimes (2012d), *Toxoplasma gondii* infects more than 60 million people in the United States. A healthy immune system can keep the parasite at bay producing no symptoms, so most people do not know they are infected. As routine prenatal screening frequently does not test for the presence of this parasite, pregnant women may want to talk to their health-care provider about being tested. *Toxoplasmosis* can cause premature birth, stillbirth, and can result in congenital disabilities to the eyes and brain. While most babies born with this infection show no symptoms, ten percent may experience eye infections, enlarged liver and spleen, jaundice, and pneumonia. To avoid being infected, women should avoid eating undercooked or raw meat and unwashed fruits and vegetables, touching cooking

utensils that touched raw meat or unwashed fruits and vegetables, and touching cat feces, soil or sand. If women think they may have been infected during pregnancy, they should have their baby tested.



*Changing a cat litter box may expose individual to toxoplasmosis.*

*Sexually Transmitted Diseases* such as Gonorrhea, syphilis, and chlamydia can be passed to the fetus by an infected mother. Mothers should be tested as early as possible to minimize the risk of spreading these infections to their unborn child. Additionally, the earlier the treatment begins, the better the health outcomes for mother and baby (CDC, 2016d). Sexually transmitted diseases (STDs) can cause premature birth, premature rupture of the amniotic sac, an ectopic pregnancy, congenital disabilities, miscarriage, and stillbirths (March of Dimes, 2013). Most babies become infected with STDs while passing through the birth canal during delivery, but some STDs can cross the placenta and infect the developing fetus.

*Human Immunodeficiency Virus (HIV)* is one of the most potentially devastating teratogens. HIV and Acquired Immune Deficiency Syndrome (AIDS) are leading causes of illness and death in the United States (Health Resources and Services Administration, 2015). One of the main ways children under age 13 become infected with HIV is via mother-to-child transmission of the virus prenatally, during labor, or by breastfeeding (CDC, 2016c). Some measures can be taken to lower the chance the child will contract the disease. HIV positive mothers who take antiviral medications during their pregnancy significantly reduce the chance of passing the virus to the fetus. The risk of transmission is less than 2 percent; in contrast, it is 25 percent if the mother does not take antiretroviral drugs (CDC, 2016b). However, the long-term risks of prenatal exposure to the medication are not known. It is recommended that women with HIV deliver the child by C-section and that after birth they avoid breastfeeding.

*Rubella*, also called German measles, is an infection that causes mild flu-like symptoms and a rash on the skin. However, only about half of children infected have these symptoms, while others have no symptoms (March of Dimes, 2012a). Rubella has been associated with a number of congenital disabilities. If the mother contracts the disease during the first three months of pregnancy, damage can occur in the eyes, ears, heart, or brain of the unborn child.

Deafness is almost certain if the mother has German measles before the 11th week of prenatal development and can also cause brain damage. Women in the United States are much less likely to be afflicted with rubella because most women received childhood vaccinations that protect her from the disease.

## Maternal Factors

**Mothers over 35:** Most women over 35 who become pregnant are in good health and have healthy pregnancies. However, according to the March of Dimes (2016d), women over age 35 are more likely to have an increased risk of:

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

Because a woman is born with all her eggs, environmental teratogens can affect the quality of the eggs as women get older. Also, a woman's reproductive system ages which can adversely affect the pregnancy. Some women over 35 choose special prenatal screening tests, such as a maternal blood screening, to determine if there are any health risks for the baby.

Although there are medical concerns associated with having a child later in life, there are also many positive consequences to being a more mature parent. Older parents are more confident, less stressed, and typically married providing family stability. Their

children perform better on math and reading tests, and they are less prone to injuries or emotional troubles (Albert, 2013). Women who choose to wait are often well educated and lead healthy lives. According to Gregory (2007), older women are more stable, demonstrate a stronger family focus, possess greater self-confidence, and have more money. Having a child later in one's career equals overall higher wages. In fact, for every year a woman delays motherhood, she makes 9% more in lifetime earnings. Lastly, women who delay having children live longer. Sun et al. (2015) found that women who had their last child after the age of 33 doubled their chances of living to age 95 or older than 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.

**Teenage Pregnancy:** A teenage mother is at a higher risk for having pregnancy complications including anemia, and high blood pressure. These risks are even more significant for those under age 15. Infants born to teenage mothers have a higher risk of being premature and having low birth weight or other serious health problems. Reasons for these health issues include that teenagers are the least likely of all age groups to get early and regular prenatal care. Additionally, they may engage in harmful behaviors including eating unhealthy food, smoking, drinking alcohol, and taking drugs. Additional concerns for teenagers are repeat births. About 25% of teen mothers under age 18 have a second baby within two years after the first baby's birth.

**Low Socioeconomic Status:** Low SES contributes to lack of access to prenatal care, proper nutrition, and often, social support. There is a negative association between low SES and pregnancy complications (Parker et al., 1994). Research has revealed that low SES is associated with pregnancy complications such as abortion, preterm delivery, preeclampsia, eclampsia, and gestational diabetes (Kim et al., 2018). It is unknown the extent to which this is attributed to inadequate prenatal care. However, low SES has several challenges for receiving adequate prenatal care. First, occupational

factors, such as long working hours and physical exertion may prevent adequate prenatal visits, and extended working hours or occupational fatigue is associated with preterm birth and preeclampsia (Kim et al., 2008). Second, other economic factors like costs of transportation to the hospital and the opportunity cost of receiving medical care may be a sufficient burden that restricts prenatal care in pregnant women with low SES (Kim et al., 2018). Third, the low educational level is related to the probability of seeking antenatal care inappropriately (Kim et al., 2018). Women with a low SES are also at risk for feeling demoralized and depressed.

**Gestational Diabetes:** Eight percent of pregnant women develop gestational diabetes (March of Dimes, 2021). Diabetes is a condition where the body has too much glucose in the bloodstream. Most pregnant women have their glucose level tested at 24 to 28 weeks of pregnancy. Gestational diabetes usually goes away after the mother gives birth, but it might indicate a risk of developing diabetes later in life. If untreated, gestational diabetes can cause premature birth, stillbirth, the baby having breathing problems at birth, jaundice, or low blood sugar. Babies born to mothers with gestational diabetes can also be considerably heavier (more than 9 pounds) making the labor and birth process more difficult. For expectant mothers, untreated, gestational diabetes can cause preeclampsia (high blood pressure and signs that the liver and kidneys may not be working correctly) discussed later in the chapter. Risk factors for gestational diabetes include age (being over age 25), being overweight or gaining too much weight during pregnancy, family history of diabetes, having had gestational diabetes with a prior pregnancy, and race and ethnicity (African-American, Native American, Hispanic, Asian, or Pacific Islander have a higher risk). Eating healthy and maintaining a healthy weight during pregnancy can reduce the chance of gestational diabetes. Women who already have diabetes and become pregnant need to attend all their prenatal care visits, and follow the same advice as those for women with

gestational diabetes as the risk of preeclampsia, premature birth, congenital disabilities, and stillbirth are the same.

**High Blood Pressure (Hypertension):** Hypertension is a condition in which the pressure against the wall of the arteries becomes too high. There are two types of high blood pressure during pregnancy, gestational and chronic. Gestational hypertension only occurs during pregnancy and goes away after birth. Chronic high blood pressure refers to women who already had hypertension before the pregnancy or to those who developed it during pregnancy, and it did not go away after birth. According to the March of Dimes (2015c), about 8 in every 100 pregnant women have high blood pressure. High blood pressure during pregnancy can cause premature birth, and low birth weight (under 5.5 pounds), placental abruption, and mothers can develop preeclampsia.



*Blood pressure should be monitored during pregnancy.*

**Rh Disease:** Rh is a protein found in the blood. Most people are Rh positive, meaning they have this protein. Some people are Rh negative, meaning this protein is absent. Mothers who are Rh

negative are at risk of having a baby with a form of anemia called Rh disease (March of Dimes, 2009). A father who is Rh-positive and mother who is Rh-negative can conceive a baby who is Rh-positive. Some of the fetus's blood cells may get into the mother's bloodstream, and her immune system is unable to recognize the Rh factor. The immune system starts to produce antibodies to fight off what it thinks is a foreign invader. Once her body produces immunity, the antibodies can cross the placenta and start to destroy the red blood cells of the developing fetus. As this process takes time, often the first Rh-positive baby is not harmed, but as the mother's body will continue to produce antibodies to the Rh factor across her lifetime, subsequent pregnancies can pose a higher risk for an Rh-positive baby. In the newborn, Rh disease can lead to jaundice, anemia, heart failure, brain damage, and death.

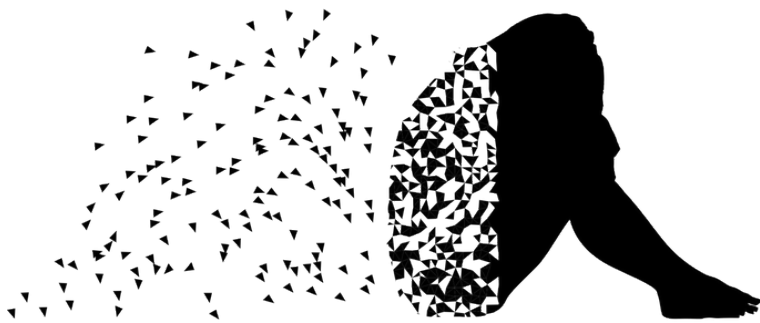
**Weight Gain during Pregnancy:** According to March of Dimes (2016f) during pregnancy most women need only an additional 300 calories per day to aid in the growth of the fetus. Gaining too little or too much weight during pregnancy can be harmful. Women who gain too little may have a baby who is low birth weight, while those who gain too much are likely to have a premature or large baby. There is also a higher risk for the mother developing preeclampsia and diabetes, which can cause further problems during pregnancy. Guidelines healthy weight gain during pregnancy vary by a mother's weight before pregnancy. Putting on the weight slowly is best. Mothers who are concerned about their weight gain should talk to their health care provider.

**Stress:** Feeling stressed is common during pregnancy, but high levels of stress can cause complications including having a premature baby or a low-birthweight baby. Babies born early or too small are at an increased risk for health problems. Stress-related hormones may cause these complications by affecting a woman's immune systems resulting in an infection and premature birth. Additionally, some women deal with stress by smoking, drinking alcohol, or taking drugs, which can lead to problems in the pregnancy. High levels of stress in pregnancy have also been

correlated with problems in the baby's brain development and immune system functioning, as well as childhood problems such as trouble paying attention and being afraid (March of Dimes, 2012b).

Stress during the pregnancy may also be related to labor complications and the parent-child attachment. After a stressful pregnancy, a woman might feel less prepared and more anxious about birth, experience more pain and less support during labor, and consequently struggle more with postpartum recovery, breastfeeding, bonding, and distressed mood (Saxby, 2017). Prenatal stress and anxiety have been associated with obstetric complications, preterm labor onset, risk of C-section birth, and greater use of pain medication during labor (Alder et al., 2007; Saunders et al., 2006).

**Depression:** Depression is a medical condition in which feelings of sadness, worthlessness, guilt, and fatigue interfere with one's daily functioning. Depression can occur before, during, or after pregnancy, and 1 in 7 women is treated for depression sometime between the year before pregnancy and year after pregnancy (March of Dimes, 2015a). Women who have experienced depression previously are more likely to have depression during pregnancy. Consequences of depression include the baby being born premature, having a low birth weight, being more irritable, less active, less attentive, and having fewer facial expressions. About 13% of pregnant women take an antidepressant during pregnancy. It is essential that women taking antidepressants during pregnancy discuss the medication with a health care provider as some medications can cause harm to the developing organism.



Depression is not the same as the Baby Blues. The Baby Blues are feelings of sadness that occur 3 to 5 days after having a baby and typically disappear usually within 10 days of the birth. New mothers may have trouble sleeping, be moody, and feel let-down from the birthing experience. According to the Diagnostic and Statistical Manual of Mental Disorders-5th edition (DSM-V), (American Psychiatric Association, 2013), the peripartum onset of depression, also known as Postpartum Depression, is a type of depression that occurs during pregnancy or in the four weeks following pregnancy. Approximately 1 out of 8 women experience postpartum depression. Changing hormone levels are thought to be a factor in its occurrence. However, risk factors include having depression previously, a family history of depression, being younger than 20, experiencing stress, and substance use.

Peripartum-onset mood disorders, both depression, and mania can present with or without psychotic features. Hallucinations and delusions are associated with postpartum psychotic episodes and have included command hallucinations to kill the infant or delusions that the infant is possessed. Psychotic features occur in approximately 1 in 500 to 1 in 1,000 deliveries, and the risk is higher for women with previous postpartum mood episodes (American Psychiatric Association, 2013).

**Paternal Impact:** The age of fathers at the time of conception is also an important factor in health risks for children. According to Nippoldt (2015) offspring of men over 40 face an increased risk of miscarriages, autism, congenital disabilities, **achondroplasia** (bone growth disorder), and schizophrenia. These increased health risks are thought to be due to accumulated chromosomal aberrations and mutations during the maturation of sperm cells in older men (Bray, Gunnell, & Smith, 2006). However, like older women, the overall risks are small.

Also, men are more likely than women to work in occupations where hazardous chemicals, many of which have teratogenic effects or may cause genetic mutations, are used (Cordier, 2008). These may include petrochemicals, lead, and pesticides that can cause abnormal sperm and lead to miscarriages or diseases. Men are also more likely to be a source of second-hand smoke for their developing offspring. As noted earlier, smoking by either the mother or around the mother can hinder fetal development.

## Pregnancy and Childbirth (*Ob 7*)

### Prenatal Assessment

Several 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 (Eisenberg et al., 1996). These can include blood and urine analyses and screening and diagnostic tests for congenital disabilities.



*Medical staff checking heartbeat of fetus*

*Ultrasound* is one of the primary screening tests done in combination with blood tests. The 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 the number of fetuses. Most women have at least one ultrasound during pregnancy, but if problems are noted, additional ultrasounds may be recommended.

When a diagnosis of congenital disability 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 and Delivery

**Minor complications:** There are several common side effects of pregnancy. Not everyone experiences all of these nor to the same degree. Moreover, although they are considered "minor," this is not to say that these problems are 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). Some may complain about breast tenderness as colostrum, the first breast milk rich in nutrients is produced during pregnancy. All of these complications may subside or disappear after delivery.

**Major Complications:** The following are some severe complications of pregnancy which can pose health risks to mother and child and that often require hospitalization. **Ectopic Pregnancy** occurs when the zygote becomes attached to the fallopian tube before reaching the uterus. About 1 in 50 pregnancies in the United States are tubal pregnancies, and this number has been increasing because of the higher rates of pelvic inflammatory disease and Chlamydia (Carroll, 2007). Abdominal pain, vaginal bleeding, nausea, and fainting are symptoms of ectopic pregnancy.

**Preeclampsia**, also known as **Toxemia**, is characterized by a sharp rise in blood pressure, 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. It is estimated to affect 5% to 10% of all pregnancies globally and accounts for 40% to 60% of maternal

deaths in developing countries (National Institute of Child Health and Human Development, 2013). Rates are lower in the United States, and preeclampsia affects about 3% to 5% of pregnant women. 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 1000 women die in childbirth around the world each day (World Health Organization, 2010). 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 another 10 percent of diagnosed pregnancy. Usually, the body aborts due to chromosomal abnormalities, and this typically happens before the 12th week of pregnancy. Cramping and bleeding result and regular 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 (Carroll et al., 2003).

**Infant anoxia:** During delivery one major complication possible for the baby is 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 severe cases, death. Babies who suffer both low birth weight and anoxia are more likely to suffer learning disabilities later in life as well.

# Childbirth

## Approaches to Childbirth

Prepared childbirth refers to being not only physically in good condition to help provide a healthy environment for the baby to develop, but also helping a couple to prepare to accept their new roles as parents and to get information and training that will assist them for delivery and life with the baby as much as possible. The more a couple can learn about childbirth and the newborn, the better prepared they will be for the adjustment they must make to a new life. (Nothing can prepare a couple for this completely). Once a couple finds that they are to have a child, they begin to conjure up images of what they think the experience will involve. Once the child is born, they must reconcile those images with reality (Galinsky, 1987). Knowing more of what to expect does help them in forming more realistic images thus making the adjustment easier. The birth experience goes beyond the event as research has linked the birth experience to set the stage for the parent-infant attachment (Saxbe, 2017). Social support and self-efficacy may reduce the discomfort of labor, ease postpartum recovery and breastfeeding initiation, and help parents adjust more successfully to their new role (Saxbe, 2017). Social support is a primary source in predicting a positive pregnancy and delivery. On the other hand, a painful, frightening, or traumatic birth may contribute to both parents' postpartum distress, including symptoms of depression, anxiety, and posttraumatic stress (Saxbe, 2017). Further, birth complications and negative appraisals of the birth experience appear to predict adverse postpartum outcomes for both parents and children (Alder et al., 2011; Congdon et al., 2016).

Let's explore some of the methods of prepared childbirth with a cautionary note that there are limited well-designed studies evaluating which method is the best approach, and the majority

of the data that is available is based on self-reported outcomes (Varner, 2015). It is important to note that lower levels of evidence are available, and data from the childbirth classes' websites can be suspect because the companies themselves provide the information with no evidence of external review. Again, the emphasis is for a couple to learn as much as possible about the childbirth process to make their own informed decisions that best fit for their birthing journey.

**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 mother and serves as a coach during delivery.

**The Mongan or Hypnobirthing Method.** Developed by Marie Mongan, this method focuses on the belief that women can experience birth through the natural flow and rhythm of their laboring body by turning their birthing trusting their body to function as nature intended. Parents are connected to the physiology of the birth process and how the relations between fear, tension, and pain. The method teaches how to break the fear-pain-tension response from “fight or flight” through special relaxation techniques and fear-release. It focuses on teaching the skills of deep relaxation, visualization, and self-hypnosis.



*African birthing chair*

**The LeBoyer Method.** Other birthing options include the use of birthing chairs, which make use of gravity in assisting the woman giving birth and the LeBoyer Method of "Gentle Birthing." This method involves giving birth in a quiet, dimly lit room and allowing the newborn to lie on the mother's stomach with the umbilical cord intact for several minutes while being given a warm bath. The LeBoyer Method takes a similar approach to the Bradley Method.

**The Bradley Method.** According to the American Academy of Husband-Coached Childbirth (AAHCC) website, the purpose of the Bradley Method is to teach "natural childbirth and view birth as a

natural process. It is [their] belief that most women with proper education, preparation, and the help of a loving and supportive coach can be taught to give birth naturally” (AAHCC, 2013, para. 1). The method focuses on breathing techniques and supportive coach techniques. The Bradley Method involves a set of classes that are intended to educate on multiple components of pregnancy, labor, birth, and postpartum. Class content includes ways to stay healthy in pregnancy as well as dangers in pregnancy and dangers of medication use in labor.

**Choosing Where to Have the Baby and Who Will Deliver:** The vast majority of births occur in a hospital setting. However, one percent of women choose to deliver at home (Martin et al., 2015). Women who are at low risk for birth complications can successfully deliver at home. More than half (67%) of home deliveries are by certified nurse midwives. Midwives are trained and licensed to assist in the delivery and are far less expensive than the cost of a hospital delivery. However, because of the potential for a complication during the birth process, most medical professionals recommend that delivery take place in a hospital. Despite the concerns, in the United States women who have had previous children, who are over 25, and who are white are more likely to have out-of-hospital births (MacDorman et al., 2010). In addition to home births, one-third of out-of-hospital births occur in freestanding clinics, birthing centers, in physician’s offices, or other locations.



**Birth Centers/Birthing Rooms.** The trend now is to have birthing rooms that are hospital rooms that look more like a suite in a hotel equipped with a bed that can be converted for delivery. These rooms are also equipped with a bed and monitoring systems for the newborn. However, many hospitals have only one or two of these rooms and availability can be a problem.



**Home Birth and Nurse-Midwives.** Historically in the United States, most babies were born under the care of lay midwives. In the 1920s, middle-class women were increasingly using doctors to assist with childbirth, but rural women were still being assisted by lay midwives. The nursing profession began educating nurse-midwives to assist these women. Nurse-midwives continued to assist most rural women with delivery until the 1970s and 1980s when their growth is thought to have posed a threat to the medical profession (Weitz, 2007). Since that time, nurse-midwives have found it more challenging to sustain practices with the high costs of malpractice insurance. (Many physicians have changed areas of specialization in response to these costs as well.) Women who are at low risk for birth complications can successfully deliver under the care of nurse-midwives, but only 1 percent of births occur at home. Because one out of every 20 births involves a complication, most medical professionals recommend that delivery take place in a hospital. However, some couples choose to have their baby at home. About 1 percent of births occur out of a hospital in the United States. Two-thirds of these are home births, and more than half of these

are assisted by midwives. Midwives are trained and licensed to assist in the delivery and are far less expensive than the cost of a hospital delivery. One-third of out-of-hospital births occur in freestanding clinics, birthing centers, or in physicians' offices or other locations. In the United States, women who have had previous children, who are over 25 and who are white are more likely to have out-of-hospital births (MacDorman et al., 2010).

## The Process of Delivery (*Ob 7*)

**The First Stage** of labor begins with uterine contractions that may initially last about 30 seconds and be spaced 15 to 20 minutes apart. These increase in duration and frequency to more than a minute in length and about 3 to 4 minutes apart. Typically, doctors advise that they are called when contractions are coming about every 5 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 mother begins walking around. Real labor pains tend to increase with walking. Labor may also be signaled by a bloody discharge being expelled from the cervix. In 1 out of 8 pregnancies, the amniotic sac or water in which the fetus is suspended may break before labor begins. In such cases, the physician may induce labor with the use of medication if it does not begin in order to reduce the risk of infection. Typically, this sac does not rupture until the later stages of labor.

The first stage of labor is typically the longest. During this stage, the cervix or opening to the uterus dilates to 10 centimeters or just under 4 inches. This may take around 12-16 hours for first children or about 6-9 hours for women who have previously given birth. It takes one woman in 9 over 24 hours to dilate completely. 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.

**The Second Stage** involves the passage of the baby through the birth canal. This stage takes about 10–40 minutes. Contractions usually come about every 2–3 minutes. The mother pushes and relaxes as directed by the medical staff. Usually, 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. At this stage, an **episiotomy** may be performed to avoid tearing the tissue of the back of the vaginal opening. The baby's mouth and nose are suctioned out. The umbilical cord is clamped and cut.

More than 50% of women giving birth at hospitals use epidural anesthesia during delivery (American Pregnancy Association, 2015). An **epidural block** is a topical 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 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. In the United States, about one in three women have their babies delivered this way (Martin et al., 2015). 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 baby. Although the surgery is relatively safe for mother

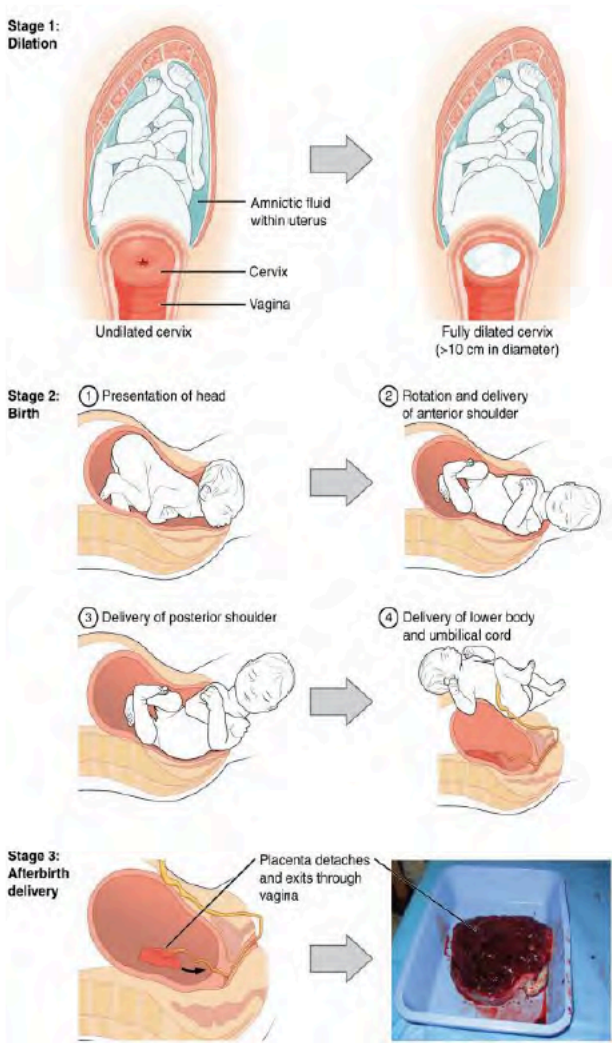
and baby, it is considered major surgery and carries health risks. Additionally, it also takes longer to recover from a C-section than from vaginal birth. After healing, the incision may leave a weak spot in the wall of the uterus. This could cause problems with an attempted vaginal birth later. However, more than half of women who have a C-section can give vaginal birth later.



*Appropriate positioning for vaginal birth.*

**The Third Stage** is relatively painless. During this stage, the

placenta or afterbirth is delivered. This typically within 20 minutes after delivery. If tearing occurred, it is stitched up during this stage.



Stages of birth.

**An Induced Birth:** Sometimes a baby's arrival may need to be induced or delivered before labor begins. Inducing labor may be recommended for a variety of reasons when there is a 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 baby has stopped growing at the expected pace
- There is not enough amniotic fluid surrounding the baby
- The placenta peels away, either partially or entirely, 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 (Mayo Clinic, 2014).

## Assessing the Neonate (*Ob 9*)

There are several ways to assess the condition of the newborn. The most widely used tool is the Neonatal Behavioral Assessment Scale (NBAS) developed by T. Berry Brazelton. This tool has been used around the world to help parents get to know their infants and to make comparisons of infants in different cultures (Brazelton & Nugent, 1995). The baby's motor development, muscle tone, and stress response are assessed. The **APGAR** developed by Dr. Virginia Apgar in 1952 is conducted one minute and five minutes after birth. This is a fast way to assess the newborn's overall condition. Five measures are assessed: the heart rate, respiration, muscle tone (quickly assessed by a skilled nurse when the baby is handed to them or 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.

**Table for APGAR Scoring**

Score	0 Points	1 Point	2 Points
<b>Appearance - Skin Color</b>	Cyanotic/ Pale all over	Peripheral cyanosis only	Pink
<b>Pulse (Heart Rate)</b>	0	<100	100-140
<b>Grimace - Reflex irritability</b>	No response to stimulation	Grimace (facial movement)/weak cry when stimulated	Cry when stimulated
<b>Activity - Tone</b>	Floppy	Some flexion	Well flexed and resisting extension
<b>Respiration</b>	Apneic	Slow, irregular breathing	Strong cry

*Summary of the APGAR. Adapted from: <https://litfl.com/apgar-score/>*

## Skin to Skin Contact After Birth

Skin to skin contact is highly recommended for all infants especially within the first hour after birth (Feldman, Weller, Sirota, & Eidelman, 2002). Skin to skin refers to the parent, most typically the birth mother, having skin contact with the newborn. There are benefits of skin to skin contact between mother and infant, psychosocially, physically, behaviorally, and neurobehavioral (Widström et al., 2019). The mother can feel lower stress levels as does the baby. Through skin to skin contact the infant can self regulate which is extremely helpful for those that were born premature or with a lower birth

weight (Feldman et al.). Immediate skin to skin contact after birth helps with breastfeeding as it allows the child to get familiar with their mother (Widström et al., 2019). Another term for skin to skin contact used by medical professionals is Kangaroo Care. Skin to skin or *Kangaroo care* is beneficial for premature babies as they have lost time to finish developing in the womb, as the mother has the baby up right on their chest touching skin (Dabrowski, 2007). A review of previous research shows that Kangaroo Care has a positive effect on growth of the very low birth weight infants and also leads to increase in the breast-feeding rates (Sharma et al., 2019).

### **Tips for Safe Interactive Skin to Skin Contact After Birth**

1. Make sure that the mother is in a comfortable semi-reclined position with support under her arms. After washed, cover the newborn with a dry blanket/towel and leave the face visible.

3. Make sure that the newborn's nose and mouth are not enveloped by the mother's breast or body or obscured by the blanket. Initially, the baby's head should be turned to the side.

4. The newborn infant must have the opportunity to use its reflexes to lift the head so the nose and mouth can be free. To encourage breastfeeding, the mother's nipple must be accessible to the newborn infant.

6. Show the parents how to support the breast to secure free airways especially during the time the baby starts searching for the breast. Verify understanding. Remind the parents to focus on the newborn infant and follow the newborn infant's early behavior. The other parent should be observant, not distracted by mobile phones, etc., during skin-to-skin.

7. Extra attention may be required if the mother is affected by sedation after childbirth as well as during possibly postpartum suturing. The other parent should be aware of the situation and watch for the safety of the infant. Labor medications can affect the newborn infant, and hamper reflexes. Babies affected by labor medications must be constantly monitored.

Recommendations adapted from Widström et al. (2019)

## Birthing Practices Around the World

Birth is one thing that all human beings share in common, although birth experiences are all unique. Birth is a biosocial process influenced by the society and culture we live in. In addition to varied birth practices, there is wide cultural variation in beliefs about birth. For birth attendance, there is little variation in traditional cultures in who assists with the birth as it is rare for the male to be the primary support during birth. The father may help support the birth mother in various positions and other women in the room may be relatives. Here are a few other differences you might find in traditional cultures: Women from some cultures avoid moving too much during birth; some stay lying down, some prefer to sit or squat. After the birth, some women follow strict rules, such as staying in bed for several days.

You can explore delivery trends across the world [here](#) (UNICEF data, July 2022).

**Table. Examples of pregnancy practices across the world (Boules, 2020)**

<u>Region of the world</u>	<u>Pregnancy</u>	<u>During &amp; after birth</u>
Afghanist an	During the pregnancy the father did not play any role.	The Placenta is buried in dark red ground. Most of the women give birth at home and stay home afterwards for 40 days.
Cambodi a	During pregnancy, women avoid exposure to wind and wear warm clothes. Cambodian mothers believe that rising earlier than the husband and finishing meals before he does will ensure a quick and easy labor.	The Cambodian Mothers prefer a female doctor for privacy with more body exposure. Preference is for a female relative in the delivery room, the husband does not attend the delivery. Women who have just given birth must be kept very warm. Traditionally, the women should not shower for three days after the birth.

China

A pregnant woman should not touch dirty things and not go to dirty places; they should be getting rest and having good food.

Traditionally, husband will not be present during the birth. Chinese mothers prefer to give birth in a sitting or squatting position. - The new mother rests for one month, cared for by the family, who limit her dietary and behavior restrictions like limiting showers and eating only warm foods.

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For more information check out [this handout](#) from Boules (2020).

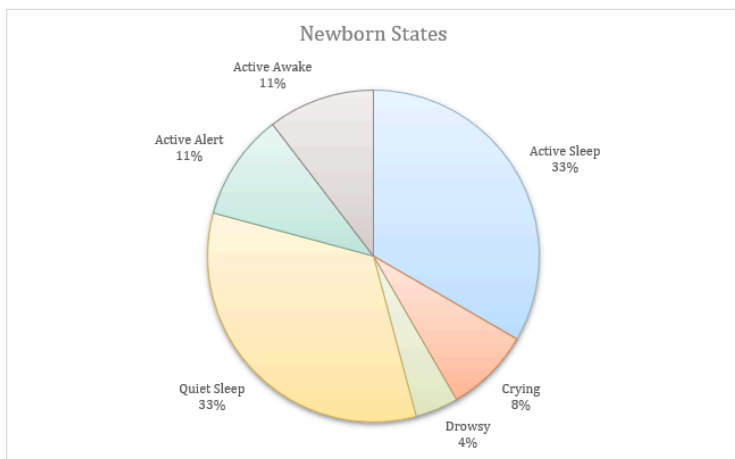
## Newborn states and Risks of the Newborn (Ob 10)

### Newborn senses

As early as 9 weeks the fetus is responsive to stimuli. Some reflexes appear at 11 weeks' gestation. The mother can feel fetal movement or kicking (quickening) around 16-17 weeks of pregnancy. The fetus can hear at 25 weeks' gestation. Swallowing of amniotic fluid gives the fetus an initial taste. Newborns can distinguish between sour,

bitter, sweet, and salty flavors and show a preference for sweet flavors. They are sensitive to touch and can distinguish between their mother's scent and that of others. The fetus is starting to develop its senses with the least developed being vision due to the dark environment of the womb. Newborns typically cannot see further than 8 to 16 inches away from their faces, have difficulty keeping a moving object within their gaze, and can detect contrast more than color differences. After birth, a healthy newborn is ready to continue his/her development in a new environment, outside of the womb. The baby explores and learns and is influenced by his/her state of arousal.

"Sleeping like a baby" connects to newborns sleep a lot. Total sleep regularly declines during childhood. Western newborns typically spend 16 hours a day sleeping, with eight of those hours in active sleep and eight of the hours in quiet sleep. Active sleep is Rapid Eye Movement (REM) sleep where you may see body movements, high brain activity, and irregular breathing. Non-REM sleep has slow breathing and heart rate. Newborns spend more time in REM sleep than children or adults (e.g., 3 to 4-year-olds spend about 20% of sleep in REM sleep). It is hypothesized that high REM sleep is connected to the newborn's rapid development of the visual system (Boismier, 1977). Newborn sleep is also in sleep-wake cycles throughout 24 hours gradually maturing to sleeping longer patterns at night. The age at which infants' sleep matches those of the caretaker is related to cultural practices.



*Pie chart showing newborn states in a 24-hour period*

Newborns spend an average of 2 hours in 24 hours crying. Crying can signal hunger, pain, overstimulation, or a sign of distress. Other states include active alert and active awake, each lasting approximately 2.5 hours.

As we will read in chapter 4, there are universal ways across the world that adults comfort crying newborns. Attuning to and identifying the infant needs may help in reducing the crying.

## Low Birthweight

We have been discussing several teratogens associated with a low birth weight such as cocaine, tobacco, etc. A child is considered **low birth weight** if he or she weighs less than 5.8 pounds (2500 grams). About 8.6 percent of babies born in the United States are of low birth weight (Center for Disease Control, 2023). 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 of infection.

Moreover, 67 percent of these babies are also preterm which can make them more at risk for a 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, however.

Low birthweight babies may have organs that are not fully developed which can result in breathing problems, bleeding in the brain, vision loss, and serious intestinal problems. Very low birthweight babies (less than 3 ½ pounds) are more than 100 times as likely to die, and moderately low birthweight babies (between 3 ½ and 5 ½ pounds) are more than 5 times as likely to die in their first year, than normal weight babies (March of Dimes, 2012c).

## Premature Birth

A child might also have a low birth weight if it is born at less than 37 weeks' gestation (which qualifies it as a **preterm baby**). Early birth can be triggered by anything that disrupts the mother's system. For instance, vaginal infections or gum disease 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.



**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 (CDC, 2015c). Preterm babies may have organs that are not fully developed which can result in breathing problems, bleeding in the brain, vision loss, and serious intestinal problems. 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 (United States National Library of Medicine, 2015).

**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. This is a very serious situation for newborns as their growth was adversely

affected. Regev et al. (2003) found that small-for-date infants died at rates more than four times higher than other infants.

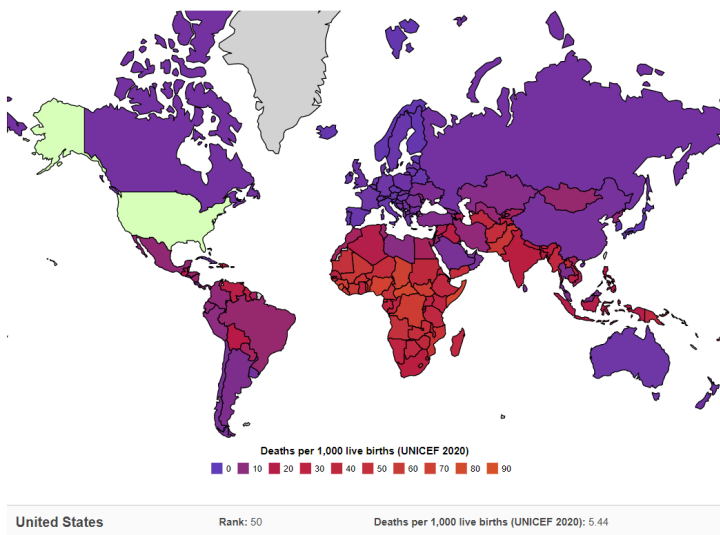
**Intervention:** Preterm, low birth weight, and small for date infants may be unresponsive or hard to interact with. They are at risk for a poor parent-child attachment as well as a higher risk for neurodevelopmental disabilities than full-term, healthy infants. Interventions supporting parents to improve the quality of the infant's environment should improve developmental outcomes. Intervention components may include parent psychosocial support, parenting education, and therapeutic developmental support for the infant. Interventions that include psychosocial support resulted in better outcomes for mothers of these infants (Benzies et al., 2013).

**Infant mortality:** Infant mortality, death during the first year of life, is relatively rare in industrialized countries. That being said, preterm birth is the leading cause of infant mortality in industrialized countries. In 2022, the infant mortality rate in the United States was 5.6 deaths per 1,000 live births (CDC, 2022). Within the US, infant mortality rates based on race and ethnicity breakdowns were as follows:

- Non-Hispanic black (10.9)
- American Indian/Alaska Native (9.1)
- Non-Hispanic Native Hawaiian or other Pacific Islander (8.5)
- Hispanic (4.9)
- Non-Hispanic white (4.5)
- Non-Hispanic Asian (3.4)

In less developed countries, especially those suffering from war, famine, or extreme poverty, infant mortality rates are higher. The country with the highest infant mortality rate is Afghanistan (103.1 in 1000 live births) (UNICEF, 2024).

Infant Mortality Rate by Country 2022



Infant Mortality Rate by Country from World Population Review (UNICEF, 2020).

## Conclusion

This chapter has explored the intricate processes of prenatal development, from the moment of conception to the incredible journey of childbirth. We've delved into the fascinating world of genetics, examining how heredity shapes our individual characteristics and predispositions. We've also considered the profound impact of environmental factors, including teratogens and maternal influences, on the developing fetus. Finally, we've witnessed the miracle of birth, recognizing the diverse approaches and potential complications that can arise during this transformative experience.

As you move forward in your study of human development, remember that the prenatal period lays the foundation for all future

growth. The intricate interplay of genes and environment during these critical months shapes not only our physical well-being but also our cognitive and emotional potential. By understanding the complexities of prenatal development, we can better appreciate the remarkable journey that begins even before we take our first breath.

In the next chapter, we will explore the fascinating developments that occur during infancy and toddlerhood, as newborns transition into active explorers of their world. We will delve into the physical, cognitive, and social milestones that mark this period of rapid growth and discovery.

## *Chapter Review Practice Quiz*



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

<https://open.maricopa.edu/psy240mm/?p=722#h5p-4>

## Chapter 3 Key terms (defined in Glossary)

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achondroplasia	incomplete dominance
age of viability	infant anoxia
APGAR	Klinefelter's syndrome
Behavioral Genetics	low birth weight
cephalocaudal development	meiosis
Cesarean Section (C-section)	mitosis
chromosomal abnormality	multifactorial
chromosome	nature
congenital disabilities	nurture
dominant	oogenesis
dose-duration-timing impact	phenotype
ectopic pregnancy	placenta
embryo	polygenetic
epidural	polygenic
episiotomy	preeclampsia (toxemia)
Fetal Alcohol Spectrum Disorders	preterm
fetus	proximodistal development
gametes	recessive
genes	sex-linked chromosomal abnormality
genotype	spermatogenesis
Genotype-Environment Correlations	spontaneous abortion
Genotype-Environment Interactions	teratogen
germinal period	Trisomy 21
heterozygous	Turner syndrome
heterozygous	zygote
homozygous	

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# Chapter 4: Infancy to Toddlerhood



## Objectives:

*At the end of this lesson, you will be able to...*

1. Summarize overall physical growth during infancy. Compare gross and fine motor skills and give examples of each.
2. Describe the growth of the brain during infancy.
3. Discuss nutritional concerns of marasmus and kwashiorkor.
4. Describe cognitive development in infancy and toddlerhood. Describe the six substages of sensorimotor intelligence, infant memory, and language development.
5. Describe stages of language development during infancy. Define babbling, holophrastic speech, and overregularization.

6. Contrast styles of attachment.
7. Discuss the importance of temperament and goodness of fit.
8. Describe self-awareness, stranger wariness, and separation anxiety.
9. Use Erikson's theory to characterize psychosocial development during infancy.

***The objectives are next to reading sections below.***

## Introduction

Welcome to the story of development from infancy through toddlerhood; from birth until about 2 years of age. Researchers have given this part of the life span more attention than any other period, perhaps because changes during this time are so dramatic and so noticeable and perhaps because we have 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 (Bruer, 1999). Nevertheless, this is a period of life that contemporary educators, healthcare providers, and parents have focused on most heavily. We will examine growth and nutrition during infancy, cognitive development during the first 2 years, and then turn our attention toward attachments formed in infancy.

## Physical Development (*Ob 1*)

**Overall Physical Growth:** The average newborn in the United States weighs about 7.5 pounds and is about 20 inches in length. Average birth weight varies globally. For example, in Africa it is 6.9 pounds (3,149 grams), followed by Central America (2,874 grams or 6.33

pounds) and Asia (2,713 grams or 5.98 pounds) (Marete et al., 2020). 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. Birth weight typically doubles by five months, and the average twelve-month-old weighs 22 pounds (Graber, 2023). After the first year, growth slows, and children gain about 5 pounds in the next year. Meanwhile, infants grow about 1 inch per month during the first year, and another 4 to 5 inches by age two years (Graber, 2023). The average length at 12 months (1-year-old) typically ranges from 28.5-30.5 inches. The average length at 24 months (2-year-old) it is around 33.2-35.4 inches (CDC, 2010).

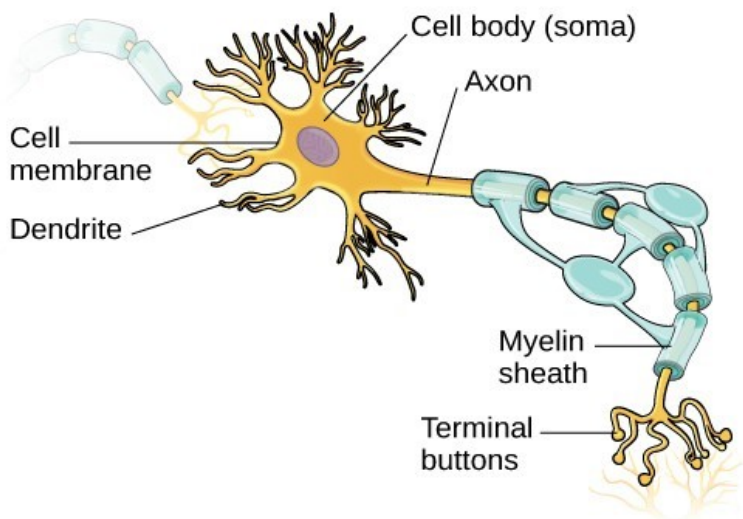
Teething occurs during the first year as well, with a first tooth typically emerging between four and six months (but sometimes after the first birthday). The bottom front teeth usually develop first, followed by the top front teeth, and most children will have all their teeth by the time they're two or three years old.

**Body Proportions:** Another dramatic physical change that takes place in the first several years of life is the change in body proportions. The proportion of the head to the body is part of the reason it's hard for a newborn (or even a two-month-old) to raise their head. 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 (think about how much of your length would be head if the proportions were still the same!). By age 25 it comprises about 20 percent our length. Imagine now how difficult it must be to raise one's head during the first year of life! And indeed, if you have ever seen a 2 to 4-month-old infant lying on the stomach trying to raise the head, you know how much of a challenge this is.



## The Brain in the First Two Years (*Ob 2*)

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 (Huttenlocher & Dabholkar, 1997). 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 (connections between neurons are synapses), 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**.



*Drawing of neuron. A synapse is the gap between neurons.*

The blooming period of neural growth is then followed by a period of **Synaptic Pruning**, where neural connections are reduced thereby making those that are used much stronger. Think about how a rose bush may have become overgrown (synaptic blooming) and then it needs to be trimmed down or pruned to keep the rose bush healthy (synaptic pruning). It is thought that pruning causes the brain to function more efficiently, allowing for mastery of more complex skills (Kolb & Whishaw, 2011). 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 (Webb et al., 2001). Blooming occurs during the first few years of life, and pruning continues through childhood and into adolescence in various areas of the brain.

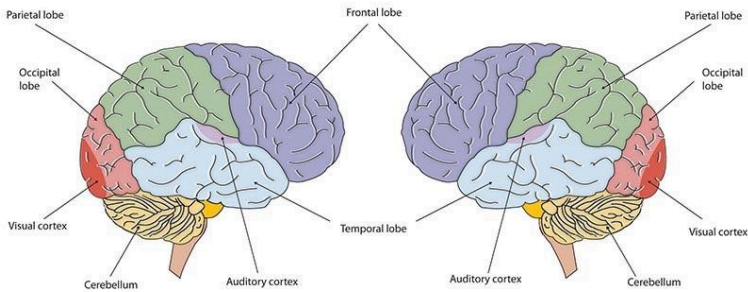
It is through experiences that neurons form synapses with nearby neurons, a process critical for brain development. How [experiences shape the development of a child's brain](#) is described in this video on connections and brain development from Harvard University.

Another significant change occurring in the central nervous system is the development of **Myelin**, a coating of fatty tissues around the axon of the neuron (Carlson, 2014). Myelin helps to 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 and 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 of its adult weight, and by age two it is at 75 percent of its adult weight. By the age of two years, a child's brain structure typically has the appearance of an adult brain (Johnson, 2001). Most of the neural activity occurs in the cortex or the thin outer covering of the brain involved in voluntary activity and thinking. The cortex is divided into 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, 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.

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, which 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.



*Areas of the forebrain divided by hemisphere.*

**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 abilities (Springer & Deutsch, 1993). This process develops over time. However, structural asymmetries between the hemispheres have been reported even in fetuses (Chi et al., 1997; Kasprian et al., 2011) and infants (Dubois et al., 2009). Lastly, **neuroplasticity** refers to the brain's ability to change, both physically and chemically, to enhance its adaptability to

environmental change, and compensate for an 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 children (Kolb & Whishaw, 2011).

TRY IT!: [Areas and Function of the Brain](#) interact with the map and chart to review major areas of the brain and their functions. Toggle down on the top left menu to choose different structures to explore.

## From Reflexes to Voluntary Movements (*Ob 1*)

If you’re having a bad day, do yourself a favor and search online for “newborn giraffes.” You’ll be greeted with funny and adorable footage of baby giraffes awkwardly standing up and trying to take their first steps mere hours after birth. What takes less than a day for a giraffe takes a year for human children, however. Why is this?

Many of our inborn motor skills are reflexes. A reflex is an involuntary movement that originates in our brainstem in response to stimulation. Reflexes are movements that occur automatically and are signals that the infant is functioning well neurologically. Reflexes are important for brain development, and most reflexes will develop into controlled motor skills, like grasping by four months and walking by twelve months. Motor and cognitive changes start with neurons, our body’s messengers, and relevant aspects of brain development.

The table below shows different movement reflexes and the age

at which they disappear. 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 (non-movement) reflexes, such as the eye-blink, swallowing, sneezing, gagging, and withdrawal reflex stay with us as they continue to serve essential functions.

Reflex	Description	Average Age at Which Reflex Disappears
Stepping	Makes stepping motion when sole of feet touches hard surface	2 months
Moro	Arms fling sideways with palms up as if in falling motion	2–4 months
Rooting	Turns head to side, opens mouth wide, and makes sucking motions when stroked on cheek	3–4 months
Palmar grasp	Grasps a finger placed in palm	3–6 months
Swimming	Kicks and makes swimming motions if placed face-down in water	4–6 months
Sucking	Sucks when something is in mouth	4 months
Tonic neck	Assumes fencer stance when relaxed and lying face up if someone turns head to side	6 months
Plantar	Curls toes in when finger is placed below them	9–12 months
Babinski	Toes fan out when foot is stroked	12 months
Blinking	Blinks when eyes touch something or are exposed to sudden brightness	Stays
Coughing	Coughs when airway is stimulated	Stays
Gagging	Gags when back of mouth/throat is stimulated	Stays
Sneezing	Sneezes when nasal passage stimulated	Stays

Table Newborn Reflexes (source: Heidenreich, 2021)

## 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. If a baby is not holding up his head by 4 months old, he is 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 a 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.

During the first few months of life, infants are rapidly moving from one gross motor milestone to the next. This video shows [some of the motor milestones they reach](#) during the first three months.

The [development of fine motor skills during infancy](#) allows infants to feed themselves and explore their environment. Many of these skills are learned through play.



**Gross Motor Skills:** These voluntary movements involve the use of large muscle groups and are typically large movements of the arms, legs, head, and torso. These skills begin to develop first. Examples include moving to bring the chin up when lying on the stomach, moving the chest up, rocking back and forth on hands and knees. But 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 (Berk, 2007). 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!



**Fine Motor Skills:** Fine motor skills are more precise movements of the hands and fingers and include the ability to reach and grasp an object. Fine motor skills use smaller muscle groups in the hands, fingers, and wrist. 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. Grasping an object involves the use of the fingers and palm, but no thumbs. Stop reading for a moment and try to grasp an object using these fingers and the palm. How does that feel? How much control do you have over the object? If it is a pen or pencil, are you able to write with it? Can you draw a picture? The answer is probably not. 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. This ability dramatically 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. This is quite a complicated set of actions if

we remember how difficult this would have been just a few months earlier.

### *Cultural Aspects of Motor Development*

Culture-based variations in gross motor development have been documented in populations around the world (APPT, 2018). Cultural differences in daily childrearing practices can explain accelerated and delayed onset ages relative to traditionally studied populations. For example, in Africa, infants who receive massage and exercise begin sitting and walking at earlier ages than infants who do not while in Northern China, the practice of toileting infants by laying them on their backs in sandbags for most of the day delays the onset of sitting, crawling, and walking by several months (as cited in Karasik et al., 2010). In Jamaica, babies are encouraged to skip crawling and go straight to walking as crawling is seen as demeaning and walking promotes interdependence, while crawling in European or American cultural groups promotes independence in mobility (APPT, 2018). The slowest rate of motor development documented culturally is in the Ache group in Paraguay, where independence is seen and dangerous and mobility at a young age is discouraged. Thus, infants from certain cultural groups may follow unique motor development trajectories due to culture-specific caregiving practices or cultural values/beliefs. In understanding an individual child's motor development, it is important to consider family routines,

cultural values or beliefs, and what are the parent priorities (APPT, 2018).

### *Dynamic Systems Theory*

**Dynamic systems theory** explains motor development as an interaction between multiple systems. According to Esther Thelen, motor skills emerge from the interplay of internal development (cognition, senses), maturation, and environment (Thelen & Smith, 2007). For example, walking requires coordinated development of balance, muscles, movement patterns, vision, and spatial awareness. Motor development depends on both biological maturation (cerebellar growth, myelination) and environmental factors. While genetic influence is evident – identical twins show more similar motor milestone timing than fraternal twins – unique experiences can lead to different motor capabilities even in identical twins (Ooki, 2006). This dynamic systems approach has expanded beyond motor development to explain other developmental domains like cognition and language across the lifespan (Spencer et al., 2011).

### Sensory Development (*Ob 3*)

Infants were once described as being in “a blooming, buzzing confusion” by William James, an early psychologist (Shaffer, 1985). However, current research techniques have demonstrated just how developed the newborn is, especially with organized sensory and perceptual abilities.

**Vision:** Vision is the most poorly developed sense at birth due to

the dark environment of the womb. Newborns typically cannot see further than 8 to 16 inches away from their faces, have difficulty keeping a moving object within their gaze, and can detect contrast more than color differences. If you have ever seen a newborn struggle to see, you can appreciate the cognitive efforts being made to take in visual stimulation and build those neural pathways between the eye and the brain. When you glance at a person, where do you look? Chances are you look into their eyes. If so why? It is probably because there is more information there than in other parts of the face. Newborns do not scan objects this way; instead, they tend to look at the chin another less detailed part of the face due to their limited visual system. However, by 2 or 3 months, with an advancement of the visual system, they will seek more detail when exploring an object visually and begin showing preferences for unusual images over familiar ones and for patterns over solids and faces over patterns and three-dimensional objects over flat images. Newborns have difficulty distinguishing between colors, but within a few months are able to discriminate between colors as well as do adults. Infants can also sense depth as binocular vision develops at about 2 months of age. By 6 months, the infant can perceive depth perception in pictures as well (Sen et al., 2001). Infants who have experience crawling and exploring will pay more considerable attention to visual cues of depth and modify their actions accordingly (Berk, 2007).

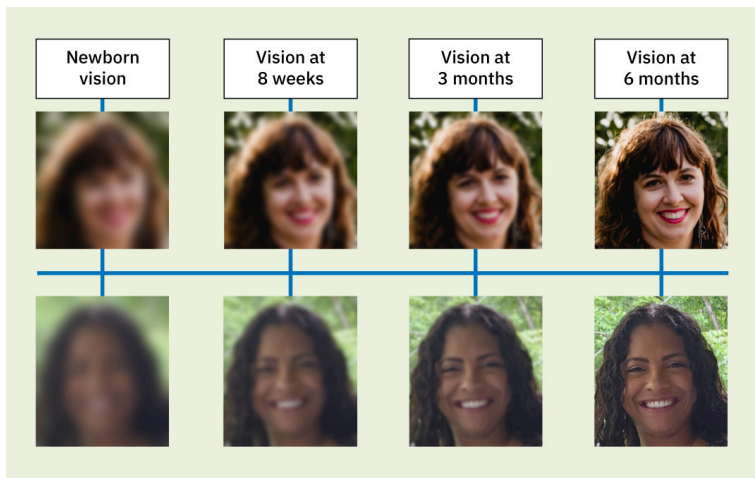


Figure Newborns' visual acuity increases as their vision develops over the first months of life. Seeing the shapes and contrasts of a caregiver's face is an important part of this growth.

**Hearing:** The infant's sense of hearing is very keen at birth. If you remember, this ability to hear is evidenced as soon as the 5th 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 unfamiliar voice even earlier. Some of this ability will be lost by 7 or 8 months as a child becomes familiar with the sounds of a particular language and less sensitive to sounds that are part of an unfamiliar language.

Newborns also prefer their mother's voices over another female when speaking the same material (DeCasper & Fifer, 1980). Additionally, they will register in utero specific information heard from their mother's voice. DeCasper and Spence (1986) tested 16 infants (average age of 55.8 hours) whose mothers had previously read to them prenatally. The mothers read several passages to their fetuses, including the first 28 paragraphs of the *Cat in the Hat*, beginning when they were 7 months pregnant. The fetuses had been exposed to the stories and average of 67 times or 3.5 hours. When the experimental infants were tested, the target stories (previously

heard) were more reinforcing than the novel story as measured by their rate of sucking. However, for control infants, the target stories were not more reinforcing than the novel story indicating that the experimental infants had heard them before.

**Touch and Pain:** Touch plays a vital role in infant development from birth, triggering important reflexes and promoting parent-infant bonding. Skin-to-skin contact (“kangaroo care”) provides health benefits for newborns, while gentle touch improves outcomes in premature infants, including mood, sleep, and growth (Mehrpišeh et al., 2022; Fadlalmola et al., 2023). Additionally, touch experiences support spatial awareness, body awareness, motor development, and learning (Seidl et al., 2023).

Immediately after birth, a newborn is sensitive to touch and temperature, and is also highly sensitive to pain, responding with crying and cardiovascular responses (Balaban & Reisenauer, 2013). 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 (United States National Library of Medicine, 2016). Typically, local pain killers are currently used during circumcision.

**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. Newborns also prefer the smell of their mothers. An infant only 6 days old is significantly more likely to turn toward its own mother’s breast pad than to the breast pad of another baby’s mother (Porter et al., 1992), and within hours of birth an infant also shows a preference for the face of its own mother (Bushnell, 2001; Bushnell et al., 1989).

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, infants can match lip movements with speech sounds and can match other audiovisual events. Although sensory development 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 are Infants Tested: Habituation Procedures** that measure 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. 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 average 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 infants (Phelps, 2005).

# Sleep

Infants need sleep but there is variation during the first few years due to changes that happen with feedings, socialization, and cultural patterns. The America Academy of Sleep recommends 12-16 hours of sleep a day for infants 4 to 12 months old (Paruthi et al., 2016). Sleep problems can be behavior related (inconsistent routines, refusal to sleep), physical (hunger or diaper change), or medical (breathing, illness). The table below notes averages for sleeping habits of birth to 24 months, although there can be variation due to culture, environmental conditions, and family customs.

**Table. Sleep averages birth – 2 years old**

Age	Average Hours of Sleep in 24 hour timeframe	Naps	Night Wakings	Other Notes
0-2 months	12-18	3-4	multiple (feedings)	No distinction between day/night
2-6 months	10-18*	2-3	1-2	Sleep less during day
6-12 months	10-17*	2	0-1	Night time pattern developed
12-24 months	10-15*	1-2	0-1	Night wakings decrease

\*these are averages, recommendation is 12-16 hours for 4-12 months and 11-14 hours for 1-2 years (American Academy of Pediatrics)

Bed-sharing, or **co-sleeping**, is a decision made based on family customs, environmental conditions, and culture. Should infants be sharing the bed with parents? Safety should be the utmost concern

for co-sleeping. Colvin et al. (2014) 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. 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. Carpenter et al. (2013) compared infants who died of Sudden Infant Death Syndrome (SIDS) with a matched control and found that infants younger than 3 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. 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 or drug use, risks associated with bed sharing significantly increased.

The two studies discussed above were based on American statistics. What about the rest of the world? Whiting studied 136 societies. The most prominent, he found, in 50 percent of the cultures he surveyed had one bed for mother and child and father in another bed. The other three: mother and father in the same bed, with baby in another bed; all members of the family in separate beds; all members of the family together in one bed. Co-sleeping occurs in many cultures, primarily because of a more collectivist perspective that encourages a close parent-child bond and interdependent relationship (Morelli et al., 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 (Nelson et al., 2000).

## Sudden Unexpected Infant Deaths (SUID)

Each year in the United States, there are about 3,700 Sudden Unexpected Infant Deaths (SUID). These deaths occur among infants less than 1 years old and have no immediately apparent cause (CDC, 2024). 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, and approximately 1,500 infants died of SIDS in 2013 (CDC, 2015). 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 the cause of death could not be determined.
- **Accidental Suffocation and Strangulation in Bed:** Reasons for accidental suffocation 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.

The combined SUID death rate declined considerably 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. However, accidental suffocation and strangulation in bed mortality rates remained unchanged until the late 1990s. In 1998 death rates from accidental suffocation and strangulation in bed started to increase, and they reached the highest rate at 33.4 deaths per 100,000 live births in 2017 (CDC, 2020).

### *More information about SIDS*

SIDS is an exclusion diagnosis, meaning there is no lab or test to confirm SIDS. Therefore there is confusion among physicians on how to correctly apply the diagnosis of SIDS. Due to the uncertainty surrounding SIDS, some jurisdictions are not using SIDS as a cause of death at all. No specific cause has been found but there is a clear connection with SIDS between sleep environment and sleep position. The *Back to Sleep* campaign was designed in 1994 to encourage and educate caregivers that infants need to be put in the supine position to sleep. Supine means, sleeping on their back, facing upwards. The supine sleep position does not increase the risk of choking and aspiration. Since the start of this campaign there has been a significant drop in infants sleeping in the prone sleeping position. It is recommended that infants should be placed for sleep in the supine position for every sleep period until the infant is over the age one. Supine sleeping has been proved to be 7 times more safe than prone sleeping and 2 times more safe than laying the infant on it's side. Side sleeping is not safe and is not recommended.

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## Videos about SUID



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

<https://open.maricopa.edu/psy240mm/?p=756#oembed-1>

Provides updated information about the basics of SUID and prevention methods (AboutKidsHealth, 2024).

1. News update [video](#) on latest findings for SUID with genetic sequencing (Arc Seattle, 2024). Researchers from Seattle Children's Hospital and Microsoft AI For Good sequenced the genomes of infants who died from SIDS and found a possible genetic connection with sudden cardiac arrest. This discovery could potentially help predict high-risk SIDS in infants.
- 

The AAP (American Academy of Pediatrics) recommends a safe sleep environment can reduce all infant sleep related deaths. Some of the recommendations for a safe sleep environment include use of a firm sleep surface, room-sharing without bed-sharing, and avoidance of soft bedding and overheating. Whatever the infant sleeps in should be placed in the parents room, ideally for the first year of life, but at least for the first 6 months. Infants who are brought into the bed for feeding or comforting should be returned to their own crib when the parent is ready to return to sleep. Although the prone position is said to help the child to sleep better with no arousal, a baby that falls into a deep sleep is more at risk for SIDS. Breastfeeding

is associated with a reduced risk of SIDS, physiologic sleep studies showed that breastfed infants are more easily aroused from sleep than formula fed. Infants should be placed on a firm sleep surface, covered by a fitted sheet with no other bedding or soft objects to reduce the risk of SIDS and suffocation. Keep soft objects, such as pillows, pillow-like toys, quilts, comforters, sheepskins, and loose bedding, such as blankets, away from the infant's sleep area. Sitting devices like car seats, strollers, swings, infant carriers, and infant slings, are not recommended for routine sleep for young infants in particular. Couches and armchairs are dangerous places for infants. The amount of clothing or blankets covering an infant and the room temperature are associated with an increased risk of SIDS, avoid overheating and head coverings. An infant is also at greater risk for SIDS if the mother is smoking or drinking, during and after pregnancy.

Nurses that work in postpartum areas are in a position to correctly model and give information to caregivers about how to prevent SIDS. The American Academy of Pediatrics advise that healthcare professionals, even nurses in the nursery, are good role models and make sure caregivers know SIDS reduction recommendations and are prepared for when they are discharged. Research shows that nurses do not demonstrate complete compliance with AAP positions and do not always correctly model SIDS prevention. There was a study put in place between 2 hospitals, the main question being, "Do nurses caring for infants in the well baby postpartum nursery know and practice the AAP SIDS prevention guidelines?"(Bartlow et al., 2016) Only 30.3% of infants observed fully met the AAP guidelines, including sleep position and crib environment. The observations showed that nurses are not consistently following AAP SIDS prevention guidelines. These hospitals did not have written SIDS prevention policy. More research is needed to see if this is accurate in hospitals in other places. Changes in the hospital may be what is necessary to get practices in place, implementing written policies for SIDS prevention. SIDS is a rational fear in a number of mothers. More

needs to be done about educating mothers, caretakers and everyone that is caring for an infant about safe sleeping positions.

## Nutrition (*Ob 4,5*)

Breast milk is considered the ideal diet for newborns due to the nutrition makeup of the colostrum and subsequent breastmilk production. Colostrum is produced during pregnancy and just after birth has been described as “liquid gold” (United States Department of Health and Human Services (USDHHS, 2011). 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. It has the right amount of calories, fat, and protein to support overall physical and neurological development, it provides a source of iron more easily absorbed in the body than the iron found in dietary supplements, it provides resistance against many diseases, it is more easily digested by infants than is formula, and it helps babies make a transition to solid foods more easily than if bottle fed. 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. For all of these reasons, it is recommended that mothers breastfeed their infants until at least 6 months of age and that breast milk be used in the diet throughout the first year (U.S. Department of Health and Human Services, 2004a in Berk, 2007). Furthermore, exclusive breastfeeding for the first six months of life is recommended in both developing and developed-country settings (Kramer & Kakuma, 2009).



*Latching on to the breast can be challenging but an important part of the infant efficiently getting the needed nutrients from breastmilk.*

There has been some research, including meta-analyses, to show that breastfeeding is connected advantages with cognitive development (Anderson et al., 1999; Binns et al., 2016; Horta et al., 2015). A meta-analysis combines the results of several studies to examine the overall effect. Low birth weight infants had the most significant benefits from breastfeeding than did normal-weight infants in a meta-analysis that 20 controlled studies (Anderson et al., 1999). Breastfeeding may provide nutrients required for rapid development of the immature brain. Breastfeeding may connect to more rapid or better development of neurological function. The meta-analysis 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 (Anderson et al., 1999). These studies suggest that nutrients present in breast milk may have a

significant effect on neurologic development in premature and term infants. The table below makes comparisons between breastmilk and formula.

Human Milk	Formula
Digestion: Human milk contains balanced nutrients that are easily digested by young infants.	Timing: Formula takes longer to digest, so infants can go longer between feedings and sleep for longer durations.
Immunity: Human milk contains immunoglobulins that provide immunity to many diseases.	Caregiver's diet: Caregiver doesn't need to worry about what they are eating or drinking, including alcohol.
Financial cost: Human milk may be less expensive or have no cost, though pumping supplies do entail a cost.	Options: Formula comes in a range of options, such as for infants with allergies or infants needing more calories for weight gain.
Convenience: Human milk, when breastfed, is the correct temperature, requires no extra equipment, and can be delivered immediately when nursing parent and baby are together.	Convenience: Anyone can feed the baby, which can distribute the caregiving load. Formula, when bottle fed, can also be delivered without privacy concerns in public settings.
Attachment: Human milk provided by breastfeeding releases oxytocin that promotes bonding.	Attachment: Any primary caregiver can use a bottle- or chestfeeding technique with formula, which can promote bonding for all caregivers.
Maternal health: Breastfeeding has been associated with a reduced risk of breast and ovarian cancers.	Maternal comfort or lifestyle: Formula provides a healthy option for those who cannot or prefer not to breastfeed or provide human milk.

Table. Benefits of Human Milk and Formula (sources: Feldman-Winter et al., 2022; Martin et al., 2016; Fan et al., 2023)

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 breastfeed are at lower risk of developing breast

cancer, especially among higher risk racial and ethnic groups (Islami et al., 2015; Redondo et al., 2012). Women who breastfeed have lower rates of ovarian cancer (Titus-Ernstoff et al., 2010), reduced risk for developing Type 2 diabetes (Schwarz et al., 2010; Gunderson, et al., 2015), and rheumatoid arthritis (Karlson et al., 2004).

Most mothers who breastfeed in the United States stop breastfeeding at about 6-8 weeks, often in order to return to work outside the home (USDHHS, 2011). Mothers can 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. And the public support of breastfeeding is sometimes lacking. Women in Canada are more likely to breastfeed than are those in the United States, and the Canadian health recommendation is for breastfeeding to continue until 2 years of age. Facilities in public places in Canada such as malls, ferries, and workplaces provide more support and comfort for the breastfeeding mother and child than found in the United States.

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 (Ferguson & Woodward, 1999). We will discuss more about bonding and emotional development later in the chapter.

In addition to the nutritional and health benefits of breastfeeding, breast milk is free! Anyone who has priced formula recently can appreciate this added incentive to breastfeeding. Prices for a month's worth of formula can easily range from \$130-200. Prices for a year's worth of formula and feeding supplies can cost well over \$1,500 (USDHHS, 2011).

## *Does Breastmilk increase the babies IQ over Formula?*

The main question being asked by parents is if breastfeeding increases their babies IQ. The answer to that question is that breastfeeding your child breast milk doesn't increase the child's IQ. A baby that is given formula to drink instead of their mothers breast milk has the same effect on the baby. Breastfeeding your child breast milk does have many benefits like, it costs zero dollars to feed your child, and breastfeeding your child helps to pass on immunity, and antibodies to various diseases and illnesses to your child. Plus, it also helps to develop the baby's growth and cognitive development (Searing, 2016). Breastfeeding also helps the baby's build a strong gut called microbiota and it increases the bond between mother and child (Fetter, 2017). A recent research study with 11,500 babies between whether Formula or Breast milk increased IQ, the study took place in the years 1994 to 1996. The scientist tracked the children until they were 16 year of age. In the study it made the children take 9 IQ tests throughout their lives. The study concluded that the IQ of the children that were given Formula and Breast milk had relatively the same IQ (Fetter, 2017).

Scientists started thinking that the baby's IQ is mostly determined by the baby's genetics, and how the mother's education really plays a part in the development of the mental part of the child's brain/ life (Imperio, 1999). Scientists also have stated that the child's family background or environment has more of an impact on the child's IQ than Breast milk does (Searing, L 2016). Scientists are also stating that if the parents income is below the poverty line the child's IQ automatically declines (Searing, 2016). So socioeconomic status in life really has more of an impact on the child's IQ than breast milk does. And the baby's IQ is really determined by a variety of things and not breast milk.

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## Video

The following video helps to explain whether breastfeeding increases a baby's IQ or not

[Video link](#)

Katie Hinde shares insights into this complex, life-giving substance and discusses the major gaps scientific research still needs to fill so we can better understand it (TedWomen, 2016).

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## Eating solids

### When to Introduce More Solid Foods:

The WHO, AAP, and UNICEF recommend introducing nutritious and safe solid foods at six months of age. However, the addition of solids is considered complementary feeding, because the primary source of nutrition at this stage should still be human milk and/or formula. The time to start solid foods is based on the infant's ability to sit up, support their head, and push up with straight elbows from a lying-down position. Solid foods should not be introduced until the infant is ready. According to The Clemson University Cooperative Extension (2014), some things to look for include 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
- 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 (Clemson University Cooperative Extension, 2014).



**Iron Deficiency and Anemia in the United States:** About 9 million children in the United States are malnourished (Children's Welfare, 1998). The prevalence of iron deficiency anemia in 1 to 3-year-old children seems to be increasing (Kazal, 2002). There is a link between iron deficiency anemia and diminished mental, motor, and behavioral development. Toddlers who drink too much cow's milk

may also become anemic if they are not eating other healthy foods that have iron. The calcium in milk interferes with the absorption of iron in the diet as well. Many preschools and daycare centers give toddlers a drink after they have finished their meal in order to prevent spoiling their appetites. 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 oz. per day, and providing a daily iron-fortified vitamin.

## Global Considerations and Malnutrition (*Ob 5*)

In the 1960s, formula companies led campaigns in developing countries to encourage mothers to feed their babies on infant formula. Many mothers felt that formula would be superior to breast milk and began using formula. The use of formula can certainly be healthy under conditions in which there is adequate, clean water with which to mix the formula and adequate means to sanitize bottles and nipples. However, in many of these countries, such conditions were not available, and babies often were given diluted, contaminated formula which made them become sick with diarrhea and become dehydrated. Rates of breastfeeding declined in Peru from 90 percent to 10 percent in just 8 years (Berger, 2001). These conditions continue today, and now many hospitals prohibit the distribution of formula samples to new mothers in effort to get them to rely on breastfeeding. Many of these mothers do not understand the benefits of breastfeeding and have to be encouraged and supported to promote this practice. Breastfeeding could save the lives of millions of infants each year, according to the World Health Organization, yet fewer than 40 percent of infants are breastfed exclusively for the first 6 months of life.



*Kwashiorkor with symptom of prominent belly.*

Malnutrition is responsible for 45 percent of all child deaths worldwide (WHO, 2022). Children in developing countries and countries experiencing the harsh conditions of war are at risk for two major types of malnutrition, also referred to as wasting. 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. Kwashiorkor can also impact a child’s cognitive development. Untreated, both marasmus and kwashiorkor can irreversibly delay physical and neurological development,

leading to stunted growth, impaired cognition, and death (Alou et al., 2021; Bunker & Pandey, 2021).

Around the world, wasting continues to be a significant health crisis. According to the latest Joint Child Malnutrition Estimates, globally 45 million children under the age of 5 experience wasting, with 13.6 million suffering from severe wasting (UNICEF et al., 2023). The global prevalence stands at 6.8% of children under 5, with more than three-quarters of severely wasted children living in Asia and 22% in Africa. Economic shocks have worsened this crisis, with research showing that a 10% decline in national income can increase moderate/severe wasting prevalence by 14.4-17.8% (Osendarp et al., 2021).

The consequences of wasting depend on how late in the progression of the disease parents and guardians seek medical treatment for their children. Unfortunately, in some cultures families do not seek treatment early, and as a result by the time a child is hospitalized the child often dies within the first three days after admission (Latham, 1997). Several studies had reported long-term cognitive effects of early malnutrition (Galler & Ramsey, 1989; Galler et al., 1987; Richardson, 1980), even when home environments were controlled (Galler et al., 1990). Lower IQ scores (Galler et al., 1987), poor attention (Galler & Ramsey, 1989), and behavioral issues in the classroom (Galler et al., 1990) have been reported in children with a history of severe malnutrition in the first few years of life.

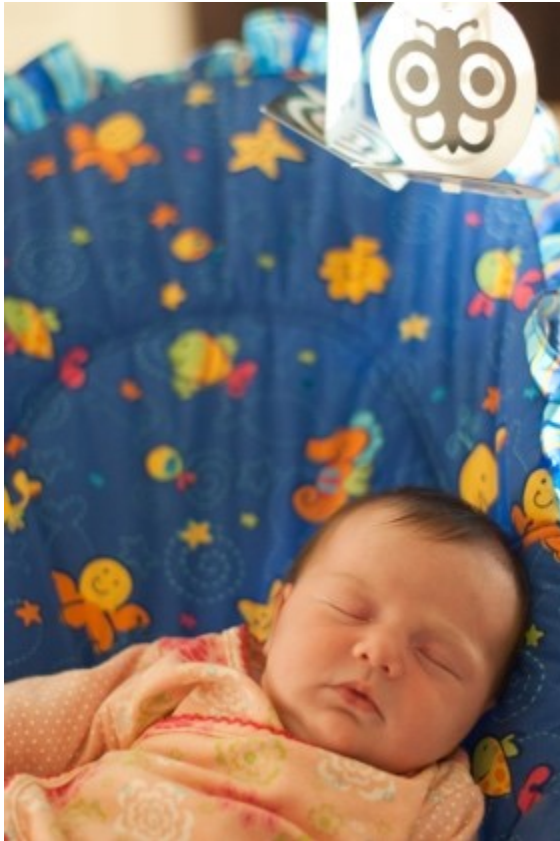
Proper nutrition is critical for optimal development during childhood, but often children in poverty have limited access to high-quality nutrition. The UNICEF website provides information [about the impact of poverty on malnutrition among children](#) across the world.

## Cognitive Development (*Ob 6*)

### Piaget and Sensorimotor Intelligence

Remember our discussion of sensorimotor development during the first two years of life from Piaget's theory? Piaget describes intelligence in infancy as sensorimotor or based on direct, physical contact. Infants taste, feel, pound, push, hear, and move in order to experience the world. These basic motor and sensory abilities provide the foundation for the cognitive skills that will emerge during the subsequent stages of cognitive development.

How do infants connect what they are learning? Remember that Piaget believed that we are continuously trying to maintain cognitive equilibrium, or a balance, in what we see and what we know (Piaget, 1954). Children have much more of a challenge in maintaining this balance because they are continually 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 schemata through the processes of assimilation and accommodation (review chapter 2).



We will now explore the transition infants make from responding to the external world reflexively as newborns to solving problems using mental strategies as 2-year-olds. The first stage of cognitive development is referred to as the Sensorimotor Period, and it occurs through six substages.

**Substage 1: Reflexes (Birth through the 1st month).** Newborns learn about their world through the use of their reflexes, such as when sucking, reaching, and grasping. This active learning begins with automatic movements or reflexes. A ball comes into contact with an infant's cheek and is automatically sucked on and licked.

Eventually, the use of these reflexes becomes more deliberate and purposeful.



**Substage 2: Primary Circular Reactions (1st through the 4th month).** During these next few months, the infant begins to actively involve his or her own body in some form of repeated activity. 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 initially 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.



**Substage 3: Secondary Circular Reactions (4th through 8th months).** The infant begins to interact with objects in the environment. At first, the infant interacts with objects (e.g., a crib mobile) accidentally, but then these contacts with the objects are deliberate and become a repeated activity. The infant becomes more and more actively engaged in the outside world and takes delight in being able to make things happen. Repeated motion brings particular interest as, for example, the infant is able to bang two lids together from the cupboard when seated on the kitchen floor.



**Substage 4: Coordination of Secondary Circular Reactions (8th through 12th months).** The infant combines these basic reflexes and uses planning and coordination to achieve a specific goal. Now the infant can engage in behaviors that others perform and anticipate upcoming events. 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. For example, an infant sees a toy car under the kitchen table and then crawls, reaches, and grabs the toy. The infant is coordinating both internal and external activities to achieve a planned goal.

**Substage 5: Tertiary Circular Reactions (12th through 18th months).** The toddler is considered a “little scientist” and begins exploring the world in a trial-and-error manner, using both motor skills and planning abilities. For example, the child might throw her ball down the stairs to see what happens. 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.



**Substage 6: Beginning of Representational Thought (18th month to 2 years of age).** The sensorimotor period ends with the appearance of representational (symbolic) thought. Representational (symbolic) thought is when language is linked to concepts and a child can picture of that concept in their head (mental representation). The toddler now has a basic understanding that objects can be used as symbols. Additionally, the child can solve problems using mental strategies, to remember something heard days before and repeat it, and to engage in pretend play. This initial movement from a “hands-on” approach to knowing about the world to the more mental world of sub-stage six marks the transition to preoperational thought.

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 in vain 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! This is a technique learned from the 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. 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 intelligence that we will discuss in the next lesson. Part of this stage involves learning to use language.

**Development of Object Permanence:** A critical milestone during the sensorimotor period is the development of object permanence. Object permanence is the understanding that even if something is out of sight, it still exists (Bogartz et al., 2000). Piaget thought infants do not develop object permanence until 12 months, but we now know that they are capable of this milestone much earlier. Infants seem to be able to recognize that objects have permanence at much younger ages (even as young as 4 months of age). Researchers have found that even very young children understand objects and how they work long before they have experience with those objects (Baillargeon, 1987; Baillargeon et al., 2011). Infants have the beginnings of object permanence between 4 to 8 months of age. Piaget studied the acquisition of object permanence using a hide and seek toy task. He tested infants’ reactions when a toy was first shown to an infant and then hidden under a blanket. Infants who had already developed object permanence would reach for the hidden toy, indicating that they knew it still existed. Children have typically acquired object permanence by 8 months, but you will still see them make an error and reach for the wrong blanket due to limitations in memory (Johnson & Munakata, 2005). Diamond (1985) found that infants show earlier knowledge if the waiting period is shorter. At age 6 months, they retrieved the hidden object if their

wait for retrieving the object is no longer than 2 seconds, and at 7 months if the wait is no longer than 4 seconds. Once toddlers have mastered object permanence, they enjoy games like hide-and-seek, and they realize that when someone leaves the room, they will come back. Toddlers also point to pictures in books and look in appropriate places when you ask them to find objects.



*One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=756#oembed-2>*

Piaget tested object permanence in babies by using a manual reach task with a toy and blanket. This [toy and blanket method](#) is replicated in this video, but [other tasks can also assess](#) this skill, as shown in this clip.

In Piaget's view, around the same time children develop object permanence, they also begin to exhibit **Stranger Anxiety**, which is a fear of unfamiliar people (Crain, 2005). Babies may demonstrate this by crying and turning away from a stranger, by clinging to a caregiver, or by attempting to reach their arms toward familiar faces such as parents. Stranger anxiety results when a child is unable to assimilate the stranger into an existing schema; therefore, she can't predict what her experience with that stranger will be like, which results in a fear response.

## 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 represent events mentally; 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 Rovee-Collier and her colleagues have demonstrated that infants can remember events from their life, even if these memories are short-lived. 3-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. The second group of infants was shown the mobile two weeks later, and the babies made only random movements. The

memory had faded (Rovee-Collier, 1987; Giles & Rovee-Collier, 2011). 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. 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 dependent. 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 more extended periods of time; they also need less reminding to retrieve information in memory. Part of their learning is attributed to **joint attention**, or the ability to focus on objects or individuals in social interactions. After 6 months of age, the infant's attention becomes more social. That is, infants not only pay attention to sensations that are stimulation to them, but they also pay attention to the stimuli that seem of interest to significant others. Joint attention is important for learning the language as well as understanding emotional cues. Studies of **deferred imitation**, that is, the imitation of actions after a time delay, can occur as early as six months of age (Campanella & Rovee-Collier, 2005), 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 memory for four weeks (Klein & Meltzoff, 1999).



*An example of deferred imitation for a preschooler*

## Language Development (Ob 6)

### Newborn Communication

**Do newborns communicate?** Certainly, they do. They do not, however, communicate with the use of 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:** Cooing and taking turns: Infants begin to vocalize and repeat vocalizations within the first couple of months of life. That gurgling, musical vocalization called cooing can serve as a source of entertainment to an infant 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. This is the start of pragmatics, the social side of language. Cooing initially involves making vowel sounds like "oooo." Later, consonants are added to vocalizations such as "nananananana."



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 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 4 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 (de Boysson-Bardies et al., 1984). These vocalizations have a conversational tone that sounds meaningful even though it is not. 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 (Petitto & Marentette, 1991).



**Gesturing:** Children communicate information through gesturing long before they speak, and there is some evidence that gesture usage predicts subsequent language development (Iverson & Goldin-Meadow, 2005). 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 are used when deaf babies sign just as it is when hearing babies babble.

**Understanding:** At around ten months of age, the infant can understand more than he or she 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 name, usually by about 6 months, followed by commonly used words like “bottle,” “mama,” and “doggie” by 10 to 12 months (Mandel et al., 1995). 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 (Baldwin, 1993), and that the speaker’s emotional expressions are related to the content of their speech.

**Holophrastic 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 **holophrastic 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 language (Dobrich & Scarborough, 1992). Children may say “keekee” for kitty, “nana” for a banana, and “vesketti” for spaghetti because it is easier. Often these first 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 nouns. The child labels objects such as a 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.

**Vocabulary growth spurt:** 1-year-olds typically have a vocabulary of about 50 words. But by the time they become toddlers, they have a vocabulary of about 200 words and begin putting those words together in telegraphic speech (you may consider this similar to ‘text message’ speech because text messages typically only include the minimal amount of words to convey the message).

**Two-word sentences and 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 the telephrases, “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. “Give baby ball” is used rather than “Give the baby the ball.”



**Infant-directed Speech:** Why is a horse a “horsie”? Have you ever wondered why adults tend to use “baby talk” or 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 (child-directed speech)**. It involves exaggerating the vowel and consonant sounds, using a high-pitched voice, and delivering the phrase with great facial expression (Clark, 2009). 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. Werker et al. (1994) found that infants listened longer to a woman who was speaking to a baby than to a woman who was speaking to another adult. It may be in order to clearly articulate the sounds of a word so that the child can hear the sounds involved. It may also be because when this type of speech is used, the infant pays more attention to the speaker and this sets up a pattern of interaction in which the speaker and listener are in tune with one another. Interestingly, not all cultures use infant-directed

speech. Research suggests that after the first few years, there are no differences in language fluency between infants who heard infant-directed speech and those raised without infant-directed speech but has a language-rich environment (Akhtar, 2005).

**Baby Sign Language:** A growing trend among caregivers is to use baby sign language to help infants communicate their needs before they can vocalize words. Baby sign language is a simplified form of American Sign Language with only a small subset of signs and no grammar rules. Babies start attending to signs as early as four months of age (Novack et al., 2022) and by six to eight months can learn to ask for basic needs such as milk or a diaper change. The practice can be a fun way to engage with infants, who may be less fussy if they can communicate basic needs, but research does not indicate it will enhance language and cognitive development (Kirk et al., 2013). Some in the Deaf and hard-of-hearing community have also expressed concern about hearing individuals using and modifying language intended for their community. Baby signing is not language, because it is missing the syntax, morphology, and pragmatics that make American Sign Language a full language (De Meulder, 2019). With that understanding, however, teaching babies a few signs in the first year of life may improve their ability to communicate and help parents respond to their needs (Kirk et al., 2013).

## Linguistic considerations

**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, and Genie, a child whose parents kept her locked in a closet from 18 months until 13

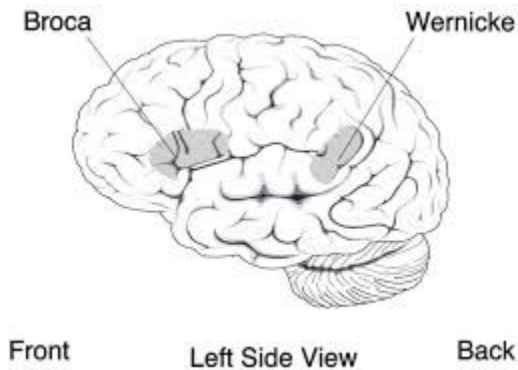
years of age, are (fortunately) two of the only known examples of these deprived children. Both of these children made some progress in socialization after they were rescued, but neither of them ever developed language (Rymer, 1993). This is also why it is important to determine quickly if a child is deaf, and to communicate in sign language immediately. Deaf children who are not exposed to sign language during their early years will likely never learn it (Mayberry et al., 2002). The concept of critical periods highlights the importance of both nature and nurture for language development.

**Social pragmatics:** Language from this view is not only a cognitive skill but also a social one. Language is a tool humans use to communicate, connect to, influence, and inform others. **Social pragmatics** is the language and communication that individuals use during social interactions. The social nature of language has been demonstrated by a number of studies that have shown that children use several pre-linguistic skills (such as pointing, turn-taking in infancy when vocalizing, and other gestures) to communicate not only their own needs but what others may need. So, a child watching her mother search for an object may point to the object to help her mother find it.

Eighteen-month to 30-month-olds have been shown to make linguistic repairs when it is clear that another person does not understand them (Grosse et al., 2010). These researchers found that even when the child was given the desired object if there had been any misunderstanding along the way (such as a delay in being handed the object, or the experimenter calling the object by the wrong name), children would make linguistic repairs. This would suggest that children are using language not only as a means of achieving some material goal, but to make themselves understood in the mind of another person.

**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. 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.



*Left hemisphere view of Broca and Wernicke's areas of brain.*

## Psychosocial Development (*Ob 7, 8, 9, 10*)

### Temperament

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. Temperamental traits are patterns of behavior that remain consistent and relatively stable throughout infancy and beyond (Goldsmith et al., 1987; Planalp & Goldsmith, 2020).

In a 1956 landmark study, Chess and Thomas (1996) 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.

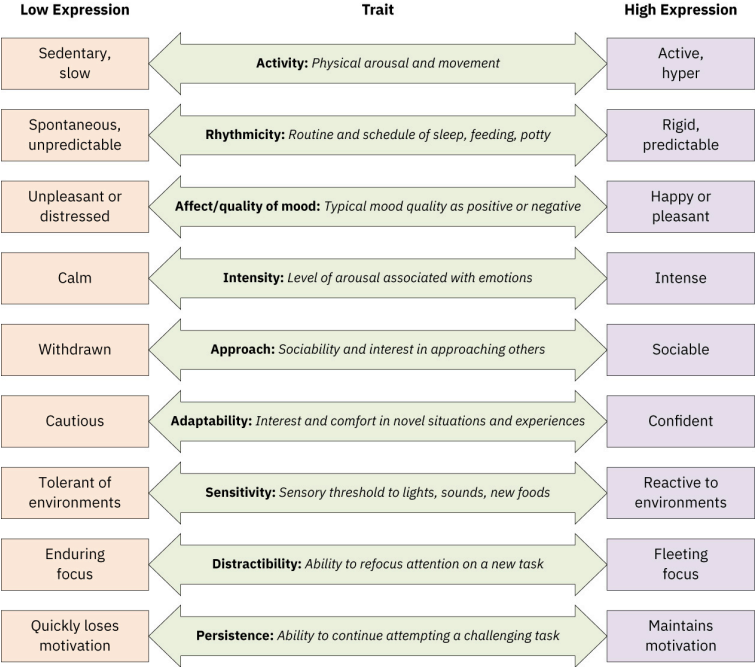


Figure. Thomas and Chess’s (1977) temperamental model identifies nine traits. For each trait, infants may span a spectrum from low expression to high expression

Based on the infants' behavioral profiles, they were categorized into three general types of temperament: Easy child, Difficult Child, and Slow to Warm Up Child

- **Easy Child** (40%) 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** (10%) who reacts negatively to new situations, has trouble adapting to routine, is usually negative in mood, and cries frequently.
- **Slow-to-Warm-Up Child** (15%) has a low activity level, adjusts slowly to new situations, and is often negative in mood.

As can be seen, the percentages do not equal 100% as some children were not able to be placed neatly into one of the categories. 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 work well and accurately read the child will enjoy a **Goodness-of-Fit**, meaning their styles match and communication and interaction can flow (Thomas & Chess, 1977). 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. Poorness of fit occurs when temperament is not accommodated. If a child does not adapt easily and has a low threshold, it may not be a good fit to have irregular schedules. Children are more likely to reach their potential when there is a goodness of fit. Parenting advice would be to have compatibility between the child's dimensions of temperament and the demands and expectations in the child's environment.

Review this video [on temperamental traits](#) to learn more about original research by Thomas and Chess.

**Parenting is bidirectional:** Not only do parents affect their children, but children also 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 role (Eisenberg et al., 2008). Over time, parents of more difficult children may become more punitive and less patient with their children (Clark et al., 2000; Eisenberg et al., 1999; Kiff et al., 2011). Parents who have a fussy, difficult child are less satisfied with their marriages and have greater challenges in balancing work and family roles (Hyde et al., 2004). Thus, child temperament is one of the child characteristics that influence 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 (Thompson et al., 2010). 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 frequently doesn't necessarily have a grumpy personality; over time, with sufficient parental support and an 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.

Cultural influences shape temperament differently across societies. Research has found variations in temperamental traits across countries: high activity levels in Portugal, negative mood in Lebanon, and intense mood swings in Korea (Gonda et al., 2010). These differences may reflect cultural values that encourage or discourage specific infant behaviors. For instance, U.S. adults show greater motivation for novel experiences compared to Spanish adults who are more motivated by rewards and punishment avoidance, with these differences becoming more pronounced in later childhood (Al-Halabi et al., 2011).

## 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 (Lavelli & Fogel, 2005). By the end of the first year of life, infants can typically express a variety of emotions such as joy, sadness, anger, and fear. An infant may have a relatively stable and calm temperament or mood, but they can still experience a variety of emotions in a short window of time.

**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, such as a toy being removed (Braungart-Rieker et al., 2010). In contrast, sadness is typically the response when infants are deprived of a caregiver (Papousek, 2007). 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 (Hart & Carrington, 2002).



Emotions are often divided into two general categories: Basic or primary 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 so (Akimoto & Sanbinmatsu, 1999).

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 (Klennert et al., 1983). 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 (Sorce et al., 1985) 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.



*The baby is using social reference to gauge if safe to crawl.*

Other studies provide similar support for facial expressions as regulators of social 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 (Bradshaw, 1986). The results for 10- and 15-month old's 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 (Hertenstein & Campos, 2004). 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 (Thompson & Goodvin, 2007). This requires effortful control of emotions and initially requires assistance from caregivers (Rothbart et al., 2006). 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 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 (Rothbart et al., 2006). Older infants and toddlers can more effectively communicate their need for help and can crawl or walk toward or away from various situations (Cole et al., 2010). 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 (Rothbart & Bates, 2006). Emotion regulation strategies for caregivers vary across cultures. Research shows U.S. families emphasize stimulating environments, Dutch families focus on structure, Italian families prioritize tactile comfort, and Korean families emphasize physical well-being and routine (Harkness et al., 2007). Cultural differences also appear in parent-infant interactions: Japanese American and European American dyads show more person-oriented interactions, while Japanese dyads demonstrate more object-oriented interactions (Bornstein et al., 2012).

**Development of sense of self: Self-awareness**, the realization that one is separate from others, typically emerges between 15 and 24 months of age (Kopp, 2011). This development marks an important step toward understanding social emotions such as guilt, shame, embarrassment, sympathy, and empathy. The classic mirror test by Lewis and Brooks (1978) demonstrated that before 18 months, infants view their reflection as a stranger or playmate, while after 18 months, most recognize themselves and notice marks on their face.

The timing of self-recognition development can be influenced by

various factors, including maternal scaffolding, parental imitation of toddler's behavior, and environmental experiences. While mirror self-recognition typically occurs around 18 months and photo recognition by 24 months, these milestones vary based on cultural and environmental factors. Research by Ross and colleagues (2017) found that while Scottish infants with regular mirror access performed better on mirror tests, Zambian infants without mirror access showed stronger performance on body-as-obstacle tests, demonstrating that self-awareness can develop through different pathways depending on cultural experiences.

The mirror test is a simple test used to identify the beginnings of self-recognition in infants and toddlers. Watch this video [demonstrating the mirror test](#) to learn more. Like the mirror test, the body-as-obstacle test can teach us more about infants' and toddlers' self-awareness. Watch this video [demonstrating the body-as-obstacle test](#) to learn more.

Self-awareness manifests in multiple ways, including body awareness, visual recognition, and language development through personal pronoun use (Courage et al., 2004). This developing sense of self enables infants to engage more fully in their world, including participation in pretend play and improved communication about their experiences (Lewis & Ramsay, 2004).



*This baby is too young to likely recognize herself in the mirror*

## 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.

**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 comfort (Harlow, 1958). 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 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.



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**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 (Bowlby, 1969). 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 a secure base to define a healthy attachment between parent and child (Bowlby, 1982). 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 responsive to the child's physical, social, and emotional needs; and the caregiver and child must engage in mutually enjoyable interactions (Bowlby, 1969). 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.



## Erikson: Trust vs. Mistrust

As previously discussed in chapter 1, Erikson formulated an eight-stage theory of psychosocial development. Erikson agreed 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 (Erikson, 1982). 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 trustworthy place. The caregiver should not worry about overindulging a child's need for comfort, contact, or stimulation.

Problems establishing trust: Erikson (1982) 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 a child. Or if a child is born prematurely, is unwanted, or has physical problems that make him or her less desirable to a parent. Under these circumstances, we cannot assume that the parent 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 the child and therefore likely to heighten the child's need for his or her parent (Ainsworth, 1979).

During the procedure, which 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.” Based on 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. Ainsworth believed these infants felt safe and secure if their caregiver was present, and she named their pattern of behavior secure attachment. 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. Secure attachment involved the idea that the caregiver acted as a secure base for the infant; in other words, the caregiver gave the infant a safe place from which to explore the world around them (Fraley & Spieker, 2003). Sensitive and responsive caregiving and synchrony are likely to promote secure attachment.

How common are the attachment styles among children in the United States? It is estimated that about 65 percent of children in the United States are securely attached, and 35 percent distributed among the three insecure attachment styles.

Review this video that [demonstrates the Strange Situation devised by Mary Ainsworth](#) to learn more.

Some cultural differences in attachment styles have been found (Rothbaum et al., 2010). 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 is higher in Germany and insecure-resistant attachments are higher

in Japan. These differences reflect cultural variation rather than true insecurity, however (van Ijzendoorn & Sagi, 1999).

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 assessment 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 (Waters, 1987). There are 90 items in the third version of the Q-sort technique, and examples of the behaviors assessed include:

- When the child returns to the mother 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 the mother.
- The child often hugs or cuddles against the mother, without her asking or inviting the child to do so
- When the child is upset by the mother's leaving, the child continues to cry or even gets angry after she 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 clinical populations.

### *Caregiver Interactions and the Formation of Attachment*

Most developmental psychologists argue that a child has a **secure attachment style** when there is consistent contact from one or more caregivers who meet the physical and emotional needs of the child in a responsive and appropriate manner. In North America,

this interaction may include an emotional connection in addition to adequate care. However, even in cultures where mothers do not talk, cuddle, and play with their infants, secure attachments can develop (LeVine et. al., 1994). Secure attachments can form provided the child has consistent contact and care from one or more caregivers. Consistency of contacts may be jeopardized if the infant is cared for in a daycare with a high turnover of caregivers or if institutionalized and given little more than basic physical care. And while infants who, perhaps because of being in orphanages with inadequate care, have not had the opportunity to attach in infancy can form initial secure attachments several years later, they may have more emotional problems of depression, anger, or be overly friendly as they adjust (O'Connor et al., 2003).

The **insecure ambivalent style** occurs when the parent is insensitive and responds inconsistently to the child's needs. Consequently, the infant is never sure that the world is a trustworthy place or that he or she can rely on others without some anxiety. A caregiver who is unavailable, perhaps because of marital tension, substance abuse, or preoccupation with work, may send a message to the infant he or she 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.

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 mother 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 disrupts a child's ability to regulate their emotions (Main & Solomon, 1990).

**Caregiver Consistency:** Having a consistent caregiver may be jeopardized if the infant is cared for in a daycare setting with a high turnover 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 others (O'Connor et. al., 2003).

**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 (Bowlby, 1982). 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:** 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 forming attachments. According to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (American Psychiatric Association, 2013), 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 effect, may be diagnosed with *Reactive Attachment Disorder*. This disorder often occurs with developmental delays, especially in cognitive and language areas. Fortunately, the majority of severely neglected children do not develop Reactive Attachment Disorder, which occurs in less than 10% of such children. 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 (Gillath et al., 2008; Seifer et al., 1996). 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 Boom (1994) 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.

## Erikson: Autonomy vs. Shame and Doubt

As the child begins to walk and talk, an interest in independence or

autonomy replaces concern for trust. The toddler tests the limits of what can be touched, said, and explored. Erikson (1982) believed that toddlers should be allowed to explore their environment as freely as safety allows and in so doing 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' expectation, the caregiver can give the child the message that he or she should be ashamed of their behavior and instill a sense of doubt in their own abilities. Parenting advice based on these ideas would be to keep your toddler safe, but let him or her learn by doing. Parenting advice would also say that shame can create a negative self-image and make them believe they are a bad person for the mistakes ("you are bad") verses asking how they feel and explaining it was a mistake or not a good choice ("you did something bad" or "that was a bad choice"). For Erikson's second stage, **autonomy vs shame and doubt**, a toddler would develop either autonomy or shame and doubt as a reflection of parenting and internalizing feedback about their behaviors.



## Connecting with Infants and Toddlers: Your Impact Matters

As you study infant and toddler development, reflect on how this knowledge applies to your life and future roles as a parent, caregiver, teacher, healthcare provider, or any profession working with children:

- **Personal Experiences:** Think back to your own childhood. What early memories do you have? How might these experiences have shaped your development?
- **Everyday Interactions:** Notice infants and toddlers in your daily life – at the grocery store, park, or family gatherings. Observe their behaviors and interactions through the lens of what you're learning.
- **Brain Development:** Every interaction with an infant or toddler contributes to their brain development. How does this change your perspective on the importance of early childhood?
- **Cultural Influences:** Reflect on how your cultural background might influence your views on child-rearing. How do these compare to other cultural practices you're learning about?
- **Technology and Development:** As you use your smartphone or computer, think about how technology is shaping the environment in which today's infants and toddlers are growing up.

Remember, the foundation for lifelong learning and

well-being is built during these crucial early years. Your understanding of this stage can make a significant difference in a child's life.

## Measuring Infant Development

Psychologists have developed a number of ways to measure infant development. Some of these methods use psychophysiological measures (chapter 1) with habituation for cognitive development, while others are based on observations in standardized settings for psychosocial development (e.g., Strange Scenario from Ainsworth). A common assessment that is used to look at cognitive, motor, and behavior of infants is the **Bayley Scales**[/pb\_glossary]. The Bayley Scales of Infant and Toddler Development, Fourth Edition (Bayley-IV) comprehensively assess children from 16 days old to 42 months old (Pearson Education, 2020). Detailed information is even able to be obtained from non-verbal children. Children are evaluated in five key developmental domains, including cognition, language, social-emotional, motor, and adaptive behavior. The researcher measures the child's performance on each task, and scores are totaled. The child's scores are totaled and then compared to other children her/his age. By identifying developmental delays in the very young, the Bayley Scales can highlight which early intervention techniques might be most beneficial.



*Example of Bayley Scale assessment activity.*

## Conclusion

We have explored the dramatic story of the first two years of life. Rapid physical 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. Over the course of the first two years, children begin to express their personalities; are mobile, can manipulate objects; and understand how certain important aspects of the world operate (e.g., object properties, schema formation). They understand the basics of how to make their wishes known, have formed attachments and relationships, and have learned basic ways of managing their emotions and impulses. In the coming chapters, we will examine how these abilities are shaped into more sophisticated mental processes, self-

concepts, and social relationships during the years of early childhood.

## *Chapter Review Practice Quiz*



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

<https://open.maricopa.edu/psy240mm/?p=756#h5p-5>

## Chapter 4 Key Terms (see Glossary for definitions)

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	maramus
Cephalocaudal development	myelin
circumsion	neuroplasticity
co-sleeping	Proximal-distal development
dendrites	resiliency
dynamic systems theory	secure attachment style
emotion self-regulation	self-awareness
fine motor skills	social pragmatics
goodness-of-fit	social smile
gross motor skills	stranger anxiety
holophrastic speech	Sudden Infant Death Syndrome (SIDS)
infant-directed speech	synaptic blooming
infantile amnesia	synaptic pruning
Insecure ambivalent style	synaptogenesis
Insecure avoidant style	temperament
kwashiorkor	trust vs mistrust (Erikson theory)
lateralization	

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# Chapter 5: Early Childhood



## Objectives:

*At the end of this chapter, you will be able to...*

1. Summarize overall physical growth during early childhood. Identify examples of gross and fine motor skill development in early childhood.
2. Describe growth of structures in the brain during early childhood.
3. Identify nutritional concerns for children in early childhood.
4. Describe sexual development in early childhood. Define preoperational intelligence.
5. Identify animism, egocentrism, and centration.
6. Describe changes to attention and memory in early childhood.
7. Apply Vygotsky theory to early childhood. Illustrate scaffolding. Explain private speech. Explain theory of mind.

8. Describe language development in early childhood.
9. Explain Erikson's stages of psychosocial development for toddlers and children in early childhood.
10. Contrast models of parenting styles.
11. Examine concerns about child care.
12. Explain theory of self from Mead.
13. Summarize theories of gender role development.
14. Examine concerns about childhood stress and development.

***The objectives are associated with the reading sections below.***

## Introduction

Our discussion will now focus on the physical, cognitive and socioemotional development during the ages from two to six, referred to as early childhood. Early childhood represents a time period of continued rapid growth, especially in the areas of language and cognitive development. Those in early childhood have more control over their emotions and begin to pursue a variety of activities that reflect their personal interests. Parents continue to be very important in the child's development, but now teachers and peers exert an influence not seen with infants and toddlers.

## Physical Development during Early Childhood

### Growth in early childhood (*Ob 1*)

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 3-year-old is very similar to a toddler with a large

head, large stomach, short arms, and legs. During early childhood, children start to lose some of their baby fat, making them less like a baby, and more like a child as they progress through this stage. By around age 3, children will have all 20 of their primary teeth, and by around age 4, may have 20/20 vision. But by the time the child reaches age 6, the torso has lengthened and body proportions have become more like those of adults. At six years of age, the average child in the United States is 45 inches tall (approximately 115 cm) and weighs 45 pounds (approximately 20.4 kg) (Centers for Disease Control and Prevention [CDC], 2023).

Evidence indicates that the full height potential of our genetic inheritance is affected by several environmental influences. Economic disadvantage, physical neglect, disease, and malnutrition can affect biological and epigenetic mechanisms associated with height, which can take several generations to return to the normal range (Bogin, 2013; Lang et al., 2019; Simeone & Alberti, 2014). These influences may partly explain generational variations in height.

This growth rate is slower than that of infancy and is accompanied by a reduced appetite between the ages of 2 and 6. This change can sometimes be surprising to parents and lead to the development of poor eating habits. What children are eating is important to consider. Children who consume a lot of high-fat, sweet, and salty foods may fail to acquire a taste for other flavors. In contrast, adults who model positive eating habits, gently encourage children to try new foods, and avoid arguments over meals have a positive impact on children's eating behavior. In short, children who are introduced to healthy vegetables and proteins on a regular basis will grow accustomed to them (Cardona Cano et al., 2015; Mahmood et al., 2021; Mazza et al., 2022; Nekitsing et al., 2018). Children between the ages of 2 and 3 need 1,000 to 1,400 calories, while children between the ages of 4 and 8 need 1,200 to 2,000 calories (Mayo Clinic, 2016a).

## Nutritional concerns (*Ob 3*)

One directly observable consequence of malnutrition is stunting, or impaired growth in height. Stunting, which cannot be reversed and can increase cognitive and physical damage risks, has become a global concern (De Sanctis et al., 2021; Bhutta et al., 2020). Particularly in war-torn, severely impoverished, and drought-stricken areas, inadequate nutrition is widespread, and stunting is an inherent risk. As a result, an estimated 149 million children under five, or more than 20 percent of the global under-five population, undergo stunting. In some poor parts of Africa and southern Asia, the proportion rises to nearly half (UNICEF/World Health Organization [WHO]/World Bank Group, 2021).

Malnutrition is not common in developed nations like the United States, yet many children lack a balanced diet. Added sugars and solid fats contribute to 40% of daily calories for children and teens in the US. Approximately half of these empty calories come from six sources: soda, fruit drinks, dairy desserts, grain desserts, pizza, and whole milk (CDC, 2015). Caregivers need to keep in mind that they are setting up taste preferences at this age. Young children who grow accustomed to a high fat, very sweet, and salty flavors may have trouble eating foods that have subtler flavors such as fruits and vegetables.



*Pizza is one of the six sources of empty calories found in children's diets in the US.*

By providing adequate, sound nutrition, and limiting sugary snacks and drinks, the caregiver can be assured that 1) the child will not starve, and 2) the child will receive adequate nutrition. Preschoolers can experience iron deficiencies if not given well-balanced nutrition and if given too much milk. Calcium interferes with the absorption of iron in the diet as well.

Consider the following advice about establishing eating patterns for years to come (Rice, 1997). Notice that keeping mealtime

pleasant, providing sound nutrition, and not engaging in power struggles over food are the main goals:

**Tips for Establishing Healthy Eating Patterns**

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**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.

**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.

**Keep it pleasant.** This tip is designed to help caregivers create a positive atmosphere during mealtime. Meal times 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.

**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.

**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!

**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

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often costlier and less profitable. However, preparing fresh food at home is not costly. It does, however, require more activity. Preparing meals and including the children in kitchen chores can provide a fun and memorable experience.

**Don't bribe.** Bribing a child to eat vegetable by promising desert is not a good idea. For one reason, the child will likely find a way to get the desert 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!

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***To what extent do these tips address cultural practices? How might these tips vary by culture?***

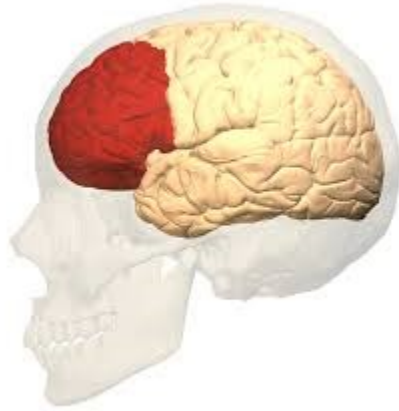
## Brain Maturation (*Ob 2*)

**Brain weight:** If you recall, the brain is about 75 percent of its adult weight by two years of age. By age 6, it is at 95 percent its adult weight (yet only 30 percent of an adult body weight). Myelination and the development of dendrites continue to occur in the cortex and as it does, we see a corresponding change in what the child is capable of doing. The myelination of neurons that are essential to early physical development is mostly complete by 40 months of age. However, when life experiences are limited or the environment is highly stressful, myelination and overall brain growth will be slowed.

From an early age, the amount of stimulation a child receives has a significant effect on brain structure, weight, and volume (Gilmore et al, 2018; Lawson, 2013; Ziegler et al., 2020). Poor nutrition may also lead to deficits in myelin development and a general decrease in brain mass. However, the brain remains quite plastic in early childhood, and early intervention can often reverse these negative effects (de Faria et al., 2019). The brain continues to overproduce dendrites and synapses, which then leads to additional synaptic pruning. This alone tells us that brain plasticity remains strong, and that experiences and opportunities have roles in development. That the brain continually reorganizes itself tells us that a person's environment has a persistent influence on outcomes.

Greater development in the prefrontal cortex, the area of the brain behind the forehead that helps us to think, strategizes, and controls emotion, makes it increasingly possible to control emotional outbursts and to understand how to play games. The process of overproduction and pruning of synapses probably

doesn't stop until the third decade of life, especially in the prefrontal cortex (Kolk & Rakic, 2022).

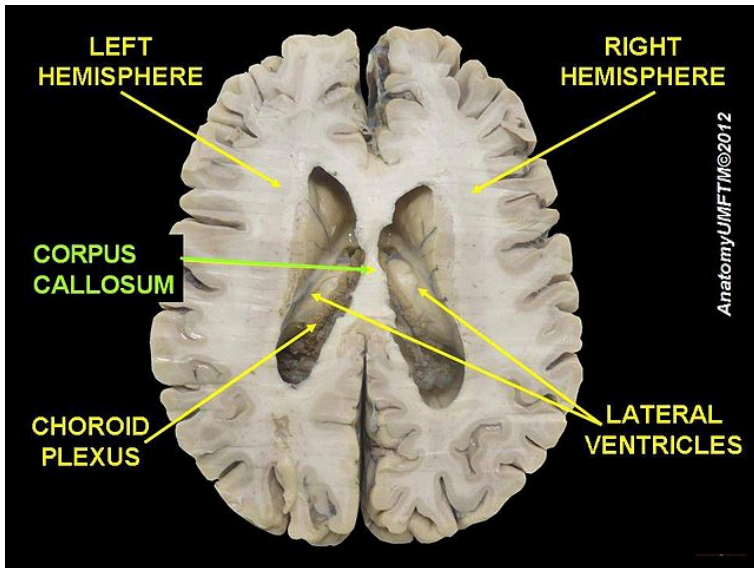


*The shaded area is the prefrontal cortex.*

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 the child is not being told what to do, he or she is likely to be looking at the clover on the ground or a dog on the other side of the fence! Understanding the game, thinking ahead, and coordinating movement improves with practice and myelination. Not being too upset over a loss, hopefully, does as well.

**Growth in the Hemispheres and Corpus Callosum:** The brain is lateralized. this organizational characteristic of the brain is known as lateralization. The left hemisphere typically handles language-related tasks such as reading, speaking, and thinking, while the right hemisphere specializes in emotional expression, musical ability, and recognition of visual-spatial relationships used in geometry, art, and navigation. Between ages 3 and 6, the left hemisphere of the

brain grows dramatically. The right hemisphere continues to grow throughout early childhood and is involved in tasks that require spatial skills, such as recognizing shapes and patterns. The **corpus callosum**, a dense band of fibers that connects the two hemispheres of the brain, contains approximately 200 million nerve fibers that connect the hemispheres (Kolb & Whishaw, 2011).



*Image shows the two hemispheres and the Corpus Callosum in between the two hemispheres.*

The corpus callosum is located a couple of inches below the longitudinal fissure, which runs the length of the brain and separates the two cerebral hemispheres (Garrett, 2015). The hemispheres are independent, and they work together to process experiences and respond from the corpus callosum. Because the two hemispheres communicate with each other and integrate their activities through the corpus callosum. Additionally, because incoming information is directed toward one hemisphere, such as visual information from the left eye being directed to the right

hemisphere, the corpus callosum shares this information with the other hemisphere. For example, reading a word relies on the right-hemisphere functions for visualization and then oral communication is a function of the left hemisphere. (There is no such thing as being “left-brained” or “right-brained.”)

The corpus callosum undergoes a growth spurt between ages 3 and 6, and this results in improved coordination between right and left hemisphere tasks. For example, in comparison to other individuals, children younger than 6 demonstrate difficulty coordinating an Etch A Sketch toy because their corpus callosum is not developed enough to integrate the movements of both hands (Kalat, 2016).

**Neuroplasticity:** The control of some specific bodily functions, such as movement, vision, and hearing, is performed in specified areas of the cortex, and if these areas are damaged, the individual will likely lose the ability to perform the corresponding function. For instance, if an infant suffers damage to facial recognition areas in the temporal lobe, it is likely that he or she will never be able to recognize faces (Farah et al., 2000). On the other hand, the brain is not divided up in an entirely rigid way. The brain’s neurons have a remarkable capacity to reorganize and extend themselves to carry out particular functions in response to the needs of the organism, and to repair the damage. As a result, the brain constantly creates new neural communication routes and rewires existing ones. **Neuroplasticity** refers to the brain’s ability to change its structure and function in response to experience or damage. Neuroplasticity enables us to learn and remember new things and adjust to new experiences. Our brains are the most “plastic” when we are young children, as it is during this time that we learn the most about our environment. On the other hand, neuroplasticity continues to be observed even in adults (Kolb & Fantie, 1989).

## Right or left-handed?

Handedness is an example of lateralization in action. About 10 percent of children across cultures and continents prefer to use their left hand, a preference linked to differences in brain organization and genes. Whereas about 95 percent of right-handed people show typical lateralization patterns (like language centers in the left hemisphere), only about 75 percent of left-handers do (de Kovel et al., 2019). Though some studies indicate that most children develop an obvious hand preference by six months of age, others find that stable preferences may not appear until age nine or even later (Scharoun & Bryden, 2014). However, by that time, most children have already been required to favor one hand over another in school tasks like coloring, writing, and using a mouse.

Differences in cognition, artistic expression, and athletic prowess between left-handed and right-handed children are often reported. However, no scientific evidence suggests that these differences exist (McManus, 2019). Nonetheless, children who are left-hand dominant often struggle with products designed for right-handers, such as scissors, seat belts, and school desks. Though we can learn to use our non-dominant hand quite well, hand dominance appears to be highly heritable and unchangeable. Even identical twins, who share the same genes, may favor different hands; each has the same 10 percent chance of being

left-handed. This indicates that handedness results from a combination of environmental and genetic influences (Schmitz et al., 2017).

## Motor Skill Development (*Ob 1*)



*Bicycling is an example of gross 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! Of course, this can be frustrating to a caregiver, but it's the business of early childhood. Children continue to improve their **gross motor skills** as they run and jump, and frequently ask their caregivers to “look at me” while they hop or roll down a hill. Gross motor skills involve larger muscle groups in legs and arms or entire body. Children's songs are often accompanied by arm and leg movements or cues to turn around or move from left to right. **Fine motor skills** involve smaller action muscle coordination, and 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 (have you ever heard of the song “itsy, bitsy, spider”?).



*Cutting paper is an example of fine motor skills.*

The development of greater coordination of muscles groups and finer precision can be seen during this time period. Thus, average 2-year-olds may be able to run with slightly better coordination than they managed as a toddler, yet they would have difficulty pedaling a tricycle, something the typical 3-year-old can do. We see similar changes in fine motor skills with 4-year-olds who no longer struggle to put on their clothes, something they may have had problems with two years earlier. Mastering the fine art of cutting one's own fingernails or tying shoes will take a lot of practice and maturation. Motor skills continue to develop into middle childhood, but for those in early childhood, play that deliberately involves these skills is emphasized.

By the time children arrive at middle childhood, they will have developed the general capabilities to perform movements like those of adults—though with far less skill and strength. However, due to their relatively immature cognitive abilities and still-developing brains, children don't yet fully grasp certain aspects of motion, such as the trajectory of a rolling ball in a game of soccer or kickball. For these reasons, younger children are usually offered accommodations when engaging in physical activities. For instance, their slower reaction time and lack of skill necessitates the use of equipment like training wheels on a bicycle or a batting tee in T-ball.

**Table: Examples of Motor skill Milestones for children 2 to 5 years old**

	Gross Motor Skills	Fine Motor Skills
Age 2	<p>Can kick a ball without losing balance</p> <p>Can pick up objects while standing, without losing balance (This often occurs by 15 months. It is a cause for concern if not seen by 2 years.)</p> <p>Can run with better coordination. (May still have a wide stance.)</p>	<p>Able to turn a doorknob</p> <p>Can look through a book turning one page at a time</p> <p>Can build a tower of six to seven cubes</p> <p>Able to put on simple clothes without help (The child is often better at removing clothes than putting them on)</p>

Age 3	<p>Can briefly balance and hop on one foot</p> <p>May walk on stairs with alternating feet (without holding onto rail)</p> <p>Can pedal a tricycle</p>	<p>Can build a block tower of more than nine cubes</p> <p>Can easily place small objects in a small opening</p> <p>Can copy a circle</p> <p>Drawin g a person with 3 parts</p> <p>Feeds self easily</p>
Age 4	<p>Shows improved balance</p> <p>Hops on one foot without losing balance</p> <p>Throws a ball overhead with coordination</p>	<p>Can cut out a picture using scissors</p> <p>Drawin g a square</p> <p>Managi ng a spoon and fork neatly while eating</p> <p>Putting on clothes properly</p>

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
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Table adapted from (NIH, 2018)



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=794#oembed-1>

**Children’s art:** Have you ever examined the drawings of young children? If you look closely, you can almost see the development of motor skills, perceptual understanding, and cognition 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.

Rhoda Kellogg (1969) noted that children’s drawings underwent several transformations. Starting with about 20 different types of scribbles at age 2, children move on to experimenting with the

placement of scribbles on the page. By age 3 they are using the basic structure of scribbles to create shapes and are beginning to combine these shapes to create more complex images. By 4 or 5 children are creating images that are more recognizable representations of the world. These changes are a function of improvement in motor skills, perceptual development, and cognitive understanding of the world (Cote & Golbeck, 2007).

The drawing of tadpoles is a pervasive feature of young children's drawings of self and others. Tadpoles emerge in children's drawing at about the age of 3 and have been observed in the drawings of young children around the world (Gernhardt et al., 2015). Despite the universality of tadpoles in children's drawings, there are cultural variations in the size, number of facial features, and emotional expressions displayed. Gernhardt et al. (2015) found that children from Western contexts (i.e., urban areas of Germany and Sweden) and urban educated non-Western contexts (i.e., urban areas of Turkey, Costa Rica, and Estonia) drew larger images, with more facial detail and more positive emotional expressions, while those from non-Western rural contexts (i.e., rural areas of Cameroon and India) depicted themselves as smaller, with less facial details and a more neutral emotional expression. The authors suggest that cultural norms of non-Western traditionally rural cultures, which emphasize the social group rather than the individual, may be one of the factors for the difference in the size of the figure. The tadpole figures of children from Western cultures often took up most of the page. Coming from cultures that emphasize the individual, this should not be surprising.

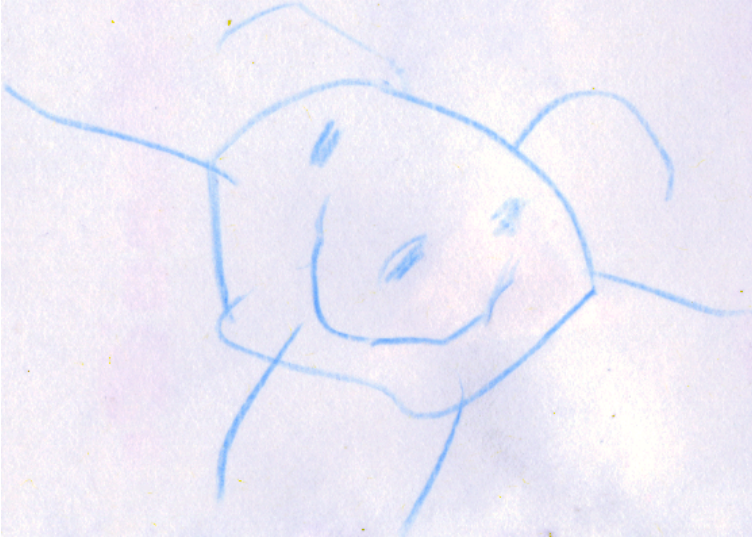


Image of a tadpole drawing where arms and legs come out of the head.

### Physical Activity is Important!

We know that during early childhood, parents and caregivers should encourage activities and play that emphasize motor skills and combat sedentary behavior and habits. After all, the brain *literally* grows when children engage in new opportunities. Additionally, it's well-established that early physical activity has a positive impact on later health outcomes (Pate et al., 2019; Roychowdhury, 2020; Wyszynska et al., 2020), including weight and cardiovascular fitness. It is also

linked to lower risks of chronic diseases like diabetes, hypertension, and certain cancers. Moreover, children who engage in physical activity during early childhood have higher bone density, which may help prevent osteoporosis in later life (Pate et al., 2019).

Active children also have stronger cognitive development, including improved attention, self-regulation, and academic performance (Mualem et al., 2018; Wood et al., 2020). Substantial evidence shows that throughout the lifespan, regular physical activity leads to better overall cognitive development (Erickson et al., 2019). Even a single 30-minute session has been shown to be beneficial in improving motor activity and memory for preschool children (McDonnell et al., 2013).

Here are the recommendations from WHO (2024):

- three- and four-year-old children should spend a minimum of three hours per day engaged in a variety of physical activities, including at least sixty minutes of moderate intensity to promote overall healthy development (WHO, 2022). Moderately intense activities include walking a dog, dancing, and riding a tricycle.
- five to six years old, the WHO recommends that children participate in a minimum of sixty minutes of moderate-to-vigorous activity per day. This can include normal school recess activities like climbing and playing games with balls. At least three times per week, children this age should engage in more vigorous aerobic activity, like games of tag, soccer, or basketball. High-intensity

physical activities are especially important for building bone strength and muscle development (Gunter et al., 2012; Specker et al., 2015).

Get kids to get moving!

## Toilet Training



Toilet training typically occurs during the first two years of early childhood (24-36 months). Some children show interest by age 2, but others may not be ready until months later. The average age for girls to be toilet trained is 29 months and for boys, it is 31 months (Boyse & Fitzgerald, 2010). One study indicated that only 40 to 60

percent of children complete toilet training by 36 months of age (Blum et al., 2004). Most children have control over both bladder and bowels and leave diapers behind sometime between 3 and 4 years old. The child's age is not as important as his/her physical and emotional readiness. If started too early, it might take longer to train a child.

According to the Mayo Clinic (2016b), the following questions can help parents determine if a child is ready for toilet training:

- Does your child seem interested in the potty chair or toilet, or in wearing underwear?
- Can your child understand and follow basic directions?
- Does your child tell you through words, facial expressions or posture when he or she needs to go?
- Does your child stay dry for periods of two hours or longer during the day?
- Does your child complain about wet or dirty diapers?
- Can your child pull down his or her pants and pull them up again?
- Can your child sit on and rise from a potty chair? (p. 1)

If a child resists being trained or it is not successful after a few weeks, it is best to take a break and try again later. Most children master daytime bladder control first, typically within two to three months of consistent toilet training. However, nap and nighttime training might take months or even years.

Some children experience elimination disorders that may require intervention by the child's pediatrician or a trained mental health practitioner. Elimination disorders include enuresis, or the repeated voiding of urine into bed or clothes (involuntary or intentional) and encopresis, the repeated passage of feces into inappropriate places (involuntary or intentional) (American Psychiatric Association, 2013). The prevalence of enuresis is 5%-10% for 5-year-olds, 3%-5% for 10-year-olds and approximately 1% for those 15 years of age or older.

Around 1% of 5-year-olds have encopresis, and it is more common in males than females.

## Sleep



Sleep is important for mood regulation and attention (NSF, 2015). In cases where children are tired they actually do not look tired. Children needing more sleep may resist bedtime and become hyper as the evening goes on. During early childhood, there is wide variation in the number of hours of sleep recommended per day. For example, 2-year-olds may still need 14 hours per day, while a six-year-old may only need 9 hours. According to the WHO, preschool children typically need ten to thirteen hours of sleep every twenty-four hours and to maintain consistent sleep and wake times. Children who have stopped napping sleep more at night, getting the same amount of sleep overall as their peers who nap (Ward et al., 2008; WHO, 2019).

The National Sleep Foundation’s 2015 recommendations based on age are listed in the next table.

**Table. Age groups and sleep duration recommendations**

Age Range	Typically needed each day	May be appropriate
Infant (4-11 months)	12-15 hours	Not less than 10 and not more than 18 hours
Toddler (1-2 years)	11-14 hours	Not less than 9 and not more than 16 hours
Preschooler (3-5 years)	10-13 hours	Not less than 8 and not more than 14 hours
School age (6-13 years)	9-11 hours	Not less than 7 and not more than 12 hours
Teenager (14-17 years)	8-10 hours	Not less than 7 and not more than 11 hours

*Table adapted from Hirskowitz (2015)*

## Sexual Development in Early Childhood (Ob 4)

Sexual and gender development are two different processes, but a misconception is that they are connected. We will first focus on children’s sexual development, and later in the chapter discuss gender development. Historically, children have been thought of as innocent or incapable of sexual arousal (Aries, 1962). Yet, the physical dimension of sexual arousal is present from birth. However,

it is not appropriate to associate the elements of seduction, power, love, or lust that is part of the adult meanings of sexuality. Sexuality begins in childhood as a response to physical states and sensation and cannot be interpreted as similar to that of adults in any way (Carroll, 2007).

Boys and girls are capable of erections and vaginal lubrication even before birth (Martinson, 1981). Arousal can signal overall physical contentment and stimulation that accompanies feeding or warmth. And 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 (Carroll, 2007).

**Early Childhood:** Children 4 years old and younger are naturally immodest, and may display open—and occasionally startling—curiosity about other people’s bodies and bodily functions, such as touching women’s breasts, or wanting to watch when grownups go to the bathroom (NCTSN, 2009). Wanting to be naked (even if others are not) and showing or touching private parts while in public are also common in young children (NCTSN, 2009). They are curious about their own bodies and may quickly discover that touching certain body parts feels nice (NCTSN, 2009). 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.

As children age and interact more with other children (approximately ages 4–6), they become more aware of the differences between boys and girls, and more social in their exploration (NCTSN, 2009). 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 (Okami et al., 1997). In addition to exploring their own bodies through touching or rubbing their private parts (masturbation), they may begin “playing doctor” and copying adult behaviors such as kissing and holding hands (NCTSN, 2009). Boys are often shown by other boys how to masturbate. Boys masturbate more often and touch themselves more openly than do girls

(Schwartz, 1999). As children become increasingly aware of the social rules governing sexual behavior and language (such as the importance of modesty or which words are considered “naughty”), they may try to test these rules by using naughty words (NCTSN, 2009). They may also ask more questions about sexual matters, such as where babies come from, and why boys and girls are physically different (NCTSN, 2009). Messages about what is going on and the appropriate time and place for such activities help the child learn what is appropriate.

**What is typical for young children’s sexuality? (NCTSN, 2009)**

<p><b>Preschool children (less than 4 years)</b></p> <ul style="list-style-type: none"><li>■ Explore and touch private parts, in public and in private</li><li>■ Rub private parts (with hand or against objects)</li><li>■ Show private parts to others</li><li>■ Try to touch mother’s or other women’s breasts</li><li>■ Remove clothes and wanting to be naked</li><li>■ Attempt to see other people when they are naked or undressing (such as in the bathroom)</li><li>■ Ask questions about their own—and others’—bodies and bodily functions</li><li>■ Talking to children their own age about bodily functions such as “poop” and “pee”</li></ul>
<p><b>Young Children (approximately 4–6 years)</b></p> <ul style="list-style-type: none"><li>■ Purposefully touch private parts (masturbation), occasionally in the presence of others</li><li>■ Attempt to see other people when they are naked or undressing</li><li>■ Mimic dating behavior (such as kissing, or holding hands)</li><li>■ Talk about private parts and using “naughty” words, even when they don’t understand the meaning</li><li>■ Explore private parts with children</li></ul>

Parents play a pivotal role in helping their children develop healthy

attitudes and behaviors towards sexuality (NCTSN, 2009). Although talking with your children about sex may feel outside your comfort zone, there are many resources available to help you begin and continue the conversation about sexuality. It is important to remain calm and even tone and ask open-ended questions when you feel unsettled over something your child said or you have seen him/her do. A behavior that is not typical should not be ignored and it may mean that your child needs to learn something from the situation (e.g., private parts are private). Providing close supervision, and providing clear, positive messages about modesty, boundaries, and privacy are crucial as children move through the periods of childhood (NCTSN, 2009). By talking openly with your children about relationships, intimacy, and sexuality, you can foster their healthy growth and development (NCTSN, 2009).

**Basic Information Parents can share with Early Childhood  
(Before 4 years old) (NCTSN, 2009)**

- Boys and girls are different
- Accurate names for body parts of boys and girls
- Babies come from mommies
- Rules about personal boundaries (for example, keeping private parts covered, not touching other children's private parts)
- Give simple answers to all questions about the body and bodily functions.



*Photo courtesy of Flickr*

## Safety Information for Early Childhood (NCTSN, 2009)

- The difference between “okay” touches (which are comforting, pleasant, and welcome) and “not okay” touches (which are intrusive, uncomfortable, unwanted, or painful)
- Your body belongs to you
- Everyone has the right to say “no” to being touched, even by grown-ups
- No one—child or adult—has the right to touch your private parts
- It’s okay to say “no” when grownups ask you to do things that

are wrong, such as touching private parts or keeping secrets from mommy or daddy

- There is a difference between a “surprise”—which is something that will be revealed sometime soon, like a present—and a “secret,” which is something you’re never supposed to tell. Stress that it is never okay to keep secrets from mommy and daddy

- Who to tell if people do “not okay” things to you, or ask you to do “not okay” things to them

**Basic Information to share with Young Children (approximately 4-6 years) (NCTSN, 2009)**

■ Boys' and girls' bodies change when they get older.

■ Simple explanations of how babies grow in their mothers' wombs and about the birth process.

■ Rules about personal boundaries (such as, keeping private parts covered, not touching other children's private parts)

■ Simple answers to all questions about the body and bodily functions

■ Touching your own private parts can feel nice, but is something done in private



*Photo courtesy of Flickr*

## Safety Information for Young Children (NCTSN, 2009)

■ Sexual abuse is when someone touches your private parts or asks you to touch their private parts

- It is sexual abuse even if it is by someone you know
- Sexual abuse is NEVER the child's fault
- If a stranger tries to get you to go with him or her, run and tell a parent, teacher, neighbor, police officer, or other trusted adult
- Who to tell if people do “not okay” things to you, or ask you to do “not okay” things to them (NCTSN, 2009)

## Cognitive Development

Early childhood is a time of pretending, blending fact and fiction, and learning to think of the world using language. As young children move away from needing to touch, feel, and hear about the world toward learning some basic principles about how the world works, they hold some pretty interesting initial ideas. For example, how many of you are afraid that you are going to go down the bathtub drain? Hopefully, none of you do! But a 3-year-old might really worry about this as they sit at the front of 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.” Or the young child may ask, “How long are we staying? From here to here?” while pointing to two points on a table. Concepts such as tomorrow, time, size, and distance are not easy to grasp at this young age. Understanding size, time, distance, fact, and fiction are all tasks that are part of cognitive development in the preschool years.

## Preoperational Intelligence (*Ob 5*)



Piaget's theory of cognitive development has a stage that coincides with early childhood known as the Preoperational Stage. According to Piaget, this stage occurs from the age of 2 to around 7 years. In the **preoperational stage**, children use symbols to represent words, images, and ideas, which is why children in this stage engage in pretend play. A child's arms might become airplane wings as she zooms around the room, or a child with a stick might become a brave knight with a sword. Children also begin to use language in the preoperational stage, but they cannot understand adult logic or mentally manipulate information. The term **operational** refers to logical manipulation of information, so children at this stage are considered pre-operational. Children's logic is based on their own personal knowledge of the world so far, rather than on conventional knowledge.

Let's examine some Piaget's assertions about children's cognitive abilities during the Preoperational Stage.

**Pretend Play:** Pretending is a favorite activity at this time. 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 teddy bear, for example, can be a baby or the queen of a faraway land!

Piaget believed that children's pretend play helped children solidify new schemes they were developing cognitively. This play, then, reflected changes in their conceptions or thoughts. However, children also learn as they pretend and experiment. Their play does not simply represent what they have taught (Berk, 2007).

**Egocentrism:** Egocentrism in early childhood refers to the tendency of young children to think that everyone sees things in the same way as the child. For example, 10-year-old Keiko's birthday is coming up, so her mom takes 3-year-old Kenny to the toy store to choose a present for his sister. He selects an Iron Man action figure for her, thinking that if he likes the toy, his sister will too. Piaget's classic experiment on egocentrism involved showing children a 3-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. By age 7 children are less self-centered. Additionally, when children are speaking to others, they tend to use different sentence structures and vocabulary when addressing a younger child or an older adult. This indicates some awareness of the views of others.

**Animism:** Animism refers to attributing lifelike qualities to objects. 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 the imaginative child, the cup is 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. Cartoons frequently show objects that appear alive and take on lifelike qualities. Young children do seem to think that objects that move may be alive but after age 3, they seldom refer to objects as being alive (Berk, 2007).



*The story of the Velveteen Rabbit exhibits animism for the stuffed animal to come alive.*

**Classification Errors:** Preoperational children have difficulty understanding that an object can be classified in more than one way. Classification is the ability to simultaneously sort things into general and more specific groups, using different types of comparisons. For example, if shown three white buttons and four black buttons and asked whether there are more black buttons or white buttons or buttons, the child is likely to respond that there are more black buttons. The child does not identify the category of buttons being larger than each subgroup (black and white) indicating a lack of hierarchical classification. Most children develop hierarchical classification ability between the ages of 7 and 10. As the child's vocabulary improves and more schemes are developed, the ability to classify objects improves.

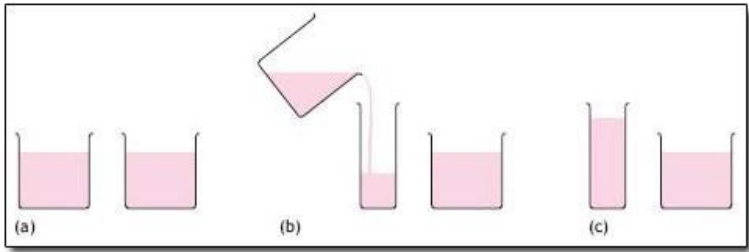
**Conservation Errors:** Children in the preoperational stage do not understand conservation. **Conservation** refers to the ability to recognize that moving or rearranging matter does not change the quantity. Imagine a 2-year-old and 4-year-old eating lunch. The

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!" This is a conservation error of number. He does not realize that 2 half sandwiches make a whole sandwich. Often children who fail conservation errors will concentrate on one aspect (focusing on number of sandwiches verses the total size (or mass)). Centration is the act of focusing all attention on one characteristic or dimension of a situation while disregarding all others. He is exhibiting centration by focusing on the number of pieces, which results in a conservation error.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=794#oembed-2>

The classic Piagetian experiment associated with conservation involves liquid (Crain, 2005). 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.



*Liquid conservation is tested when you start with two identical cups of liquid (a) and then pour liquid into a different shaped cup (b). The last step is to ask the child which has more or are do they have the same amount of liquid (c).*

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 same beaker situation, the child does not realize that, if the sequence of events was reversed and the water from the tall beaker was poured back into its original beaker, then the same amount of water would exist.

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## Conservation Errors Revisited.

Let's look at Kenny and Keiko again. Dad gave a slice of pizza to 10-year-old Keiko and another slice to 3-year-old Kenny. Kenny's pizza slice was cut into five pieces, so Kenny told his sister that he got more pizza than she did. Kenny did not understand that cutting the pizza into smaller pieces did not increase the overall amount. Kenny focused on the five pieces of pizza to his sister's one piece even though the total amount was the same. What error was Kenny making?

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Centration, conservation errors, and irreversibility are indications that young children are reliant on visual representations. Because children have not developed this understanding of conservation, they cannot perform mental operations (a requirement for Piaget's next stage).

**Critique of Piaget:** Similar to the critique of the sensorimotor period, several psychologists have attempted to show that Piaget also underestimated the intellectual capabilities of young children. For example, children's specific experiences can influence when they are able to conserve. Children of pottery makers in Mexican villages know that reshaping clay does not change the amount of clay at much younger ages than children who do not have similar experiences (Price-Williams et al., 1969). Crain (2005) indicated that preoperational children could think rationally on mathematical and scientific tasks, and they are not as egocentric as Piaget implied.

Research on Theory of Mind (discussed later in the chapter) has demonstrated that children overcome egocentrism by 4 or 5 years of age, which is sooner than Piaget indicated.

*Children & Learning – The Mozart Effect: Is there a cognitive advantage for children to listen to classical music?*

I'm sure everyone has heard at some point in their life that listening to classical music supposedly makes one smarter. There are many different meanings you could interpret from that statement. Does classical music have a permanent effect in raising one's IQ just by listening? Does it only improve intelligence for a short time after listening? What areas of intelligence is the music supposed to improve? These are all questions you should be asking when you hear a statement such as "listening to classical music makes kids smarter". This topic became the infamous anomaly it is today from a Russian study in 1993. In this study 36 college students were split into 3 separate groups where each group would sit in a room either listening to Mozart, concentration therapy sounds, or complete silence for 10 minutes. After the 10 minutes was up they all would take a short intelligence quiz with special reasoning tasks. What this study found is that the Mozart listening group scored slightly higher on the test than the other 2 groups.

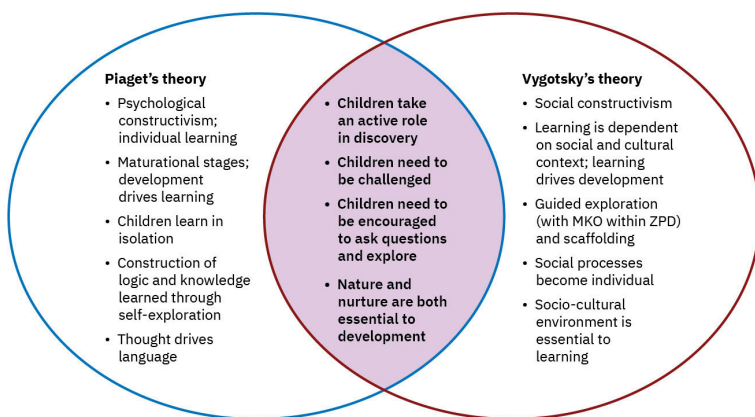
According to further research, including a meta-analysis (Chabis, 1999), what was found out is the music does not in fact have any benefit in raising one's intelligence. The classical music puts the listener's brain in a state of higher awareness than normal so when given a reasoning intelligence task, the listener is more aware and should perform slightly better. Listening to classical music while performing a task such as reading can in fact impair one's ability to comprehend all the information read because the music distracts the mind when you may not even realize it (Yen-Ning Su, 2017). Another study done showed that learning how to play music very well can improve a person's spatial intelligence (Bower, 2004).

Overall, the relationship music can have on one's intelligence is clear that it does not in any way raise it, rather it evokes the mind to be on its feet ready for a task.

## Vygotsky's Sociocultural Theory of Cognitive Development (*Ob 7*)

In contrast to Piaget on the child as the active learner, Lev Vygotsky argued that a child's intrinsic development and the highest level of cognitive thinking is elicited from the language, writings, and concepts arising from the culture the child is surrounded by (Crain, 2005). He believed that social interactions with adults and more learned peers could facilitate a child's potential for learning. Without this interpersonal instruction, he believed children's minds would not advance very far as their knowledge would be based only on their own discoveries. Vygotsky's theory including cultural and societal factors in learning go beyond supervision and peer relationships. They extend to the availability of resources such as books, tutors, mentors, and extra learning opportunities. Think about the ways that children learn to process information differently in varied sociocultural situations.

Below shows a comparison between Vygotsky's theory and Piaget's theory, although they identify learning takes different approaches, there are some shared concepts about learning.



Let's review some of Vygotsky's key concepts (as mentioned in chapter 2).

**Zone of Proximal Development and Scaffolding:** Vygotsky's best-known concept is the **Zone of Proximal Development (ZPD)**. Vygotsky stated that children should be taught in the ZPD, which occurs when they can almost perform a task, but not quite on their own without assistance. With the right kind of teaching, however, they can accomplish it successfully. A good teacher identifies a child's ZPD and helps the child stretch beyond it. Then the adult (teacher) gradually withdraws support until the child can then perform the task unaided. Researchers have applied the metaphor of scaffolds (the temporary platforms on which construction workers stand) to this way of teaching. **Scaffolding** is the temporary support that parents or teachers give a child to do a task, sometimes the term **guided participation** is also used.



**Private Speech:** Do you ever talk to yourself? Why? Chances are, this occurs when you are struggling with a problem, trying to remember something or feel very emotional about a situation. Children talk to themselves too. Thinking out loud eventually becomes thought accompanied by internal speech (**or private speech**), and talking to oneself becomes a practice only engaged in when we are trying to learn something or remember something. This inner speech is not as elaborate as the speech we use when communicating with others (Vygotsky, 1962). Piaget interpreted this as Egocentric Speech or a practice engaged in because of a child's inability to see things from another's point 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.

## Theory of Mind (*Ob 7*)

Imagine showing a 3-year old child a Band-Aid box and asking the child what is in the box. Chances are, the child will reply, “Band-Aids.” Now imagine that you open the box and pour out crayons. If you 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 4 years of age, a child does not recognize that the mind can hold ideas that are not accurate. So, this 3-year-old changes his or her response once shown that the box contains crayons. The **theory of mind** is the understanding that the mind can be tricked or that the mind is not always accurate. At around age 4, the child would reply, “Crayons” and understand that thoughts and realities do not always match.

Three-year-olds have difficulty distinguishing between what they once thought was true and what they now know to be true. They feel confident that what they know now is what they have always known (Birch & Bloom, 2003). For the theory of mind, a child must separate what he or she “knows” to be true from what someone else might “think” is true. In Piagetian terms, they must give up a tendency toward egocentrism. The child must also understand that what guides people’s actions and responses are what they “believe” rather than what is reality. In other words, people can mistakenly believe things that are false and will act based on this false knowledge. Consequently, prior to age 4 children are rarely successful at solving such a task (Wellman et al., 2001).



This awareness of the existence of mind is part of **social intelligence** or 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 empathetic toward others. This mind reading ability helps us to anticipate and predict the actions of others (even though these predictions are sometimes inaccurate). This is important for communication and social skills.

## Autism Spectrum Disorder

The characteristics of **Autism Spectrum Disorder (ASD)** are seen during early childhood (as established by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2022). So, what exactly is Autism Spectrum Disorder?

Children with this disorder show signs of “persistent deficits in

social communication and social interaction” and “restricted, repetitive patterns” of behavior (American Psychiatric Association, 2022). Children with ASD experience difficulties with explaining and predicting other people’s behavior, which leads to problems in social communication and interaction. Children who are diagnosed with an autistic spectrum disorder usually develop the theory of mind more slowly than other children and continue to have difficulties with it throughout their lives.

ASD occurs in around 17 percent of children and can manifest with a wide range of highly diverse symptoms and neurological characteristics (Centers for Disease Control and Prevention, 2024). The average age to receive a diagnosis is 4.5 years old, though many individuals are diagnosed at later ages, including in adulthood (Brett et al., 2016).

There are many possible signs of autism spectrum disorder, and the appearance of some does not imply ASD is present. However, early signs may warrant a referral to a specialist for professional assessment. The table shows possible signs for a four-year-old.

Possible Signs of Autism in 4-Year-Old Children		
Communication	Social interactions	Repetitive behaviors
 <ul style="list-style-type: none"><li>• Cannot form sentences</li><li>• Does not answer questions in the expected way</li><li>• Uses reverse pronouns</li><li>• Rarely uses body language</li><li>• Uses a flat or singsong tone of voice</li><li>• Does not understand jokes or sarcasm</li><li>• Does not tell stories</li></ul>	 <ul style="list-style-type: none"><li>• Avoids eye contact</li><li>• Does not share or take turns</li><li>• Does not engage in pretend play</li><li>• Is not interested in others</li><li>• Does not like being touched</li><li>• Uses facial expressions that do not match mood</li><li>• Cannot be easily soothed</li><li>• Has difficulty understanding people’s feelings</li><li>• Has difficulty talking about their own feelings</li></ul>	 <ul style="list-style-type: none"><li>• Displays repetitive motions like flapping hands or rocking</li><li>• Plays with same toys in same way every time</li><li>• Is easily upset over changes in routines</li><li>• Focuses on certain parts of objects such as wheels</li><li>• Has a specific passionate interest</li><li>• Prefers to line up toys or organize them specifically</li></ul>

Some of the common traits that appear in early childhood are struggles with social interactions, particularly making eye contact, responding reciprocally, understanding the perspectives of others, and communicating verbally. These noticeable differences in social interactions among autistic preschoolers often result in parental concerns and referrals to specialists (see table above). Note that

most psychologists use the phrase *autistic preschooler* (identity-first language) as opposed to *person with autism spectrum disorder* (person-first language) because a large percentage of allies and advocates in the autistic community have stated this language preference. The language and preferences for any neurodiversity or disorder vary by the individual and the represented community. When in doubt, always follow the lead of the person or ask their preference (Autistic Self Advocacy Network, n.d.; Ladau, 2021).



Beyond early childhood, those with autism spectrum disorders may follow unique developmental trajectories. 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. Though ASD is lifelong, some children develop skills like those of their non-autistic peers, whereas others may continue to struggle with particular social and emotional expectations across the lifespan (Elder et al., 2017). Some individuals

with an autism spectrum disorder, particularly those with better language and intellectual skills, can live and work independently as adults.

### *Early diagnosis of Autism Spectrum Disorder*

About half of parents of children with ASD notice their child's unusual behaviors by age 18 months, and about four-fifths notice by age 24 months, but often a diagnosis 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.

## **Information Processing in Early Childhood (Ob 6)**

The **information processing** model examines how memory gets stored (mentioned in chapter 2). Information processing researchers focus on several issues in cognitive development for this age group, including improvements in attention skills, changes in the capacity and the emergence of executive functions in working memory. Additionally, in early childhood memory strategies, memory accuracy, and autobiographical memory emerge. Early childhood is seen by many researchers as a crucial time period in memory development (Posner & Rothbart, 2007).



**Selective Attention:** Children's ability with selective attention tasks improve as they age. However, this ability is also greatly influenced by the child's temperament (Rothbart & Rueda, 2005), the complexity of the stimulus or task (Porporino et al., 2004), and along with whether the stimuli are visual or auditory (Guy et al., 2013). Guy et al. (2013) found that children's ability to selectively attend to visual information outpaced that of auditory stimuli. This may explain why young children are not able to hear the voice of the teacher over the cacophony of sounds in the typical preschool classroom (Jones et al., 2015). Jones and his colleagues found that 4 to 7-year-olds could not filter out background noise, especially when its frequencies were close in sound to the target sound. In comparison, 8 to 11-year-old older children often performed similarly to adults.

**Sustained Attention:** Most measures of sustained attention typically ask children to spend several minutes focusing on one task, while waiting for an infrequent event, while there are multiple distractors for several minutes. Berwid et al. (2005) asked children between the ages of 3 and 7 to push a button whenever a "target" image was displayed, but they had to refrain from pushing the button when a non-target image was shown. The younger the child, the more difficulty he or she had maintaining their attention.

## **Memory**

Based on studies of adults, people with amnesia, and neurological research on memory, researchers have proposed several "types" of memory." Let's examine changes in memory during early childhood.

**Sensory memory** (also called the sensory register): the first stage of the memory system, and it stores sensory input in its raw form for a very brief duration; essentially long enough for the brain to register and start processing the information. Studies of auditory sensory memory have found that the sensory memory trace for the characteristics of a tone lasts about one second in 2-year-olds, two seconds in 3-year-olds, more than two seconds in 4-year-olds and three to five seconds in 6-year-olds (Glass et al., 2008). Other researchers have found that young children hold sounds for

a shorter duration than do older children and adults and that this deficit is not due to attentional differences between these age groups, but reflect differences in the performance of the sensory memory system (Gomes et al., 1999).

**Short-term or working memory:** The second stage of the memory system. Working memory is the component of memory in which current conscious mental activity occurs. Working memory often requires conscious effort and adequate use of attention to function effectively. As you read earlier, children in this age group struggle with many aspects of attention and this greatly diminishes their ability to consciously juggle several pieces of information in memory. The capacity of working memory, that is the amount of information someone can hold in consciousness, is smaller in young children than in older children and adults. The typical adult and teenager can hold a 7-digit number active in their short-term memory. The typical 5-year-old can hold only a 4-digit number active. This means that the more complex a mental task is, the less efficient a younger child will be in paying attention to, and actively processing, the information in order to complete the task.

**Long-term memory** also is known as permanent memory: the third component in memory. A basic division of long-term memory is between declarative and nondeclarative memory. **Declarative memories**, sometimes referred to as explicit memories, are memories for facts or events that we can consciously recollect. **Nondeclarative memories** sometimes referred to as implicit memories, are typically automated skills that do not require conscious recollection. Remembering that you have an exam next week would be an example of declarative memory. In contrast, knowing how to walk so you can get to the classroom or how to hold a pencil to write would be examples of non-declarative memories. Declarative memory is further divided into semantic and episodic memory. **Semantic memories** are memories for facts and knowledge that are not tied to a timeline, while **episodic memories** are tied to specific events in time.

A component of episodic memory is **autobiographical memory** or

our personal narrative. Autobiographical memories are a subset of the declarative memory category. As you may recall from Chapter 4, the concept of infantile amnesia was introduced. Adults rarely remember events from the first few years of life. In other words, we lack autobiographical memories from our experiences as an infant, toddler, and very young preschooler. Several factors contribute to the emergence of autobiographical memory including brain maturation, improvements in language, opportunities to talk about experiences with parents and others, the development of the theory of mind, and a representation of “self” (Nelson & Fivush, 2004). 2-year-olds do remember fragments of personal experiences, but these are rarely coherent accounts of past events (Nelson & Ross, 1980). Between 2 and 2 ½ years of age, children can provide more information about past experiences. However, these recollections require considerable prodding by adults (Nelson & Fivush, 2004). Over the next few years, children will form more detailed autobiographical memories and engage in more reflection of the past.

### *Executive function (EF)*

Self-regulatory processes, such as the ability to inhibit behavior or cognitive flexibility, that enable adaptive responses to new situations or to reach a specific goal, are aspects of **executive function**. Executive function skills gradually emerge during early childhood and continue to develop throughout childhood and adolescence. Like many cognitive changes, brain maturation, especially the prefrontal cortex, along with experience influence the development of executive function skills. A child, whose parents are warm and responsive, use scaffolding when the child is trying to solve a problem, and who provide cognitively stimulating environments for the child show higher executive function skills (Fay-Stammbach et al., 2014). For instance, scaffolding was

positively correlated with greater cognitive flexibility at age 2 and inhibitory control at age 4 (Bibok et al., 2009).

Executive function also is related to the use and selection of mental strategies to aid their memory performance. For instance, simple rote rehearsal may be used to commit information to memory. Young children, however, often do not rehearse unless reminded to do so, and when they do rehearse, they often fail to use clustering rehearsal. In **clustering rehearsal**, the person rehearses previous material while adding in additional information. If a list of words is read out loud to you, you are likely to rehearse each word as you hear it along with any previous words you were given. Young children will repeat each word they hear, but often fail to repeat the prior words in the list. In Schneider et al. (2009) longitudinal study of 102 kindergarten children, the majority of children used no strategy to remember information, a finding that was consistent with previous research. As a result, their memory performance was poor when compared to their abilities as they aged and started to use more effective memory strategies.

## Summary of three cognitive theories

We have discussed three theories that connect to changes in cognitive development. Below is a summary table reviewing each theories stance in how changes occur and how variation is considered.

**Table Comparative Summary of Three Cognitive Theories**

Theme	Piaget	Information Processing	V
Nature-Nurture	Maturation and experience = Nature and nurture	Not emphasized	E fa in b s N n
Continuous-Discontinuous	Discontinuous= Stages	Usually continuous	C
Culture?	Not really	Not emphasized	C c
Individual diff.?	Universal stages	Not really but does explain variation	Y

## Language Development (*Ob 8*)

**Vocabulary growth:** A child's vocabulary expands between the ages of 2 to 6 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 as well as those speaking English tend to learn nouns more readily. However, those learning less verb-friendly languages such as English seem to need assistance in grammar to master the use of verbs (Imai et al., 2008). Children are also very creative in creating their own words to use as labels such as a "nei-nei" for horse or "clopster" for lobster.

**Literal meanings:** 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. This is especially

true of expressions or figures of speech which are taken literally. 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 rules of grammar as they learn language but may apply these rules inappropriately at first. For instance, a child learns to add "ed" to the end of a word to indicate past tense. They form a sentence such as "I goed there. I doed that." This is typical at ages 2 and 3. They will soon learn new words such as went and did to be used in those situations. 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, and it is a sign of their language learning.

**The Impact of Training:** Remember Vygotsky and the Zone of Proximal Development? Children can be assisted in learning language by others who listen attentively, model more accurate pronunciations, and encourage elaboration. The child exclaims, "I'm goed there!" and the adult responds, "You went there? Say, 'I went there.' Where did you go?" Children may be ripe for language as Chomsky suggests, but active participation in helping them learn is important for language development as well. The process of scaffolding (Vygotsky's theory) is one in which the guide provides needed assistance to the child as a new skill is learned.

## Early Literacy

Phonological awareness, learning the sound system of a language, is the foundation for literacy, the ability to read, write, and understand information. Early literacy is enhanced by robust vocabulary development, phonological awareness, print awareness, and comprehension skills. Thus, children who have strong early literacy skills are more likely to enjoy academic success (Ramsook et al., 2020).

Parents and caregivers can support early literacy by reading to children regularly, supporting a text-rich environment with books and writing materials, and engaging in conversations and activities like storytelling and singing that promote language development. The repetition found in books and songs reinforces semantics, syntax, and grammar, and will promote a positive attitude towards reading. Reading books also furthers children's exposure to a wider range of vocabulary than they might hear in everyday speech and conversations.

Although research has extensively explored older children's use of tablets for reading, currently there is only limited understanding of the impact of digital reading in the early stages of literacy development. One review compared the impact of interactive, enhanced e-books (that is, with embedded dictionaries) to that of print books and non-enhanced, non-interactive e-books on the literacy skills of young children (López-Escriban

et al., 2021). Most of the books in the study were carefully chosen by teachers for artistic and literary quality. The analysis revealed that when high-quality material is used, both enhanced and non-enhanced e-books are either equal to or have an advantage over print books in promoting phonological awareness and vocabulary learning. These findings have positive implications for marginalized populations, including those at risk of learning disabilities and those from lower SES families, and offer another alternative to standardized school-based instruction.

## Psychosocial Development in Early Childhood: A Look at Self-Concept, Gender Identity, and Family Life

### Self-Concept (*Ob 11*)

Early childhood is a time of forming an initial sense of self. **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 results in improved perceptions of the self. If asked to describe yourself to others you would likely provide some physical descriptors, group affiliation, personality traits, behavioral quirks, and important values and beliefs. When researchers ask young children the same open-ended question, the children provide physical descriptors, preferred activities, and

favorite possessions. Typically, a self-concept for a three-year-old will include basic vital facts such as their name, gender, and age. Thus, a 3-year-old might describe herself as a 3-year-old girl with red hair, who likes to play with Legos. This focus on external qualities is referred to as the categorical self. However, even children as young as 3 know there is more to themselves than these external characteristics. arter and Pike (1984) challenged the method of measuring personality with an open-ended question as they felt that language limitations were hindering the ability of young children to express their self-knowledge. They suggested a change to the method of measuring self-concept in young children, whereby researchers provide statements that ask whether something is true of the child (e.g., “I like to boss people around,” “I am grumpy most of the time”). Consistent with Harter and Pike’s suspicions, those in early childhood answer these statements in an internally consistent manner, especially after the age of 4 (Goodvin et al., 2008) and often give similar responses to what others (parents and teachers) say about the child (Brown et al., 2008; Colwell & Lindsey, 2003). Around age four, children may start to include new information in their self-concept, such as their interests and hobbies. One child may say they like Batman and coloring books, whereas another may mention dancing and the color yellow. However, at age four, these components are based on concrete, factual statements and are not evaluative. Starting around age five or six, some children might start to evaluate their skills internally, but expressing this view outwardly as part of their self-concept is still rare and will usually start later in childhood (Putnick et al., 2020).

Young children tend to have a generally positive self-image. When asked whether they perform better than, worse than, or about the same as other children when it comes to running, coloring, singing, or dancing, most four-year-olds rate themselves as performing better than others (Marsh et al., 2002; Orth et al., 2018). The reason is that at four years of age, most children are not yet able to fully consider the performance of others to make objective comparisons.

Instead, they are most familiar with their own perspective and performance, and being satisfied with their abilities, they rate their own skills highly.

Herbert Mead (1967) explains 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 self” which is the part of the self that is spontaneous, creative, innate, and is not concerned with how others view us and the “me self” 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 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.

Around five years of age, children start to become more self-conscious and are better able to evaluate and assess the way they are perceived by others. In many countries, including the United States, this coincides with the beginning of formal education. In a school setting, children may start to notice that some children are better at different activities, and perhaps they themselves are not the fastest or the best at everything. In the first year of formal education, children tend to experience an adjustment to their self-esteem, leading them to place less reliance on praise from parents and more on the social comparisons they make with other children (Pinto et al., 2015). It is typical to see self-esteem decline a little in the first year of formal education as children begin to have more

realistic perceptions of themselves. For example, they may transform from believing they are “the highest jumper ever” to observing that they jump about as high as their peers in physical education class.

## Self-Control

Self-control is not a single phenomenon but is multi-faceted. It includes response initiation, the ability to not initiate a behavior before you have evaluated all of the information, response inhibition, the ability to stop a behavior that has already begun, and delayed gratification, the ability to hold out for a larger reward by forgoing a smaller immediate reward (Dougherty et al., 2005). It is in early childhood that we see the start of self-control, a process that takes many years to fully develop. In the now classic “Marshmallow Test” (Mischel et al., 1972) children are confronted with the choice of a small immediate reward (immediate gratification) (a marshmallow) and a larger delayed reward (more marshmallows). Walter Mischel and his colleagues over the years have found that the ability to delay gratification at the age of 4 predicted better academic performance and health later in life (Mischel et al., 2011). The Marshmallow Test connects to children’s development of self-control and motivation. Self-control is related to executive function (term discussed earlier in the chapter). As executive function improves, children become less impulsive (Traverso et al., 2015) and self-regulate emotions, attention, and behavior.



*A famous self-regulation test is the “Marshmallow Test.”*

## Erikson: Initiative vs. Guilt (*Ob 9*)

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. Children may want to build a fort with the cushions from the living room couch or open a lemonade stand in the driveway or make a zoo with their stuffed animals and issue tickets to those who want to come. Or they may just want 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 critical of messes or mistakes. Soggy washrags and toothpaste left in the sink pales in comparison to the smiling face of

a 5-year-old that emerges from the bathroom with clean teeth and pajamas!

During this time, children are taking initiative but also may desire having set routines. Many young children desire consistency and may be upset if there are changes to their daily routines. They may like to line up their toys or other objects or place them in symmetric patterns. Many young children have a set bedtime ritual and a strong preference for certain clothes, toys or games. All these tendencies tend to wane as children approach middle childhood, and the familiarity of such ritualistic behaviors seem to bring a sense of security and a general reduction in childhood fears and anxiety (Evans et al., 1999; Evans & Leckman, 2015).

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 the child is 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 be firm. Guilt for a situation where a child did not do their best allows a child to understand their responsibilities, see their potential, and helps the child learn to exercise self-control. 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. The parent must guide the child if they are to have a successful resolution in this stage. A parenting practice is to emphasize a when bad choice and redirect verses shutting down their desire to initiate or feeling he/she is bad.

## Gender Identity, Gender Constancy, and Gender Roles (*Ob 12*)

Gender refers to the attitudes, feelings, and behaviors that a given culture associates with a person's biological sex (APA, 2012). Another

important dimension of the self is the sense of self as male or female. **Gender identity** is a person's deeply-felt, inherent sense of being a boy, a man, or male; a girl, a woman, or female; or an alternative gender (e.g., genderqueer, gender nonconforming, gender neutral) that may or may not correspond to a person's sex assigned at birth or to a person's primary or secondary sex characteristics. Since gender identity is internal, a person's gender identity is not necessarily visible to others.

Gender identity takes on more meaning during the preschool years as children are becoming increasingly interested in finding out the differences between boys and girls both physically and in terms of what activities are acceptable for each. While 2-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. 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 (Kuhn et al., 1978; Martin et al., 2004; Halim & Ruble, 2010). By age three, most can label their gender, in most cases as girl or boy (Bem, 1981; Bem, 1983). At approximately age 4, children acquire gender stability, which is the understanding that, for most people, boys grow up to be men, that girls grow up to be women, and that gender is a stable concept. However, at this age it is also common for children to assume that temporary changes in appearance, actions, or social roles can alter someone's gender and change gender stability. For instance, they may think a girl who cuts her hair short is now a boy, or that a boy who practices ballet has become a girl.

This self-identification or **gender identity** is followed sometime later with **gender constancy** or the knowledge that gender does not change. By age six, children understand gender constancy, which is the belief that gender is resilient across contexts and situations, and immune to superficial changes like altered hairstyles or clothing and violations of gender expectations. Though these three realizations about gender are normative markers of gender development, individual differences and the diverse environments children

experience will somewhat influence the age at which they are reached (Martin & Ruble, 2010). However, around ages 5–6 years-old, children’s thinking may be rigid in many ways for defining gender. 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 (Weinraub et al., 1984; Egan et al., 2001; Miller et al., 2009). 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 (Trautner et al., 2005; Halim et al., 2013). With this change, children develop stronger moral impulses about what is “fair” for themselves and other children (Killen & Stangor, 2001). As neurological and cognitive development continue and as children gain more social experiences in the world, they begin to understand nuances in rules and become less judgmental and enforcing of gender norms.

Part of gender identity is the formation of gender roles. **Gender roles**, or the rights and expectations that are associated with being male or female, are learned throughout childhood and into adulthood. Behavior that is compatible with cultural expectations is referred to as gender-normative; behaviors that are viewed as incompatible with these expectations constitute gender nonconformity (APA, 2012). One of the greatest influences in early childhood in understanding gender roles comes from family members and caregivers as children infer differences between them as being due to gender. That is, if dad washes the dishes and mom mows the lawn, they assume dishes are boys’ work and lawn care is for girls, even if the division of labor is a factor of skills, preferences, or schedules. These patterns and observations are highly similar across children in gay, lesbian, and heterosexual families (Bos &

Sandfort, 2010; Goldberg et al., 2012). Media is also a source of information. Although parents and caregivers often curate some of the media to which children are exposed—such as by selecting films, video games, and technology—children are constantly bombarded with color-coded advertisements and shopping aisles filled with gender-specific products, and subtle nods to gender norms that parents may miss.



Children begin to understand and internalize gender roles and stereotypes from a wide range of sources including their families, the media, and peers. Watch this [video in which children explain some of the ways they've come to understand gender](#) to learn more.

**Learning through reinforcement and modeling:** Learning theorists (chapter 2) suggest that gender role socialization is a result of the ways in which parents, teachers, friends, schools, religious institutions, media, and others send messages about what is acceptable or desirable behavior as 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 (Maccoby & Jacklin, 1987). 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.

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 is 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 (Sadker & Sadker, 1994). Girls 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. Friends discuss what is acceptable for boys and girls and popularity may be based on modeling what is considered ideal behavior or looks 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. Of course, the stereotypes can influence which kinds of courses or vocational choices girls and boys are encouraged to make. We are recipients of these cultural expectations, but may also modify these roles (Kimmel, 2008).



*This is an example of deferred imitation (Piaget) and gender role play.*

**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 the classrooms and much more at risk for sexual harassment from teachers, coaches, classmates, and professors), 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 where 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. Each of these differences will be explored further in subsequent chapters.

**The impact in other parts of the world:** Gender differences in India and China can be a matter of life and death as preferences for male children have been strong historically and are still held, especially in rural areas (WHO, 2010). Male children are given preference for receiving food, breast milk, medical care, and other resources. 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 Dysphoria:** A growing body of research is now focused on **gender dysphoria**, or the distress accompanying a mismatch between one's gender identity and biological sex (APA, 2013). Gender Dysphoria as a diagnosis characterized by "a marked incongruence between" a person's gender assigned at birth and gender identity (American Psychiatric Association, 2013, p. 453). Gender Dysphoria replaced the diagnosis of Gender Identity Disorder (GID) in the previous version of the DSM (APA, 2000). Although prevalence rates are low, at approximately 0.3 percent of the United States population (Russo, 2016), children who later identified as transgender, often stated that they were the opposite gender as soon as they began talking. Comments such as stating they prefer the toys, clothing, and anatomy of the opposite sex while rejecting the toys, clothing, and anatomy of their assigned sex are criteria for a diagnosis of Gender Dysphoria in children. Certainly, many young children do not conform to the gender roles modeled by the culture and even push back against assigned roles. However, they do not experience discomfort regarding their gender identity and would not be identified with Gender Dysphoria. A more comprehensive description of Gender Dysphoria, including current treatments, will be discussed in the chapter on adolescence.

Diagnostic criteria for gender dysphoria in children include significant distress or impairment due to marked gender

incongruence, such as a strong desire to be-or a belief that one is the other gender; preference for the toys, games, roles, and activities stereotypically associated with the other gender, and a strong dislike of one's sexual anatomy (APA, 2013).

## Family Life

### Parenting Styles (*Ob 9*)

Relationships between parents and children continue to play a significant role in children's development during early childhood. We will explore two models of parenting styles. Keep in mind that these most parents do not follow any model completely. Real people tend to fall somewhere in between these styles. And sometimes parenting styles change from one child to the next or in times when the parent has more or less time and energy for parenting. Parenting styles can also be affected by concerns the parent has in other areas of his or her life. For example, parenting styles tend to become more authoritarian when parents are tired and perhaps more authoritative when they are more energetic. Sometimes parents seem to change their parenting approach when others are around, maybe because they become more self-conscious as parents or are concerned with giving others the impression that they are a "tough" parent or an "easy-going" parent. And of course, parenting styles may reflect the type of parenting someone saw modeled while growing up.

**Baumrind (1971)** offers a model of parenting that is four styles and measured along levels of responsiveness and demand. In general, children develop greater competence and self-confidence when parents have high, but reasonable expectations for children's behavior, communicate well with them, are warm, loving, and responsive, and use reasoning, rather than coercion as preferred

responses to children’s misbehavior. This kind of parenting style has been described as **Authoritative** (Baumrind, 2013). Authoritative parents are supportive and show interest in their kids’ activities, but are not overbearing and allow them to make constructive mistakes. Parents allow negotiation where appropriate, and consequently, this type of parenting is considered more democratic. **Authoritarian**, is the traditional model of parenting in which parents make the rules and children are expected to be obedient. Baumrind suggests that authoritarian parents tend to place maturity demands on their children that are unreasonably high and tend to be aloof and distant. Consequently, children reared in this way may fear rather than respect their parents and, because their parents do not allow discussion, may take out their frustrations on safer targets-perhaps as bullies toward peers. **Permissive** parenting involves holding expectations of children that are below what could be reasonably expected from them. Children are allowed to make their own rules and determine their own activities. Parents are warm and communicative, but provide little structure for their children. Children fail to learn self-discipline and may feel somewhat insecure because they do not know the limits. **Uninvolved** parents are disengaged from their children. They do not make demands on their children and are non-responsive. These children can suffer in school and in their relationships with their peers (Gecas & Self, 1991).

**Table. Baumrind’s Parenting Style Dimensions classified by Warmth & Control**

Demand/Control			
Warmth/Responsiveness		Low	High
	Low	Uninvolved	Authoritarian
	High	Permissive	Authoritative

**Table. Summary of Baumrind’s Parenting Styles**

Parenting Style	Characteristics
Authoritative Style	<p>The parent gives reasonable demands and consistent limits express warmth and affection and listens to the child's point of view.</p> <p>Parents set rules and explain the reasons behind them, but are also flexible and willing to make exceptions to the rules in certain cases.</p> <p>This is the style most encouraged in modern American society. American children raised by authoritative parents tend to have high self-esteem and social skills.</p> <p>Effective parenting styles vary as a function of culture and, as Small (1999) points out, the authoritative style is not necessarily preferred or appropriate in all cultures.</p>

Authoritarian Style	<p>The parent places a high value on conformity and obedience. The parents are often strict, tightly monitor their children, and express little warmth.</p> <p>Authoritarian parents probably would not make exceptions to rules because they consider the rules to be set, and they expect obedience. This style can create anxious, withdrawn, and unhappy kids.</p> <p>Authoritarian parenting is as beneficial as the authoritative style in some ethnic groups. For instance, first-generation Chinese American children raised by authoritarian parents did just as well in school as their peers who were raised by authoritative parents.</p>
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Permissive Style	<p>Permissive parents make few demands and rarely use punishment; the kids run the show and anything goes. There are rarely strict rules set for behavior.</p> <p>The parents tend to be very nurturing and loving and may play the role of a friend rather than the parent.</p> <p>Children raised by permissive parents tend to lack self-discipline, and the permissive parenting style is negatively associated with grades. The permissive style may also contribute to other risky behaviors such as alcohol abuse, risky sexual behavior especially among female children, and increased the display of disruptive behaviors by male children.</p> <p>There are some positive outcomes associated with children raised by permissive parents, such as higher self-esteem, better social skills, and lower levels of depression.</p>
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Uninvolved Style	<p>The parents are indifferent, uninvolved, and sometimes referred to as neglectful. These parents may provide for the child's basic needs, but little else.</p> <p>The parents don't respond to the child's needs and make relatively few demands. This could be because of severe depression or substance abuse, or other factors such as the parents' extreme focus on work.</p> <p>The children raised in this parenting style are usually emotionally withdrawn, fearful, anxious, perform poorly in school, and are at an increased risk of substance abuse.</p>
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These four categories are along a continuum and real people tend to fall somewhere in between these styles. Sometimes parenting styles change from one child to the next or in times when the parent has more or less time and energy for parenting. Parenting styles can also be affected by concerns the parent has in other areas of his or her life. For example, parenting styles tend to become more authoritarian when parents are tired and perhaps more authoritative when they are more energetic. Sometimes parents seem to change their parenting approach when others are around, maybe because they become more self-conscious as parents or are concerned with giving others the impression that they are a “tough” parent or an “easy-going” parent. Additionally, parenting styles may reflect the type of parenting someone saw modeled while growing up.

**Lemasters and Defrain** (1989) offer another model of parenting. This model is interesting because it looks more closely at the motivations of the parent and suggests that parenting styles are often designed to meet the psychological needs of the parent rather than the developmental needs of the child.

- The **martyr** is a parent who will do anything for the child; even tasks that the child should do for himself or herself. All of the good deeds performed for the child, in the name of being a “good parent,” may be used later should the parent want to gain compliance from the child. If a child goes against the parent’s wishes, the parent can remind the child of all of the times the parent helped the child and evoke a feeling of guilt so that the child will do what the parent wants. The child learns to be dependent and manipulative as a result. (Beware! A parent busy whipping up cookies may really be thinking “control!”)
- The **pal** is like the permissive parent described in Baumrind’s model above. The pal wants to be the child’s friend. Perhaps the parent is lonely or perhaps the parent is trying to win a popularity contest against an ex-spouse. Pals let children do what they want and focus most on being entertaining and fun and set few limitations. Consequently, the child may have little self-discipline and may try to test limits with others.
- The **police officer/drill sergeant** style of parenting is similar to the authoritarian parent described above. The parent focuses primarily on making sure that the child is obedient and that the parent has full control of the child. Sometimes this can be taken to the extreme by giving the child tasks that are really designed to check on their level of obedience. For example, the parent may require that the child fold the clothes and place items back in the drawer in a particular way. If not, the child might be scolded or punished for not doing things “right.” This type of parent has a very difficult time allowing the child to grow and learn to make decisions independently. And the child may have a lot of resentment toward the parent that is displaced on others.
- The **teacher-counselor** parent is one who pays a lot of attention to expert advice on parenting and who believes that as long as all of the steps are followed, the parent can rear a perfect child. “What’s wrong with that?” you might ask. There

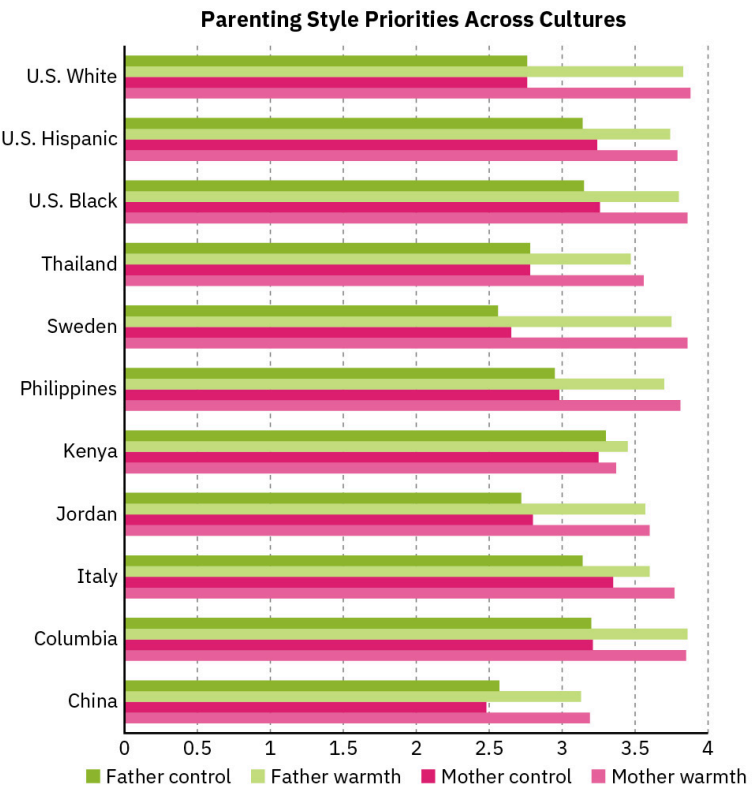
are two major problems with this approach. First, the parent is taking all of the responsibility for the child's behavior—at least indirectly. If the child has difficulty, the parent feels responsible and thinks that the solution lies in reading more advice and trying more diligently to follow that advice. Parents can certainly influence children, but thinking that the parent is fully responsible for the child's outcome is faulty. A parent can only do so much and can never have full control over the child. Another problem with this approach is that the child may get an unrealistic sense of the world and what can be expected from others. For example, if a teacher-counselor parent decides to help the child build self-esteem and has read that telling the child how special he or she is or how important it is to compliment the child on a job well done, the parent may convey the message that everything the child does is exceptional or extraordinary. A child may come to expect that all of his efforts warrant praise and in the real world, this is not something one can expect. Perhaps children get more of a sense of pride from assessing their own performance than from having others praise their efforts.



- Lemasters and Defrain (1989) suggest that the **athletic coach style of parenting** is best. Before you draw conclusions here, set aside any negative experiences you may have had with coaches in the past. The principles of coaching are what are important to Lemasters and Defrain. A coach helps players form strategies, supports their efforts, gives feedback on what went right and what went wrong, and stands at the sideline while the players perform. Coaches and referees make sure that the rules of the game are followed and that all players adhere to those rules. Similarly, the athletic coach as a parent helps the child understand what needs to happen in certain situations whether in friendships, school, or home life and encourages and advises the child about how to manage these situations. The parent does not intervene or do things for the child. Rather, the parent's role is to provide guidance while the child learns first-hand how to handle these situations. And the rules for behavior are consistent and objective and presented in that way. So, a child who is late for dinner might hear the parent respond in this way, "Dinner was at six o'clock." Rather than, "You know good and well that we always eat at six. If you expect me to get up and make something for you now, you have got another thing coming! Just who do you think you are showing up late and looking for food? You're grounded until further notice!" The most important thing to remember about parenting is that you can be a better, more objective parent when you are directing your actions toward the child's needs and while considering what they can reasonably be expected to do at their stage of development. Parenting is more difficult when you are tired and have psychological needs that interfere with the relationship. Some of the best advice for parents is to try not to take the child's actions personally and be as objective as possible.

Culture and Child-Rearing

**The impact of culture** cannot be ignored when examining parenting styles. A large study (Deater-Deckard et al., 2011) investigated the role of individualism and collectivism on parenting styles in nine countries and found that these cultural values played a large role on the extent to which parents prioritized control and/or warmth in caregiving for their children.



Source: Deater-Deckard, et al. (2011). The association between parental warmth and control in thirteen cultural groups. *Journal of Family Psychology*, 25(5), 790-794.

Responsiveness and demandingness are culturally based where

warmth is responsive praise in America and control take the form of explaining and some form of choice. The two models of parenting described above assume that authoritative and athletic coaching styles are best because they are designed to help the parent raise a child who is independent, self-reliant, and responsible (connected to our cultural value of independence). However, outside of Western cultures, authoritative parenting style is rare. These are qualities favored in “individualistic” cultures such as the United States, particularly by the middle class. African-American, Hispanic, and Asian parents tend to be more authoritarian than non-Hispanic whites. Asian cultures have a tradition of filial piety where children are to respect, obey, and revere authority in greater regard than in the West. Baumrind’s theory of parenting styles often suggests that authoritative or democratic parenting is the most advantageous. However, in studies of children growing up in urban, high-crime areas, some researchers found that strict and authoritarian parenting may be an adaptive approach to reducing some risky behaviors (Clark et al., 2015). However, more recent research has suggested that strict and harsh parenting is not necessarily the optimal strategy, and that high levels of warmth and parent childrearing knowledge may be more effective prevention and intervention strategies for youth across classes, races, and ethnicities (Climent-Galarza et al., 2022; Mowen & Schroeder, 2018; Pinquart & Kauser, 2018; Roubinov & Boyce, 2017; Villarejo et al., 2024).

In Latino cultural beliefs, familismo emphasizes love, closeness, and mutual obligations of Latino family life. Authoritarian parenting has been used historically and reflects a cultural need for children to do as they are told. In societies where family members’ cooperation is necessary for survival, as in the case of raising crops, rearing children who are independent and who strive to be on their own makes no sense. But in an economy based on being mobile in order to find jobs and where one’s earnings are based on education, raising a child to be independent is very important.

Support for autonomy may be advantageous for parents who are

raising children in individualistic cultures in which self-responsibility and independence are valued. However, In “**collectivistic**” cultures such as China or Korea, being obedient and compliant are favored behaviors. For parents in China and Korea, the use of control and boundaries tends to be a better predictor of positive child outcomes such as social emotional competence and academic achievement (Yim, 2022). This may be due to cultural emphasis on collectivism, or the upholding of group well-being over individual well-being.

Even within the U.S., socioeconomic status can also impact parenting practices. Working class parents are more likely than middle-class parents to focus on obedience and honesty when raising their children. In a classic study on social class and parenting styles called *Class and Conformity*, Kohn (1977) explains that parents tend to emphasize qualities that are needed for their own survival when parenting their children. Working class parents are rewarded for being obedient, reliable, and honest in their jobs. They are not paid to be independent or to question the management; rather, they move up and are considered good employees if they show up on time, do their work as they are told, and can be counted on by their employers. Consequently, these parents reward honesty and obedience in their children. Middle-class parents who work as professionals are rewarded for taking initiative, being self-directed, and assertive in their jobs. They are required to get the job done without being told exactly what to do. They are asked to be innovative and to work independently. These parents encourage their children to have those qualities as well by rewarding independence and self-reliance. Parenting styles can reflect many elements of culture.

## Sibling Relationships

Siblings spend a considerable amount of time with each other and

offer a unique relationship that is not found with same-age peers or with adults. Siblings play an important role in the development of social skills. Cooperative and pretend play interactions between younger and older siblings can teach empathy, sharing, and cooperation (Pike et al., 2005), as well as, negotiation and conflict resolution (Abuhatoum & Howe, 2013). However, the quality of sibling relationships is often mediated by the quality of the relationship and the psychological adjustment of the child (Pike et al., 2005). For instance, more negative interactions between siblings have been reported in families where parents had poor patterns of communication with their children (Brody et al., 1994). Children who have emotional and behavioral problems are also more likely to have negative interactions with their siblings. However, the psychological adjustment of the child can sometimes reflect the parent-child relationship. Thus, when examining the quality of sibling interactions, it is often difficult to tease out the separate effect of adjustment from the effect of the parent-child relationship.



Learn more: Our siblings are our first playmates.  
Watch this [YouTube video](#) about the impact of siblings  
on child development to learn more (Sea Lab  
Psychology, 2022).

While parents want positive interactions between their children, conflicts are going to arise, and some confrontations can be the impetus for growth in children's social and cognitive skills. The sources of conflict between siblings often depend on their respective ages. Dunn and Munn (1987) revealed that over half of all sibling conflicts in early childhood were disputes about property rights. By middle childhood this starts shifting toward control over social situations, such as what games to play, disagreements about facts or opinions, or rude behavior (Howe et al., 2002). Researchers have also found that the strategies children use to deal with conflict change with age, but that this is also tempered by the nature of the conflict. Abuhatum and Howe (2013) found that coercive strategies (e.g., threats) were preferred when the dispute centered on property rights, while reasoning was more likely to be used by older siblings and in disputes regarding control over the social situation. However, younger siblings also use reasoning, frequently bringing up the concern of legitimacy (e.g., "You're not the boss") when in conflict with an older sibling. This is a very common strategy used by younger siblings and is possibly an adaptive strategy in order for younger siblings to assert their autonomy (Abuhatum & Howe, 2013). A number of researchers have found that children who can use non-coercive strategies are more likely to have a successful resolution, whereby a compromise is reached and neither child feels slighted (Ram & Ross, 2008; Abuhatum & Howe, 2013). Not surprisingly, friendly relationships with siblings often lead to more positive interactions with peers. The reverse is also true. A child can

also learn to get along with a sibling, with, as the song says “a little help from my friends” (Kramer & Gottman, 1992).

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*Birth Order is an Important  
Factor that Impacts Children's  
Personality and Identity*

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We all know the term “middle child syndrome,” especially when our siblings have done something wrong and use their age as an out. However, the commonalities between middle children, eldest children, youngest children, and even only children, is astounding. Some even believe that it has an effect on intelligence and personality. Recent research suggests the same as well. Overall, it is found that eldest children have the highest need for achievement, and better grades in school (Eckstein & Kaufman, 2012) they are also commonly tagged with professions such as doctor, engineer, pharmacist, and other academic careers (Herrera et al., 2003). On the other hand middle children are found to be more sociable and compassionate, with the fewest acting-out problems (Eckstein & Kaufman, 2012) but other research also associates the feeling of not belonging with the middle child (Schooler 1972). Middle children are also found to have jobs such as nurses, law enforcement officers, firefighting, and other personable careers (Herrera et al., 2003). Youngest children on the

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contrary are pegged with characteristics such as the most rebellious, empathetic and artistic, it is also found that they are most likely of the children to abuse drugs and alcohol (Eckstein & Kaufman, 2012). However, they still have meaningful careers such as writer, artist, musician, and many other expressive careers (Herrera et al., 2003). Then there are only children, only children are linked with a need for achievement, and college goers, and only children are also very susceptible to behavior problems (Eckstein & Kaufman, 2012). However, career status for only children has not had much well developed research (Herrera et al., 2003). Another finding within the research suggests that our birth order alone impacts our choices for identity (Zajonc et al., 1979). De-identifying is the concept of intentionally attempting to be different from the disliked identity (Eckstein & Kaufman, 2012). Children will see how their siblings act and choose to de-identify themselves, therefore making sure that they are not the same. When this was researched, it was found

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to be most common in twins, or siblings within 3 years of one another. (Eckstein & Kaufman, 2012). Overall, we do see differences of traits, personality, characteristics, and hobbies across siblings and their birth order.

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## Play

Freud, Vygotsky, and Piaget all saw play as providing positive outcomes for children. Parten (1932) observed 2 to 5-year-old children and noted six types 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 (Dyer & Moneta, 2006).



**Table. Parten's Classification of Types of Play in Preschool Children**

<b>Unoccupied Play</b>	Children's behavior seems more random and without a specific goal. This is the least common form of play.
<b>Solitary Play</b>	Children play by themselves, do not interact with others, nor are they engaging in similar activities as the children around them.
<b>Onlooker Play</b>	Children are observing other children playing. They may comment on the activities and even make suggestions, but will not directly join the play.
<b>Parallel Play</b>	Children play alongside each other, using similar toys, but do not directly act with each other.
<b>Associative Play</b>	Children will interact with each other and share toys, but are not working toward a common goal.
<b>Cooperative Play</b>	Children are interacting to achieve a common goal. Children may take on different tasks to reach that goal.

## Cross-cultural Differences in Play

Early childhood play activities vary widely across cultures, influenced by factors such as social norms, beliefs, values, and geographical location (Sims & Hutchins, 2011). For example, some cultures may place a greater emphasis on physical play such as running, jumping, and climbing, while others may focus more on imaginative play such as storytelling, puppetry, and role-playing (Göncü, 1993; Leisterer-Peoples, 2021; Stengelin et al., 2020; Stengelin et al., 2023).

One culture that emphasizes physical play is that of the Maasai people in East Africa. From a young age, children are encouraged to engage in jumping contests and spear-throwing games, in addition to football (soccer), volleyball, and variations of games like tag. These activities develop physical strength and endurance and prepare children for the physical demands of a semi-nomadic lifestyle and management of natural resources and livestock (Garvey, 1990; Tian et al., 2021). In contrast, the Inuit culture in Canada and Greenland stresses imaginative play, such as storytelling and role-playing. Children are encouraged to develop their creativity, often using natural materials such as snow, ice, and animal skins to create their own toys and games. Storytelling is a central part of Inuit culture, and children are often taught traditional stories and legends through play and storytelling activities (Lutkenhaus & Thomsen, 2013).

The availability and use of outdoor play spaces varies as well. For example, in Scandinavian countries, outdoor play is a central part of early childhood education, and children are often encouraged to engage in unstructured play in natural settings (Dankiw et al., 2020; Einarsdóttir, 2011). Even in the winter in other northern climates, unstructured nature play is considered essential. Despite challenges due to a frigid climate much of the year, schools generally do not let weather impede scheduled outdoor activities. It not only benefits physical health, but research shows that children who participate in

more nature activities show similar kindergarten-readiness as those who attend more academically focused preschools. Being outside also improves executive control, an important precursor to school success (Cordiano et al., 2019; Ernst et al., 2021; Zamzow & Ernst, 2020).

## *Friendships*

In developmental research, a friend is defined as someone you enjoy being around and look forward to seeing again, and who feels the same about you. Forming friendships in early childhood is enormously beneficial. Children who have more opportunities to play with friends tend to develop cognitively in terms of perspective-taking, emotionally in terms of empathy and compassion, academically in terms of motivation and achievement, and even physically in terms of gross motor development from having more opportunities for outdoor play. By age 4, many children use the word “friend” when referring to certain children, and do so with a fair degree of stability (Hartup, 1983). However, among young children “friendship” is often based on proximity, such as they live next door, attend the same school, or it refers to whomever they just happen to be playing with at the time (Rubin, 1980). The term proximity refers to the circumstance of living, schooling, or vacationing near each other and on a similar schedule so there is time to socialize. The degree of similarity or resemblance needed for friendship varies by developmental age, but can be based on a match of physical characteristics, interests and hobbies, or emotional temperament. Children enjoy meeting people with similar physical and demographic characteristics. Thus, friend selection in early childhood is typically based on superficial similarities such as favorite color or the letter of a child’s first name.



## Imaginary Companions

An intriguing occurrence in early childhood is the emergence of imaginary companions. Researchers differ in how they define what qualifies as an imaginary companion. Some studies include only invisible characters that the child refers to in conversation, or plays with for an extended period of time. Other researchers also include objects that the child personifies, such as a stuffed toy or doll, or characters the child impersonates every day. Estimates of the number of children who have imaginary companions vary greatly (from as little as 6% to as high as 65%) depending on what is included in the definition (Gleason et al., 2000). Little is known about why children create imaginary companions, and more than half of all companions have no obvious trigger in the child's life (Masih, 1978). Imaginary companions are sometimes based on real people, characters from stories, or simply names the child has heard (Gleason, et. al., 2000). Imaginary companions often change over

time. In their study, Gleason et al. (2000) found that 40% of the imaginary companions of the children they studied changed, such as developing superpowers, switching age, gender, or even dying, and 68% of the characteristics of the companion were acquired over time. This could reflect greater complexity in the child's "creation" over time and/or a greater willingness to talk about their imaginary playmates. In addition, research suggests that contrary to the assumption that children with imaginary companions are compensating for poor social skills, several studies have found that these children are very sociable (Mauro, 1991; Singer & Singer, 1990; Gleason, 2002). However, studies have reported that children with imaginary companions are more likely to be first-borns or only-children (Masih, 1978; Gleason et al., 2000, Gleason, 2002). Although not all research has found a link between birth order and the incidence of imaginary playmates (Manosevitz et al., 1973). Moreover, some studies have found little or no difference in the presence of imaginary companions and parental divorce (Gleason et al., 2000), a number of people in the home, or the amount of time children are spending with real playmates (Masih, 1978; Gleason & Hohmann, 2006). Do children treat real friends differently? The answer appears to be not really. Young children view their relationship with their imaginary companion to be as supportive and nurturing as with their real friends. Gleason has suggested that this might suggest that children form a schema of what is a friend, and use this same schema in their interactions with both types of friends (Gleason et al., 2000; Gleason, 2002; Gleason & Hohmann, 2006).

## Children and the Media



Media is more present in children's lives than in the past. Most children's media experts recommend that preschoolers should consume only one hour of high-quality educational programming per day and spend no time on any other type. Yet, media usage among young children has significantly evolved since the early 2000s, with digital devices and online platforms playing an increasingly prominent role in their lives. Recent data paints a more complex picture of early childhood media consumption:

### Device Availability and Usage

Nearly all American households with children aged 0-18 (97%) had internet access in 2022, surpassing the average for all households (93%). Most children aged 3-17 access the internet via mobile

phones (69%) and tablets (64%), with device preferences varying by age. In households with children under five: 98.6% have a television; 96.9% own a mobile phone; 54% have a laptop, and 49.5% have a tablet (NCHS, 2024).

Parental media habits significantly influence children's screen time. Higher parental media usage and problematic internet use correlate with increased media use in children aged 0-4 (Riedl et al 20240). Co-viewing has become more common, with 73% of parents reporting that their children co-view at least half of the time they watch content (Kid Industries, 2023). Research has consistently shown that too much television or screen time adversely affects children's behavior, health, and achievement (e.g., Gentile & Walsh, 2002; Robinson et al., 2001). Children exposed to TV by their second birthday were more likely to develop atypical sensory processing behaviors by 33 months old (Heffler et al., 2024). Screen time at age 1 is associated with higher risks of developmental delays in communication, fine motor, problem-solving, and personal and social skills by age 2 (Radesky et al., 2023). Excessive screen time (more than 2-3 hours/day) has been moderately associated with greater emotional lability and lower self-regulation in preschoolers (Ponti, 2023).

There can be negatives for media viewing. 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 (Schmidt et al., 2008; Courage et al., 2010). Young children who spend too much time watching screens may not experience the beneficial interactions with their caregivers that help with facial recognition, language development, and social emotional intelligence. If television is being used as a babysitter and a substitute for high-quality time with caregivers, then this screen time is associated with children lagging in their cognitive and social emotional development.

There can also be benefits when media is used properly. Mobile educational games can be particularly helpful for early development

because they can provide portable outlets for creativity, problem-solving, and interactions with others. Watching educational programs alongside a parent or caregiver and discussing what they see can be an especially effective way for children to comprehend new concepts, experiences, and ideas (Sanders et al., 2019). Screens can also help facilitate communication with family who live far away or to arrange playdates between friends following a move or, as recently happened, during a pandemic (Quinones & Adams, 2020). The recommendations for using screens in a healthy way, based on Ponti et al, 2019, can help in early childhood and beyond.

- Avoid screen time one hour before bedtime, and do not have screens in children's bedrooms.
- Co-watch and be present when children are consuming media.
- Help children ask questions and think critically about what they are viewing, especially advertisements.
- Encourage screen use that allows for creative, educational interaction rather than passive viewing.
- Help children pick shows and videos that have positive messages and model age-appropriate behavior.
- Avoid using the TV for background noise.
- Encourage and maintain non-screen hobbies and interests.

## Child Care Concerns (*Ob 10*)

About 75.7 percent of mothers of school-aged and 65.1 percent of mothers of preschool-aged children in the United States work outside the home (Bureau of Labor Statistics, 2018). Since more women have been entering the workplace, there has been a concern that families do not spend as much time with their children. This, however, is not true. Between 1981 and 1997, the amount of time that parents spent with children has increased overall (Sandberg & Hofferth, 2001). Modern numbers for this vary widely, as many

parents who work outside of the home also devote significant amounts of time to childcare, to 14 hours a week, compared with 10 in 1965 (Geiger et al., 2019).



Seventy-five percent of children under age 5 are in scheduled child care programs. Others are cared for by family members, friends, or are in Head Start Programs. Older children are often in after-school programs, before school programs, or stay at home alone after school once they are older. Quality childcare programs can enhance a child's social skills and can provide rich learning experiences. But long hours in poor quality care can have negative consequences for young children in particular. What determines the quality of child care? One 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. The higher the teacher to child ratio, the more time the teacher has for involvement with the children and the less stressed the teacher

may be so that the interactions can be more relaxed, stimulating and positive. The more children there are in a program, the less desirable the program as well. This is because the center may be more rigid in rules and structure to accommodate the large number of children in the facility. The physical environment should be colorful, stimulating, clean, 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 child care providers. And while formal education is not required for a person to provide a warm, loving relationship to a child, knowledge of a child's development is useful for addressing their 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 smaller children and relieve parents of the stress sometimes associated with managing work and family life.

## Preschool

Globally, as of 2021, 65% of children were enrolled in pre-primary education in GPE partner countries, compared to 19% in 2002 (GPE, 2023). In the U.S., 35% of 4-year-olds in the U.S. attended state-funded preschool programs, and 7% of 3-year-olds attended state-funded preschool programs (data does not include other types of preschools).

To set criteria for designation as a high-quality preschool, the National Association for the Education of Young Children (NAEYC) identifies 10 standards (NAEYC, 2024). 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 promoting 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.



Parents 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.

**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. It currently serves nearly one million children and annually costs approximately 7.5 billion dollars (United States Department of Health and Human Services, 2015). 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.

A 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 (Barshay, 2015). 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 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 (Barshay, 2015). The What Works Clearinghouse (WWC) has not released a comprehensive report on Head Start since 2015.

Recent research supports the Head Start program in its positive and significant impact on school readiness of preschool children, particularly those at the bottom of the achievement distribution and Spanish speakers (Bitler et al., 2016). While these gains do decline as children enter elementary school, other research points to gains that appear later in life (Currie, 2001; Luwig et al., 2007; Demig, 2009). The study conducted by Bitler et al. (2016) analyzed the effect of the Head Start program on child cognitive and social and emotional outcomes, using data from the Head Start Impact Study (HSIS), a longitudinal randomized control study of around 5,000 children ages three and four from 84 nationally representative communities in the U.S. where local Head Start programs were oversubscribed. The use of a randomized design enables the possibility to identify the effect of Head Start independently of other factors on child outcomes, and the longitudinal data allows for the impact of short-term and long-term gains. Head Start leads to positive and large gains in vocabulary knowledge and receptive language skills during the preschool period, particularly for children with low achievement levels and for Spanish-language speakers. While the early cognitive gains tend to diminish or “fade out” as children enter elementary school, there is evidence of benefits that appear in adolescence and young adulthood (Demig, 2009).

**Childcare:** To evaluate how early childcare affects children's development, the National Institute of Child Health and Human Development (2006) conducted a longitudinal study. This study is considered the most comprehensive childcare study to date and

began in 1991 when the children were one month of age. The study included an economically and ethnically diverse group of 1364 children assessed from 10 sites around the country. By design, the study involved single parents, minority backgrounds, and differing formal education levels. Childcare was defined as “any care provided on a regular basis by someone other than the child’s mother” (p. 4). A regular basis included more than 10 hours per week. Childcare arrangements included: Care from the father or another relative, care from a caregiver not related to the child in the child’s home, small group care in the caregiver’s home, and center-based care.

Overall results indicated that children cared for by their mothers did not develop differently than those who were cared for by others. Parents and family characteristics were stronger predictors of child development than childcare facilities. Specifically, greater cognitive, language and social competence were demonstrated when parents were more educated, had higher incomes, and provided emotionally supportive and cognitively enriched home environments. When comparing higher quality childcare with lower quality child care differences were noted. Higher quality care, as measured by adult-to-child ratios, group size, and caregivers’ educational and training levels, resulted in higher cognitive performance, better language comprehension, and production, and higher levels of school readiness. Lower quality care predicted more behavioral problems and poorer cognitive, language, and school readiness.



The higher the teacher to child ratio, the more time the teacher has for involvement with the children and the less stressed the teacher may be so that the interactions can be more relaxed, stimulating and positive. The more children there are in a program, the less desirable the program as well. This is because the center may be more rigid in rules and structure to accommodate the large number of children in the facility. The physical environment should be colorful, stimulating, clean, 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 child care providers. While formal education is not required for a person to provide a warm, loving relationship to a child, knowledge of a child's development is useful for addressing their 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 childcare facilities at places of employment, we can accommodate families with smaller children and relieve parents of the stress sometimes associated with managing work and family life.

## Child Abuse

What's the difference between child abuse and physical punishment during discipline? **Physical or corporal punishment** signifies noninjurious, openhanded hitting with the intention of modifying child behavior (Gershoff, 2008). The term "physical punishment" is more common in the United States while "corporal punishment" is used internationally. Parents' goals in using corporal punishment, as in using any form of discipline, are to put an end to inappropriate or undesirable behavior and to promote positive and acceptable behavior (Gershoff, 2008). The research summarized by Gershoff indicates evidence that corporal punishment is more effective than other techniques in securing immediate child compliance. While physical punishment is better than no discipline, research reviewed indicates that physical punishment decreases moral internalization (that is, the child's internalizing positive moral values) (Gershoff, 2010). In one meta-analysis including 27 studies, all reported studies found that the more parents used corporal punishment, the more aggressive their children were (as cited in Gershoff, 2010). Further, research from Blagg and Godfrey (2018) suggest that physical abuse can trigger an aggression mindset. Physical punishment can become abuse. In reviewing cases where Child Protective Services were called for child abuse, nearly two-thirds of the abusive incidents

began as acts of physical punishment meant to correct a child's misbehavior (Gershoff, 2010).

The Child Abuse Prevention and Treatment Act (United States Department of Health and Human Services, 2013) defines child abuse and neglect as: Any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation; or an act or failure to act, which presents an imminent risk of serious harm (p. viii). Each state has its own definition of child abuse based on federal law, and most states recognize four major types of maltreatment: neglect, physical abuse, psychological maltreatment, and sexual abuse. Each of the forms of child maltreatment may be identified alone, but they can occur in combination.

Young children between the ages of three and six years old who are experiencing abuse or neglect are more likely to act out at daycare or preschool. They appear overly tired, strained, or worn out, and have difficulty playing with same-aged peers; they also may cry more frequently for unexplained reasons. Children who experience maltreatment are at elevated risk for emotional problems such as anxiety and depression, and behavioral problems such as ADHD, conduct problems, and aggression. Moreover, children who experience abuse and neglect are more likely to struggle academically, cognitively, and with interpersonal relationships. Over the lifespan, child abuse and neglect are related to increased prevalence of psychological disorders such as bipolar disorder, borderline personality disorder, PTSD, and substance abuse (Felitti et al, 1998; Morris & Hays-Grudo, 2023). Finally, long-term stress associated with child abuse increases the risk of inflammatory physical diseases such as heart disease, stroke, type 2 diabetes, and some cancers (Lippard et al., 2019). Broadly speaking, early childhood traumatic experiences—whether from abuse, unstable home environments, unsafe environments, or natural disasters—can increase multiple child development risks. However, early intervention and support can foster resilience in children

regardless of the type of adverse experience (National Child Traumatic Stress Network, 2024; Masten & Barnes, 2018).

**Victims of Child Abuse:** During 2022 (the most recent year data has been collected) Child Protective Services (CPS) agencies received an estimated 4.3 million referrals involving approximately 7.5 million children (USDHHS, 2024). 89% of victims were maltreated by one or both parents. Only 3.1 millions children received prevention and post-response services. The highest rate of child abuse in children are under the age of one (22.2 per 1,000). One third to two thirds of child maltreatment cases involve substance use to some degree.

**Sexual Abuse:** Childhood sexual abuse is defined as any sexual contact between a child and an adult or a much older child. Incest refers to sexual contact between a child and family members. In each of these cases, the child is exploited by an older person without regard for the child's developmental immaturity and inability to understand sexual behavior (Steele, 1986). Research estimates that 1 out of 4 girls and 1 out of 10 boys have been sexually abused (Valente, 2005). The median age for sexual abuse is 8 or 9 years for both boys and girls (Finkelhorn et al. 1990). Most boys and girls are sexually abused by a male. Although rates of sexual abuse are higher for girls than for boys, boys may be less likely to report abuse because of the cultural expectation that boys should be able to take care of themselves and because of the stigma attached to homosexual encounters (Finkelhorn et. al., 1990). Girls are more likely to be abused by a family member and boys by strangers. Sexual abuse can create feelings of self-blame, betrayal, and feelings of shame and guilt (Valente, 2005). Sexual abuse is particularly damaging when the perpetrator is someone the child trusts and may lead to depression, anxiety, problems with intimacy, and suicide (Valente, 2005).

**Reporting suspected abuse:** In most regions of the United States and Canada, child abuse and neglect can be reported by calling Child Protective Services (CPS). CPS is an organization that includes social workers who can meet with families and help provide

resources to prevent further abuse. Services include access to counseling, anger management classes, addiction services, unemployment services, housing and shelters, and food banks. More than a third (37.5 percent) of households with children between the ages of zero and seventeen experience a visit from Child Protective Services in the United States (Kim et al., 2017). In many countries, health-care and educational professionals are required to report suspicions of abuse and neglect, but they may encounter barriers to reporting, miss signs of abuse, or feel that they lack appropriate training to confidently report concerns (Gubbels et al., 2021; Perrigo et al., 2023)

## Childhood Stress and Development (*Ob 13*)

What is the impact of stress on child development? Not all stress is bad. Activation of our stress response systems produces a wide range of physiological reactions that prepare the body to deal with challenges or threats, including increased heart rate, elevated blood pressure, and the release of stress hormones like cortisol. When a young child has supportive caregiver relationships, these responses are brief, fostering the development of a healthy, protective stress response. Normal, everyday stress can provide an opportunity for young children to build coping skills and poses little risk to development. Even more long-lasting stressful events such as changing schools or losing a loved one can be managed fairly well. However, 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 systems such as the hippocampus and amygdala can be vulnerable to prolonged stress during early childhood (Middlebrooks & Audage, 2008). High levels of the stress hormone cortisol can reduce the size of the hippocampus and affect the child's memory abilities. Stress hormones can also reduce immunity to disease. The brain exposed

to long periods of severe stress can develop a low threshold making the child hypersensitive to stress in the future. However, the effects of stress can be minimized if the child has the support of caring adults.

Want to learn more? Go to the Harvard's Center for the Developing Child resources for Toxic Stress.

<https://developingchild.harvard.edu/key-concept/toxic-stress/>

## Early childhood experiences of trauma

Preschool and young school-age children exposed to a traumatic event may experience a feeling of helplessness, uncertainty about whether there is continued danger, a general fear that extends beyond the traumatic event and into other aspects of their lives, and difficulty describing in words what is bothering them or what they are experiencing emotionally (NCTSN, 2010).

This feeling of helplessness and anxiety is often expressed as a loss of previously acquired developmental skills (NCTSN, 2010). Children who experience traumatic events might not be able to fall asleep on their own or might not be able to separate from parents at school (NCTSN, 2010). Children who might have ventured out to play in the yard prior to a traumatic event now might not be willing to play in the absence of a family member (NCTSN, 2010). Often, children lose some speech and toileting skills, or their sleep is disturbed by nightmares, night terrors, or fear of going to sleep (NCTSN, 2010). In many cases, children may engage in traumatic play—a repetitive and less imaginative form of play that may

represent children's continued focus on the traumatic event or an attempt to change a negative outcome of a traumatic event (NCTSN, 2010).

### **Adverse Childhood Experiences (ACEs)**

The toxic stress that young children endure can have a significant impact on their later lives. According to Merrick, Ford, Ports, and Guinn (2018), the foundation for lifelong health and well-being is created in childhood, as positive experiences strengthen biological systems while adverse experiences can increase mortality and morbidity. All types of abuse, neglect, and other potentially traumatic experiences that occur before the age of 18 are referred to as **adverse childhood experiences (ACEs)** (CDC, 2019). ACEs have been linked to risky behaviors, chronic health conditions, low life potential and early death, and as the number of ACEs increase, so does the risk for these results.

When a child experiences strong, frequent, and/or prolonged adversity without adequate adult support, the child's stress response systems can be activated and disrupt the development of the brain and other organ systems (Harvard University, 2019). Further, ACEs can increase the risk for stress-related disease and cognitive impairment, well into the adult years. Felitti et al. (1998) found that those who had experienced four or more ACEs compared to those who had experienced none, had increased health risks for alcoholism, drug abuse, depression, suicide attempt, increase in smoking, poor self-rated health, more sexually transmitted diseases, an increase in physical inactivity and severe obesity. More ACEs showed an increased relationship to the presence of adult diseases including heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. Overall, those with multiple ACEs were likely to have multiple health risk factors later in life.

What to learn more about Adverse Childhood

Experiences? Check out the CDC website on ACE, <https://www.cdc.gov/violenceprevention/aces/>.

**How to help:** For young children, parents can offer invaluable support, by providing comfort, rest, and an opportunity to play or draw (NCTSN, 2010). Parents can be available to provide reassurance that the traumatic event is over and that the children are safe. It is helpful for parents, family, and teachers to help children verbalize their feelings so that they don't feel alone with their emotions (NCTSN, 2010). Providing consistent caretaking by ensuring that children are picked up from school at the anticipated time and by informing children of parents' whereabouts can provide a sense of security for children who have recently experienced a traumatic event (NCTSN, 2010). Parents, family, caregivers, and teachers may need to tolerate regression in developmental tasks for a period of time following a traumatic event (NCTSN, 2010).

## Conclusion

This chapter explored the fascinating journey of early childhood, a period marked by significant advancements in physical, cognitive, and socioemotional development. We witnessed how children gain mastery over their bodies, navigate the world with burgeoning symbolic thought and language, and develop a sense of self within the context of their families and social environments.

As children progress through these formative years, they demonstrate remarkable resilience and a profound capacity for learning. By understanding the intricate interplay of developmental domains and recognizing the impact of experiences and

relationships, we can better support and nurture young children as they embark on this incredible journey of discovery and growth.

## *Chapter Review Practice Quiz*



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

<https://open.maricopa.edu/psy240mm/?p=794#h5p-6>

## Chapter 5 Key terms (see Glossary)

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adverse childhood experiences (ACEs)	multi-tasking
animism	neuroplasticity
athletic coach style of parenting	non-declarative memory
authoritarian	onlooker play
authoritative	operational
Autism Spectrum Disorder (ASD)	overregularization
autobiographical memory	parallel play
clustering rehearsal	permissive
collectivistic	physical or corporal punishment
conservation	pre-operational stage (Piaget)
corpus callosum	private speech
declarative memory	scaffolding
divided attention	selective attention
divided attention	self-concept
egocentrism	self-esteem
episodic memory	semantic memory
executive functioning	sensory memory
fast-mapping	short-term or working memory
fine motor skills	social intelligence
gender constancy	solidarity play
gender dysphoria	sustained attention

gender identity	theory of mind
gender roles	toxic stress
gross motor skills	uninvolved
information-processing	unoccupied play
initiative vs guilt	Zone of Proximal Development
long-term memory	

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# Chapter 6: Middle Childhood



## Objectives:

*At the end of this chapter, you will be able to...*

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. Describe sexual development in middle childhood.

8. Define and describe communication disorders and learning disabilities.
9. Evaluate the impact of labeling on children's self-concept and social relationships.
10. Apply the ecological systems model to explore children's experiences in schools.
11. Examine social relationships in middle childhood.
12. Analyze the impact of family structure on children's development.

***The objectives are indicated in the reading sections below.***

## Introduction

Middle childhood is the period of life that begins when children enter school and lasts until they reach adolescence. For the purposes of this text and this chapter, we will define middle childhood as ages 6 through 12. Think for a moment about children this age that you may know. What are their lives like? What kinds of concerns do they express and with what kinds of activities are their days filled? If it were possible, would you want to return to this period of life? Why or why not? Early childhood and adolescence seem to get much more attention than middle childhood. Compared to early childhood, children spend much more time in schools, with friends, and in structured activities. It may be easy for parents to lose track of their children's development unless they stay directly involved in these worlds. Yet, children enter middle childhood still looking very young, and end the stage on the cusp of adolescence. Most children have gone through a growth spurt that makes them look more grown-up. The obvious physical changes are accompanied by changes in the brain. While we don't see the actual brain changing, we can see the effects of the brain changes in the way that children in middle childhood play sports, write, and play

games. It is important to stop and give full attention to middle childhood to stay in touch and to take notice of the varied influences on their lives in a larger world.

## Physical Development: A Healthy Time (*Ob 1*)

### Growth Rates and Motor Skills



Rates of growth generally slow during these years. Typically, a child will gain about 5-7 pounds a year and grow about 2 inches per year. 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. Around ages six to eight, the groundwork for puberty is being set by greater production of hormones from the adrenal glands (Mendle et al., 2019). These hormones prepare the

body for physical maturation. There are not many sex differences at this point. Around age seven, children average 44 inches tall and 50 pounds, but by age eleven, girls average 52 inches tall and 82 pounds, and boys average 52 inches tall and 77 pounds. Towards the end of middle childhood, as girls enter puberty, which typically occurs a few years earlier than boys, they tend to be larger than boys of the same age. The onset of true puberty, including changes in physical characteristics like voice changes and increased body hair, does not occur until later, between eight and thirteen years of age for girls and between nine and fourteen years of age for boys (Farello et al., 2020). Puberty typically lasts between 2.5 and 4 years (Cheng et al., 2019).

Several factors may influence how quickly children grow, including genetics and environmental factors. Genes determine about 80 percent of adult height, while the other 20 percent is influenced by environmental factors (Perkins et al., 2016). A lack of protein in the diet and childhood disease are particularly important environmental influences on height (Bozzoli et al., 2009; Koletzko et al., 2014). Nutritional deficits can lead to stunted growth, which often persists and can get worse if malnourishment continues (Kitsao-Wekulo et al., 2013). Furthermore, stunted growth in school-aged children is often associated with other concerns, including behavior problems and cognitive deficits (Hoddinott et al., 2013). Other environmental factors include prenatal development resources (such as maternal nutrition), severe neglect (Nelson et al., 2019), and even the family's socioeconomic status (SES) or the wealth of the country or region they live in (Fox & Heaton, 2012; Mumm et al., 2016). For example, children in wealthier countries, living in more urban areas, or from families with better economic and educational resources often are physically healthier and have better nutrition outcomes (Fox & Heaton, 2012; Mumm et al., 2016).

**Brain Growth:** The brain reaches its adult size at about age 7. Two major brain growth spurts occur during middle/late childhood (Spreeen et al., 1995). 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 (van der Molen & Molenaar, 1994). The location of the most significant changes in brain development is the prefrontal cortex, the most forward portion of the frontal lobe (Kolk & Rakic, 2022). This area is responsible for tasks such as logic, planning, memory, and attention. As you have learned, various environmental experiences play a role in shaping brain development. The school-aged child can be better able to plan, coordinate activity using both left and right hemispheres of the brain, and to control emotional outbursts.

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 (Johnson, 2005). This myelination contributes to increases in information processing speed and the child's reaction time. The hippocampus, responsible for transferring information from the short-term to long-term memory, also shows increases in myelination resulting in improvements in memory functioning (Rolls, 2000).

**Motor skills:** One result of the slower rate of physical growth is an improvement in motor skills. 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) boys typically outperform girls, while with fine motor skills (small muscles) girls outperform the boys. These improvements in motor skills are related to brain growth and experience during this developmental period. For example, some studies have shown increased fine motor dexterity among children who play video games (Adams et al., 2012). Culture is also an important factor that influences the development of motor skills. For example, children from Hong Kong, who often have early exposure to and practice with writing utensils and chopsticks, have more advanced fine motor skills than children from the United States (Chui et al., 2007). Differences by culture or gender are often

due to differences in childrearing practices and in the timing and amount of exposure to certain skills that children receive.

**Loosing teeth:** Deciduous teeth, commonly known as milk teeth, baby teeth, primary teeth, and temporary teeth, are the first set of teeth in the growth development of humans. The primary teeth are important for the development of the mouth, development of the child's speech, for the child's smile, and play a role in chewing of food. Most children lose their first tooth around age 6, then continue to lose teeth for the next 6 years. In general, children lose the teeth in the middle of the mouth first and then lose the teeth next to those in sequence over the 6-year span. By age 12, generally all of the teeth are permanent teeth, however, it is not extremely rare for one or more primary teeth to be retained beyond this age, sometimes well into adulthood, often because the secondary tooth fails to develop.

## Organized Sports: Pros and Cons (*Ob 2*)

Middle childhood seems to be a great time to introduce children to organized sports. And in fact, many parents do. Approximately 26.5% of kids in the U.S. play soccer (Solomon, 2024). This activity promises to help children build social skills, improve athletically, and learn a sense of competition. It has been suggested, however, 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, it appears that children's activities are no longer children's activities once adults become involved and approach the games as adults rather than children. The U. S. Soccer Federation recently advised coaches to reduce the amount of drilling engaged in during practice and to allow children to play more freely and to choose their own positions. The hope is that this will build on their love of the game and foster their natural talents.



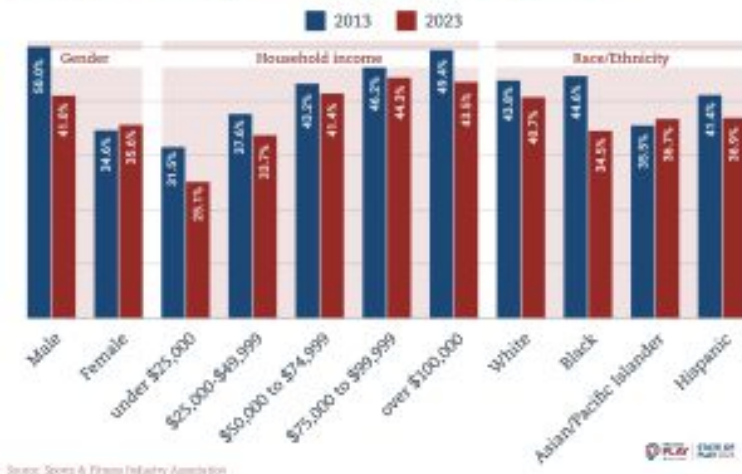
Sports are important for children. Children's participation in sports has been linked to:

- Higher levels of satisfaction with family and overall quality of life in children
- Improved physical and emotional development
- Better academic performance

Yet, studies on children's sports in the United States has found that gender, poverty, location, ethnicity, and disability can limit opportunities to engage in sports (Sabo & Veliz, 2008, Aspen Institute, 2024). Girls were more likely to have never participated in any type of sport, although 34% of girls ages 6-12 regularly played sports in 2023 (Solomon, 2024).

## Core Sport Participation by Demographic, Ages 6-17

Percentage of children ages 6-17 who played sport on a regular basis



*Sport Participation by Demographic (2024)*

Sabo and Veliz also found that fathers may not be providing their daughter's as much support as they do their sons. While boys rated their fathers as their biggest mentor who taught them the most about sports, girls rated coaches and physical education teachers as their key mentors. Additionally, they found that children in suburban neighborhoods had a much higher participation of sports than boys and girls living in rural or urban centers. Several studies have found that when coaches receive proper training the drop-out rate is about 5% instead of the usual 30% (Fraser-Thomas et al., 2005; SPARC, 2013).



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 that specializing in only one activity can increase the chances of injury while playing multiple sports is protective (SPARC, 2016). 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 (McGuine, 2016).

**E-games:** In a SPARC (2016) report on the “State of Play” in the United States highlights a new technology trend. One in four children between the ages of 5 and 16 rate playing computer games with their friends as a form of exercise, known as exergames. Exergames are being considered as a potential tool for increasing physical activity, especially for children who may not enjoy traditional sports or physical education classes.

**Physical Education:** For many children, physical education in school is a key component in introducing children to sports. After years of schools cutting back on physical education programs, there has been a turnaround, prompted by concerns over childhood

obesity and the related health issues. Despite these changes, currently, only the state of Oregon and the District of Columbia meet PE guidelines of a minimum of 150 minutes per week of physical activity in elementary school and 150-225 minutes in middle school (Perna et al, 2024).

### Link to Learning

Designed for parents with children ages 6-12, this video [about physical activity for children](#) discusses the importance of regular physical activity, how much physical activity children need, and how to get children moving.

## Childhood Obesity (*Ob 2*)

The decreased participation in school physical education and youth sports is just one of many factors that has led to an increase in children being overweight or obese. The current measurement for determining excess weight is the Body Mass Index (BMI) which expresses the relationship of height to weight. According to the Centers for Disease Control and Prevention (CDC), children's whose BMI is at or above the 85th percentile for their age are considered **overweight**, while children who are at or above the 95th percentile are considered **obese** (Lu, 2016). Approximately 12.7% of 2-5-year-olds were considered overweight or obese, and 20.7% of 6 to 11-year-olds were overweight or obese (CDC, 2020). Excess weight and obesity in children are associated with a variety of medical

and cognitive conditions including high blood pressure, insulin resistance, inflammation, depression, and lower academic achievement (Lu, 2016). Being overweight has also been linked to impaired brain functioning, which includes deficits in executive functioning, working memory, mental flexibility, and decision making (Liang et al., 2014). Children who ate more saturated fats performed worse on relational memory tasks while eating a diet high in omega-3 fatty acids promoted relational memory skills (Davidson, 2014). Using animal studies Davidson et al. (2013) found that large amounts of processed sugars and saturated fat weakened the blood-brain barrier, especially in the hippocampus. This can make the brain more vulnerable to harmful substances that can impair its functioning. Another important executive functioning skill is controlling impulses and delaying gratification. Children who are overweight show less inhibitory control than normal-weight children, which may make it more difficult for them to avoid unhealthy foods (Lu, 2016). Overall, being overweight as a child increases the risk of cognitive decline as one ages.

A growing concern is the lack of recognition from parents that children are overweight or obese. Katz (2015) referred to this as “Oblivobesity.” Black et al. (2015) found that parents in the United Kingdom (UK) only recognized their children as obese when they were above the 99.7th percentile while the official cut-off for obesity is at the 85th percentile. Oude et al. (2010) surveyed 439 parents and found that 75% of parents of overweight children said the child had a normal weight and 50% of parents of obese children said the child had a normal weight. For these parents, overweight was considered normal and obesity was considered normal or a little heavy. Doolen et al. (2009) reported on several studies from the United Kingdom, Australia, Italy, and the United States, and in all locations, parents were more likely to misperceive their children’s weight. Black et al. (2015) concluded that as the average weight of children rises, what parents consider normal also rises.

Being overweight can be a lifelong struggle. If parents cannot identify if their children are overweight they will not be able to

intervene and assist their children with proper weight management. An added concern is that the children themselves are not accurately identifying if they are overweight. In a United States sample of 8-15-year-olds, more than 80% of overweight boys and 70% of overweight girls misperceived their weight as normal (Sarafrazi et al., 2014). Also noted was that as the socioeconomic status of the children rose, the frequency of these misconceptions decreased. It appeared that families with more resources were more conscious of what defines a healthy weight.

Children who are overweight tend to be rejected, ridiculed, teased, and bullied by others (Stopbullying.gov, 2018). This can certainly be damaging to their self-image and popularity. In addition, obese children run the risk of suffering orthopedic problems such as knee injuries, and they have an increased risk of heart disease and stroke in adulthood (Lu, 2016). It is hard for a child who is obese to become a non-obese adult. In addition, the number of cases of pediatric diabetes has risen dramatically in recent years.

**Recommendations:** Dieting is not really the answer. 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 the child's health and psychological well-being.

In 2018 the American Psychological Association (APA) developed a clinical practice guideline that recommends family-based, multicomponent behavioral interventions to treat obesity and overweight in children 2 to 18 (Weir, 2019). The guidelines recommend counseling on diet, physical activity and “teaching parents strategies for goal setting, problem-solving, monitoring children’s behaviors, and modeling positive parental behaviors,” (p. 32).



Behavioral interventions, including training children to overcome impulsive behavior, are being researched to help overweight children (Lu, 2016). Practicing inhibition has been shown to strengthen the ability to resist unhealthy foods. Parents can help their overweight children the best when they are warm and supportive without using shame or guilt. Parents can also act like the child's frontal lobe until it is developed by helping them make correct food choices and praising their efforts (Liang et al., 2014).

Research also shows that exercise, especially aerobic exercise, can help improve cognitive functioning in overweight children (Lu, 2016). Exercise reduces stress and being an overweight child, subjected to the ridicule of others can certainly be stressful. Parents should take caution against emphasizing diet alone to avoid the development of an obsession about dieting that can lead to eating disorders. Instead, increasing a child's activity level is most helpful.

APA has also recommended that behavioral treatment could be delivered in primary care offices to encourage greater participation. It is also a community effort as APA additionally recommend that

schools and communities need to offer more nutritious meals to children and limit sodas and unhealthy foods.

## Health Concerns in Middle Childhood

**Asthma** is a life-long, chronic lung disease that causes inflammation in the airways, making it difficult to breathe. Asthma is a serious public health problem globally (WHO, 2024). It affects about 8 percent of children in the United States (Federal Interagency Forum on Child and Family Statistics, 2017). Although there is no known single cause of asthma, a child is more likely to have asthma if other family members have asthma, if they have other allergic conditions, if they live in urban areas or areas with high air pollution, and if they have obesity (WHO, 2024). Avoiding common triggers of asthma, including air pollution and allergies, can reduce the symptoms of asthma such as shortness of breath and tightness in the chest (McCarthy, 2022). Although it can typically be medically managed, uncontrolled asthma is one of the leading causes of school absences among children and can also interfere with sleep and physical activity (Qin et al., 2022).

**Diabetes**, a metabolic disorder, is another chronic health issue that can have significant effects on child development. Until recently, most cases in children were type 1 diabetes, a disease in which the immune system attacks healthy tissue and results in the body not producing enough insulin to get glucose or sugar

into the cells. However, type 2 diabetes, which used to be considered “adult-onset diabetes,” is increasing among children and is often preventable. Risk factors for type 2 diabetes include excess weight, inactivity, and having a family history which leads to increase insulin resistance (CDC, 2022). Although both types of diabetes can be managed, diabetes and other chronic illnesses in childhood have been linked to increased behavior problems and socioemotional concerns in children (Lupini et al., 2023). Many of the behavioral and socioemotional risks for children with chronic illnesses such as diabetes may be prevented through careful monitoring and treatment of symptoms.

## Sexual Development (*Ob 7*)

Once children enter grade school (approximately ages 7–12), their awareness of social rules increases and they become more modest and want more privacy, particularly around adults. Although self-touch (masturbation) and sexual play continue, children at this age are likely to hide these activities from adults. Curiosity about adult sexual behavior increases—particularly as puberty approaches—and children may begin to seek out sexual content in television, movies, and printed material. Telling jokes and “dirty” stories is common. Children approaching puberty are likely to start displaying romantic and sexual interest in their peers.

Although parents often become concerned when a child shows sexual behavior, such as touching another child’s private parts, these behaviors are not uncommon in developing children. Most

sexual play is an expression of children’s natural curiosity and should not be a cause for concern or alarm.

**Table. Expectations for sexual behaviors in middle childhood.**

<p>In general, “typical” childhood sexual play and exploration:</p> <ul style="list-style-type: none"><li>• Occurs between children who play together regularly and know each other well</li><li>• Occurs between children of the same general age and physical size</li><li>• Is spontaneous and unplanned</li><li>• Is infrequent</li><li>• Is voluntary (the children agreed to the behavior, none of the involved children seem uncomfortable or upset)</li><li>• Is easily diverted when parents tell children to stop and explain privacy rules. Some childhood sexual behaviors indicate more than harmless curiosity and are considered sexual behavior problems. Sexual behavior problems may pose a risk to the safety and well-being of the child and other children. Sexual behavior problems include any act that:</li><li>• Is clearly beyond the child’s developmental stage (for example, a 3-year-old attempting to kiss an adult’s genitals)</li><li>• Involves threats, force, or aggression</li><li>• Involves children of widely different ages or abilities (such as a 12-year-old “playing doctor” with a 4-year-old)</li><li>• Provokes strong emotional reactions in the child—such as anger or anxiety</li></ul>
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**Table. Basic information, and Safety information for sexual behaviors in middle childhood.**

<b>Basic Information to each middle age children about sexuality (NCTSN, 2009)</b>	<b>Safety Information to share with middle age children (NCTSN, 2009)</b>
<ul style="list-style-type: none"> <li>• What to expect and how to cope with the changes of puberty (including menstruation and wet dreams)</li> <li>• Basics of reproduction, pregnancy, and childbirth</li> <li>• Risks of sexual activity (pregnancy, sexually transmitted diseases)</li> <li>• Basics of contraception</li> <li>• Masturbation is common and not associated with long term problems but should be done in private</li> </ul>	<ul style="list-style-type: none"> <li>• Sexual abuse may or may not involve touch</li> <li>• How to maintain safety and personal boundaries when chatting or meeting people online</li> <li>• How to recognize and avoid risky social situations</li> <li>• Dating rules</li> </ul>

## Cognitive Development (*Ob 3, Ob 4, Ob 5*)

Recall from the last chapter that children in early childhood are in Piaget’s preoperational stage, and during this stage, children are learning to think symbolically about the world. Cognitive skills

continue to expand in middle and late childhood as thought processes become more logical and organized when dealing with concrete information. Children at this age understand concepts such as past, present, and future, giving them the ability to plan and work toward goals. Additionally, they can process complex ideas such as addition and subtraction and cause-and-effect relationships.

## Concrete Operational Thought (*Ob3*)

From ages 7 to 11, children are in what Piaget referred to as the **Concrete Operational Stage** of cognitive development (Crain, 2005). 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. The concrete operational child is able to make use of logical principles in solving problems involving the physical world. For example, the child can understand the principles of cause and effect, size, and distance.



The child can use logic to solve problems tied to their own direct experience but has trouble solving hypothetical problems or considering more abstract problems. The child uses **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 being replaced with deductive reasoning.

**Table. Inductive versus deductive reasoning**

Inductive Reasoning	Deductive Reasoning
<ul style="list-style-type: none"><li>• Start with observation</li><li>• Generalize from the observation</li><li>• Looking for patterns or confirmation of ideas</li><li>• More common thought process in middle childhood</li></ul>	<ul style="list-style-type: none"><li>• Start with a theory</li><li>• Connected to hypothesis testing</li><li>• General to more specific observations to confirm</li></ul>

We will now explore some of the major abilities that the concrete child exhibits.

**Classification:** As children’s experiences and vocabularies grow, they build schemata and are able to organize objects in many different ways. They also understand classification hierarchies and can arrange objects into a variety of classes and subclasses.

**Object constancy or identity:** The concrete child understands that objects have qualities that do not change even if the object is altered in some way. For instance, the 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.



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

here: <https://open.maricopa.edu/psy240mm/?p=819#oembed-1>

**Conservation:** Remember the example in our last chapter of preoperational children thinking that a tall beaker filled with 8 ounces of water was “more” than a short, wide bowl filled with 8 ounces of water? Concrete operational children can understand the concept of conservation which means that changing one quality (in this example, 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:** Concrete operational children no longer focus on only one dimension of an 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, is now demonstrated by the concrete operational child. 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 (Inhelder & Piaget, 1958).

### Piaget's Theory Revisited

In many ways, Piaget's description of the concrete operational stage has held up well to scrutiny. However, there are differences in how children demonstrate concrete operational skills across the world. Subsequent cross-cultural research studying areas including Bali, Indonesia, India, and Nepal, found that the sequence of stages is generally the same across cultures, and the cognitive processes within those stages are the same (Dasen, 2022). Additionally, some children show aspects of concrete operational thought before the age of seven, which is earlier than Piaget believed it first appeared (McGarrigle & Donaldson, 1974). Children can achieve earlier understanding of some operations, such as conservation, when they are specifically exposed to tasks in which adults demonstrate them (Dasen, 2022). On the other hand, another study found that many children may reach Piaget's stages later than they did thirty years ago (Flynn & Shayer, 2018), which may be due to drops in education budgets and in the overall

quality of education in many countries. Despite these criticisms, Piaget's theory offers a window into the many cognitive advancements that happen during middle childhood.

Piaget's approach to cognitive development among school-aged children has had a tremendous impact on education (Zhang, 2022). Many schools use his principles to determine how to educate children and when to introduce concepts such as addition and subtraction. Many schools also provide students with opportunities to learn through active learning, such as building a volcano in science class, rather than just reading about volcanos. However, despite this understanding of the importance of active learning for children, we are seeing increases in the amount of time that children engage with screens, even in school settings (Muppalla et al., 2023). Screen media use is associated with poorer academic performance, along with other potential adverse effects on development.

## Information Processing Theory (*Ob 4*)

Children differ in their memory abilities, and these differences predict both their readiness for school and academic performance in school (PreBler et al., 2013). During middle and late childhood, school-aged children can process information more accurately and rapidly and are more efficient at retaining that

information than they were during early childhood. They also show significant gains in

- their ability to determine what information to attend to,
- their ability to attend to information for longer periods,
- their grasp of how their memory works, and
- their use of strategies to improve retention and recall.

Both changes in the brain and experience 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 (de Ribaupierre, 2002). Changes in myelination and synaptic pruning in the cortex are likely behind the increase in processing speed and ability to filter out irrelevant stimuli (Kail et al., 2013). Children with learning disabilities in math and reading often have difficulties with working memory (Alloway, 2009). 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 such children may need to communicate: 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 (Alloway et al., 2013).

**Attention:** As noted above 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 (Vakil et al., 2009). Children also improve in their ability to shift their attention between tasks or different features of a task (Carlson et al, 2013). A younger child who is asked to sort objects

into piles based on the type of object, car versus animal, or color of the 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 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.

**Encoding and Memory Strategies:** The process of transferring information from short-term/working memory to long-term memory is called **encoding**. Middle childhood is when children begin using more effective encoding strategies to improve their ability to move information from short-term/working memory to long-term memory (Bjorklund et al, 2008). Encoding strategies include rehearsing items, grouping items into categories, and spending more time studying harder items rather than easy ones. Children can start using these strategies around five to six years of age, but they are able to use them more efficiently around age seven, after which this ability continues to increase through age ten (Schneider et al., 2009). Children continue to use more complex encoding strategies as they move through middle childhood. Some of the more frequently used memory strategies are rehearsal, elaboration, and organization.

**Memory Strategies:** Bjorklund (2005) describes a developmental progression in the acquisition and use of **memory strategies**. Such strategies are often lacking in younger children but increase in frequency as children progress through elementary school. Examples of memory strategies include rehearsing the information you wish to recall, visualizing and organizing information, creating rhymes, such as “i” before “e” except after “c,” or inventing acronyms, such as “ROYGBIV” to remember the colors of the rainbow. Schneider et al. (2009) reported a steady increase in the use of memory strategies from ages six to ten in their longitudinal study. 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.

Table. Example Memory Strategies

Memory Strategy	Definition	Example
Rehearsal	Practicing to learn new information	Children repeat a vocabulary word over and over to learn it for a vocabulary quiz.
Elaboration	Connecting new information to existing knowledge	Children help with baking at home and may recognize fractions in math class from the recipes they have used.
Organization	Arranging bits of information in an ordered manner, such as using groups or categories	Children learn the acronym “ROY G BIV” to help remember the order of the colors in the spectrum.

Children may experience three deficiencies in their use of memory strategies.

- A **mediation deficiency** occurs when a child does not grasp the strategy being taught, and thus, does not benefit from its use. If you do not understand why using an acronym might be helpful, or how to create an acronym, the strategy is not likely to help you.
- In a **production deficiency**, the child does not spontaneously use a memory strategy and has to be prompted to do so. In this case, the child knows the strategy and is more than capable of using it, but they fail to “produce” the strategy on their own. For example, a child might know how to make a list but may fail to do this to help them remember what to bring on a family vacation.
- A **utilization deficiency** refers to a child using an appropriate strategy, but it fails to aid their performance. Utilization

deficiency is common in the early stages of learning a new memory strategy (Schneider & Pressley, 1997; Miller, 2000).

Until the use of the strategy becomes automatic it may slow down the learning process, as space is taken up in memory by the strategy itself. Initially, children may get frustrated because their memory performance may seem worse when they try to use the new strategy. Once children become more adept at using the strategy, their memory performance will improve. Sodian and Schneider (1999) found that new memory strategies acquired prior to age eight often show utilization deficiencies with there being a gradual improvement in the child's use of the strategy. In contrast, strategies acquired after this age often followed an "all-or-nothing" principle in which improvement was not gradual, but abrupt.

**Knowledge Base:** During middle and late childhood, children are able to learn and remember due to an improvement in the ways they attend to and store information. As children enter school and learn more about the world, they develop more categories for concepts and learn more efficient strategies for storing and retrieving information. One significant reason is that they continue to have more experiences on which to tie new information. In other words, their knowledge base, knowledge in particular areas that makes learning new information easier, expands (Berger, 2014).

**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 to 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 (Bruning et al., 2004).



Kazemi et al. (2012) compared school-aged boys who learned chess for 6-months and a control group. They found that chess players showed more achievement in both meta-cognitive abilities and mathematical problem-solving capabilities than other non-chess players. Children's' meta-cognitive ability and their mathematical problem-solving power were also positively correlated. Based on this study, perhaps chess is an effective tool for developing higher order thinking skills.

**Critical Thinking:** According to Bruning et al. (2004) there is a debate in 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, evaluating, and selecting information, and also by considering many possible solutions. Ennis (1987) identified several skills useful in critical thinking. These include: Analyzing arguments, clarifying information, judging the credibility

of a source, making value judgments, and deciding on an action. Metacognition is essential to critical thinking because it allows us to reflect on the information as we make decisions.

**Executive Functions:** **Executive function** includes the cognitive skills we need to control or self-regulate our behavior and to work toward goals. They include skills such as working memory and attentional control, and others such as inhibition, problem-solving, self-control, mental flexibility, and planning and organization. Executive functions begin to develop during the preschool years but continue to mature through middle childhood and into adolescence. In fact, middle childhood is an important period for the development of executive functions because of the increasing social and academic demands associated with formal schooling. These skills are closely tied to maturation of the prefrontal cortex in the brain that is taking place during the preadolescent years, and they are also influenced by the presence of warm and responsive parents and by cognitively stimulating environments (Bourrier et al., 2018; Fay-Stammbach et al., 2014). Executive functions are also associated with school readiness, academic achievement, and social behavior (Poon, 2018). Thus, schools or intervention programs that target executive functions may see significant rewards as children use those skills to be successful in academic and social settings.

**Theory of Mind:** Another cognitive ability related to frontal lobe functioning and executive functions is **theory of mind**: the awareness of your own mental states and the understanding that others have thoughts, beliefs, and perspectives different from your own. Theory of mind was discussed in previous chapter, it continues to develop for the next several years. Children are increasingly able to predict what others are thinking and feeling and develop an understanding of complex mental abilities from various perspectives. Theory of mind is likely associated with better relationships with peers and teachers which may increase school engagement, higher levels of reading comprehension (because they understand the message that the author is intending to convey and the minds of the characters in the texts that they read (Kim,

2017), and with scientific reasoning. Children who understand the minds of others are better able to create and evaluate hypotheses (Kyriakopoulou & Vosniadou, 2020). There are individual differences in the development of theory of mind. For example, children diagnosed with some developmental disabilities, including autism spectrum disorder and social anxiety disorder, often have deficits in theory of mind (Spek et al., 2010; Washburn et al., 2016). Cultural differences also exist. Children in collectivist cultures like China and India tend to recognize later than children in individualistic cultures like the United States and Australia that others have different beliefs and opinions (Shahaeian et al., 2011). A recent systematic review of studies on cultural variations in theory of mind and related constructs such as empathy and perspective-taking indicated that cross-cultural differences in language use, cultural values, and parenting styles may lead to differences in development of these skills (Aival-Naveh et al., 2019). A likely reason is that individualistic cultures emphasize recognizing differences in opinions, thoughts, and beliefs more than collectivist cultures do.

## Kohlberg's Stages of Moral Development (*Ob 6*)

Lawrence Kohlberg (1963) 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 what is wrong. In order to explore this area, he read a story containing a moral dilemma to boys of different age groups. In the story, a man is trying to obtain an expensive drug that his wife needs in order to treat her cancer. The man has no money and no one will loan him the money he requires. He begs the pharmacist to reduce the price, but the pharmacist refuses. So, the man decides to break into the pharmacy to steal the drug. Then Kohlberg asked the children to decide whether the man was right or wrong in his choice. Kohlberg was not interested in whether they said the

man was right or wrong, he was interested in finding out how they arrived at such a decision. He wanted to know what they thought made something right or wrong.

**Preconventional moral development:** The youngest subjects seemed to answer based on what would happen to the man as a result of the act. For example, they might say the man should not break into the pharmacy because the pharmacist might find him and beat 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 as a result of the act. This is a self-centered approach to moral decision-making. He called this most superficial understanding of right and wrong preconventional moral development.

**Conventional moral development:** Middle childhood boys seemed to base their answers on what other people would think of the man as a result of his act. For instance, they might say he should break into the store, and then everyone would think he was a good husband. Or, he shouldn't because it is against the law. In either case, right and wrong are determined by what other people think. A good decision is one that gains the approval of others or one that complies with the law. This he called conventional moral development.

**Postconventional moral development:** Older children were the only ones to appreciate the fact that this story has different levels of right and wrong. Right and wrong are based on social contracts established for the good of everyone or on universal principles of right and wrong that transcend the self and social convention. For example, the man should break into the store because, even if it is against the law, the wife needs the drug and her life is more important than the consequences the man might face for breaking the law. Or, 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 called

post-conventional 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 (the kind supreme justices do all day in deliberating whether a law is moral or ethical, etc.) requires being able to think abstractly. Often this is not accomplished until a person reaches adolescence or adulthood.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=819#oembed-2>

**Table. Kohlberg’s stages of moral development**

Age	Moral Level Description
<b>Young children usually prior to age 9</b>	<b>Preconventional morality</b>
<p><b>Stage 1:</b> 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.</p> <p><b>Stage 2:</b> 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.</p>	
<b>Older children, adolescents, and most adult's</b>	<b>Conventional morality</b>
<p><b>Stage 3:</b> 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.</p> <p><b>Stage 4:</b> People make decisions based on laws or formalized rules. The man should obey the law because stealing is a crime.</p>	
<b>Rare with adolescents and few adults</b>	<b>Postconventional morality</b>
<p><b>Stage 5:</b> 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.</p> <p><b>Stage 6:</b> Moral behavior is based on self-chosen ethical principles. The man should steal the drug because life is more important than property.</p>	



*Consider your own decision-making processes. What guides your decisions? Are you primarily concerned with your personal well-being? Do you make choices based on what other people will think about your decision? Or are you guided by other principles? To what extent is this approach guided by your culture?*

**Criticisms of Kohlberg's theory:** 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, as with 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 (Rest, 1979). Second, it has been argued that the stage model is particularly appropriate for Western, rather than non-Western, samples in which allegiance to social norms, such as respect for authority, may be particularly important (Haidt, 2001). 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. Gilligan (1982) has argued that, because of differences in their socialization, males tend to value principles of justice and rights, whereas females value caring for and helping others. Although there is little evidence for a gender difference in Kohlberg's stages of moral development (Turiel, 1998), it is true that girls and women tend to focus more on issues of caring, helping, and connecting with others than do boys and men (Jaffee & Hyde, 2000).

## Language Development (*Ob 5*)

### Vocabulary

One of the reasons that children can classify objects in so many ways is that they have acquired a vocabulary to do so. By 5th grade, a child's vocabulary has grown to 40,000 words. It grows at the rate of 20 words per day, a rate that exceeds that of preschoolers.

This language explosion, however, differs from that of preschoolers 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.

### *New Understanding*

As children get older, they become more aware of the qualities of language and can think about and evaluate language, a skill known as metalinguistic awareness (Simard & Gutiérrez, 2017). The child is 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 preschooler is likely to say “eat” or some word that describes what is done with a pizza. However, the school-aged child is more likely to place pizza in the appropriate category and say “food” or “carbohydrate.” They also begin to understand that one word can have multiple meanings. For example, *duck* can refer to an animal or an action. This new ability is one of the reasons children begin to appreciate humor, puns, and eventually sarcasm. For example, in the preceding vignette, Troy loves jokes. He might enjoy one like this: “What did Baby Corn say to Mama Corn? Answer: Where is Popcorn?”

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**Grammar and Flexibility:** School-aged children are also able to learn new rules of grammar with more flexibility. While preschoolers are likely to be reluctant to give up saying “I goed there”, school-aged children will learn this rather quickly along with other rules of grammar.

While the preschool years might be a good time to learn a second language (being able to understand and speak the language), the school years may be the best time to be taught a second language (the rules of grammar).

**Pragmatics:** (Social) **Pragmatics** is the way we use language in different social contexts, and a useful tool for developing social relationships with others. It requires understanding 1) how to use language for different functions such as requesting something, telling a story, or conveying knowledge, 2) how to use written language differently across contexts such as text messages versus emails or writing an essay for school, 3) how to change language to meet the needs of listeners as different as a grandparent and a friend, or to speak up in a noisy room, and 4) the “hidden” rules of conversation such as taking turns and using eye contact, body gestures, and facial expressions. The use of pragmatics during

middle childhood also includes code-switching, which refers to using more than one form of language within a single conversation. Although

**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 (Meyers-Sutton, 2005). Many children around the world grow up in multilingual households, where more than one language is spoken. In the United States, approximately 26 percent of children are multilingual, a relatively low rate compared to other areas such as Singapore (90 percent), Europe (67 percent), and Canada (55 percent) although multilingualism is increasing in the United States (Luk, 2017; Wu et al., 2020). It varies quite a bit from state to state, with California having the highest rates at 43 percent and West Virginia the lowest, around 2 percent (Annie E. Casey Foundation, 2018). U.S. multilingual children speak a total of more than 100 different languages, but approximately 75 percent speak Spanish and English (Dietrich & Hernandez, 2022).

Children who are bilingual must become adept at regularly switching between languages (Tulloch & Erika, 2023), a speech style called multilingual code-switching (or translanguaging). Multilingual code-switching requires competency in at least two languages and is associated with strongly identifying with two cultures (Yim & Clément, et al., 2021). While some children learn multiple languages at the same time beginning at birth, others may learn one language in their early years and then add a second. In this case it takes longer to master the second language than it does if both languages are learned at the same time (Paradis, 2023).

Recent research suggests that any disadvantages associated with being bilingual are erased by its numerous advantages (Dentella et al., 2024). These include better executive functioning, memory, selective attention, and analytical reasoning (Nguyen et al., 2023; Planckaert et al., 2023). For example, children who speak multiple languages have better cognitive control because they must inhibit one language while they use another. They also have better

metalinguistic skills than children who only speak one language. For example, children who are bilingual can understand grammatical rules more easily than children who speak a single language. There are also social benefits to multilingualism, such as being able to participate in diverse communities (Djonov, 2019).



The student who speaks both languages fluently has a definite cognitive advantage. As you might suspect and research confirmed, a fully fluent bilingual student is in a better position to express concepts or ideas in more than one way, and to be aware of doing so (Jimenez et al., 2006). Unfortunately, the bilingualism of many students is unbalanced in the sense that they are either still learning English, or else they have lost some earlier ability to use their original, heritage language. Losing one's original language is a concern as research finds that language loss limits students' ability to learn English as well or as quickly as they could do. Having a large vocabulary in a first language has been shown to save time in learning vocabulary in a second language (Hansen et al., 2002). Preserving the first language is important if a student has impaired

skill in all languages and therefore needs intervention or help from a speech-language specialist. Research has found, in such cases, that the specialist can be more effective if the specialist speaks and uses the first language as well as English (Kohnert et al., 2005).

What are the advantages to having a bilingual (or multilingual) brain? Watch this [TED Talk by Educator Mia Nacamulli about how our brains benefit from knowing more than one language](#) to learn more.

### *Approaches to Bilingualism in Schools*

In larger communities throughout the United States, it is common for a single classroom to contain students from several language backgrounds at once. In classrooms, as in other social settings, bilingualism exists in different forms and degrees. At one extreme are students who speak both English and another language fluently; at the other extreme are those who speak only limited versions of both languages. In between are students who speak their home (or heritage) language much better than English, as well as others who have partially lost their heritage language in the process of learning English (Tse, 2001). Commonly, a student may speak a language satisfactorily, but be challenged by reading or writing it. Whatever the case, each bilingual student poses unique challenges to teachers.

Children tend to learn new languages more easily than adults (Ghasemi & Hashemi, 2011). This may be partly because they are more willing to use the language without fear of making errors or because their brains have more neural plasticity or flexibility (Birdsong, 2017). In addition, non-native speakers who learned a

language before the age of 10 are often difficult to distinguish from a native speaker of that language (Ghasemi & Hashemi, 2011). For this reason, childhood is often referred to as a critical period for the acquisition of a second language (Birdsong, 2017). Even adolescents up to age 17 or 18 can learn the grammar structure of a new language more easily than adults (Hartshorne et al., 2018).

## Communication Disorders (*Ob 8*)

At the end of early childhood, children are often assessed in terms of their ability to speak properly. By first grade, about 5% of children have a notable speech disorder (Medline Plus, 2016c).

**Fluency disorders:** Fluency disorders affect the rate of speech. Speech may be labored and slow, or too fast for listeners to follow. The most common fluency disorder is stuttering. Stuttering is a speech disorder in which sounds, syllables, or words are repeated or last longer than normal. These problems cause a break in the flow of speech, which is called *dysfluency* (Medline Plus, 2016b). About 5% of young children, aged 2 to 5, will develop some stuttering that may last from several weeks to several years (Medline Plus, 2016c). Approximately 75% of children recover from stuttering. For the remaining 25%, stuttering can persist as a lifelong communication disorder (National Institute on Deafness and other Communication Disorders, NIDCD, 2016). This is called *developmental stuttering* and is the most common form of stuttering. Brain injury, and in very rare instances, emotional trauma may be other triggers for developing problems with stuttering. In most cases of developmental stuttering, other family members share the same communication disorder. Researchers have recently identified variants in four genes that are more commonly found in those who stutter (NIDCD, 2016).

**Articulation disorder:** An **articulation disorder** refers to the inability to correctly produce speech sounds (phonemes) because of

imprecise placement, timing, pressure, speed, or flow of movement of the lips, tongue, or throat (NIDCD, 2016). Sounds can be substituted, left off, added, or changed. These errors may make it hard for people to understand the speaker. They can range from problems with specific sounds, such as lisping to severe impairment in the phonological system. Most children have problems pronouncing words early on while their speech is developing. However, by age 3, at least half of what a child says should be understood by a stranger. By age 5, a child's speech should be mostly intelligible. Parents should seek help if by age six the child is still having trouble producing certain sounds. It should be noted that accents are not articulation disorders (Medline Plus, 2016a).

**Voice disorders:** Disorders of the voice involve problems with pitch, loudness, and quality of the voice (American Speech-Language and Hearing Association, 2016). It only becomes a disorder when problems with the voice make the child unintelligible. In children, voice disorders are significantly more prevalent in males than in females. Between 1.4% and 6% of children experience problems with the quality of their voice. Causes can be due to structural abnormalities in the vocal cords and/or larynx, functional factors, such as vocal fatigue from overuse, and in rarer cases psychological factors, such as chronic stress and anxiety.

## Developmental Problems (*Ob 8*)

Children's cognitive and social skills are evaluated as they enter and progress through school. Sometimes this evaluation indicates that a child needs special assistance with language or in learning how to interact with others. Evaluation and diagnosis of a child can be the first step in helping to provide that child with the type of instruction and resources needed. But diagnosis and labeling also have social implications. It is important to consider that children can be misdiagnosed and that once a child has received a diagnostic

label, the child, teachers, and family members may tend to interpret actions of the child through that label. The label can also influence the child's self-concept. Consider, for example, a child who is misdiagnosed as learning disabled. That child may expect to have difficulties in school, lack confidence, and out of these expectations, have trouble indeed. This **self-fulfilling prophecy** or tendency to act in such a way as to make what you predict will happen comes true, calls our attention to the power that labels can have whether or not they are accurately applied. It is also important to consider that children's difficulties can change over time; a child who has problems in school may improve later or may live under circumstances as an adult where the problem (such as a delay in math skills or reading skills) is no longer relevant. That person, however, will still have a label as learning disabled. It should be recognized that the distinction between abnormal and normal behavior is not always clear; some abnormal behavior in children is fairly common. Misdiagnosis may be more of a concern when evaluating learning difficulties than in cases of autism spectrum disorder where unusual behaviors are clear and consistent.

## Learning Disabilities (*Ob8*)



Ability means we are all on a continuum between not at all able and easily able, and our ability level can change over time. While there is a spectrum of abilities, a child who has impairment that interferes with learning may be classified as having a learning disability. 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. In other words, a child with a learning disability has problems in a specific area or with a specific task or type of activity related to education. An 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. Typically, a student with an LD has not been helped by teachers' ordinary efforts to assist the student when he or she falls behind academically, though what counts as an "ordinary effort," of course, differs among teachers, schools, and students. Most 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 percent of all students, depending on how the numbers are estimated (United States Department of Education, 2005; Ysseldyke & Bielinski, 2002). Students with LDs are so common, in fact, that most teachers regularly encounter at least one per class in any given school year, regardless of the grade level they teach.

These difficulties are 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.

Learning disabilities are connected to reading, writing, or math: dyslexia, dysgraphia, and dyscalculia. The following table describes each.

**Table. Examples of Learning Disabilities connected to reading, writing, or math**

<p><b>Dyslexia</b></p>	<p>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 a 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 that are</p>
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	linked to developing dyslexia (National Institute of Neurological Disorders and Stroke, 2016). Treatment typically involves altering teaching methods to accommodate the person's particular problematic area.
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<b>Dysgraphia</b>	<p>a writing disability is often associated with dyslexia (Carlson, 2013). There are different types of dysgraphia, including phonological dysgraphia when the person cannot sound out words and write them phonetically. Orthographic dysgraphia is demonstrated by those individuals who can spell regularly spelled words, but not irregularly spelled ones. Some individuals with dysgraphia experience difficulties in motor control and experience trouble forming letters when using a pen or pencil.</p>
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<p><b>Dyscalculia</b></p>	<p>refers to problems in math. Cowan and Powell (2014) identified several terms used when describing difficulties in mathematics including dyscalculia, mathematical learning disability, and mathematics disorder. All three terms refer to students with average intelligence who exhibit poor academic performance in mathematics. When evaluating a group of third graders, Cowan and Powell (2014) found that children with dyscalculia demonstrated problems with working memory, reasoning, processing speed, and oral language, all of which are referred to as domain-general factors. Additionally, problems with multi-digit skills, including number system knowledge, were also</p>
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**Attention Deficit Hyperactivity Disorder:** 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 (American Psychological Association (APA), 2013). Some of the 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. Frequently, the hyperactive child comes across as noisy and boisterous. The child’s behavior is 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 (Thompson et al., 2007). Table 2 shows three ways it can present itself based on which symptoms are most problematic

Table 2. ADHD Presentations

ADHD Presentation	Description
Predominately inattentive	Child has difficulty following instructions, paying attention to details, and organizing or finishing a task.
Predominately hyperactive-impulsive	Child displays excessive fidgeting and talking, difficulty sitting for longer period of times, and restlessness. Has trouble with impulsivity and difficulty waiting their turn or listening to instructions.
Combined presentation	Child has symptoms of both predominately inattentive and predominately hyperactive-impulsive forms.

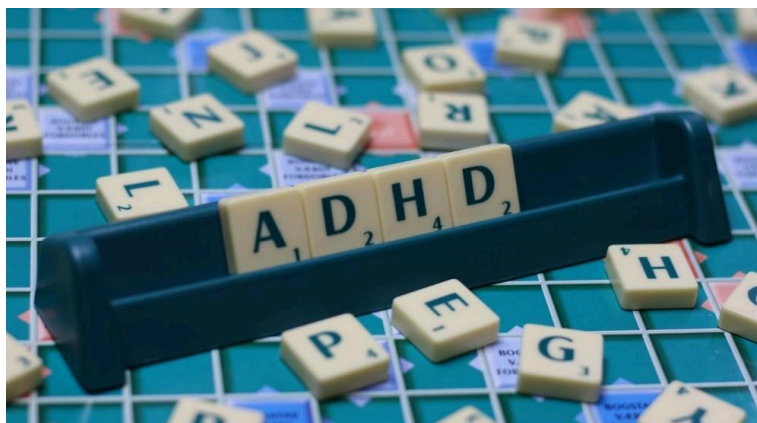
ADHD occurs in approximately 5 percent of children between three and twelve years of age (Salari et al., 2023), a rate that has increased over the past several decades. It's likely that actual cases have not been rising, but that teachers, parents, and medical professionals are more aware of and more likely to recognize the symptoms and refer children for a diagnosis. Diagnostic techniques and screening processes have also improved, making it easier to diagnose a child (Abdelnour et al., 2022).

Signs of hyperactivity in children with ADHD include excessive movement, fidgeting, squirming, difficulty remaining seated, and talkativeness (Ayano et al. 2023). Children with ADHD do not have any intellectual impairments when compared to children without ADHD, but they may struggle in school because of their difficulties with executive functioning. Children with ADHD face severe academic and social challenges. Compared to their non-ADHD counterparts, children with ADHD have lower grades and standardized test scores and higher rates of expulsion, grade retention, and dropping out (Loe & Feldman, 2007; lines et al., 2023). They also are less well-liked and more often rejected by their peers (Hoza et al., 2005).

Boys are three times more likely than girls to be diagnosed with ADHD (Reuben & Elgaddal, 2024). Boys with ADHD are also more likely to display externalizing behaviors such as increased running and impulsivity, whereas girls are more likely to show internalizing

behaviors such as low-self-esteem and inattentiveness. The externalizing behaviors are more likely to be disruptive at home or at school and may explain, in part, why boys are more likely to be diagnosed (Mowlem et al., 2019). However, if all children in a community are screened, gender differences in the diagnosis of ADHD disappear (Assari, 2021) supporting the idea that higher rates of ADHD are due to more noticeable symptoms.

ADHD can persist into adolescence and adulthood (Barkley et al., 2002). A recent study found that 29.3% of adults who had been diagnosed with ADHD decades earlier still showed symptoms (Barbarese et al., 2013). Somewhat troubling, this study also reported that nearly 81% of those whose ADHD persisted into adulthood had experienced at least one other comorbid disorder, compared to 47% of those whose ADHD did not persist. Additional concerns when an adult has ADHD include worse educational attainment, lower socioeconomic status, less likely to be employed, more likely to be divorced, and more likely to have non-alcohol-related substance abuse problems (Klein et al., 2012).



**Causes of ADHD:** There are several possible causes for ADHD including genetics, preterm birth and maternal use of substances like acetaminophen during pregnancy (Banaschewski et al., 2017; Ji

et al., 2020; Kim et al., 2020; Sourander et al., 2019). More than seventy-six potential risk genes have been identified for ADHD (Demontis et al., 2023) and many of these are important for the regulation of the neurotransmitter dopamine. There is also research that has linked structures in the brain to ADHD. Brain imaging studies have shown that children with ADHD exhibit abnormalities in their frontal lobes, an area in which dopamine is in abundance. Compared to children without ADHD, those with ADHD appear to have smaller frontal lobe volume, and they show less frontal lobe activation when performing mental tasks. Recall that one of the functions of the frontal lobes is to inhibit our behavior. Thus, abnormalities in this region may go a long way toward explaining the hyperactive, uncontrolled behavior of ADHD. Most of these studies have focused on the frontal lobe and the prefrontal cortex, and suggest that the frontal lobe is less developed in individuals with this diagnosis (Hoogman et al., 2019). Since the frontal lobe is responsible for executive functions, attention, impulse control and planning, delays in frontal lobe development explain many of the behaviors seen in children with this disorder.

Importantly, despite widely held beliefs, there is no evidence that sugar consumption is related to increased hyperactivity (Kramer, 2023) and, although, food additives have been shown to increase hyperactivity, the overall impact is very small (McCann et al., 2007). Many parents attribute their child's hyperactivity to sugar. A statistical review of 16 studies, however, concluded that sugar consumption has no effect at all on the behavioral and cognitive performance of children (Wolraich et al., 1995). Additionally, although food additives have been shown to increase hyperactivity in non-ADHD children, the effect is rather small (McCann et al., 2007). Numerous studies, however, have shown a significant relationship between exposure to nicotine in cigarette smoke during the prenatal period and ADHD (Linnet et al., 2003). Maternal smoking during pregnancy is associated with the development of more severe symptoms of the disorder (Thakur et al., 2013).

**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 sleep (Clay, 2013). For some children, medication is prescribed. Parents are often concerned that stimulant medication may result in their child acquiring a substance use disorder. However, research using longitudinal studies has demonstrated that children diagnosed with ADHD who received pharmacological treatment had a lower risk for substance abuse problems than those children who did not receive medication (Wilens et al., 2003). The risk of substance abuse problems appears to be even greater for those with ADHD who are un-medicated and also exhibit antisocial tendencies (Marshall & Molina, 2006).

## Education (*Ob 10*)

Remember the ecological systems model (Urie Brofenbrenner) that we explored in chapter one? This model helps us understand an individual by examining the contexts in which the person lives and the direct and indirect influences on that person's life. School becomes a very important component of children's lives during middle and late childhood, and parents and the culture contribute to children's experiences in school as indicated by the ecological systems model through their interaction with the school.

**Parental Involvement in School:** Parents vary in their level of involvement with their children's schools. Teachers often complain that they have difficulty getting parents to participate in their child's education and devise a variety of techniques to keep parents in touch with daily and overall progress. For example, parents may be required to sign a behavior chart each evening to be returned to school or may be given information about the school's events through websites and newsletters. There are other factors that need to be considered when looking at parental involvement. To explore these, first, ask yourself if all parents who enter the school with

concerns about their child be received in the same way? If not, what would make a teacher or principal more likely to consider the parent's concerns? What would make this less likely? Lareau and Horvat (2004) found that teachers seek a particular type of involvement from particular types of parents. While teachers thought they were open and neutral in their responses to parental involvement, in reality, teachers were most receptive to support, praise and agreement coming from parents who were most similar in race and social class with the teachers. Parents who criticized the school or its policies were less likely to be given voice. Parents who have higher levels of income, occupational status, and other qualities favored in society have **family capital**. This is a form of power that can be used to improve a child's education. Parents who do not have these qualities may find it more difficult to be effectively involved. Lareau and Horvat (2004) offer three cases of African-American parents who were each concerned about discrimination in the schools. Despite evidence that such discrimination existed, their children's white, middle-class teachers were reluctant to address the situation directly.

Note the variation in approaches and outcomes for these three families:

- *The Masons*: This working class, an African-American couple, a minister and a beautician, voiced direct complaints about discrimination in the schools. Their claims were thought to undermine the authority of the school and as a result, their daughter was kept in a lower reading class. However, her grade was boosted to "avoid a scene" and the parents were not told of this grade change.
- *The Irving's*: This middle class, African-American couple was concerned that the school was discriminating against black students. They fought against it without using direct confrontation by staying actively involved in their daughter's schooling and making frequent visits to the school to make sure that discrimination could not occur. They also talked with

other African-American teachers and parents about their concerns.

- *Ms. Caldron*: This poor, single-parent was concerned about discrimination in the school. She was a recovering drug addict receiving welfare. She did not discuss her concerns with other parents because she did not know the other parents and did not monitor her child's progress or get involved with the school. She felt that her concerns would not receive attention. She requested spelling lists from the teacher on several occasions but did not receive them. The teacher complained that *Ms. Caldron* did not sign forms that were sent home for her signature.

Working within the system without direct confrontation seemed to yield better results for the Irving's, although the issue of discrimination in the school was not completely addressed. *Ms. Caldron* was the least involved and felt powerless in the school setting. Her lack of family capital and lack of knowledge and confidence keep her from addressing her concerns with the teachers. What do you think would happen if she directly addressed the teachers and complained about discrimination? Chances are, she would be dismissed as undermining the authority of the school, just as the *Masons*, and might be thought to lack credibility because of her poverty and drug addiction. The authors of this study suggest that teachers closely examine their biases against parents. Schools may also need to examine their ability to dialogue with parents about school policies in more open ways. Consider the following questions to consider in an effort to improve effective parental involvement:



**What happens when parents have concerns over school policy or view student problems as arising from flaws in the educational system? How are parents who are critical of the school treated? And are their children treated fairly even when the school is being criticized?**

## Develop a Growth Mindset

A **growth mindset** is the belief that our cognitive abilities can be changed, while a fixed mindset is the belief that those abilities are stable.

According to Carol Dweck's mindset theory, students with a growth mindset have more positive developmental outcomes than those with a fixed mindset, the belief that their abilities are fixed and can't be changed (Dweck et al., 2019). If ten-year-old Mario approaches a challenging assignment by saying, "This looks hard, but I think I can do it if I work hard," he is demonstrating a growth mindset. Having a growth mindset is associated with less anxiety and depression (Schleider & Weisz, 2016) as well as with improved grades and increased enrollment in more advanced courses in math (Yeager et al., 2019). However, the growth mindset is most effective if reinforced by teachers who endorse the learner's beliefs (Yeager et al., 2022). For example, if a student insists they are not good at math, a teacher may reinforce a fixed mindset by saying, "Maybe math isn't your strength, but you do other things well." However, the teacher may encourage a growth mindset by stating, "Let's keep working on this problem. I've seen you make great progress this year when you keep trying on a problem!"

*How much impact does Growth Mindset have?*

Although the positive impacts of a growth mindset have been supported by research, findings are mixed about

whether academic outcomes are higher for children with a growth mindset (Yeager & Dweck, 2020). Other research has shown that interventions designed to change students' mindsets do not influence student achievement (Macnamara & Burgoyne, 2023). One possible reason is that schools send mixed messages to children when they promote a growth mindset while at the same time focusing on performance outcomes. In addition, students likely come into the school year with a particular mindset as the result of past experiences with other teachers, their families, and peers. A criticism of growth mindset theory is that it underestimates the effects of innate abilities such as intelligence, and that it can make children feel like they are entirely responsible for their outcomes. In turn, that ignores the fact that many factors outside children's control, such as poverty and systemic racism, have a real impact on academic achievement (Alexander, 2015).

Despite criticisms, having a growth mindset is more likely to promote positive outcomes than having a fixed mindset. So, what are some strategies that support developing a growth mindset? According to Carol Dweck (2014), who first identified mindset theory, there are several steps that can help:

1. Praise wisely. In other words, praise should focus on effort and perseverance over intelligence or talent. For example, "you tried so hard" is preferable to "you must be so smart!"
2. Reward wisely. Rewards, such as good grades, should be based on effort and strategy instead of

exclusively on correct answers.

3. Remember the word “yet.” In other words, if there is a setback or failure, it isn’t permanent, and a lot of learning can occur through mistakes and persistence.
4. Change mindsets by being willing to persevere at challenging and difficult tasks.

To learn more about Carol Dweck’s research and tips, review this [brief presentation on developing a growth mindset](#) from Dweck.

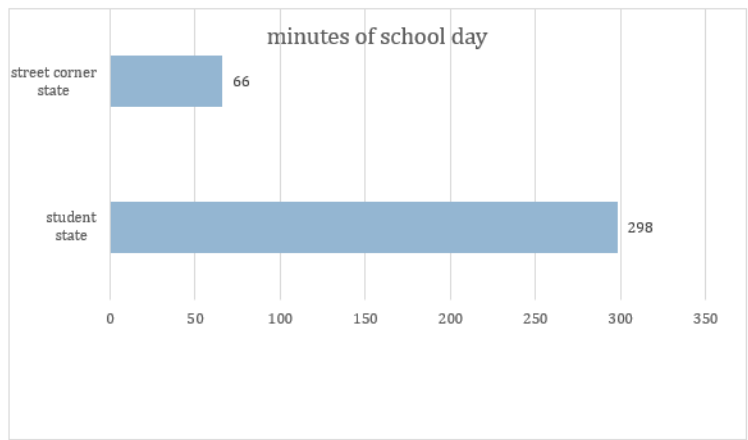
## Student Perspectives



**Imagine being a 3rd-grader for one day in public school. What would the daily routine involve? To what extent would the institution dictate the activities of the day and how much of the day would you spend on those activities? Would always be ‘on task’? What would you say if someone asked you how your day went? Or “What happened in school today?”**

The majority of the day (298 minutes) takes place in the **student state**. This state is one in which the student focuses on a task or tries to stay focused on a task, is passive, compliant, and often frustrated. Long pauses before getting out the next book or finding materials sometimes indicate that frustration. The **street corner state** is one in which the child is playful, energetic, excited, and expresses personal opinions, feelings, and beliefs. About 66 minutes

a day take place in this state. Children try to maximize this by going slowly to assemblies or when getting a hall pass—always eager to say ‘hello’ to a friend or to wave if one of their classmates is in another room. This is the state in which friends talk and play. In fact, teachers sometimes reward students with opportunities to move freely or to talk or to be themselves. But when students initiate the street corner state on their own, they risk losing recess time, getting extra homework, or being ridiculed in front of their peers. The **home state** occurs when parents or siblings visit the school. Children in this state may enjoy special privileges such as going home early or being exempt from certain school rules in the mother’s presence. Or it can be difficult if the parent is there to discuss trouble at school with a staff member. The **sanctity state** is a time in which the child is contemplative, quiet, or prayerful and is a very brief part of the day. There is more variance in the minutes spent in the home and sanctity states.



Bar graph showing minutes per day for student and street corner state

Since students seem to have so much enthusiasm and energy in street corner states, what would happen if the student and street corner states could be combined? Would it be possible? Many

educators feel concern about the level of stress children experience in school. Some stress can be attributed to problems in friendship. And some can be a result of the emphasis on testing and grades, as reflected in a Newsweek article entitled “The New First Grade: Are Kids Getting Pushed Too Fast Too Soon?” (Tyre, 2006). This article reports concerns of a principal who worries that students begin to burn out as early as 3rd grade. In the book, *The Homework Myth: Why Our Kids Get Too Much of a Bad Thing*, Kohn (2006) argues that neither research nor experience support claims that homework reinforces learning and builds responsibility. Why do schools assign homework so frequently? A look at cultural influences on education may provide some answers.

### *Classroom Climate*

Classroom climate plays a crucial role in children's academic and social development. A positive classroom climate, marked by warmth, encouragement, respect, and well-organized activities, fosters student engagement, participation, and enjoyment of school (Wang et al., 2020). Teachers in such environments focus on building positive relationships with students and peers while using constructive disciplinary practices (Wang & Degol, 2016). In contrast, negative climates characterized by disorganization, harsh criticism, or bullying can lead to disengagement and negative attitudes toward learning (Wang et al., 2020). Recognizing its importance, many countries have implemented initiatives to improve classroom climates by fostering positive behaviors and strengthening teacher-student relationships (Horner et al., 2015).

Teachers significantly influence classroom climate through their behavior and teaching strategies. Warmth, encouragement, and autonomy-supportive teaching create a positive environment where students feel motivated to participate and excel (Quin, 2017). Effective strategies include organizing responsive learning activities, promoting independent work, and encouraging

collaboration in small groups (Miller & Wang, 2019). Conversely, authoritarian or disorganized teaching can foster fear or distraction among students. Close teacher-student relationships further enhance motivation and prosocial behavior, while dependent or conflicted relationships can lead to stress for both teachers and students (Portilla et al., 2014; Bosman et al., 2021).

Cultural factors also shape teacher-student dynamics. Teachers may unintentionally hold biases that affect their relationships with students from marginalized racial or socioeconomic backgrounds. For example, Black boys are more likely to experience conflicted teacher-child relationships due to stereotypes and systemic racism (Rudasill et al., 2023). However, close teacher-student relationships can serve as protective factors for historically marginalized children, promoting learning gains and reducing dropout risks (Goldberg & Iruka, 2023). Efforts like increasing teacher diversity and implementing culturally competent educational interventions can help bridge these gaps and improve classroom climates for all students (La Salle et al., 2020; Rasheed et al., 2020).



**Cultural Differences 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 (Cazden, 2001; Rogers, et al., 2005). Consider these examples:

In some cultures, it is considered 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 (Minami, 2002). 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.

- *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 (Torres-Guzman, 1998). 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 (Beaulieu, 2004). Problems may happen when a teacher and 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 varies 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 (Tharp & Gallimore, 1989). 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. In classrooms the wait time is customarily about one second; after that, the teacher is likely to move on to another question or to another student. A student who habitually expects a wait time longer than one second may seem hesitant, and not be given many chances to speak. A student who expects a negative wait time, on the other hand, may seem overeager or even rude.
- *Question purpose varies by culture.* 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 (Rogoff, 2003). In most classrooms, however, teachers regularly ask test questions, which are questions to which the teacher already knows the answer and that simply assess whether a student knows the answer as well (Macbeth, 2003). The question: "How much is  $2 + 2$ ?" for example, is a test question. If the student is not aware of this purpose, he or she may become confused, or think that the teacher is surprisingly ignorant. Worse yet, the student may feel that the teacher is trying deliberately to shame the student by revealing the student's ignorance or incompetence to others.

- *Preference for activities that are cooperative rather than competitive.* Many activities in school are competitive, even when teachers try to de-emphasize the competition. Once past the first year or second year of school, students often become attentive to who receives the highest marks on an assignment, for example, or who is the best athlete at various sports or whose contributions to class discussions gets the most verbal recognition from the teacher (Johnson & Johnson, 1998). A teacher deliberately organizes important activities or assignments competitively, as in “Let’s see who finishes the math sheet first.” Classroom life can then become explicitly competitive, and the competitive atmosphere can interfere with cultivating supportive relationships among students or between students and the teacher (Cohen, 2004). For students who give priority to these relationships, competition can seem confusing at best and threatening at worst. A student may wonder, “What sort of sharing or helping with answers is allowed?” The answer to this question may be different depending on the cultural background of the student and teacher. What the student views as cooperative sharing may be seen by the teacher as laziness, freeloading, or even cheating.

## Media

Media significantly influences children in middle childhood, shaping their views on topics like fashion, politics, gender, and race. Digital media use has surged, with 50% of U.S. children owning smartphones by age 10 and screen time averaging over five hours daily (Richter et al., 2022; Common Sense Media, 2022). Boys tend to favor video games, while girls use screens more for socialization (Nagata et al., 2022). Excessive screen time is linked to risks like obesity, attention issues, and mental health challenges, including depression and sleep problems (Tripathi & Mishra, 2020; Eirich et

al., 2022). However, digital media also offers benefits such as access to information, educational opportunities, and social connection, especially for marginalized groups like LGBTQ+ youth (Fish et al., 2020; Reid et al., 2016). Social media and video games can enhance collaboration and problem-solving skills when used appropriately (Cardoso-Leite et al., 2021; Pitchford & Outhwaite, 2019). Balancing screen use with other activities and fostering media literacy are key to mitigating negative effects.

## Psychosocial Development (*Ob 9*)

Now let's turn our attention to concerns related to self-concept, the world of friendships, and family life.

### Industry vs. Inferiority



**Industry versus inferiority** is the fourth stages in Erikson's theory.

According to Erikson, middle childhood is a time period when children's self-esteem is connected to their view of how productive they are. Typically, children in middle childhood are very busy or industrious. Industry refers to the ability to work hard and achieve goals. Children are becoming increasingly independent and work hard to develop a sense of competence in areas such as athletics, music, social relationships, and academics. They compare their skills and achievements to those of their peers, who they now spend more time with both in and out of school than before. They may learn they are better at some things than other children, and that some skills and talents are more valued than others. If they feel they can master their skills and are encouraged in their efforts, they develop a sense of industry. If they don't have much success in their efforts, they may develop a sense of inferiority, feeling they are not good enough at something.

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 can be particularly haunting during middle childhood. In other words, if children are not getting praise from others about their work, or lack motivation or self-esteem, they may feel inferior. Supportive learning environments, appropriate levels of challenge, and reasonable expectations can help facilitate a sense of industriousness. For example, when children feel supported by their parents, they are more likely to have high self-esteem and improved academic performance (Wang et al., 2021). Children who build a sense of industry will take pride in their accomplishments and develop an identity as a contributing member of their community, whether it be schoolwork or other community work (Batra, 2013).

In comparison, children who are labeled problem students, who display disruptive behavior, or who struggle with the expectations of formal education may develop a sense of inferiority. Having such feelings is related to social anxiety and fear of negative evaluations

(Li et al., 2023). Early identity struggles and low self-esteem can also develop in children who experience trauma at school or at home (Downey & Crummy, 2022), and in children who have undiagnosed learning disabilities, attention deficits, or emotional disturbances (Zuppardo et al., 2023). Children with a sense of inferiority may dislike school, disengage from learning activities, and consider themselves poor learners. This result, in turn, can have long-term consequences on their learning and educational achievement, self-concept, and even peer relationships (McArthur et al., 2020; Zheng et al., 2020).

Erikson's theory is one of the few to consider various cultural and contextual factors in identity development (Syed & Fish, 2018). Some research indicates middle childhood's focus on industry can be fostered in a variety of settings including through home environments and household work; school and peer interactions; and in more agricultural cultures through community farming work (Döring et al., 2015).

## Self-Concept (*Ob 9*)

**Self-concept** refers to beliefs about general personal identity (Seiffert, 2011). 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 those 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. Their sense of self is influenced by peers and family members as well as by societal messages that they receive, such as through the media (Collins & Madsen, 2019). For media, movies,

music videos, the internet, and advertisers can all create cultural images of what is desirable or undesirable and this too can influence a child's self-concept.

Children in middle childhood become hyperaware of themselves and the way others perceive them. Starting in the early elementary grades, they notice the way classmates and other children react to them, and they begin to reflect on and monitor their self-projection, or the way they are portraying themselves around different audiences such as new classmates, close friends, teachers, parents, and other family members (Howe et al., 2022). A child may be more polite and restrained around potential new friends—for instance, funnier and more outgoing around already-close friends, yet serious and intellectual around teachers, and more emotional and dependent around parents. Achieving this requires a sophisticated level of social competence, a skill we use to understand and respond to the differing expectations of various contexts and audiences.

Internalizing others' appraisals and creating social comparison affect children's **self-esteem**, which is defined as an 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 to be their ideal selves, their self-esteem can be negatively affected.

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 (Bandura, 1977, 1986, 1997). Large discrepancies between self-efficacy and ability can create motivational problems for the individual (Seifert, 2011). If a student believes that he or she can solve mathematical problems, then the student is more likely to attempt the mathematics homework that the teacher assigns. Unfortunately, the converse is also true. If a student believes that he or she is incapable of math, then the student is less likely to attempt the math homework regardless of the student's 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 Bandura (1997), the optimum level seems to be either at or slightly above, true ability.

Self-esteem describes how much value a child places on themselves as a worthy individual, while self-efficacy is their belief in their ability to work effectively and achieve in various areas (academics, sports, the arts, relationships, etc.) of their lives. Notably, self-efficacy influences self-esteem (Han & Park, 2020). For example, a child who believes they can be successful in school (high academic self-efficacy) is more likely to work hard to be successful. That achievement can then increase self-esteem, but only if performing well academically is important to the child. In other words, children's self-esteem is most positively impacted by achieving success in the areas that are important to them.

### Connecting with School-Age Children: Building Competence

As you study middle childhood, consider how this age period can shape lifelong patterns:

- **Academic Skills:** Reflect on your own elementary school experiences. How did they influence your attitude towards learning?
- **Peer Relationships:** Observe children's friendships and social groups. How do these interactions contribute to their development?
- **Self-Esteem:** Consider how children's sense of

competence develops during this period. What factors contribute to healthy self-esteem?

- **Extracurricular Activities:** Think about the role of sports, arts, and other activities in children's development. How do these shape identity and skills?
- **Family Dynamics:** How do family relationships evolve as children become more independent?
- **Digital Literacy:** Consider how children navigate the digital world. What skills do they need to develop for safe and productive technology use?

### *Gender, Race & Ethnic Identity*

During middle childhood, children develop more nuanced understandings of gender, racial, and ethnic identities as their self-concepts become increasingly complex. **Gender identity** evolves as children move beyond rigid stereotypes common in early childhood, becoming more flexible in their beliefs and less judgmental toward gender-nonconforming peers by ages seven to eight (Trautner et al., 2005). They begin to challenge societal norms and stereotypes, recognizing that gender is socially constructed and influenced by cultural beliefs, which can either constrain or support their self-esteem and overall identity (Rogers, 2020; Rogers & Way, 2021). Similarly, racial identity—rooted in physical appearance, language, and pride—develops during middle childhood as children navigate societal labels and racial stereotypes. Children of color, in particular, learn to describe these stereotypes by age ten, with peers and

school environments playing significant roles in shaping their racial identity (Swanson et al., 2009; Jugert et al., 2020). Ethnic identity also strengthens during this stage, shifting from a focus on physical features in early childhood to behavioral and cultural aspects like language and ancestry by age eight (Rogers et al., 2012). Immigrant children often balance ethnic and national identities, forming unique multifaceted identities through this process (Brown, 2017; Juang & Syed, 2019). While these identities are distinct, children may value them differently depending on their cultural context or personal experiences (Akiba et al., 2004; Corenblum, 2014).

## Emotions

**Emotional regulation**, or emotional self-regulation, describes the way we respond to events happening in our environment and manage our reactions. Emotion regulation advances in middle childhood connecting to maturation in the prefrontal lobe. With advancements in strategy use, 7 to 10-year-olds are able to start selecting different coping strategies when upset. They also have an awareness and understanding that they can have multiple emotions towards the same person (Saarni, 1999). As children gain more maturity, they become better able to appraise how well they can control emotions in stressful or upsetting events and generate multiple strategies to deal with their emotions. They also to use display rules, or manage their emotions (e.g., may feel upset but smile) and make a distinction between if someone close to them has an emotional expression is genuine or not. They also become more aware of expectations for the display of emotions that may be culturally defined (e.g., when culturally acceptable to cry) (Saarni, 1999). With a better understanding and interpreting of complex emotional displays, children's' perspective taking abilities and their empathy skills increase.

Useful skills that allow children to have increased emotional

intelligence and regulation continue to develop during middle childhood. For example, metacognitive skill, the awareness of their individual thought processes, allows them to understand their emotions and develop strategies to help them control their reactions. These skills continue to grow in early and middle childhood (Gascoine et al., 2017). However, regulating emotions is complex and requires a lot of skill and practice (Pennequin et al., 2020). So, during middle childhood, children may still struggle to handle their emotions, particularly when they are stressed or feeling overwhelmed by expectations (Moltrecht et al., 2021).

*Emotional Awareness:* A valuable element of self-regulation is **emotional awareness**, being able to name and identify emotions (Lane & Smith, 2021). Emotional awareness depends on our ability to understand internal sensations and connect them to an emotion based on the current situation as well as past experiences (Satpute & Lindquist, 2019). Being upset, irritable, or grumpy without knowing why you feel that way can be a bewildering and overwhelming experience, but naming and identifying emotions allows children to better understand their internal state and decide how best to manage their emotional responses.

*Coping:* Middle childhood is a good time for students to develop more coping strategies. With the advancement in cognitive thinking and interpersonal understanding, children at this age develop more complex methods of problem solving compared to their younger years (Compas, Connor-Smith et al., 2001; Hampel & Petermann, 2005). Coping can be divided up into voluntary and involuntary coping efforts. We will focus on voluntary efforts. **Voluntary coping efforts** are within the conscious awareness of the individual and are intended to regulate one's response to stress or the stressor itself. Further voluntary efforts can include engaged and disengaged coping. For *engagement coping*, the child directly addresses the stressor (e.g., problem solving, emotional expression, support seeking), or adapts to the stressful conditions (e.g., acceptance, positive thinking). Children can also disengage.

*Disengagement coping* is when the child disorients or moves away

from the stressor or one's emotions or thoughts regarding the stressor. Disengagement coping includes avoidance, social withdrawal, denial, and wishful thinking. The majority of the literature provides evidence that engagement coping strategies promote better psychological adjustment, whereas disengagement coping strategies undermine healthy adjustment in children (Campos et al., 2001; Santiago & Wadsworth, 2009; Sontag & Graber, 2010). For example, research has found that engagement coping is generally associated better social and academic competence, whereas disengagement coping was largely associated with poorer social and academic competence (Campos et al., 2001). Thus, it may be important to build some coping skills with children at this age. Parents and caregivers can model and scaffold adaptive coping strategies so that children to orient towards the stressor (engagement coping), through strategies such as problem solving, rather than disengagement practices like denying stress, through strategies such as cognitive avoidance.

Table 3. Coping Strategies in Middle Childhood

Coping Strategy	Description
Problem-solving	Identifying and using a solution to a problem to resolve the issue
Behavioral and cognitive distraction	Shifting attention away from stress-causing situation
Support seeking	Relying on adults or peers for help with coping
Escape/avoidance	Leaving the stressful environment or avoiding the problem
Cognitive reframing	Trying to think of the problem differently such as focusing on the positive
Self-reliance	Accepting responsibility or otherwise regulating emotions alone
Opposition	Blaming others for problems
Rumination	Thinking about the problem over and over

## Building resilience

The ability to successfully adapt and respond to stressful events is *resilience* (Masten, 2019). Healthy social relationships and adaptive responses to social interactions are also predictors of resilience. Strong social cognitive skills are essential for developing healthy relationships with others, which in turn matters for making friends, bonding with teachers at school, and spending enjoyable time with family. In middle childhood, children also show improved use of empathy and altruism to facilitate prosocial behaviors (Glen et al., 2020). Cognitively, *empathy* requires understanding the perspective and emotional states of others. Affectively, we need to vicariously feel what others are feeling and mirror their emotion. The awareness of what another might be feeling and the motivation to do something for them is *sympathy*. For instance, saying you are sorry to a friend who lost their toy requires sympathy. But feeling sad along with the friend requires empathy. Empathy and sympathy help to facilitate relationships because they let us take others' perspectives and treat them as we would like to be treated, respond to their emotional needs, and strive to play fair.

A type of prosocial behavior called *altruism* involves acts of kindness even when at a cost. Altruism requires empathy and is associated with theory of mind (Rose et al., 2024), but it takes those cognitive and emotional components and translates them into action. Children in

middle childhood display altruism when they help others in a way that is a cost to themselves. Examples include stopping to help someone, inviting a lonely child to play, sharing, taking turns, and teaching others. Children benefit from acting altruistically because it can strengthen friendships and family relationships, make them feel like they belong and are included, and help them to develop new skills and abilities (Butovskaya et al., 2020). It is not selfish if despite these benefits it still comes at a cost, such as stopping a game, giving up a toy, or choosing to wait for others.

Children who develop strong prosocial skills are more likely to trust others, to feel confident in themselves, and to feel comfortable working with others. Caregivers can take several steps to promote the development of prosocial skills throughout childhood. In addition to forming the high-quality caregiver-child relationship, they can apply a technique called emotion coaching (Gus et al., 2015). This consists of recognizing a child's emotion, responding to the child with empathy, validating their feelings, and helping them label their emotions (Lisitsa, 2013). Positive coping behaviors, social cognition, and healthy relationships are all adaptive strategies that can promote resilience in middle childhood and across the lifespan.

## Friendships (*Ob 11*)

Friendships take on new importance as judges of one's worth, competence, and attractiveness. 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, say, and listen to, and how to act. 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 complementary and encouraging the parent may be, being rejected by friends can only be 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 Bigelow (1977) and Selman (1980) believe that these changes are linked to advances in cognitive development.



**Peer Relationships:** Most children want to be liked and accepted by their friends. Some popular children are nice and have good social skills. These **popular-prosocial** children tend to do well in school and are cooperative and friendly. **Popular-antisocial** children may gain popularity by acting tough or spreading rumors about others (Cillessen & Mayeux, 2004). Rejected children are sometimes excluded because they are shy and withdrawn. The **withdrawn-rejected** children are easy targets for bullies because they are unlikely to retaliate when belittled (Boulton, 1999). Other rejected children are ostracized because they are aggressive, loud, and confrontational. The **aggressive-rejected** children may be acting out of a feeling of insecurity. Unfortunately, their fear of rejection only leads to behavior that brings further rejection from other children. Children who are not accepted are more likely to experience conflict, lack confidence, and have trouble adjusting.

**Bullying:** According to [Stopbullying.gov](https://www.stopbullying.gov) (2024), 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 involve a real or perceived power imbalance. Further, aggressive behavior happens more than once or has the potential to be repeated. Bullies typically lack empathy for others. They like to dominate or be in charge of others. 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-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 (Stopbullying.gov, 2016). The National Center for Education Statistics and Bureau of Justice statistics indicate that in 2010-2011, 28% of students in grades 6-12 experienced bullying, and 7% experienced cyberbullying. The 2013 Youth Risk Behavior Surveillance System, which monitors six types of health risk behaviors, indicate that 20% of students in grades 9-12 experienced bullying and 15% experienced cyberbullying (Stopbullying.gov, 2016).



Bullied children often do not often ask for help. 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 might not know whom 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 teacher 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.

Twemlow and Sacco (2013) have found consistencies across different cultures that are effective in preventing bullying.

These are:

- Children need clear, consistent signals from home and school;
- schools mirror their communities;
- bullying is a process, not a person;
- when adults deny problems, children become targets;
- children are developmentally similar across cultures;
- all schools have a climate;
- children need to feel safe to learn;
- when children feel securely attached and valued, they grow;
- natural leaders and altruism are necessary for school and community change

### Bullying Around the World

Across the world, almost one-third of students have been bullied at school in the past month (UNESCO, 2019). Physical bullying tends to be the most common,

except in Europe and North America where relational, also known as psychological, bullying is most prevalent. Cyberbullying is prevalent as well, with older children being more at risk (UNESCO, 2019).<sup>3</sup> Some children are also more likely to be victims of bullying regardless of where they live. In particular, girls, children with disabilities, LGBTQ+ children, and refugee children experience higher levels of bullying and violence in schools (Human Rights Watch, 2020).<sup>4</sup> In some places, teachers perpetrate the bullying; in others, the school and teachers do not have the training or resources to respond effectively (Human Rights Watch, 2020).

Bullying can also extend to other forms of aggression and violence. Children are also often victims of sexism, homophobia, transphobia, and ableism in schools in many countries of the world. Human Rights Watch suggests that governments need to pass binding laws to keep students safe in school and online. The organization further calls for greater coordination between child protective and health-care services as well as anonymous and widespread reporting services.

A growing form of bullying globally is cyberbullying. A survey conducted in thirty countries found that one in three children report having been a victim of online bullying, and 20 percent said they had skipped school because of cyberbullying and violence (UNICEF, 2019). Social media is the most common place children are bullied online. Despite commonly held beliefs that cyberbullying among school-aged children primarily occurs in higher-income countries, 34 percent of children in sub-Saharan Africa say they have been

victims (UNICEF, 2019). To combat this growing problem, the United Nations Children's Fund is calling for new policies to protect children, for social media companies to address the problem, and for teachers and parents to be trained to prevent and respond to bullying (cyberbullying and traditional bullying).

## Family Life (*Ob 12*)

**Family Tasks:** One of the ways to assess the quality of family life is to consider the tasks of families.

Berger (2005) lists five family functions:

1. Providing food, clothing, and shelter
2. Encouraging Learning
3. Developing self-esteem
4. Nurturing friendships with peers
5. Providing harmony and stability



Notice that in addition to providing food, shelter, and clothing, families are responsible for helping the child learn, relate to others, and have a confident sense of self. The family provides a harmonious and stable environment for living. A good home environment is one in which the child's physical, cognitive, emotional, and social needs are adequately met. Sometimes families emphasize physical needs but ignore cognitive or emotional needs. Other times, families pay close attention to physical needs and academic requirements but may fail to nurture the child's friendships with peers or guide the child toward developing healthy relationships. Parents might want to consider how it feels to live in the household. Is it stressful and conflict-ridden? Is it a place where family members enjoy being?

Parents continue to play an important role in the well-being of children across a variety of family types (Fallesen & Ghler, 2019). Strengths in parenting and families that contribute to child well-being include frequent positive interactions and shared family time, parental flexibility, parent-child communication, and parental support of children's self-regulation (Buehler, 2020). For example,

children whose parents are active in their lives (such as spending time together in fun activities and helping with homework tend to have better self-reported well-being (Li & Guo, 2023). Additionally, open family communication reduces perceived stress and is related to lower parent-child conflict in middle childhood and adolescence (Jiménez et al., 2019).

**Parenting Styles:** As discussed in the previous chapter, parenting styles affect the relationship parents have with their children. During middle and late childhood, children spend less time with parents and more time with peers, and consequently, parents may have to modify their approach to parenting to accommodate the child's growing independence. The **authoritative style**, which incorporates reason and engaging in joint decision-making whenever possible may be the most effective approach (Berk, 2007). However, Asian-American, African-American, and Mexican-American parents are more likely than European-Americans to use an **authoritarian style** of parenting. This authoritarian style of parenting that using strict discipline and focuses on obedience is also tempered with acceptance and warmth on the part of the parents. Children raised in this manner tend to be confident, successful and happy (Chao, 2001; Stewart & Bond, 2002).

## *Siblings*

Almost 80 percent of U.S. children have one or more siblings (Gao, 2015), and as they grow into middle childhood, they increasingly spend more time with siblings than with parents. Siblings are a major influence on child development.

Although there can be many benefits to having a sibling, sibling relationships can also have a negative impact. Sibling rivalry may increase during middle childhood because children are engaged in more social comparison (Geerts-Perry et al., 2021). However, sibling conflict can be associated with behavior problems and poorer mental health (Buist & Vermande, 2014). Sibling conflict and

aggression tend to increase when there is conflict or other adversity in the family such as death or illness (Tucker et al., 2019). But sibling relationships can also be a source of social support and a helpful context for learning social skills such as conflict resolution (Paine et al., 2022). A warm and friendly social relationship is linked to fewer behavior problems and more prosocial behaviors (Geerts–Perry et al., 2021). When families have higher levels of warmth and communication, siblings are more likely to have less conflicts and better sibling relationships.

## Family Change (*Ob 12*)

**Divorce:** A lot of attention has been given to the impact of divorce on the life of children. The assumption has been that divorce has a strong, negative impact on the child and that single-parent families are deficient in some way. However, 75–80 percent of children and adults who experience divorce suffer no long-term effects (Hetherington & Kelly, 2002). Children of divorce and children who have not experienced divorce are more similar than different.



The tasks of families listed above are functions that can be fulfilled in a variety of family types—not just intact, two-parent households. Harmony and stability can be achieved in many family forms and when it is disrupted, either through a divorce, or efforts to blend families or any other circumstances, the child suffers (Hetherington & Kelly, 2002).

### *Factors Affecting the Impact of Divorce*

As you look at the consequences (both pro and con) of divorce and remarriage on children, keep these family functions in mind. Some negative consequences are a result of financial hardship rather than divorce per se (Drexler, 2005). Some positive consequences reflect improvements in meeting these functions. For instance, we have learned that positive self-esteem comes in part from a belief in

the self and one's abilities rather than merely being complimented by others. In single-parent homes, children may be given more opportunity to discover their own abilities and gain the independence that fosters self-esteem. If divorce leads to fighting between the parents and the child is included in these arguments, the self-esteem may suffer.

The impact of divorce on children depends on a number of factors. The *degree of conflict prior to the divorce* plays a role. If the divorce means a reduction in tensions, the child may feel relief. If the parents have kept their conflicts hidden, the announcement of a divorce can come as a shock and be met with enormous resentment. Another factor that has a great impact on the child concerns *financial hardships* they may suffer, especially if financial support is inadequate. Another difficult situation for children of divorce is the position they are put into if the *parents continue to argue* and fight—especially if they bring the children into those arguments.

Using families in the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development, Weaver and Schofield (2015) found that children from divorced families had significantly more behavior problems than those from a matched sample of children from non-divorced families. These problems were evident immediately after the separation and also in early and middle adolescence. An analysis of divorce factors indicated that children exhibited more externalizing behaviors if the family had fewer financial resources before the separation. It was hypothesized that the lower income and lack of educational and community resources contributed to the stress involved in the divorce. Additional factors contributing to children's behavior problems included a post-divorce home that was less supportive and stimulating and a mother that was less sensitive and more depressed.

**Short-term consequences:** In roughly the first year following divorce, children may exhibit some of these short-term effects:

1. **Grief Over Losses Suffered.** The child will grieve the loss of the parent they no longer see as frequently. The child may also

grieve about other family members that are no longer available. Grief sometimes comes in the form of sadness, but it can also be experienced as anger or withdrawal. Preschool-aged boys may act out aggressively while the same aged girls may become quieter and more withdrawn. Older children may feel depressed.

2. **Reduced Standard of Living.** Very often, divorce means a change in the amount of money coming into the household. Children experience in new constraints on spending or entertainment. School-aged children, especially, may notice that they can no longer have toys, clothing, or other items to which they've grown accustomed. Or it may mean that there is less eating out or being able to afford satellite television, and so on. The custodial parent may experience stress at not being able to rely on child support payments or having the same level of income as before. This can affect decisions regarding healthcare, vacations, rents, mortgages, and other expenditures. And the stress can result in less happiness and relaxation in the home. The parent who has to take on more work may also be less available to the children.

3. **Adjusting to Transitions.** Children may also have to adjust to other changes accompanying a divorce. The divorce might mean moving to a new home and changing schools or friends. It might mean leaving a neighborhood that has meant a lot to them as well.

**Long-Term Consequences:** Here are some effects are found after the first year.

1. **Economic/Occupational Status.** One of the most commonly cited long-term effects of divorce is that children of divorce may have lower levels of education or occupational status. This may be a consequence of lower income and resources for funding education rather than to divorce per se. In those households where economic hardship does not occur, there may be no impact on economic status (Drexler, 2005).

2. **Improved Relationships with the Custodial Parent (usually the mother):** In the United States and Canada, children reside with the mother in 88 percent of single-parent households (Berk, 2007).

Children from single-parent families talk to their mothers more often than children of two-parent families (McLanahan & Sandefur, 1994). Most children of divorce lead happy, well-adjusted lives and develop stronger, positive relationships with their custodial parent (Seccombe & Warner, 2004). In a study of college-age respondents, Arditti (1999) found that increasing closeness and a movement toward more democratic parenting styles was experienced. Others have also found that relationships between mothers and children become closer and stronger (Guttman, 1993) and suggest that greater equality and less rigid parenting is beneficial after divorce (Steward et al., 1997).

**3. Greater emotional independence in sons.** Drexler (2005) notes that sons who are raised by mothers only develop an emotional sensitivity to others that is beneficial in relationships.

**4. Feeling more anxious in their own love relationships.** Children of divorce may feel more anxious about their own relationships as adults. This may reflect a fear of divorce if things go wrong, or it may be a result of setting higher expectations for their own relationships.

**5. Adjustment of the custodial parent.** Furstenberg and Cherlin (1991) believe that the primary factor influencing the way that children adjust to divorce is the way the custodial parent adjusts to the divorce. If that parent is adjusting well, the children will benefit. This may explain a good deal of the variation we find in children of divorce. Adults going through a divorce should consider good self-care as beneficial to the children-not as self-indulgent.

Although they may experience more problems than children from non-divorced families, most children of divorce lead happy, well-adjusted lives and develop strong, positive relationships with their custodial parent (Seccombe & Warner, 2004). In the United States and Canada, most children reside with their mother in single-parent households (Berk, 2007). Children from single-parent families talk to their mothers more often than children of two-parent families (McLanahan & Sandefur, 1994). In a study of college-age respondents, Arditti (1999) found that increasing closeness and a

movement toward more democratic parenting styles was experienced. Others have also found that relationships between mothers and children become closer and stronger (Guttman, 1993) and suggest that greater equality and less rigid parenting is beneficial after divorce (Steward et al., 1997). Certain characteristics of the child can also facilitate the post-divorce adjustment. Specifically, children with an easygoing temperament, who problem-solve well, and seek social support manage better after divorce. A further protective factor for children is intelligence (Weaver & Schofield, 2015). Children with higher IQ scores appear to be buffered from the effects of divorce. Children may be given more opportunity to discover their own abilities and gain the independence that fosters self-esteem. If divorce means a reduction in tension, the child may feel relief. Overall, not all children of divorce suffer negative consequences and should not be subjected to stigma or social disapproval (Hetherington & Kelly, 2002). Furstenberg and Cherlin (1991) believe that the primary factor influencing the way that children adjust to divorce is the way the custodial parent adjusts to the divorce. If that parent is adjusting well, the children will benefit. This may explain a good deal of the variation we find in children of divorce.

**Table. Tips for parent self-care during divorce**

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**Here are some tips for taking care of the self (parent) during divorce:**

1. Take care of your own mental health. Don't be a martyr. Do what is necessary to heal.
2. Allow children to grieve and express their feelings without becoming defensive. Give the child the freedom to express feelings and be supportive and neutral as they voice their emotions over the loss.
3. Try to have an amicable relationship with the ex-spouse and keep the children's best interests in mind.
4. Do not put-down or badmouth the ex-spouse. This puts the child in a very uncomfortable position. You don't have to hide the truth from them either, but they will uncover the truth on their own. Be neutral. Children want to love their parents, regardless of the circumstances.
5. Focus on establishing a comfortable, consistent healthy environment for the children as

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they adjust.

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### *Repartnering*

Repartnering refers to forming new, intimate relationships after divorce. This includes dating, cohabitation, and remarriage.



**Parental considerations about dating:** Dating as a single parent can pose certain challenges. Time and money are considerations. A single mother may not have time for dating and may not have the money needed for child-care while she is out. Children can also resent a parent taking time away to date. Parents may struggle with whether or not to introduce a date to the children or to demonstrate affection in front of the children. When a dating relationship becomes serious, a boyfriend or girlfriend might expect the parent to prove their concern for them above the children. This puts a parent in a very uncomfortable situation. Sometimes,

this vying for attention does not occur until the couple begins to consider sharing a long-term relationship.

**Parental considerations about cohabitation:** Having time, money, and resources to date can be difficult. And having privacy for a dating relationship can also be problematic. Divorced parents may cohabit as a result. **Cohabitation** involves living together in a sexually intimate relationship without being married. This can be difficult for children to adjust to because cohabiting relationships in the United States tend to be short-lived. About 50 percent last less than 2 years (Brown, 2000). The child who starts a relationship with the parent's live-in partner may have to sever this relationship later. And even in long-term cohabiting relationships, once it's over, continued contact with the child is rare.

**Is remarriage more difficult than divorce?** The remarriage of a parent may be a more difficult adjustment for a child than the divorce of a parent (Seccombe & Warner, 2004). Parents and children typically have different ideas about how the stepparent should act. Parents and stepparents are more likely to see the stepparent's role as that of a parent. A more democratic style of parenting may become more authoritarian after a parent remarries. And biological parents are more likely to continue to be involved with their children jointly when neither parent has remarried. They are least likely to jointly be involved if the father has remarried and the mother has not.

### *Blended families*

About 60 percent of divorced parents remarry within a few years (Berk, 2007). Largely due to high rates of divorce and remarriage, we have seen the number of stepfamilies in America grow considerably in the last 20 years although rates of remarriage are declining (Seccombe & Warner, 2004). Most stepfamilies today are a result of divorce and remarriage. And such origins lead to new considerations. Stepfamilies are different from intact families and

more complex in a number of ways that can pose unique challenges to those who seek to form successful stepfamily relationships (Visher & Visher, 1985). Stepfamilies are also known as **blended families** and stepchildren as “bonus children” by social scientists interested in emphasizing the positive qualities of these families.



The next table shares some considerations for what social scientists understand about blended families (e.g., Papernow, 1993; 2018).

**Table. Science-based considerations for blended families**

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1. Stepfamilies have a biological parent outside the stepfamily and a same-sex adult in the family as a natural parent. This can lead to animosity on the part of a rejecting child. This can also lead to confusion on the part of stepparent as to what their role is within the family.

2. The child may be a part of two households, each with different rules. Stepchildren struggle with the change, even as adults, as they navigate new dynamics in family gatherings, status, and loyalty issues. Ex-spouses are still part of a stepfamily, and children, even adult children, are worse off when they are involved in the conflict between their parents' ex-spouses.

3. Parenting and discipline issues polarize the parents and stepparents. In general, stepparents want more discipline and are viewed as more harsh, while parents want more understanding and are viewed more as the pushover. There are often disagreements about how much support (financial, physical, and emotional) to give older children.

4. Members may not be as sure that others care and may require more demonstrations of affection for reassurance. For example, stepparents expect more gratitude and acknowledgment from the stepchild than they would with a biological child. Stepchildren experience more uncertainty/insecurity in their relationship with the parent and fear the parents will see them as sources of tension. And stepparents may feel guilty for lack of feelings they may initially have toward their partner's children. Children who are required to respond to the parent's new mate as though they were the child's "real" parent often react with hostility, rebellion, or withdrawal. Especially if there has not been time for the relationship to develop.

5. Stepfamilies are born of loss. Members may have lost a home, a neighborhood, family members, or at least their dream of how they thought life would be. These losses must be acknowledged and mourned. Remarriage quickly after divorce makes expressing

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grief more difficult. Family members are looking for signs that all is well at the same time that members are experiencing grief over losses.

5. Stepfamilies are structurally more complex. There are lots of triangles and lots of ways to divide and conquer the new couple. Stepfamilies must build a new family culture, even after there are already at least two established family cultures coming together.

6. Sexual attractions are more common in stepfamilies. Members have not grown up together and sexual attractions need to be understood and controlled. Also, a new couple may need to tone down sexual displays when around the children (can bring on jealousy, etc.) until there is greater acceptance of the new partner.

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Sociologist Andrew Cherlin suggests that one reason people remarry is that divorce is so socially awkward. There are no clear guidelines for family/friends, how to treat divorcees, etc. As a result, people remarry to avoid this “displacement.” The problem is that remarriage is similarly ill-defined. This is reflected in the lack of language to support the institution of remarriage. What does one call their stepparent? Who is included when thinking of “the family”? For couples with joint custody, where is “home”? And there are few guidelines about how ex-spouses and new spouses or other kin should interact. This is especially an issue when children are involved.

**Table. Science-based tips for stepfamilies**

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**Some tips for those in stepfamilies.**

Most of these tips are focused on the stepparent. These come from an article entitled "The Ten Commandments of Stepparenting" by Turnbull and Turnbull.<sup>1</sup> Provide neutral territory. If there is a way to do so, relocate the new family in a new, more neutral home. Houses have histories and there are many memories attached to family homes. This territoriality can cause resentments.<sup>2</sup> Don't try to fit a preconceived role. Stepparents need to realize that they cannot just walk into a situation and expect to fill a role. They need to stay in tune with what works in this new family rather than being dogmatic about their new role.<sup>3</sup> Set limits and enforce them. Don't allow children to take advantage of the parent's guilt or adjustment by trying to gain special privileges as a result of the change. Limits provide security, especially if they are reasonable limits.<sup>4</sup> Allow an outlet for feelings by the children for their natural parent. This tip is for the natural parent. Avoid the temptation to "encourage" the child to go against your ex-spouse. Instead, remain neutral when comments are made.<sup>5</sup> Expect ambivalence, not instant love. Stepparents need to realize that their acceptance has to be earned, and sometimes it is long in coming. The relationship has to be given time to grow. Trust has to be established. One day they may be loved, the next, hated. Adjustment takes time.

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### *Developmental Stages of Stepfamilies (Ob 12)*

Stepfamilies go through periods of adjustments and developmental stages that take about 7 years for completion (Papernow, 1993). The early stages of stepfamily adjustment include periods of fantasy

in which members may hope for immediate acceptance. This is followed by the immersion stage in which children have to adjust to their parent's date being transformed into a new stepfather or stepmother. This acceptance can be accompanied by a sense of betrayal toward the natural parent on the part of the children. The awareness stage involves members beginning to become aware of how they feel in the family and taking steps to map out their territory. Children may begin to feel as if they've been set aside for other family members and the couple may begin to focus their attention toward one another. Biological parents may feel resentful.

The middle stages include mobilization, in which family members begin to recognize their differences. Stepparents may be less interested in pleasing family members and more interested in taking a stand and being respected as family members. Children may start to voice their frustrations at being pulled in different directions by biological and stepparents. The next step is that of taking action. Now, step-couples and stepparents begin to reorganize the family based on more realistic expectations and understandings of how members feel.

The later stages include contact between stepfamily members that is more intimate and genuine. A clearer role for the stepparent emerges. Finally, the stepfamily seems to have more security and stability than ever before.

## Children exposed to trauma

For school-age children, a traumatic experience may elicit feelings of persistent concern over their own safety and the safety of others in their school or family (NCTSN, 2010). Trauma can include **adverse childhood experiences** (ACEs). These children may be preoccupied with their own actions during the event (NCTSN, 2010). Often, they experience guilt or shame over what they did or did not do during a traumatic event (NCTSN, 2010). School-age children

might engage in the constant retelling of the traumatic event, or they may describe being overwhelmed by their feelings of fear or sadness (NCTSN, 2010).

A traumatic experience may compromise the developmental tasks of school-age children as well. Children of this age may display sleep disturbances, which might include difficulty falling asleep, fear of sleeping alone, or frequent nightmares (NCTSN, 2010). Teachers often comment that these children are having greater difficulties concentrating and learning at school (NCTSN, 2010). Children of this age, following a traumatic event, may complain of headaches and stomach aches without an obvious cause, and some children engage in unusually reckless or aggressive behavior (NCTSN, 2010).

**How to help:** School-aged children need encouragement to express fears, sadness, and anger in the supportive environment of the family (NCTSN, 2010). These school-age children may need to be encouraged to discuss their worries with family members. It is important to acknowledge the normality of their feelings and to correct any distortions of the traumatic events that they express (NCTSN, 2010). Parents can be invaluable in supporting their children in reporting to teachers when their thoughts and feelings are getting in the way of their concentration and learning (NCTSN, 2010).

## Sexual Abuse in Middle Childhood

*Sexual abuse* is one form of trauma. Researchers estimate that 1 out of 4 girls and 1 out of 10 boys have been sexually abused (Valente, 2005). The median age for sexual abuse is 8 or 9 years for both boys and girls (Finkelhor et. al. 1990). Most boys and girls are sexually abused by a male. Although rates of sexual abuse are higher for girls than for boys, boys may be less likely to report abuse because of the cultural expectation that boys should be able to take care of themselves and because of the stigma attached to homosexual

encounters (Finkelhor et. al. 1990). Girls are more likely to be abused by a family member and boys by strangers. Sexual abuse can create feelings of self-blame, betrayal, and feelings of shame and guilt (Valente, 2005). Sexual abuse is particularly damaging when the perpetrator is someone the child trusts and may lead to depression, anxiety, problems with intimacy, and suicide (Valente, 2005).

Being sexually abused as a child can have a powerful impact on self-concept. The concept of false self-training (Davis, 1999) refers to holding a child to adult standards while denying the child's developmental needs. Sexual abuse is just one example of false self-training. Children are held to adult standards of desirableness and sexuality while their level of cognitive, psychological, and emotional immaturity is ignored. Consider how confusing it might be for a 9-year-old girl who has physically matured early to be thought of as a potential sex partner. Her cognitive, psychological, and emotional state do not equip her to make decisions about sexuality or, perhaps, to know that she can say no to sexual advances. She may feel like a 9-year-old in all ways and be embarrassed and ashamed of her physical development. Girls who mature early have problems with low self-esteem because of the failure of others (family members, teachers, ministers, peers, advertisers, and others) to recognize and respect their developmental needs. Overall, youth are more likely to be victimized because they do not have control over their contact with offenders (parents, babysitters, etc.) and have no means of escape (Finkelhor & Dzuiba-Leatherman, in Davis, 1999).

## Conclusion

This chapter has explored the fascinating and complex world of middle childhood, a period marked by significant physical, cognitive, and psychosocial development. We've delved into the intricacies of brain growth, the importance of physical activity and healthy habits, and the expanding cognitive abilities that enable children to

navigate increasingly complex concepts. We've also examined the social and emotional landscape of middle childhood, including the development of self-concept, the crucial role of friendships, and the challenges and triumphs of family life. As children progress through these years, they acquire essential skills and knowledge, laying the foundation for the transition into adolescence. By understanding the unique characteristics and challenges of middle childhood, we can better support and nurture children as they grow, learn, and discover their place in the world. We next turn our attention to adolescents.

## *Chapter Review Practice Quiz*



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

<https://open.maricopa.edu/psy240mm/?p=819#h5p-7>

## Chapter 6 Key terms (see Glossary)

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adverse childhood experiences (ACEs)	memory strategies
aggressive-rejected	metacognition
articulation disorder	obesity
asthma	overweight
attention deficit hyperactivity disorder	physical bullying
authoritarian parenting style	popular-antisocial
authoritative parenting style	popular-prosocial
bilingual	postconventional moral development
blended families	pragmatics
bullying	preconventional moral development
cohabitation	production deficiency
Concrete Operational Stage	sanctity state
conventional moral development	selective attention
cyberbullying	self-concept
diabetes	self-efficacy
emotional awareness	self-esteem
emotional regulation	self-fulfilling prophecy
encoding	social bullying
encoding	street corner state
executive function	student state
family capital	theory of mind
growth mindset	utilization deficiency
home state	verbal bullying

hyperactivity	voice disorders
inductive reasoning	voluntary coping efforts
Industry vs Inferiority (Erikson)	withdrawn-rejected
learning disability	working memory
mediation deficiency	

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# Chapter 7: Adolescence



## Objectives:

*At the end of this lesson, you will be able to...*

1. Define Adolescence
2. Describe major features of physical, cognitive and social development during adolescence
3. Understand why adolescence is a period of heightened risk-taking
4. Be able to explain sources of diversity in adolescent development
5. Summarize the overall physical growth
6. Describe the changes that occur during puberty
7. Describe the changes in brain maturation
8. Compare adolescent formal operational thinking to childhood

concrete operational (Piaget's theory)

9. Describe the changes in sleep
10. Contrast theories of identity development in adolescence
11. Compare aggression and anxiety in adolescence
12. Describe eating disorders
13. Explain the prevalence, risk factors and consequences of adolescent pregnancy

***The objectives are indicated in the reading sections below.***

## Introduction

**Adolescence** is a period that begins with puberty and ends with the transition to emerging adulthood. For the purposes of this text and this chapter, we will define adolescence as the ages 12 to 18. This chapter will outline changes that occur during adolescence in three domains: physical, cognitive, and social. Within the social domain, changes in relationships with parents, peers, and romantic partners will be considered. Next, the chapter turns to adolescents' psychological and behavioral adjustment, including identity formation, aggression and antisocial behavior, anxiety, and depression, and academic achievement. Finally, the chapter summarizes sources of diversity in adolescents' experiences and development.

## Adolescence Defined (*Ob 1*)



**Adolescence** is often characterized as a period of transformation, primarily, in terms of physical, cognitive, and social-relational change. Adolescence is a developmental stage that has been defined as starting with puberty and ending with the transition to adulthood (approximately ages 10–20). 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.

Physical changes of puberty mark the onset of adolescence (Lerner & Steinberg, 2009). For both boys and girls, these changes include a growth spurt in height, growth of pubic and underarm hair, and skin changes (e.g., pimples). Boys also experience growth in facial hair and a deepening of their voice. Girls experience breast development and begin menstruating. These pubertal changes are driven by hormones, particularly an increase in testosterone for boys and estrogen for girls.

Puberty today begins, on average, at age 10–11 years for girls and 11–12 years for boys. 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.

The average age of onset for puberty has decreased gradually over time since the 19th century by 3–4 months per decade, which has been attributed to a range of factors including better nutrition, obesity, increased father absence, and other environmental factors (Steinberg, 2013). 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. In fact, the prolonging of adolescence has prompted the introduction of a new developmental period called emerging adulthood that captures these developmental changes out of adolescence and into adulthood, occurring from approximately ages 18 to 29 (Arnett, 2000).

## Growth in Adolescence (*Ob 4*)

**Puberty** is a period of rapid growth and sexual maturation. These changes begin sometime between 8 and 14. It typically begins

between the ages of eight and thirteen years in females, and between nine and fourteen years in males (NIH, 2024). Its onset is influenced by many factors, both biological and environmental.

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. 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 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 girls and testosterone for boys. 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.

## Physical Growth Spurt (*Ob 2, 4*)

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 childhood, boys and girls are quite similar in height and weight. However, biological sex differences become apparent during adolescence. From approximately age 10 to 14, the average girl is taller but not heavier than the average boy. For girls 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 boy becomes both taller and heavier, although individual differences are certainly noted. Boys begin their growth spurt slightly later, usually between 10 and 16 years old (average 12-13), and 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 (Seifert, 2012). 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. Most modern societies and the teenagers in them tend to favor relatively short women and tall men, as well as a somewhat thin body build, especially for girls and women. 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 (Tartamella et al., 2004). The educational system has, unfortunately, contributed to the problem as well by gradually restricting the number of physical education courses and classes in the past two decades.

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 (Eveleth & Tanner, 1990). 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.

## Sexual Development (*Ob 4, Ob 6*)

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 male sex organs are the penis and the testicles, the latter of which produce semen and sperm. For females, 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. Each ovary contains about 400,000 gametes, but only 500 will become mature eggs (Crooks & Baur, 2007). Beginning at puberty, one ovum ripens and is released about 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 males, 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. For

female's 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.

**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 (Dolgin, 2011). 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. According to the University of California at Los Angeles Medical Center (2000), approximately 85% of adolescents develop acne and boys develop acne more than girls because of greater levels of testosterone in their systems (Dolgin, 2011). Experiencing acne can lead the adolescent to withdraw socially, especially if they are self-conscious about their skin or teased (Goodman, 2006).

The onset of puberty is driven by complex biological processes, including genetic factors, hormonal changes, and the activation of the hypothalamus-pituitary (HPA) axis. The hypothalamus signals the pituitary gland to release gonadotropin-releasing hormone (GnRH), which triggers the secretion of follicle-stimulating hormone (FSH) and luteinizing hormone (LH). These hormones stimulate the testes in males and ovaries in females, initiating the physical and sexual maturation associated with puberty (MedlinePlus, 2016; NCBI, 2023). This process transforms the body to become capable of reproduction and is influenced by factors such as nutrition, environmental conditions, and genetics (Nature, 2014; Cleveland Clinic, 2025).

The timing of puberty has a strong genetic component (Hoyt et al., 2020). The age at which an individual's biological parents went through puberty is a strong determinant in the timing of puberty for their adolescent offspring (Wohlfahrt-Veje et al., 2016). Although timing of parents' puberty is the strongest predictor of puberty, sociocultural factors also play a role. Factors such as early activation of the HPA, family history, genetic variations, and dealing with additional stressors are known predictive factors for early

onset of puberty in females and males (Farello et al., 2019; Gaydosh et al., 2018). Additionally, in females, a certain amount of body fat is necessary for the onset of puberty. The hormone leptin is also thought to play a role in triggering puberty (Ahmed et al., 1999; Blum et al., 1997; Evans et al., 2022), and it is released into the bloodstream by adipose tissue (fat stores). In females, individual and environmental factors in pubertal timing include nutrition, body weight, household composition, exercise, environmental chemicals, and overall levels of stress.

Learn more

Watch this [overview of what adolescence means and the role of puberty](#) during this time. This helpful recap highlights the biological basis of puberty and discusses some of the social factors teens experience.

## Effects of Pubertal Age

The age of puberty is getting younger for children throughout the world. According to Euling et al. (2008) data are sufficient to suggest a trend toward an earlier breast development onset and menarche in girls. A century ago the average age of a girl's 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 boys, it is harder to determine if boys are maturing earlier too. In addition to better nutrition, less positive reasons associated with early puberty for

girls include increased stress, obesity, and endocrine disrupting chemicals.

Cultural differences are noted with Asian-American girls, on average, developing last, while African American girls enter puberty the earliest. Hispanic girls start puberty the second earliest, while European-American girls rank third in their age of starting puberty. Although African American girls are typically the first to develop, they are less likely to experience negative consequences of early puberty when compared to European-American girls (Weir, 2016). Research has demonstrated mental health problems linked to children who begin puberty earlier than their peers. For girls early puberty is associated with depression, substance use, eating disorders, disruptive behavior disorders, and early sexual behavior (Graber, 2013). Early maturing girls demonstrate more anxiety and less confidence in their relationships with family and friends and they compare themselves more negatively to their peers (Weir, 2016). Problems with early puberty seem to be due to the mismatch between the child's appearance and the way she acts and thinks. Adults especially may assume the child is more capable than she actually is, and parents might grant more freedom than the child's age would indicate. For girls, the emphasis on physical attractiveness and sexuality is emphasized at puberty and they may lack effective coping strategies to deal with the attention they may receive.

Additionally, mental health problems are more likely to occur when the child is among the first in his or her 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 girls, this results in them interacting with older peers who engage in risky behaviors such as substance use and early sexual behavior (Weir, 2016). Boys also see changes in their emotional functioning at puberty. According to Mendle et al. (2010), while most boys experienced a decrease in depressive symptoms during puberty, boys who began puberty earlier and exhibited a rapid tempo, or

a fast rate of change, actually increased in depressive symptoms. The effects of pubertal tempo were stronger than those of pubertal timing, suggesting that rapid pubertal change in boys may be a more important risk factor than the timing of development. In a further study to better analyze the reasons for this change, Mendle et al. (2012) found that both early maturing boys and rapidly maturing boys displayed decrements in the quality of their peer relationships as they moved into early adolescence, whereas boys with more typical timing and tempo development actually experienced improvements in peer relationships. The researchers concluded that the transition in peer relationships might be especially challenging for boys whose pattern of pubertal maturation differs significantly from those of others their age. Consequences for boys attaining early puberty was increased odds of cigarette, alcohol, or other drug use (Dudovitz et al., 2015).

## Cognitive Development (*Ob 2*)

### Adolescent Brain (*Ob 3, Ob 7*)

Adolescence is a critical period of brain development, driven by hormonal changes and marked by significant neurological growth that continues into the mid-20s. Although the brain reaches 90% of its adult size by age six or seven and its full size during adolescence, its maturation involves complex structural and functional changes rather than further growth in size. Key developments occur in the prefrontal cortex, responsible for executive functions like decision-making and impulse control, and the limbic system, which governs emotions, memory, and sensory processing. Processes such as synaptic pruning and myelination enhance neural efficiency, while the creases in the brain's cortex become more intricate, particularly in areas handling cognitive and emotional information. However,

this growth is uneven, with the emotional limbic system maturing earlier than the rational prefrontal cortex, contributing to typical adolescent behaviors like risk-taking and heightened emotional responses. Additionally, changes in neurotransmitter levels—such as increased dopamine, which enhances reward sensitivity, and fluctuating serotonin, which affects mood regulation—further shape adolescents' emotional reactivity and stress responses. Together, these changes establish the foundation for adult cognitive and emotional capabilities but also create vulnerabilities to stress, trauma, or substance abuse during this sensitive developmental window. In the next section, we will learn more about changes in the brain connected to changes in the brain and why teenagers engage in increased risk-taking behaviors and have emotional outbursts in the next section.



The brain undergoes dramatic changes during adolescence. Although it does not get larger, it matures by becoming more interconnected and specialized (Giedd, 2015). The adolescent brain undergoes significant structural and functional changes, becoming more interconnected and specialized without increasing in size (Giedd, 2015). Myelination and synaptic pruning strengthen neural connections, increasing white matter and efficiency while reducing

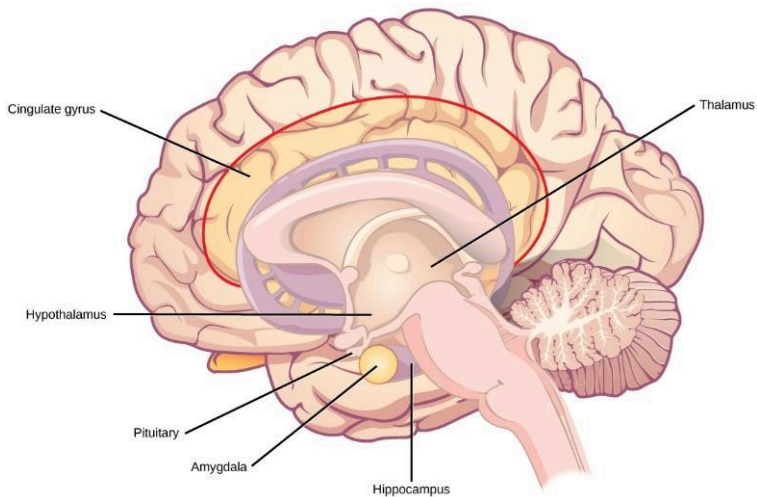
cortical gray matter (Dobbs, 2012). Language areas myelinate early, consolidating skills but reducing plasticity for learning new languages. Key developments include the thickening of the corpus callosum, stronger hippocampal-prefrontal connections for integrating memory into decision-making, and maturation of the prefrontal cortex, responsible for impulse control and planning, which continues into the mid-20s (Hartley & Somerville, 2015; Casey et al., 2005).

Major changes in the structure and functioning of the brain occur during adolescence and result in cognitive and behavioral developments (Steinberg, 2008). 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.

The *prefrontal cortex* which is involved in the control of impulses, organization, planning, and making good decisions, does not fully develop until the mid-20s. 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 (Hartley & Somerville, 2015). Recall that this area is responsible for judgment, impulse control, and planning, and it is still maturing into early adulthood (Casey et al., 2005).

To complicate matters, the *limbic system*, which important role in determining rewards and punishments and processing emotional experience and social information, develops years ahead of the prefrontal cortex. The limbic system, linked to emotion, reward, and social interaction, develops earlier and is influenced by puberty-

related hormonal changes like dopamine and oxytocin, driving sensation-seeking and peer bonding (Romeo, 2013; Dobbs, 2012). The limbic system is linked to the hormonal changes that occur at puberty. The limbic system is also related to novelty seeking and a shift toward interacting with peers. Pubertal hormones target the amygdala (part of limbic system) directly and powerful sensations become compelling (Romeo, 2013).



*The limbic system is part of the midbrain. The limbic system growth spurt is connected to dopamine pathways and sensation seeking in adolescence.*

The approximately 10 years that separate the development of these two brain areas can result in risky behavior, poor decision-making, and weak emotional control for the adolescent. When puberty begins earlier, this mismatch extends even further. Teens often take more risks than adults and according to research, it is because they weigh risks and rewards differently than adults do (Dobbs, 2012). For adolescents, the brain's sensitivity to the neurotransmitter dopamine peaks and dopamine is involved in reward circuits so the possible rewards outweigh the risks. Adolescents respond especially

strongly to social rewards during activities, and they prefer the company of others their same age. In addition to dopamine, the adolescent brain is affected by oxytocin which facilitates bonding and makes social connections more rewarding. This developmental mismatch between the limbic system and prefrontal cortex contributes to risk-taking and poor emotional regulation during adolescence (Giedd, 2015). Adolescents' heightened sensitivity to dopamine amplifies their focus on rewards over risks, especially in social contexts.

Additionally, during this period of development, the adolescent brain is especially vulnerable to damage from drug exposure. Consequently, adolescents are more sensitive to the effects of repeated marijuana exposure (Weir, 2015). While this period increases vulnerability to mental illness and substance abuse (50% of mental illnesses emerge by age 14), it also fosters adaptive behaviors like novelty-seeking and independence from family (Weir, 2015; Giedd, 2015). Cognitive advancements include shifts to abstract thinking, improved attention, memory, processing speed, and metacognition (Steinberg, 2008). 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. However, the delayed maturation of cognitive control systems means adolescents are prone to impulsive decisions—almost like having powerful engine without brakes.

As puberty progresses, hormonal changes like increased oxytocin levels enhance social bonding and peer interactions. Oxytocin is produced in the hypothalamus and fosters trust, cooperation, and prosocial behaviors among adolescents, while the rapid development of brain regions involved in social processing amplifies the importance of peer relationships in decision-making (He et al., 2018; Anderson, 2023). Peer approval becomes as rewarding as tangible incentives like money or food, influencing adolescent behavior and risk-taking. This heightened sensitivity to social

rewards helps explain why teens prioritize peer influence in their decisions (Steinberg, 2008). Together, these biological and social changes underscore puberty's profound impact on both physical maturation and social development.

Learn more

Cognitive neuroscientist Sarah-Jayne Blakemore examines the [differences between the prefrontal cortex of adolescents and that of adults](#) to illustrate how “teenage” behaviors typically stem from the growing and developing brain.

## Piaget's Formal Operational Stage of Cognitive Development (*Ob 8*)

During the **formal operational stage**, adolescents are able to understand abstract principles which have no physical reference. They can now contemplate such abstract constructs as beauty, love, freedom, and morality. The adolescent is 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 (Crain, 2005). Now they are able to engage in true scientific thinking. Formal operational thinking also involves accepting hypothetical situations. Adolescents 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  $A < C$  (Thomas, 1979). For example, when asked: If Maria is shorter than Alicia and Alicia is shorter than Caitlyn, who is the shortest? Adolescents are able to answer the question correctly as they understand the transitivity involved.

Does everyone reach formal operations? According to Piaget, most people attain some degree of formal operational thinking, but use formal operations primarily in the areas of their strongest interest (Crain, 2005). In fact, most 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 an individual's thinking has 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 Elkind (1967) expanded on the concept of Piaget's adolescent egocentricity. Elkind theorized that the physiological changes that occur during adolescence result in 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" (Schwartz et al., 2008, p. 441). Elkind thought that the imaginary audience contributed to the self-consciousness that occurs during early adolescence.

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. Elkind (1967) 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 of invulnerability, especially to death. Adolescents will engage in risky behaviors, such as drinking and driving or unprotected sex, and feel they will not suffer any negative consequences. Elkind believed that adolescent egocentricity emerged in early adolescence and declined in middle adolescence, however, recent research has also identified egocentricity in late adolescence (Schwartz, et al., 2008).



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**Consequences of Formal Operational Thought:** Adolescent thought undergoes significant changes as teens develop the ability to think abstractly, consider multiple dimensions of a problem, and adopt relativistic perspectives. Adolescents begin to engage deeply with abstract concepts like justice, equality, and fairness, moving beyond the concrete thinking of childhood (Malti et al., 2020). They can evaluate complex situations from multiple angles, such as recognizing both the rationale and unintended consequences of a school dress code policy. This multidimensional thinking also fosters an appreciation for sarcasm and irony, as well as a tendency to question rules that seem arbitrary (Glenwright et al., 2017). Adolescents' ability to think about possibilities leads to relativistic thinking, where they understand that truths can depend on perspective. For instance, they may recognize how two friends

could both be correct in their answers on a test depending on context and use this insight to seek clarification from a teacher (Chandler et al., 1990).

This cognitive growth allows adolescents to see multiple perspectives simultaneously, but it can also lead to frustration as they realize that many issues lack clear right or wrong answers. The newfound ability to think critically about rules and authority often results in de-idealization of adults who shape their world. Adolescents' relativistic thinking highlights the complexity of truth and perspective, reinforcing their capacity for nuanced problem-solving and social reasoning. However, this stage of cognitive development also brings challenges as teens navigate the ambiguity of possibilities and perspectives in their expanding intellectual and social worlds.

## Information Processing (*Ob 2*)

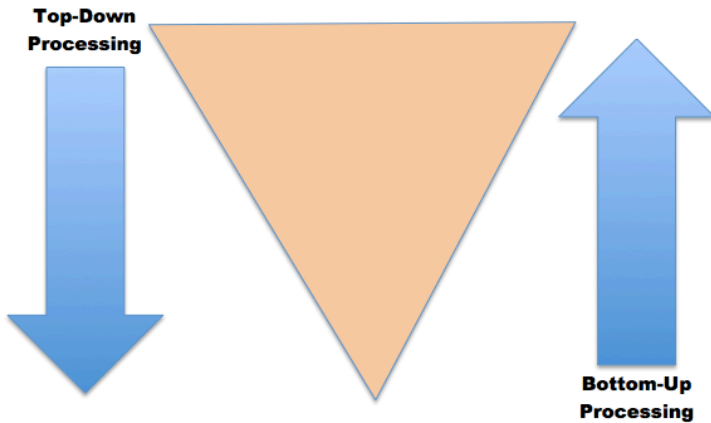
The **information processing** perspective integrates Piagetian principles with modern insights into biological foundations of cognitive domains like processing speed, metacognition, reasoning, and decision-making. Adolescent brain maturation drives rapid growth in these areas, with perceptual speed—the ability to quickly recognize symbols—peaking in late adolescence before declining (Kail & Ferrer, 2007; Schaie, 1994). Enhanced perceptual speed improves job and academic performance through heightened creativity and intelligence (Mount et al., 2008; Rindermann & Neubauer, 2004). Metacognition, the ability to reflect on and regulate one's thinking, also matures, enabling strategic problem-solving and self-directed learning (Weil et al., 2013; Paulus et al., 2013). Adolescents increasingly assess others' advice, rejecting misleading input while accepting helpful guidance (Moses-Payne et al., 2021).

**Cognitive control:** As noted in earlier chapters, **executive**

**functions**, attention span, increases in **working memory**, and cognitive flexibility have been steadily improving since early childhood. Studies have found that executive function is very competent in adolescence. Adolescents use cognitive control to balance exploration and planning (Maslowsky et al., 2019; Romer et al., 2017). This strategic approach correlates with better working memory, sensation-seeking, and future-oriented thinking (Maslowsky et al., 2019). 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 (Luciano & Collins, 2012). 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* emerges 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 conclude that it only thunders in the summer. In contrast, *deductive reasoning*, sometimes called “top-down-processing,” emerges in adolescence. This type of reasoning starts with some overarching (general) principle and based on this propose specific conclusions. For example, if general theory is 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.



Which is inductive and deductive reasoning?

**Intuitive versus Analytic Thinking:** Cognitive psychologists often refer to intuitive and analytic thought as the *Dual-Process Model*; the notion that humans have two distinct networks for processing information (Albert & Steinberg, 2011). *Intuitive thought* is automatic, unconscious, and fast (Kahneman, 2011), and it is more experiential and emotional. In contrast, *analytic thought* is deliberate, conscious, and rational. While these systems interact, they are distinct (Kuhn, 2013). Intuitive thought is easier and more commonly used in everyday life. It is also more commonly used by children and teens than by adults (Klaczynski, 2001). The quickness of adolescent thought, along with the maturation of the limbic system, may make teens more prone to emotional intuitive thinking than adults.

**Self-regulation:** The major developments in the frontal lobe and limbic system during adolescence support the growing ability to exert self-regulation, the ability to manage and control behavior

and emotions without outside assistance, including **emotional self-regulation** (Muraven & Baumeister, 2000; McClelland et al., 2017). This skill allows us to change or inhibit certain thoughts, emotions, and behaviors to achieve better outcomes (Baumeister & Alquist, 2009; Moilanen et al., 2015). Related abilities include task persistence, delayed gratification, self-monitoring, self-reward for progress, management of frustration and distress, and the capacity to seek help when needed (Murray & Rosanbalm, 2017).

## Social Changes (*Ob 2*)

Adolescence is a time many societies set aside for children to transition to adult stature, status, roles, and capabilities. In other countries, children may quickly transition to adult responsibilities without being afforded the time and space to adjust to this immense developmental shift. For instance, in several Asian and African cultures, adolescents tend to have strong family obligations and responsibilities, emphasizing group harmony and family loyalty. Older adolescents in Cambodia and rural Vietnam assume caretaking tasks and the family supporter's role (Yi, 2015). Teenage girls may face stricter gender roles and fewer opportunities than boys.

To understand the complexities of the adolescent transition, consider the developmental tasks associated with it. These are the biologically, psychologically, and socially relevant challenges of adolescence (Havighurst, 1948; 1972). They include achieving the cognitive development crucial for decision-making, acquiring impulse control and reasoning, developing a sense of self and personal identity, and building friendships while navigating social dynamics to gain a sense of belonging and acceptance. Adolescents also face several psychological and social developmental tasks with some examples shown in the next table.

**Table. Some Developmental Tasks of Adolescence (source: McIntosh et al., 2003; OpenStax, 2024)**

Psychological	Social
<ul style="list-style-type: none"><li>• In early adolescence, teens think concretely and begin to develop moral ideas, develop their sexual identity, and reassess their body image.</li><li>• As they grow, they start thinking abstractly but may be egocentric, develop better verbal skills, link laws with morality, and start forming strong beliefs (religious or political).</li><li>• In late adolescence, their abstract thinking becomes more complex. They see the difference between law and morality, have better impulse control, further develop their personal identity, and either deepen or reject their religious and political beliefs.</li></ul>	<ul style="list-style-type: none"><li>• In early adolescence, teens start to develop emotional independence from their parents, strongly identify with peers, and may experiment with risky behaviors like smoking.</li><li>• As they grow, they continue to develop emotional independence from parents, maintain strong peer connections, are more likely to experiment with health risks (like smoking and drinking), show romantic or sexual interest, and begin thinking about careers.</li><li>• In late adolescence, they develop social independence, form intimate relationships, and strive to acquire career skills and financial independence.</li></ul>

Many societies and cultures use explicit markers to recognize progress toward adult status. Anthropologists call such a marker a rite of passage. Parents, teens, and society alike put much attention and energy into some of these. Notice that no single marker signifies adult status in all areas of life.

**Table. Adolescent Rites of Passage Examples**

Marker (Rite)	Age of Adult Status
Participating in bar/bat Mitzvah (Jewish religion)	12–13
Participating in quinceañera/o (many Latine cultures)	15
Driving	15–17 depending on state
Attending “R” rated movie without caregiver	17
Graduating from high school	17–19
Voting	18
Consenting to sexual activity	16–18 (depending on state)

## Parents

Adolescence is a period of significant social development, characterized by evolving relationships with parents, peers, and romantic partners. 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 salient. 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 (Stattin & Kerr, 2000). Psychological control, which involves manipulation and intrusion into adolescents’ emotional and cognitive world through invalidating adolescents’ feelings and pressuring them to think in particular ways (Barber, 1996), is another aspect of parenting that becomes more salient during

adolescence and is related to more problematic adolescent adjustment.

Cultural differences also shape these dynamics; Western cultures emphasize independence, while traditional cultures prioritize interdependence and respect for authority (Phinney & Ong, 2002). Despite these shifts, family relationships remain critical sources of support during adolescence. In traditional cultures, it is rare for frequent parent-teen conflict as the role of parent carries greater authority than Western cultures. If adolescents disagree with parents, they are less likely to express that given feelings of duty and respect (Phinney & Ong, 2002). Outside of Western cultures, interdependence is more highly valued than independence. While the journey to adulthood for Western adolescents prepares for independence, learning respect of authority and to role within a hierarchical group prepares traditional cultures for adult life of interdependence.

## 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 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. During adolescence, peer groups evolve from primarily single-sex to mixed-sex. 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 other's behavior and attitudes). One of the most widely studied aspects of adolescent peer influence is known as deviant peer contagion (Dishion & Tipsord, 2011), which is the process by which 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 (Brown & Larson, 2009). 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 (*Ob 2*)

Adolescence is the developmental period during which romantic relationships typically first emerge. Initially, same-sex peer groups that were common during childhood expand into mixed-sex peer groups that are more characteristic of adolescence. Romantic relationships often form in the context of these mixed-sex peer groups (Connolly et al., 2000). Although romantic relationships during adolescence are often short-lived rather than long-term committed partnerships, their importance should not be minimized. 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 (Furman & Shaffer, 2003). 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 narrow focus. For example, adolescence is often when individuals who are lesbian, gay, bisexual, or transgender come to perceive themselves as such (Russell, Clarke, & Clary, 2009). Thus, romantic relationships are a domain in which adolescents' experiment with new behaviors and identities.

Romantic relationships also emerge during adolescence as teens explore intimacy and connection. These relationships contribute to identity formation but may involve risks like teen dating violence (TDV), which includes psychological, physical, and sexual abuse. TDV affects a significant percentage of teens and is linked to long-term mental health issues like depression and post-traumatic stress (Exner-Cortens et al., 2013; CDC, 2024). Programs promoting healthy relationships and addressing dating violence are essential for fostering socioemotional well-being.

## Media

Media, particularly social media, plays a central role in adolescent development, offering both opportunities and risks. Teens spend an average of 8–9 hours daily on screens, with social media apps like TikTok, Instagram, and Snapchat dominating their usage (Rideout et al., 2022). While platforms can foster connection, self-expression, and identity exploration, they also expose teens to significant risks. Excessive screen time is linked to anxiety, depression, poor body image, and disordered eating behaviors, especially among girls (Twenge, 2020; Dane & Bhatia, 2023). Social media algorithms often amplify harmful content, such as unrealistic body standards or self-harm discussions, further exacerbating mental health challenges (Haidt, 2024). Cyberbullying and sexting are additional concerns;

approximately 12% of teens report being coerced into sending explicit images, which can lead to legal consequences and long-term emotional distress (Patchin & Hinduja, 2020).

Despite these risks, social media can have positive effects when used responsibly. It allows marginalized teens to find supportive communities and promotes creative expression and peer motivation (Pew Research Center, 2022). Music consumption via media is another hallmark of adolescence, helping teens regulate emotions and explore identity (Saarikallio & Erkkilä, 2007). To mitigate harms, experts recommend setting limits on screen time—especially before bed—encouraging tech-free zones at home, promoting media literacy education in schools, and fostering open conversations about online behavior (AAP, 2016; Murthy, 2023). Parents play a key role by modeling healthy habits and guiding teens toward balanced media use that supports their mental health and well-being.

## Behavioral and Psychological Adjustment (*Ob 2*)

### Self Concept

**Self-concept**, the cognitive aspect of identity, evolves during adolescence to include abstract qualities like fairness and loyalty, moving beyond the tangible traits of childhood (Harter, 2006). Adolescents develop their self-concept by comparing their traits and abilities to those of others. Harter (1983) identified key dimensions of self-concept: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and self-acceptance. These dimensions integrate into a coherent identity by late adolescence. Self-concept remains relatively stable from middle childhood to adolescence due to peer perception and niche-picking, where peers reinforce strengths and individuals seek environments that align with their skills (Kuzucu

et al., 2014). Encouraging adolescents to explore new opportunities can help expand their self-concept.

**Self-esteem**, the emotional and motivational counterpart to self-concept, is linked to mental health. Low self-esteem increases risks for depression and social adjustment problems, such as smaller support networks (Masselink et al., 2018; Marshall et al., 2014). However, self-esteem generally improves during adolescence, with positive parental relationships, physical activity, and body image being key predictors of healthy self-esteem (Birkeland et al., 2012). Strategies like mindfulness, self-compassion, positive reinforcement, and encouragement of self-discovery can further enhance self-esteem and a sense of mastery (Marshall et al., 2015). No significant sex differences in average self-esteem levels have been reported (Masselink et al., 2017).

## Theories of identity formation (*Ob 10*)

### Erikson: Identity vs. Role Confusion

Erikson believed that the primary psychosocial task of adolescence was establishing **anidentity vs role confusion**. Teens 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. This stage typically occurs from ages twelve to eighteen years and is distinctive as a stage when individuals try out a variety of roles and personas in a journey to discover their individual identity. Developing an identity leads to strength and stability of identity. Failing to develop an identity results in role confusion, sometimes called diffusion, which leads to feeling fragmented or lost (Orenstein

& Lewis, 2022). A strong sense of identity helps teenagers reject negative self-evaluations that don't match their inner and outer experiences, reducing anxiety. As they explore their identity, adolescents consider their past experiences, societal expectations, and personal aspirations to establish their values and discover who they are.

During adolescence we experience psychological moratorium, where teens put on hold commitment to an identity while exploring the 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 (Côté, 2006).

James Marcia (2010) expanded on Erikson's theory by identifying four identity statuses based on the dimensions of exploration and commitment: identity diffusion, identity foreclosure, identity moratorium, and identity achievement. **Identity diffusion** is the least mature status, where individuals neither explore options nor commit to an identity. Common in children and early adolescents, those who persist in this status may feel aimless and disconnected, lacking a sense of purpose (Marcia, 1980). In **identity foreclosure**, individuals commit to an identity without exploration, often adopting values or roles imposed by parents or others. While foreclosure can provide initial stability, it limits personal growth unless followed by active exploration.

**Identity moratorium** describes individuals actively exploring potential identities without making a commitment, often experiencing an "identity crisis." This stage, though emotionally challenging, fosters self-discovery and motivates progress toward **identity achievement**, where individuals commit to a coherent sense of self after exploration (Meeus, 2023). College is a common example of moratorium, as students explore academic and social roles. However, identity achievement is rarely finalized during adolescence; instead, individuals may cycle between moratorium

and achievement—known as **MAMA cycling**—as they revisit and refine aspects of their identity over time. This dynamic process continues into adulthood as people adapt to changes in career, relationships, and values, highlighting the evolving nature of identity formation across the lifespan.

**Table. Examples of Marcia's identity status**

<b>Diffusion</b>	<p>When asked what Tucker wants to do with his life, he says – I don't know. He is a senior in high school and has not applied to any colleges or technical schools. He has a part-time job at the grocery store but does not earn enough to pay more than his car insurance and cell phone bill. He has not considered applying for a full-time job after high school either. He has not goals or plans right now.</p>
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<b>Foreclosure</b>	<p>Elina, 17, is applying to the same college that her mother and grandmother both attended, and she has “decided” to major in business. She really hasn’t thought about whether or not she wants to go to college, or what she will do with a business degree. If asked about her plans she might say, “All the women in my family majored in business and then joined the family business. It worked for them and should work for me.” She has not questioned whether the life path chosen by the other women in her path, but simply accepts that her goal as one her family members have take.</p>
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<b>Moratorium</b>	<p>Tina began to question going to church with her parents after taking a Introduction to World Religions course in college. She has always attended service with her parents since she was an infant. She instead wants to spend focus on her learning about all the different world religions and plans to visit several mosques, temples, and churches around the area to see what their worship services are like. Tina is actively exploring and considering what values, principles, and beliefs she wants to live by.</p>
<b>Achievement</b>	<p>Malik cast his vote for the presidential election the very first year he was allowed to vote. Before he did so, he carefully researched all the candidates and their positions on important issues. He took into account his own values and belief system. He voted for the candidate that best fit his beliefs and values for issues that were most important to him.</p>



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=831#oembed-2>

## *Identity Development*

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 in college, as college students are 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 (McAdams, 2013).

Marcia's theory does not assume there is a set order to the identity statuses or that teenagers will experience all four identity statuses. Additionally, there is no assumption that a youth's identity status is uniform across all aspects of their development. Youth may have different identity statuses across different domains such as work, religion, and politics.

Developmental psychologists have researched several different areas of identity development and some of the main areas include:

- **Religious identity:** The religious views of teens are often similar to those of their families (KimSpoon et al., 2012). Most teens may question specific customs, practices, or ideas in the faith of their parents, but few completely reject the religion of their families.
- **Political identity:** The political ideology of teens is also influenced by their parents' political beliefs. A new trend in the

21st century is a decrease in party affiliation among adults. Many adults do not align themselves with either the democratic or republican party, but view themselves as more of an “independent.” Their teenage children are often following suit or become more apolitical (Côté, 2006).

- **Vocational identity:** While adolescents in earlier generations envisioned themselves as working in a particular job, and often worked as an apprentice or part-time in such occupations as teenagers, this is rarely the case today. Vocational identity takes longer to develop, as most of today's occupations require specific skills and knowledge that will require additional education or are acquired on the job itself. In addition, many of the jobs held by teens are not in occupations that most teens will seek as adults.
- **Gender identity:** This is also becoming an increasingly prolonged task as attitudes and norms regarding gender keep changing. The roles appropriate for males and females are evolving. Some teens may foreclose on gender identity as a way of dealing with this uncertainty, and they may adopt more stereotypic male or female roles (Sinclair & Carlsson, 2013).
- **Ethnic identity** refers to how people come to terms with whom they are based on their ethnic or racial ancestry. “The task of ethnic identity formation involves sorting out and resolving positive and negative feelings and attitudes about one's own ethnic group and about other groups and identifying one's place in relation to both” (Phinney, 2006, p. 119). When groups differ in status in the culture, those from the nondominant group have to be cognizant of the customs and values of those from the dominant culture. The reverse is rarely the case. This makes ethnic identity far less salient for members of the dominant culture. In the United States, those of European ancestry engage in less exploration of ethnic identity, than do those of non-European ancestry (Phinney, 1989). However, according to the U.S. Census (2012), more than 40% of Americans under the age of 18 are from ethnic

minorities. For many ethnic minority teens, discovering one's ethnic identity is an important part of identity formation.

**Phinney's model of ethnic identity formation** is based on Erikson's and Marcia's model of identity formation (Phinney, 1990; Syed & Juang, 2014). Through the process of exploration and commitment, individuals come to understand and create an ethnic identity. Phinney suggests three stages or statuses with regard to ethnic identity:

1. **Unexamined Ethnic Identity:** Adolescents and adults who have not been exposed to ethnic identity issues may be in the first stage, unexamined ethnic identity. This is often characterized by a preference for the dominant culture, or where the individual has given little thought to the question of their ethnic heritage. This is similar to diffusion in Marcia's model of identity. Included in this group are also those who have adopted the ethnicity of their parents and other family members with little thought about the issues themselves, similar to Marcia's foreclosure status (Phinney, 1990).

2. **Ethnic Identity Search:** Adolescents and adults who are exploring the customs, culture, and history of their ethnic group are in the ethnic identity search stage, similar to Marcia's moratorium status (Phinney, 1990). Often some event "awakens" a teen or adult to their ethnic group; either a personal experience with prejudice, a highly profiled case in the media, or even a more positive event that recognizes the contribution of someone from the individual's ethnic group. Teens and adults in this stage will immerse themselves in their ethnic culture. For some, "it may lead to a rejection of the values of the dominant culture" (Phinney, 1990, p. 503).

3. **Achieved Ethnic Identity:** Those who have actively explored their culture are likely to have a deeper appreciation and understanding of their ethnic heritage, leading to progress toward an achieved ethnic identity (Phinney, 1990). An achieved ethnic identity does not

necessarily imply that the individual is highly involved in the customs and values of their ethnic culture. One can be confident in their ethnic identity without wanting to maintain the language or other customs.

The development of ethnic identity takes time, with about 25% of tenth graders from ethnic minority backgrounds having explored and resolved the issues (Phinney, 1989). The more ethnically homogeneous the high school, the less identity exploration and achievement (Umana-Taylor, 2003). Moreover, even in more ethnically diverse high schools, teens tend to spend more time with their own group, reducing exposure to other ethnicities. This may explain why, for many, college becomes the time of ethnic identity exploration. “[The] transition to college may serve as a consciousness-raising experience that triggers exploration” (Syed & Azmitia, 2009, p. 618).

It is also important to note that those who do achieve ethnic identity may periodically reexamine the issues of ethnicity. This cycling between exploration and achievement is common not only for ethnic identity formation, but in other aspects of identity development (Grotevant, 1987) and is referred to as MAMA cycling (moving back and forth between moratorium and achievement).

**Bicultural/Multiracial Identity:** Ethnic minorities must wrestle with the question of how, and to what extent, they will identify with the culture of the surrounding society and with the culture of their family. Phinney (2006) suggests that people may handle it in different ways. Some may keep the identities separate, others may combine them in some way, while others may reject some of them. Bicultural identity means the individual sees himself or herself as part of both the ethnic minority group and the larger society. Those who are multiracial, that is whose parents come from two or more ethnic or racial groups, have a more challenging task. In some cases their appearance may be ambiguous. This can lead to others constantly asking them to categorize themselves. Phinney (2006) notes that the process of identity formation may start earlier and take longer to accomplish in those who are not mono-racial.

## Aggression and Antisocial Behavior (*Ob 11*)

Early, antisocial behavior leads to befriending others who also engage in antisocial behavior, which only perpetuates the downward cycle of aggression and wrongful acts.



Several major theories of the development of antisocial behavior treat adolescence as an important period. Patterson's (1982) early versus late starter model of the development of aggressive and antisocial behavior distinguishes youths whose antisocial behavior begins during childhood (early starters) versus adolescence (late

starters). According to the theory, early starters are at greater risk for long-term antisocial behavior that extends into adulthood than are late starters. Late starters who become antisocial during adolescence are theorized to experience poor parental monitoring and supervision, aspects of parenting that become more salient during adolescence. Poor monitoring and lack of supervision contribute to increasing involvement with deviant peers, which in turn promotes adolescents' own antisocial behavior. Late starters desist from antisocial behavior when changes in the environment make other options more appealing. Similarly, Moffitt's (1993) life-course persistent versus adolescent-limited model distinguishes between antisocial behavior that begins in childhood versus adolescence. Moffitt regards adolescent-limited antisocial behavior as resulting from a "maturity gap" between adolescents' dependence on and control by adults and their desire to demonstrate their freedom from adult constraint. However, as they continue to develop, and legitimate adult roles and privileges become available to them, there are fewer incentives to engage in antisocial behavior, leading to resistance in these antisocial behaviors.

## Academic achievement

Adolescents spend more waking time in school than in any other context (Eccles & Roeser, 2011). On average, high school teens spend approximately 7 hours each weekday and 1.1 hours each day on the weekend on educational activities. This includes attending classes, participating in extracurricular activities (excluding sports), and doing homework (Office of Adolescent Health, 2018). High school males and females spend about the same amount of time in class, doing homework, eating and drinking, and working. 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 follows. High achievement can set the stage for college or future vocational training and opportunities.

**High School Dropouts:** The status dropout rate refers to the percentage of 16 to 24 year-olds who are not enrolled in school and do not have high school credentials (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate). The dropout rate is based on sample surveys of the civilian, noninstitutionalized population, which excludes persons in prisons, persons in the military, and other persons not living in households. The dropout rate among high school students has declined from a rate of 12% in 1990, to 5% in 2022 (U.S. Department of Education, 2022). The status dropout rate declined between 2012 and 2022 for 16- to 24-year-olds who were Hispanic (7.9%), American Indian/Alaska Native (9.9%), Black (5.7%), White (4.3%), Asian (1.9 %). In 2022, the status dropout rate was higher for male 16- to 24-year-olds than for female 16- to 24-year-olds overall (6.3 vs. 4.3 percent).

### Academics Across the Globe

The education and training that children receive in secondary school equip them with skills that are necessary to fully participate in society. Though the duration in each country vary, secondary education

typically covers ages 12 to 17 and is divided into two levels: lower secondary education (spanning 3 to 4 years) and upper secondary education (spanning 2 to 3 years). However, UNICEF reported in 2021 that just two in three children of lower secondary school age attended either lower or upper secondary school, and only one in two children of upper secondary school age attended either upper secondary school or higher education.

In 2021, the global adjusted net attendance rates for lower, 65%, and upper secondary education, 52 % (WHO, 2022). Children from urban areas and the wealthiest households have much higher attendance rates in both lower and upper secondary education, with the gap growing wider at the upper secondary level. Globally more girls are attending secondary school. As measured by adjusted net attendance rates at the upper secondary level, 64 out of 109 countries with data available have a gender parity index over 1.03, meaning that in these countries, gender disparities in upper secondary attendance disadvantage boys. This could be mainly due to gender norms that drive boys to drop out to work and, in some contexts, may also be due to recruitment into illicit groups. For countries with gender parity index lower than 0.97 (girl disadvantage), two-thirds of them are in Eastern and Southern Africa or West and Central Africa. The gender gap in upper secondary attendance indicates that there is ample room for improvement to help every boy and girl to access education to thrive.

To find out more about academics in adolescence

across the world, go to the UNICEF website on secondary education, <https://data.unicef.org/topic/education/secondary-education/>

## Adolescent Health & Habits

Adolescents have more independence in what they eat and when they sleep compared to younger age groups. Furthermore, they are more autonomous via being able to drive. This section explores sleep, eating disorders, driving, and pregnancy.

### Adolescent Sleep (*Ob 9*)



Sleep is vital for adolescents' physical and brain development, as the human growth hormone is primarily secreted during deep sleep. However, increased screen use and social media at night have disrupted sleep patterns, leading to widespread sleep deprivation among teens. According to the National Sleep Foundation (NSF), adolescents need about 8 to 10 hours of sleep each night to function best. While adolescents need 8–10 hours of sleep per night, only 40% of middle schoolers and 30% of high schoolers in the U.S. meet these guidelines, with just 20% achieving the optimal 9.25 hours (Hirshkowitz et al., 2015). For 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 (NSF, 2016). Additionally, they are at risk for substance abuse, car crashes, poor academic performance, obesity, and a weakened immune system (Weintraub, 2016). This chronic sleep deficit is linked to numerous negative outcomes, including impaired learning, memory loss, aggression, metabolism changes, poor self-esteem, and heightened risks for accidents and injuries. Despite sleeping more on weekends than school days, teens' insufficient weekday sleep significantly impacts their academic performance and overall health.

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 adolescents go through puberty, their circadian rhythms change and push back their sleep time until later in the evening (Weintraub, 2016). This biological change not only keeps adolescents awake at night, but it also makes it difficult for them to get up in the morning. When they are awake too early, their brains do not function optimally. Impairments are noted in attention, behavior, and academic achievement, while increases in tardiness and absenteeism are also demonstrated. 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. Unfortunately, 83% of American schools begin their day earlier than 8:30 a.m. with an average start time of 8:03 a.m. (Sleep Foundation, 2022). 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 sleep research. However, the logistics of changing start times and bus schedules are proving too difficult for some schools leaving many adolescents 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. One of the reasons for poor nutrition is anxiety about body image, which is a person's idea of how his or her body looks. The way adolescents feel about their bodies can affect the way they feel about themselves as a whole. Few adolescents welcome their sudden weight increase, so they may adjust their eating habits to lose weight. 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). These changes may lead to eating disorders.

## Eating Disorders (*Ob 13*)

Although eating disorders can occur in children and adults, they frequently appear during the teen years or young adulthood (National Institute of Mental Health (NIMH), 2024). Eating disorders affect both genders, although rates among women are 2½ times greater than among men. Similar to women who have eating disorders, men also have a distorted sense of body image, including muscle dysmorphia or an extreme concern with becoming more muscular. The prevalence of eating disorders in the United States is similar among Non-Hispanic Whites, Hispanics, African-Americans, and Asians, with the exception that anorexia nervosa is more common among Non-Hispanic Whites (Hudson et al., 2007; Wade et al., 2011; Stice et al, 2019).

**Risk Factors for Eating Disorders:** Because of the high mortality rate, researchers are looking into the etiology of the disorder and associated risk factors. Researchers are finding that eating disorders are caused by a complex interaction of genetic, biological, behavioral, psychological, and social factors (NIMH, 2016). Eating disorders appear to run in families, and researchers are working to identify DNA variations that are linked to the increased risk of developing eating disorders. Researchers have also found differences in patterns of brain activity in women with eating disorders in comparison with healthy women.

The main criteria for the most common eating disorders: **Anorexia nervosa**, **bulimia nervosa**, and **binge-eating disorder** are described in the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5) (American Psychiatric Association, 2013).

### **Table. Eating Disorder Diagnostic Criteria**

Diagnosis	Major Criteria
<b>Anorexia</b>	Significantly low body weight, significant weight and shape concerns
<b>Bulimia Nervosa</b>	Recurrent binge eating and compensatory behaviors (eg, purging, laxative use); significant weight and shape concerns
<b>Binge eating disorder</b>	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

**Health Consequences of Eating Disorders:** For those suffering from anorexia, health consequences include an abnormally slow heart rate and low blood pressure, which increases 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. Anorexia nervosa has the highest mortality rate of any psychiatric disorder (Arcelus et al., 2011). Individuals with this disorder may die from complications associated with starvation, while others die of suicide. In women, suicide is much more common in those with anorexia than with most other mental disorders.

The binge 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 levels, heart disease, Type II

diabetes, and gall bladder disease (National Eating Disorders Association, 2016).

**Eating Disorders Treatment:** To treat eating disorders, 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 (NIMH, 2016). For example, the Maudsley Approach has parents of adolescents with anorexia nervosa be actively involved in their child's treatment, such as assuming responsibility for feeding the child. To eliminate binge eating and purging behaviors, cognitive behavioral therapy (CBT) assists sufferers by identifying distorted thinking patterns and changing inaccurate beliefs.

## Anxiety and Depression (*Ob 11*)

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 (Rudolph, 2009). Starting in early adolescence, compared with males, females have rates of anxiety that are about twice as high and rates of depression that are 1.5 to 3 times as high (American Psychiatric Association, 2013). Although the rates vary across specific anxiety and depression diagnoses, rates for some disorders are markedly higher in adolescence than in childhood or adulthood. For example, prevalence rates for specific phobias are about 5% in children and 3%–5% in adults but 16% in adolescents. Anxiety and depression are particularly concerning because suicide is one of the leading causes of death during adolescence.

Developmental models focus on interpersonal contexts in both childhood and adolescence that foster depression and anxiety (e.g., Rudolph, 2009). Family adversity, such as abuse and parental

psychopathology, during childhood, sets the stage for social and behavioral problems during adolescence. Adolescents with such problems generate stress in their relationships (e.g., by resolving conflict poorly and excessively seeking reassurance) and select into 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). These processes are intensified for girls compared with boys because girls have more relationship-oriented goals related to intimacy and social approval, leaving them more vulnerable to disruption in these relationships. Anxiety and depression then exacerbate problems in social relationships, which in turn contribute to the stability of anxiety and depression over time.

## Mental Health

Adolescence is a critical period for mental health and physical well-being, marked by challenges such as sleep disorders, mental health struggles, and maladaptive eating behaviors. Eating disorders also emerge during adolescence, with diagnoses like anorexia nervosa, bulimia nervosa, and binge eating disorder posing significant risks to physical and mental health (American Psychiatric Association, 2022). Between 2018 and 2022, medical visits for eating disorders among U.S. youth under seventeen years more than doubled (Pastore et al., 2023). Risk factors include emotion regulation difficulties, societal pressures around body image, and perfectionism (Brytek-Matera, 2021; Barakat et al., 2023). Eating disorders can lead to severe health consequences across various body systems—including anemia, organ damage, and brain dysfunction—regardless of body weight (NIMH, 2017). Protective factors such as supportive family environments and positive body image can reduce risks, while cognitive behavioral therapy has

proven effective for treatment (Hay, 2020; Vankerckhoven et al., 2024). Prevention strategies focused on resilience and healthy identity development are essential to addressing these complex issues. Sleep issues, including delayed sleep-wake phase disorder, insomnia, and obstructive sleep apnea, can disrupt adolescents' physical and mental health (Moore & Meltzer, 2014). Mental health concerns are prevalent, with nearly 50% of adolescents experiencing a mental health disorder, including anxiety (31.9%) and depression (40.6%) (NIMH, 2017; CDC, 2024). Emotional regulation difficulties and adverse childhood experiences further heighten these risks (Young et al., 2020; Lee et al., 2020). Without adequate support, teens may turn to unhealthy coping mechanisms such as substance use or self-harm, which can increase suicide risk—the second leading cause of death among youth aged ten to twenty-four years (CDC, 2023). Suicide prevention efforts emphasize equitable healthcare access and socioemotional support to address disparities in risk factors among females and LGBTQ+ youth (Gaylor et al., 2023).

## Teenage Drivers

Driving gives teens a sense of freedom and independence from their parents. It can also free up time for parents as they are not shuttling teens to and from school, activities, or work. The National Highway Traffic Safety Administration (NHTSA) reports that in 2021, young drivers (15 to 20-year-olds) accounted for 5.0% of the total number of licensed drivers in the United States. However, young drivers were involved in 8.4% of all fatal crashes that year, indicating a disproportionate involvement in serious accidents. According to the Centers for Disease Control and Prevention, motor vehicle crashes remain the leading cause of death for teens and young adults."In all motorized jurisdictions around the world, young, inexperienced drivers have much higher crash rates than older, more experienced

drivers.” (CDC, 2024). The rate of fatal crashes continues to be higher for young males than for young females, with both genders showing the highest rates in the 15-20 years-old age group. For young male drivers, the involvement rate in fatal traffic crashes was 60.28 per 100,000 licensed drivers, compared to 25.51 per 100,000 for young female drivers. The NHTSA (2023) reported that in 2021, 17% of drivers ages 15-20 who were involved in fatal motor vehicle crashes had a blood alcohol concentration (BAC) of 0.08% or higher—a level that is illegal for adults in all U.S. states. Fatal crashes involving alcohol use remained higher among young men than young women. The NHTSA also found that teens were less likely to use seat belt restraints if they were driving under the influence of alcohol, with 62% of drivers ages 15-20 who were killed in motor vehicle crashes after drinking and driving not wearing a seat belt.



The combination of distraction and inexperience continues to pose a significant risk for teen drivers. The crash rate per mile

driven for 16 to 17 year-olds is about 3 times the rate for drivers 20 and older, highlighting the impact of inexperience on crash risk.

Young male drivers aged 16 to 19 continue to be overrepresented in moderate to severe motor vehicle accidents. Speeding and following too closely are still major contributors to teen crashes. In 2022, 35% of male teen drivers and 19% of female teen drivers involved in fatal crashes were speeding at the time of the incident (NHSTA, 2024). Rear-end collisions often result from inadequate following distances, a common error among inexperienced drivers.

In a 2015 study of teen driver crashes, distraction is a significant factor, with 58% of crashes involving teenagers attributed to driver distraction (Feldman, 2015). That same year drivers aged 15 to 20 accounted for 9% of all distracted drivers and 11% of drivers using cell phones in fatal traffic accidents. The presence of teen passengers remains a significant risk factor, with data suggesting that having another teenager in the car increases the risk of an accident. Finally, alcohol use among underage drivers remains a concern. In 2022, alcohol was involved in 22% of fatal crashes among drivers aged 16-17 and 31% of crashes among drivers aged 18 to 20 (NHSTA, 2024).

## Adolescent Pregnancy (*Ob 12*)

Although adolescent pregnancy rates have declined since 1991, teenage birth rates in the United States are higher than in most developed countries. It appears that adolescents seem to be less sexually active than in previous years, and those who are sexually active seem to be using birth control (CDC, 2022). In 2019 females aged 15–19 years experienced a birth rate of 16.7 per 1,000 women (CDC, 2022). This is a drop of 4% from 2018. Birth rates fell 7% for those aged 15–17 years and 4% for 18 to 19-year-olds. In 2019, the birth rates for Hispanic teens (25.3) and non-Hispanic Black teens (25.8) were more than two times higher than the rate for non-

Hispanic White teens (11.4) (CDC, 2022). The birth rate of American Indian/Alaska Native teens (29.2) was highest among all race/ethnicities (CDC, 2022).

In developing regions, approximately 12 million girls aged 15–19 years and at least 777,000 girls under 15 years give birth each year in developing regions (as cited by WHO, 2020). At least 10 million unintended pregnancies occur each year among adolescent girls aged 15–19 years in the developing world, and complications during pregnancy and childbirth are the leading cause of death for 15–19-year-old girls globally (as cited by WHO, 2020). Adolescent mothers (ages 10–19 years) face higher risks of eclampsia, puerperal endometritis, and systemic infections than women aged 20 to 24 years, and babies of adolescent mothers face higher risks of low birth weight, preterm delivery and severe neonatal conditions (as cited by WHO, 2020).



**Challenges:** Adolescent parenthood poses significant challenges, as teens are still undergoing their own development and are often unprepared for the demands of raising a child. Teenage pregnancies, 75% of which are unplanned, are linked to reduced educational and socioeconomic opportunities. Only 50% of teen mothers graduate high school by age 22, compared to 90% of their peers, and they are less likely to attend or complete college (Finer & Zolna, 2016; Perper et al., 2010; Diaz & Fiel, 2016). This lower educational attainment correlates with reduced earnings and greater reliance on social welfare services (Gorry, 2019). Adolescent parenthood also hinders psychological development and is associated with poorer mental health and higher risks of poor parenting, which can perpetuate intergenerational behavioral risks (Huang et al., 2013; Mollborn & Morningstar, 2009; Lorber & Egeland, 2009). However, some teen parents find motivation in their children to pursue education and self-sufficiency (Harden et al., 2006; Harding et al., 2020).

Research on teenage fathers is limited, as they are less likely to be identified on birth certificates or affirm paternity (Landry & Forrest, 1995; Paschal, 2013). Nonetheless, paternal involvement is crucial, as sons of teen fathers are nearly twice as likely to become teen fathers themselves due to inherited risk factors (Sipsma et al., 2010). Traits linked to young fatherhood can also increase the likelihood of offspring engaging in risky behaviors. Both teen mothers and fathers face emotional, psychological, and social difficulties, though experiences vary widely. Despite these challenges, some adolescents adapt by fostering independence and forming new goals for themselves and their families.

**Risk Factors for Adolescent Pregnancy:** Miller et al. (2001) 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 the child is born life can be difficult for a teenage mother. Only 40% of teenagers who have children before age 18 graduate from high school. Without a high school degree, her job prospects are limited and economic independence is difficult. Teen mothers are more likely to live in poverty and more than 75% of all unmarried teen mother receives public assistance within 5 years of the birth of their first child. Approximately, 64% of children born to an unmarried teenage high-school dropout live in poverty. Further, a child born to a teenage mother is 50% more likely to repeat a grade in school and is more likely to perform poorly on standardized tests and drop out before finishing high school (March of Dimes, 2012).

Research analyzing the age that men father their first child and how far they complete their education have been summarized by the Pew Research Center (2015) and reflect the research for females. Among dads ages 22 to 44, 70% of those with less than a high school diploma says they fathered their first child before the age of 25. In comparison, less than half (45%) of fathers with some college experience became dads by that age. Additionally, becoming a young father occurs much less for those with a bachelor's degree or higher as just 14% had their first child prior to age 25. Like men, women with more education are likely to be older when they become mothers.

## Diversity (Ob 4)

Although similar biological changes occur for all 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. But 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 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 girls than boys, likely in part because girls who enter puberty early tend to associate with older boys, which in turn is associated with early sexual behavior and substance use. For adolescents who are ethnic or sexual minorities, discrimination sometimes presents a set of challenges that nonminorities 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 (Belsky & Pluess, 2009). That is, particular genetic variations are considered riskier than others, but genetic variations also can make adolescents more or less susceptible to environmental factors. For example, the association between the CHRM2 genotype and adolescent externalizing behavior (aggression and delinquency) has been found in adolescents whose parents are low in monitoring behaviors (Dick et al., 2011). Thus, it is important to bear in mind that individual differences play an important role in adolescent development.

## Conclusions

Adolescent development is characterized by biological, cognitive, and social changes. Physical changes associated with puberty are triggered by hormones. Cognitive changes include improvements in complex and abstract thought, as well as the 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. Adolescence is characterized by risky behavior, which is made more likely by changes in the brain in which reward-processing centers develop more rapidly than cognitive control systems, making adolescents more sensitive to rewards than to possible negative consequences. Social changes are particularly notable as adolescents become more autonomous from their parents, spend more time with peers, and begin exploring romantic relationships and sexuality. Adjustment during adolescence is reflected in identity formation, which often involves a period of exploration followed by commitments to particular identities. Adolescents' relationships with parents go through a period of redefinition in which adolescents become more autonomous, and aspects of parenting, such as distal monitoring and psychological control, become more salient. Peer relationships are important sources of support and companionship during adolescence yet can also promote problem behaviors. Same-sex peer groups evolve into mixed-sex peer groups, and adolescents' romantic relationships tend to emerge from these groups. Identity formation 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.

## Chapter Review Practice Quiz



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

<https://open.maricopa.edu/psy240mm/?p=831#h5p-8>

## Chapter 7 key terms (see Glossary)

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acne	information processing
adolescence	MAMA cycling
anorexia nervosa	menarche
binge-eating disorder	metacognition
bulimia	model of ethnic identity formation (Phinney)
emotional self-regulation	personal fable
executive function	primary sexual characteristics
formal operational stage (Piaget)	puberty
homophily	secondary sexual characteristics
identity achievement	self-concept
identity diffusion	self-esteem
identity foreclosure	spermarche
identity moratorium	working memory
identity vs role confusion (Erikson)	
imaginary audience	

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# Chapter 8: Emerging Adulthood



## Objectives:

*At the end of this lesson, you will be able to...*

1. Define emerging adulthood.
2. Identify the five features that distinguish emerging adulthood from other life stages.
3. Describe the variations in emerging adulthood in countries around the world.
4. Explain dialectical thought.
5. Describe some current concerns in education in today's colleges.

6. Discuss sexual responses
7. Define NEETs.
8. Describe risky behavior in emerging adulthood.
9. Summarize Levinson's theory of adult transitions.

***The objectives are indicated in the reading sections below.***

## Introduction



**Think for a moment about the lives of your grandparents and great-grandparents when they were in their twenties. How do their lives at that age compare to your life? If they were like most other people of their time, their lives were quite different from yours. What happened to change the twenties so much between their time and our own? And how should we understand the 18–25**

**age period today?**

In this chapter, we are introducing a relatively new stage of life, emerging adulthood. We have seen the age span between adolescence and adulthood expanded due to changes in society.

## Emerging Adulthood (*Ob 1*)

The theory of emerging adulthood proposes that a new life stage has arisen between adolescence and young 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. Relatively few people

pursued education or training beyond secondary school, and, consequently, most young men were full-time workers by the end of their teens. Relatively few women worked in occupations outside the home, and the median marriage age for women in the United States and in most other industrialized countries in 1960 was around 20 (Arnett & Taber, 1994; Douglass, 2005). The median marriage age for men was around 22, and married couples usually had their first child about one year after their wedding day. All told, for most young people half a century ago, their teenage adolescence led quickly and directly to stable adult roles in love and work by their late teens or early twenties. These roles would form the structure of their adult lives for decades to come.



Now, all that has changed. In 2022, 62% of high school graduates enrolled in college which is a decline from 70% in 2016 (National Center for Education Statistics, 2024). The early twenties are not a time of entering stable adult work but a time of immense job instability: In the United States, the average number of job changes from ages 20 to 29 is seven. The median age of entering marriage in the United States is now 28.6 for women and 30.5 for men (U.S.

Bureau of the Census, 2022). Consequently, a new stage of the life span, emerging adulthood, has been created, lasting from the late teens through the mid-twenties, roughly ages 18 to 25.

In industrialized countries, young people just out of high school and into their 20's are spending more time experimenting with potential directions for their lives. This new way of transitioning into adulthood is different enough from generations past that it is considered a new developmental phase – emerging adulthood.

## Emerging Adulthood Defined (*Ob 1, Ob 2*)

**Emerging adulthood** is the period between the late teens and early twenties; ages 18-25, although some researchers have included up to age 29 in the definition (Society for the Study of Emerging Adulthood, 2016). Jeffrey Arnett (2000) 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” (Arnett, 2000, p. 469).

Arnett has identified five characteristics of emerging adulthood that distinguishes it from adolescence and young adulthood (Arnett, 2006).

- **It is the age of identity exploration.** In 1950, Erik Erikson proposed that it was during adolescence that humans wrestled with the question of identity. Yet, even Erikson (1968) 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 adolescence. It is during emerging adulthood that 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 who the young adult is and what he/she wants 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.



- **Arnett also described this time period as the age of instability** (Arnett, 2000; Arnett, 2006). Exploration generates uncertainty and instability. Emerging adults 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 (Arnett, 2004). 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 (Goldscheider & Goldscheider, 1999). They may move again when they drop out of college 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 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 at least once (Goldscheider & Goldscheider, 1999). 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 (Douglass, 2005, 2007).

- **This is also the age of self-focus.** Being self-focused is not the same as being “self-centered.” Adolescents are more self-centered than emerging adults. Arnett reports that in his research, he found emerging adults 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 (Arnett, 2006). 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 (Arnett, 2004). 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 (Rosenberger, 2007). Emerging adulthood is a time between adolescents' reliance on parents 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. In the course of emerging adulthood, they learn to

make independent decisions about everything from what to have for dinner to whether or not to get married.

- ***This is also the age of 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 over the age of 25 (Arnett, 2001). 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 to some degree, and they have not completely attained some of the indicators of adulthood, such as finishing their education, obtaining a good 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 (Arnett, 2001.). It is only when people reach their late twenties and early thirties that a clear majority feels adult. 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 (Facio & Micocci, 2003), Austria (Sirsch et al., 2009), Israel (Mayseless & Scharf, 2003), the Czech Republic (Macek et al., 2007), and China (Nelson & Chen, 2007).
- ***Emerging adulthood is the age of possibilities.*** It tends to be an age of high hopes and great expectations, in part because few of their dreams have been tested in the fires of real life. 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” (Arnett & Schwab, 2012). This optimism in emerging adulthood has been found in other countries as well (Nelson & Chen, 2007). Arnett (2000, 2006) 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 are influenced by the choices and decisions of their parents. If the parents 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.



The years of emerging adulthood are often times of identity exploration through work, fashion, music, education, and other venues.



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here: <https://open.maricopa.edu/psy240mm/?p=846#oembed-1>



**To what extent do you think these have changed in the last several years? 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 (Arnett, 2004). To what extent does the theory of emerging adulthood apply internationally? How might these tasks be**

**different across cultures?**

### *SES and Cultural Influences of EA*

**Socioeconomic status** (SES) and cultural influences significantly shape the experience of emerging adulthood, creating variability in how young people navigate this developmental stage. Individuals from lower SES backgrounds often face economic instability, limiting opportunities for identity exploration and delaying traditional milestones such as pursuing higher education, independent living, and career development. Financial constraints may force young adults to prioritize immediate financial stability over personal aspirations, reducing optimism and opportunities for exploration (Arnett, 2016; Landberg et al., 2019). In contrast, higher

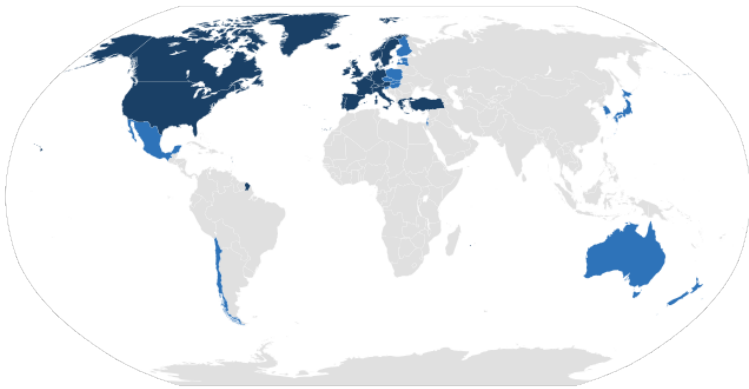
SES individuals may have greater access to resources that facilitate identity exploration and achievement. Cultural values also play a central role; in individualistic societies, emerging adulthood often emphasizes independence and self-discovery, whereas collectivistic cultures prioritize interdependence and familial obligations. However, globalization is blurring these distinctions, with traditionally collectivistic cultures adopting more individualistic attitudes (Sugimura, 2020). For example, young adults in Japan increasingly prioritize personal goals like career satisfaction over traditional family roles (Arnett et al., 2014). Additionally, cultural discrimination can hinder identity exploration for marginalized groups. For instance, Black emerging adults often face systemic barriers that disrupt career and self-exploration (Hope et al., 2015). Immigrants may experience tension between their heritage culture and the dominant culture of their new country, further complicating identity formation (Quan et al., 2022). Together, SES and cultural factors highlight the diversity of paths through emerging adulthood and the need for supportive systems tailored to these varied experiences.

## International Variations in EA (*Ob 3*)

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 (Arnett, 2004). 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 non-industrialized countries that comprise the majority of the world's population and the industrialized 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 current population of OECD countries (also called industrialized countries) is 1.38 billion, about 17% of the total world population (UNDP, 2024). The rest of the human population resides in non-industrialized 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 non-industrialized countries.



*Map of OECD countries. Darker shaded countries are original members.*

## EA in OECD Countries: The Advantages of Affluence

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 (UNdata, 2010). 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. The median ages

for entering marriage and parenthood are near 30 in most European countries (Douglass, 2007). Europe today is the location of the most affluent, generous, and egalitarian societies in the world—in fact, in human history (Arnett, 2007). 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 industrialized 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 (Arnett, 2011). 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 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 (Phinney & Baldelomar, 2011). For example, in their views of the most important criteria for becoming an adult, emerging adults in the United States

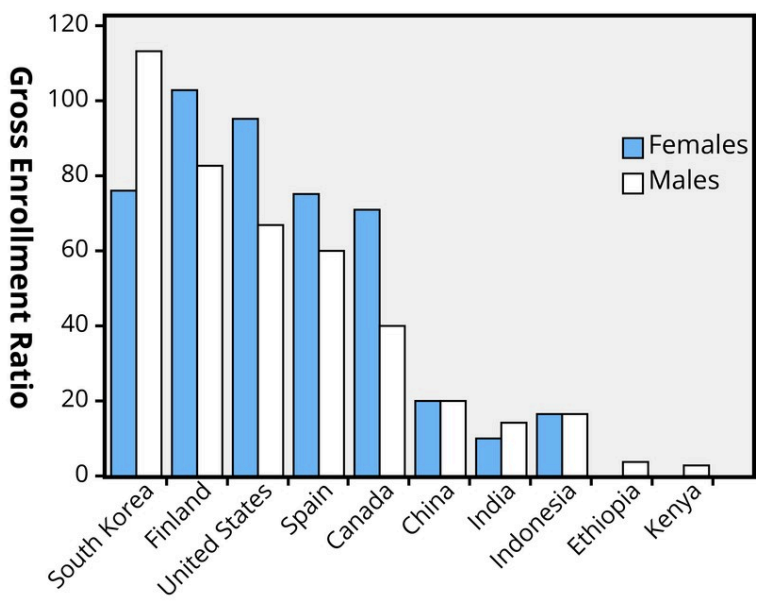
and Europe consistently rank financial independence among the most important markers of adulthood. In contrast, emerging adults with an Asian cultural background especially emphasize becoming capable of supporting parents financially as among the most important criteria (Arnett, 2003; Nelson, Badger, & Wu, 2004). 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 (Rosenberger, 2007).

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 is also normative; most people have at least one cohabiting partnership before marriage. In southern Europe, cohabiting is still taboo, but premarital sex is tolerated in emerging adulthood. In contrast, both premarital sex and cohabitation remain rare and forbidden throughout Asia. Even dating is discouraged until the late twenties, when it would be a prelude to a serious relationship leading to marriage. In cross-cultural comparisons, about three fourths of emerging adults in the United States and Europe report having had premarital sexual relations by age 20, versus less than one fifth in Japan and South Korea (Hatfield & Rapson, 2006).

## EA in Developing Countries: Low but Rising

Emerging adulthood is well established as a normative life stage in the industrialized countries described thus far, but it is still growing in non-industrialized countries. Demographically, in non-industrialized countries as in OECD countries, the median ages for entering marriage and parenthood have been rising in recent

decades, and an increasing proportion of young people have obtained post-secondary education. Nevertheless, currently it is only a minority of young people in non-industrialized countries who experience anything resembling emerging adulthood. The majority of the population still marries around age 20 and has long finished education by the late teens. As you can see in the figure below, rates of enrollment in tertiary education are much lower in non-industrialized countries (represented by the five countries on the right) than in OECD countries (represented by the five countries on the left).



Gross tertiary enrollment, selected countries, 2007. Source: UNdata (2010).

For young people in non-industrialized countries, emerging adulthood exists only 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. What Saraswathi and Larson (2002) observed about adolescence applies to emerging adulthood as well: “In many ways, the lives of middle-class youth in India, South East Asia, and Europe have more in common with each other than they do with those of poor youth in their own countries.” However, as globalization proceeds, and economic development along with it, the proportion of young people who experience emerging adulthood will increase as the middle class expands. By the end of the 21st century, emerging adulthood is likely to be normative worldwide.

## Physical Development

### Physiological Peak(*Ob 4*)



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 adolescence chapter). Our early twenties are considered a **physiological peak** as physically, you are in the “prime of your life” as your reproductive system, motor ability, strength, and lung capacity are operating at their best. As will be discussed in later chapters, 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.

The good news is that healthy habits established early influence later well-being, especially cardiovascular health (Liu et al., 2012). For example, a healthy diet and a physically active lifestyle can help to protect cardiovascular health, even if a person has a genetic predisposition toward heart disease (U.S. Preventative Services Task Force, 2020). Physical activity builds and maintains muscle, bone, and joint health and improves strength. Being moderately active can also help maintain the health and functioning of the heart and lungs, counteract the negative effects of stress, and reduce blood pressure (Chen et al., 2020).

Here is a recap for some of the physiological peaks (more discussion in the next chapter):

**Skin.** The level of collagen, a substance that helps keep skin firm and elastic, peaks at 25 and slowly declines afterwards (Reilly & Lozano, 2021).

**Lungs:** Your lungs mature by the time you are about 20-25 years old. The maximum amount of air adult lungs can hold, total lung capacity, is about 6 liters (that is like three large soda bottles) (American Lung Association, n.d.). There are several different ways measures to examine lung capacity (spirometry). One is having you exhale with force. The amount of air you can exhale with force in 1 second is called forced expiratory volume 1 (FEV1). FEV1 declines 1 to 2 percent per year after about the age of 25, which may not sound like much but adds up.

**Bones.** Bones stop growing between the ages of 17 and 25 when

the epiphyses, the ends of long bones like the ones in our arms and legs, fuse together. The collarbone is the last bone to mature, around the age of 25 (Hughes et al, 2020; Olivares et al., 2020). There's also an increase in bone mineral density (Hochberg & Konner, 2020; Lantz et al., 2008).

**Muscle:** Muscle strength peaks just prior to our thirties (Gabbard, 2014). As we age we lose muscle mass, strength, and function (sarcopenia). In sports we see baseball players hit their peak between 27 and 30, athletic throwing at 27 years, and swimmers peak around 20 (Allen & Hopkins, 2015). For setting world records in a given athletic discipline, the mean age is 26 for men and 25 for women (Statszone, 2016). Connected to muscle strength and lung capacity, in aerobic events, performance usually peaks in the mid-twenties, as gains from training, improved mechanical skills and competitive experiences are negated by decreases in maximal oxygen intake and muscle flexibility (Shepard, 1998).

**Joints.** The quality and amount of synovial fluid, the lubricant keeping joints healthy, starts to show some minimal decline as early as age 28, which can lead to increased stiffness (Temple-Wong et al., 2016). For individuals who have had an injury, such as athletes or from an accident, post-traumatic arthritis osteoarthritis may also occur (Punzi et al., 2016).

**Endocrine system.** Testosterone peaks sometime between the late teens and mid 20s and then remains stable until middle age (Hochberg & Konner, 2020; Hull et al., 2011). Fasting glucose levels drop in adolescence and the early parts of emerging adulthood, starting to rise after age 25 (Hammel et al., 2022); similarly, insulin resistance increases after age 20 (Zhong et al., 2019).

**Cognitive motor skills:** The present study investigates age-related changes in cognitive motor performance through adolescence and adulthood in a complex real world task, the real-time strategy video game StarCraft 2. In this paper we analyze the influence of age on performance using a dataset of 3,305 players, aged 16-44, collected by Thompson et al. (2014). Using a piecewise regression analysis, we find that age-related slowing of within-

game, self-initiated response times begins at 24 years of age. We find no evidence for the common belief expertise should attenuate domain specific cognitive decline. Domain-specific response time declines appear to persist regardless of skill level.

## Cognitive Development



**Piaget believed that formal operational thought was the last stage in our cognitive development, but is this actually the case? Do you currently have the same cognitive skills and reason the same way you did when you were 14? Put another way, do you currently have the same problems and life circumstances you had when you were 14?**

Though adolescents in the formal operational stage can easily think hypothetically, they lack experience with the world and are often unable to consider as many possibilities as adults can. Adults are better able to predict likely outcomes or consequences, combining abstract thought and logic with intuition and life experience. This ability to think of potential outcomes is one of the hallmarks of post-formal thought, and it extends Piaget's ideas about formal operations to the unique skills and abilities developed during emerging adulthood and adulthood.

## Dialectical Thought (*Ob 4*)

Post-adolescence, individuals may become more flexible and balanced. Abstract ideas that the adolescent believes in firmly may become standards by which the adult evaluates reality. Adolescents

tend to think in **dichotomies**; ideas are true or false; good or bad; right or wrong and there is no middle ground. However, with experience, the adult comes to recognize that there are some right and some wrong in each position, some good or some bad in a policy or approach, some truth and some falsity in a particular idea. This ability to bring together salient aspects of two opposing viewpoints or positions is referred to as **dialectical thought** and is considered one of the most advanced aspects of postformal thinking (Basseches, 1984). Such thinking is more realistic because very few positions, ideas, situations, or people are completely right or wrong. So, for example, parents who were considered angels or devils by the adolescent eventually become just people with strengths and weaknesses, endearing qualities and faults to the adult.

Solving adult problems requires integrating multiple sources of information and engaging in **reflective thought**, a process that involves actively evaluating information and beliefs using evidence and past experiences. Reflective thought enables individuals to question facts, draw inferences, and connect diverse types of information, fostering critical thinking and problem-solving skills (Immordino-Yang et al., 2019). This cognitive ability typically emerges between the ages of 20 and 25, coinciding with brain myelination, which enhances neural efficiency and connectivity. Reflective thought is essential for navigating the complexities of emerging adulthood, where individuals face challenges such as career decisions, relationship dynamics, and personal identity formation.

## Education and Employment

### Educational Concerns (*Ob 5*)

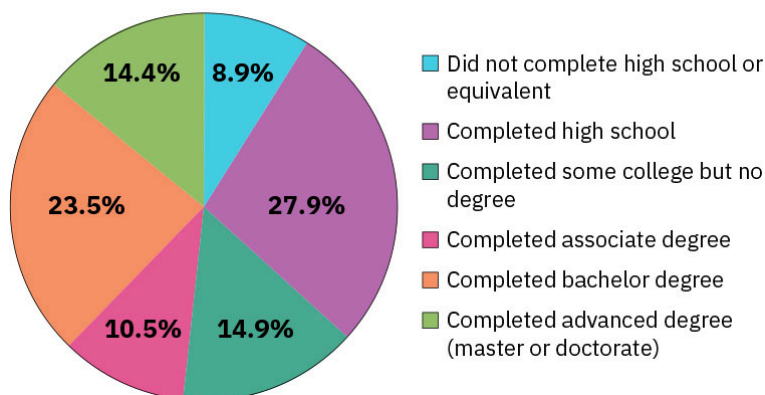
Higher education offers significant personal, professional, and

societal benefits during emerging adulthood (ages 18–25), though the experience varies widely based on individual circumstances. For many first-generation college students, the transition to college can be a culture shock as they navigate unfamiliar social networks and institutional systems. Despite these challenges, higher education provides a structured environment for developing critical cognitive abilities such as verbal, quantitative, and analytical skills, along with transferable “soft” skills like communication, time management, leadership, and teamwork. These competencies not only prepare students for the workforce but also enhance their ability to adapt to complex life challenges.

**Socioeconomic status (SES)** influences how and when students pursue higher education. Students from lower SES backgrounds are more likely to attend community colleges part-time while balancing work or family responsibilities, which can delay or interrupt degree completion. In contrast, students from higher SES families are more likely to enroll full-time at four-year institutions and complete their degrees by age 25. Working part-time during college is associated with better outcomes, such as increased campus engagement and skill development, but working more than 20 hours per week is linked to lower GPAs and reduced graduation rates (Pike et al., 2008).

In 2021, the high school completion rate in the United States for people ages 25 and older rose to 91.1% from 87% in 2011. The percentage of the population age 25 and older with associate degrees rose to 10.5%, up 1% from 2011. Between 2011 and 2021, the percentage of people age 25 and older who had completed a bachelor’s degree or higher increased by 7.5% from 30.4% to 37.9%. From 2011 to 2021, the number of people ages 25 and over whose highest degree was a master’s degree rose to 24.1 million, and the number of doctoral degree holders rose to 4.7 million, a 50.2% and 54.5% increase, respectively. About 14.3% of adults had an advanced degree in 2021, up 3.4% from 2011 (US Census Bureau, 2021).

### U.S. Highest Education Level Completed by Age 25



*This chart shows the 2021 percentages of people's educational attainment by age 25 in the United States. (data source: U.S. Census Bureau, 2022; attribution: Copyright Rice University, OpenStax, under CC BY 4.0 license)*

The long-term benefits of higher education are substantial. College graduates enjoy higher earnings, better job opportunities, and greater job satisfaction when their careers align with their interests and college majors (Wolniak & Engberg, 2019). Experiences like internships or study abroad programs during college are associated with increased workplace success and earnings (Wolniak & Pascarella, 2005). While some students switch majors—30% do so within three years—this can improve graduation rates when supported by career resources (National Center for Education Statistics, 2017). In 2018, the average (median) earnings for Americans 25 and older with only a high school education was \$44,356, compared with \$74,464 for those with a bachelor's degree, compared with \$86,372 for those with a master's degree. Average earnings vary by gender, race, and geographical location in the United States (U.S. Census Bureau, 2023). Beyond financial gains, higher education fosters personal growth by encouraging exploration of passions and building a foundation for lifelong learning. For those who choose this path, the benefits of college

extend far beyond earning a degree—they include shaping identity, building resilience, and preparing for meaningful contributions to society.

Quality education is more than a credential. Being able to communicate and work well with others is crucial for success. These are considered soft skills. In an article referring to information from the National Association of Colleges and Employers' 2018 Job Outlook Survey, Bauer-Wolf (2018) explains that employers perceive gaps in students' competencies but many graduating college seniors are overly confident. The biggest difference was in perceived professionalism and work ethic (only 43% of employers thought that students are competent in this area compared to 90 percent of the students). Similar differences were also found in terms of oral communication, written communication, and critical thinking skills (Bauer-Wolf). Only in terms of digital technology skills were more employers confident about students' competencies than were the students (66% compared to 60%). While students cannot learn every single skill or fact that they may need to know, 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 (Henseler, 2017).

There is evidence suggesting that many workers lose their jobs not due to a lack of technical knowledge but because of difficulties working effectively with others (Cascio, in Berger, 2005). Success in the workplace requires more than job-specific skills; it depends on a combination of cognitive abilities and “soft” skills. Colleges play a critical role in fostering these qualities, helping students develop verbal, quantitative, and critical thinking skills that are transferable across careers and life contexts. Beyond academics, higher education also provides opportunities to refine soft skills such as teamwork, communication, time management, leadership, and adaptability. These skills are essential for navigating diverse work

environments and meeting employers' expectations. While these abilities can be developed outside of formal education, college offers a structured setting where they are consistently practiced and reinforced. Employers increasingly seek candidates who not only hold degrees but also demonstrate these interpersonal and cognitive competencies, which are crucial for long-term success in the workplace.



What can societies do to enhance the likelihood that emerging adults will make a successful transition to adulthood? One important step would be to expand the opportunities for obtaining tertiary education. The tertiary education systems of OECD

countries were constructed at a time when the economy was much different, and they have not expanded at the rate needed to serve all the emerging adults who need such education. Furthermore, in some countries, such as the United States, the cost of tertiary education has risen steeply and is often unaffordable to many young people. In developing countries, tertiary education systems are even smaller and less able to accommodate their emerging adults. Across the world, societies would be wise to strive to make it possible for every emerging adult to receive tertiary education, free of charge. There could be no better investment for preparing young people for the economy of the future.

## NEETs (*Ob 7*)

**NEET** stands for 'Not in Employment, Education or Training'. Around the world, teens and young adults were some of the hardest hit by the economic downturn in recent years (Desilver, 2016). In 2023, about 16% of young adults ages 18 to 24 in the U.S. were considered NEETs, and globally 21.7% (Rodgers et al, 2024; ILO, 2024). Young people in education include those attending part-time or full-time education but exclude those in non-formal education and in educational activities of very short duration. Employment covers all those who have been in paid work for at least one hour in the reference week being asked about or were temporarily absent from work during that time (but still employed). NEETs can be either unemployed or inactive and not involved in education or training. Young people who are neither in employment nor in education or training are at risk of becoming socially excluded – individuals with income below the poverty line and lacking the skills to improve their economic situation.

Causes of NEET:

- The main cause of NEET is high youth unemployment. This can

be caused by a variety of factors, such as:

- unskilled and no relevant qualifications
- Geographical factors, such as high rates of local unemployment and geographical unemployment
- Poor expectations fostered by lack of role models and high unemployment
- Recession as levels of NEET increase during recessions.
- Lack of available education and training programs.
- Education and training programs that are not suitable.
- Unwillingness or poor information about available training and education programs

Young people with an early onset of mental health and behavioral problems are at risk of failing to make the transition from school to employment or becoming a NEET. Interestingly, after tracking over 4,000 Swiss males in their early 20s, the research showed that when comparing NEETs and non-NEETs, NEETs had higher usage of substance use (smoking, cannabis use, and hazardous cannabis use) and more depressive symptoms (Baggio et al., 2015). In their study, longitudinal associations showed that previous mental health, cannabis use, and daily smoking increased the likelihood of being NEET. Another Dutch study tracking individuals 11-19 years old found that young adults with high-stable trajectories of mental health problems were more at risk to be NEETs (Veldman et al., 2015). Further, a study tracking adolescents in Victoria, Australia found that frequent adolescent cannabis use, reporting repeated disruptive, or reporting persistent common mental disorders in adolescence were predictors of young adults not employed or pursuing postsecondary education (Rodwell et al., 2018). The risk for NEETs are more than impacting their economic future, as NEETs face mental health challenges, substance use, and suicide attempts (Scott et al., 2013).

While the number of young people who are NEETs has declined, there is a 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” (Desilver, 2016, para. 3). 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. More women than men find themselves unemployed and not in school. Additionally, most NEETs have a high school or less education, and Asians are less likely to be NEETs than any other ethnic group.

The rate of NEETs varies in European nations, with higher rates found in nations that have been the hardest hit by economic recessions and government austerity measures. For example, more than 25% of those 15-29 (European data use a lower age group: 15 rather than 16) in Greece and Italy are unemployed and not seeking or receiving further education. In contrast, countries less affected by an economic downturn, such as Denmark, had much lower rates (7.3%).

[Click to review the 2021 Annual Global Report of Youth not in employment, education or training \(NEET\): 20-24 year-olds, % in same age group \(OECD, 2022\)](#)

While NEETs struggle with jobs that pay enough to live on and other possible challenges, Levy and Murnane (2012) identified six basic skills NEETs need as job skills to succeed in the workplace, referred to as *new basic skills*:

1. read at 9th grade level or higher
2. solve math skills at 9th grade level or higher
3. solve semi-structured problems
4. written and oral communication
5. use of word processor and other tasks on a computer
6. collaborate in diverse groups

## Sexuality (*Ob 6*)

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 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.

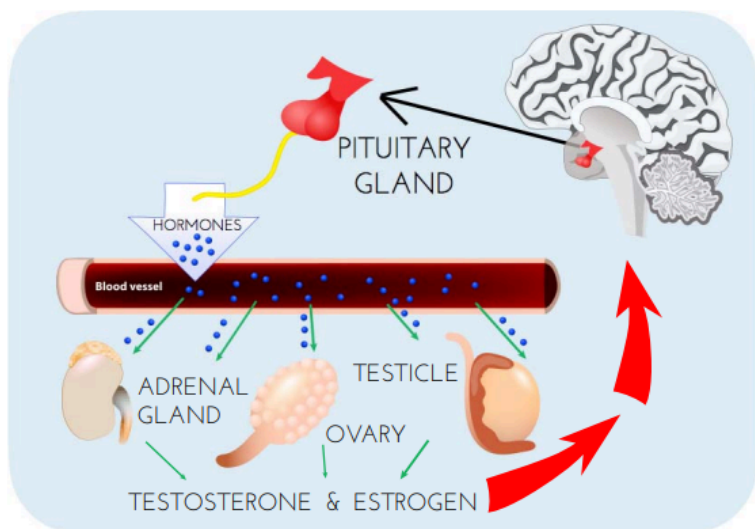
The experience and expression of sexuality are unique to everyone. The peak of sexual activity generally occurs between the ages of 18 and 24, though the number of adults in this age group who were sexually active decreased somewhat between the years 2000 and 2018, especially men (Ueda et al., 2020). Becoming sexually active is a common part of growing up, although it's not a mandatory element (i.e., people who are asexual or who abstain from sexual activity for religious or other reasons aren't somehow "defective"). Sexual activity is also, for many people, a healthy and enjoyable aspect of their lives. However, sometimes sexual activity has unwanted health consequences, such as sexually transmitted infections or unintended pregnancy.

**Sexual Response Cycle:** 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. Sex drive may also be affected by hormones, medical conditions, medications, lifestyle stress, pregnancy, and relationship issues. The sexual response cycle is a model that describes the physiological responses that take place during sexual activity. According to Kinsey et al. (1948), the sexual response 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.



**The Brain and Sex:** The brain is the structure that translates the nerve impulses from the skin into pleasurable sensations. It controls the 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 hypothalamus, 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.



**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 breastfeeding; it is believed that oxytocin is involved with maintaining close relationships.) For reproduction, the *follicle-stimulating hormone* (FSH) is responsible for ovulation by triggering egg maturity; it also stimulates sperm production in males. For females, the *luteinizing hormone* (LH) triggers the release of a mature egg in females during the process of ovulation. In males, *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. The relationship between hormones and female sexual motivation is not as well understood, largely due to the overemphasis on male sexuality in Western research. *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 woman'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.

## Sexual Orientation

A person's sexual orientation is *their emotional and sexual attraction to a particular sex or gender*. It is a personal quality that inclines people to feel romantic or sexual attraction (or a combination of these) to persons of a given sex or gender. According to the American Psychological Association (APA) (2016), sexual orientation also refers to a person's sense of identity based on those attractions,

related behaviors, and membership in a community of others who share those attractions.

**Sexual Orientation on a Continuum:** Sexuality researcher Alfred Kinsey was among the first to conceptualize sexuality as a continuum rather than a strict dichotomy of gay or straight. To classify this continuum of heterosexuality and homosexuality, Kinsey et al. (1948) created a seven-point rating scale that ranged from exclusively heterosexual to exclusively homosexual. Research done over several decades has supported this idea that sexual orientation ranges along a continuum, from exclusive attraction to the opposite sex/gender to exclusive attraction to the same sex/gender (Carroll, 2016).

However, sexual orientation now can be defined in many ways. Heterosexuality, which is often referred to as being straight, is attraction to individuals of the opposite sex/gender, while homosexuality, being gay or lesbian, is attraction to individuals of one's own sex/gender. Bisexuality was a term traditionally used to refer to attraction to individuals of either male or female sex, but it has recently been used in nonbinary models of sex and gender (i.e., models that do not assume there are only two sexes or two genders) to refer to attraction to any sex or gender. Alternative terms such as pansexuality and polysexuality have also been developed, referring to attraction to all sexes/genders and attraction to multiple sexes/genders, respectively (Carroll, 2016). Asexuality refers to having no sexual attraction to any sex/gender. According to Bogaert (2015) about one percent of the population is asexual. Being asexual is not due to any physical problems, and the lack of interest in sex does not cause the individual any distress. Asexuality is being researched as a distinct sexual orientation.

Figuring out one's sexual orientation and gender identity during adolescence is a complex and individualized process influenced by cultural, societal, and personal factors. In cultures where LGBTQ+ individuals face stigma or criminalization, coming out may pose significant risks, leading some to delay disclosure until later in life or avoid it altogether (Rosati et al., 2020). Even in LGBTQ+ supportive

countries, acceptance varies widely among communities and individuals. Coming out is not a singular event but involves multiple stages, such as recognizing attraction, identifying with a specific orientation, forming relationships, and disclosing to others. These stages often occur in a consistent sequence but vary in timing based on factors like gender, sexual orientation, and generational differences. For example, men and those identifying as gay or lesbian tend to complete these tasks earlier than women or bisexual individuals. Additionally, younger cohorts report earlier disclosure and relationship milestones compared to older generations, reflecting shifting societal attitudes toward non-heterosexual identities (Martos et al., 2015; van Bergen et al., 2021).



### *Sexual harassment and sexual violence*

Sexual harassment and sexual violence are serious issues that can profoundly impact adolescents. Sexual violence encompasses any non-consensual sexual activity, including assault, abuse, exploitation, and stalking, with force taking verbal, physical, or emotional forms (National Sexual Violence Resource Center, 2010). Sexual harassment refers to unwanted sexual attention—verbal or physical—that disrupts an individual's ability to engage in daily

activities. It often involves power imbalances but can also occur among peers (Barber, 1996). Acts like rape or unwanted touching fall under both harassment and sexual assault, with consent requiring explicit agreement; silence or inability to refuse due to fear, intoxication, or unconsciousness does not constitute consent. Adolescents are particularly vulnerable to these experiences in both in-person and online contexts. For example, sexting and the non-consensual sharing of explicit images are increasingly common forms of harassment, often leading to anxiety, depression, and long-term emotional harm (Patchin & Hinduja, 2020). Addressing these issues requires comprehensive education on consent and healthy relationships, as well as supportive interventions to protect teens from harm and promote respectful interactions.

## Gender

For many adults, the drive to adhere to masculine and feminine gender roles, or the societal expectations associated with being male or female, continues throughout life. In American culture, masculine roles have traditionally been associated with strength, aggression, and dominance, while feminine roles have traditionally been associated with passivity, nurturing, and subordination. Men tend to outnumber women in professions such as law enforcement, the military, and politics, while women tend to outnumber men in care-related occupations such as childcare, healthcare, and social work. These occupational roles are examples of stereotypical American male and female behavior, derived not from biology or genetics, but from our culture's traditions. Adherence to these roles may demonstrate fulfillment of social expectations, however, not necessarily personal preferences (Diamond, 2002). Society is challenging the long-standing gender binary; that is, categorizing humans as only female and male, has been undermined by current psychological research (Hyde et al., 2019).

The term **gender** now encompasses a wide range of possible identities, including cisgender, transgender, agender, genderfluid, genderqueer, gender nonconforming, bigender, pangender, ambigender, nongendered, intergender, and Two-spirit which is a modern umbrella term used by some indigenous North Americans to describe gender-variant individuals in their communities (Carroll, 2016). Hyde et al. (2019) advocates for a conception of gender that stresses multiplicity and diversity and uses multiple categories that are not mutually exclusive.

Emerging adulthood is a critical period for exploring and solidifying gender identity, as individuals gain greater independence and exposure to diverse perspectives. While many continue to navigate societal expectations tied to traditional masculine and feminine roles, others challenge these norms, embracing a broader spectrum of gender identities, including transgender, nonbinary, and genderqueer (Hyde et al., 2019). Gender identity development during this stage often involves self-exploration, meaning-making, and integration of one's internal sense of self with external expressions such as clothing, pronouns, and social roles (Waagen, 2022; Kuper et al., 2018). Supportive environments—such as affirming families, peers, or educational institutions—can foster this exploration, while unsupportive or discriminatory settings may hinder it (Fiani & Han, 2019).

The transgender children, discussed in chapter 5 may, when they become an adult, alter their bodies through medical interventions, such as surgery and hormonal therapy, so that their physical being is better aligned with gender identity. However, not all transgender individuals choose to alter their bodies or physically transition. Many will maintain their original anatomy but may present themselves to society as a different gender, often by adopting the dress, hairstyle, mannerisms, or other characteristics typically assigned to a certain gender. It is important to note that people who cross-dress, or wear clothing that is traditionally assigned to the opposite gender, such as transvestites, drag kings, and drag queens, do not necessarily identify as transgender (though some do). People

often confuse the term *transvestite*, which is the practice of dressing and acting in a style or manner traditionally associated with another sex (APA, 2013) with transgender. Cross-dressing is typically a form of self-expression, entertainment, or personal style, and not necessarily an expression about one's gender identity.

**Gender Minority Discrimination:** Gender minority individuals face unique challenges during emerging adulthood. Transgender and nonbinary emerging adults frequently experience stigma, rejection, and discrimination in areas like housing, healthcare, and employment, which contribute to mental health disparities such as depression and anxiety (Hendricks & Testa, 2012; Borgogna et al., 2019). Transgender individuals of color face additional financial, social, and interpersonal challenges, in comparison to the transgender community as a whole, as a result of structural racism. Black transgender people reported the highest level of discrimination among all transgender individuals of color. As members of several intersecting minority groups, transgender people of color, and transgender women of color in particular, are especially vulnerable to employment discrimination, poor health outcomes, harassment, and violence. Consequently, they face even greater obstacles than white transgender individuals and cisgender members of their own race.

Belongingness has been identified as a protective factor that mitigates the psychological impacts of rejection and victimization (Grossman et al., 2016). Belongingness, or the sense of being connected and valued within a group, is a critical protective factor for mental health during emerging adulthood. It mitigates the psychological impacts of rejection, victimization, and social isolation by fostering resilience and emotional well-being (Grossman et al., 2016; Baumeister & Leary, 1995). For transgender and gender-expansive emerging adults, belongingness reduces the negative effects of gender minority stressors, such as discrimination and social rejection, on mental health outcomes (PubMed, 2023). Conversely, thwarted belongingness—when individuals feel excluded or disconnected—amplifies the risks of depression and

psychological distress (Holt-Lunstad et al., 2015; Gerber & Wheeler, 2009). Positive social connections and inclusive environments, such as supportive peer groups or campus initiatives promoting inclusion, can help strengthen belongingness and reduce feelings of rejection (Walton & Cohen, 2011; Malone et al., 2012).

## **Risky behavior (Ob 7)**

A significant contributing factor to risky behavior is alcohol. Binge drinking on college campuses has received considerable media and public attention. The NIAAA defines **binge drinking** when blood alcohol concentration levels reach 0.08 g/dL. Furthermore, according to the NIAAA (2015) “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). This typically occurs after four drinks for women and five drinks for men in approximately two hours. Binge drinking can lead to dangerous behaviors like reckless driving, violent altercations, and forced sexual encounters.

**Alcohol and College Students:** Results from the 2022 survey demonstrate the amount of alcohol consumed by college students (NIAAA, 2022). Specifically, 49% of full-time college students’ ages 18-22 drank alcohol in the past month compared with 51.5%, with 28.9% engaging in binge drinking. Binge drinking was defined as consuming five drinks or more on one occasion for males and four drinks or more for females. However, some college students drink at least twice that amount, a behavior that is often called high-intensity drinking.

The consequences for college drinking are staggering, and the NIAAA (2022) estimates that each year the following occur:

- 1,519 college students between the ages of 18 and 24 die from alcohol-related unintentional injuries, including motor vehicle crashes.
- 696,000 students between the ages of 18 and 24 are assaulted

by another student who has been drinking.

- Roughly 14% of college students meet the criteria for an Alcohol Use Disorder.
- About 1 in 4 college students report academic consequences from drinking, including missing class, falling behind in class, doing poorly on exams or papers, and receiving lower grades overall.
- 97,000 students between the ages of 18 and 24 report experiencing alcohol-related sexual assault or date rape.



**Non-Alcohol Substance Use:** The most prevalent substances used by young adults ages 19 to 30 in 2021 are listed in the table below (Patrick et al., 2022). In 2021, marijuana use among young adults reached the highest levels ever recorded since the indices were first available in 1988. An index of non-medical use of any drugs other than marijuana includes hallucinogens (including LSD), cocaine, amphetamines, sedatives (barbiturates), tranquilizers, and narcotics (including heroin).

**Table. Usage of various drugs reported for individuals ages 19-30 (2021)**

	Past 12 months	Past 30 days
Alcohol	81.8%	66.3%
Marijuana (any mode)	42.6%	28.5%
Vaping Nicotine	21.8%	16.1%
Vaping Marijuana	18.7%	12.4%
Cigarettes	18.6%	9.0%
Other Drugs	18.3%	7.5%

**Unsafe sexual encounters:** Drug and alcohol use increases 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.

The role alcohol plays in predicting acquaintance rape on college campuses is concerning. In the majority of cases of rape, the victim knows the rapist. Being intoxicated increases a female's risk of being the victim of date or acquaintance rape (Fisher et al. in Carroll, 2007). "Alcohol use is one of the strongest predictors of rape and sexual assault on college campuses," (Carroll, 2016, p. 454). Krebs et al. (2009) found that over 80% of sexual assaults on college campuses involved alcohol. One study found that 15% of young women experienced incapacitated rape during their first year of college. These female students were taken advantage of while unconscious and therefore could not give consent since they did not know what was happening. Being intoxicated increases a female's risk of being the victim of date or acquaintance rape (Carroll, 2007). And, she is more likely to blame herself and to be

blamed by others if she was intoxicated when raped. Males increase their risk of being accused of rape if they are drunk when an incidence occurred (Carroll, 2007).

Another recent study revealed that about 1 in 13 American college students report having been drugged, or suspect that they were drugged. Drink spiking, or adding drugs to a person's drink without his or her knowledge or consent, is one of the most common ways in which college students facilitate sexual assault. Of the students who reported being drugged, 79 percent were female. Those who drugged others, or knew someone who had done so, reported that Rohypnol was used 32 percent of the time. Rohypnol is a brand name for flunitrazepam, which is a powerful sedative that depresses the central nervous system. Rohypnol is not legally available for prescription in the United States. The most common names for Rohypnol are roofies, forget-me drug, date rape drug, roche, and ruffles. The drug is popular on high school and college campuses and at raves and clubs.

## Self-esteem

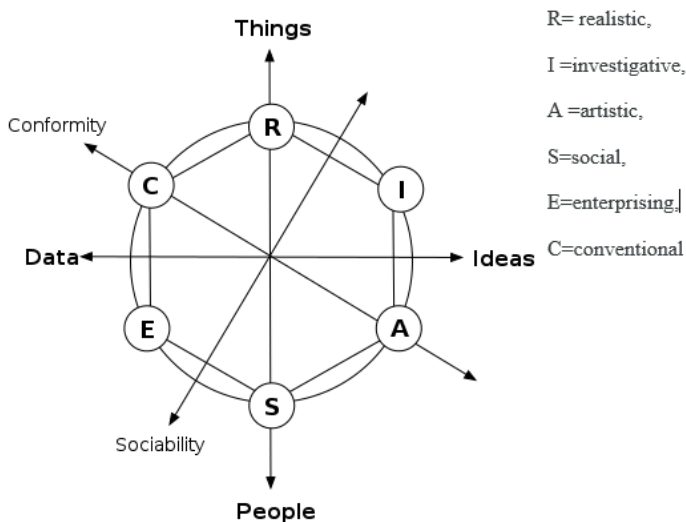
Self-esteem typically rises from the age ranges of 23 to 29 and there is a gradual increase into adulthood peaking in midlife (Robins et al., 2002). The increase in self-esteem may be attributed to completion of maturational changes associated with puberty, changes in autonomy, and other positive aspects of emerging adulthood. Erol and Orth (2012) examined individuals' self-esteem from ages 14 years to 30 years of age using a section of the National Longitudinal Survey of Youth. The study collected information from eight assessments sampling 7,100 individuals age 14 to 30 years (born between 1970 and 1993). The authors took information across participants and used a longitudinal analysis technique to estimate growth over a period of time (latent growth curve analyses). The results indicated that self-esteem appears to increase more slowly

in young adulthood (Erol & Orth, 2012). The study did not have any sex differences in their self-esteem trajectories, although males typically report higher self-esteem than females (Robins et al., 2002). Erol and Orth did find some differences in self-esteem trajectories for different ethnic identities across adolescence into young adulthood. In adolescence, Hispanics had lower self-esteem than Blacks and Whites, but the self-esteem of Hispanics subsequently increased more strongly, so that at age 30 Blacks and Hispanics had higher self-esteem than Whites. At each age, there were predictors of higher self-esteem. These were emotionally stable, extraversion, and conscientious. Individuals who are emotionally stable, extraverted and conscientious experienced higher self-esteem than emotionally unstable, introverted, and less conscientious individuals. Moreover, at each age, a high sense of mastery, lower risk taking, and better health predicted higher self-esteem. Orth and colleagues also identified that low self-esteem is a risk factor for depressive symptoms at all phases of the adult life span (Orth et al., 2009).

We've seen with Erikson that identity largely involves occupation and, as we will learn in the next section, Levinson found that young adults typically form a dream about work (though females may have to choose to focus relatively more on work or family initially with "split" dreams). The American School Counselor Association recommends that school counselors aid students in their career development beginning as early as kindergarten and continue this development throughout their education.

One of the most well-known theories about career choice is from John Holland (1985), 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 for Holland's career personality theory 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.



## Levinson's Theory (Ob 8)

In 1978, Daniel Levinson published a book entitled *The Seasons of a Man's Life* in which he presented a theory of development in adulthood. Levinson's work was based on in-depth interviews with 40 men between the ages of 35-45. He later conducted interviews with women as well (1996). According to Levinson, these adults have an image of the future that motivates them. This image is called "the dream." For the men interviewed, it was a dream of how their career paths would progress and where they would be at midlife. Women held a "split dream"; an image of the future in both work and family life and a concern with the timing and

coordination of the two. For women, working outside the home and taking care of their families were perceived as separate and competing for their time and attention. Hence, one aspect of the women's dreams was focused on one goal for several years and then their time and attention shifted towards the other, often resulting in delays in women's career dreams. One's dreams for each period of adulthood may or may not measure up to its image as the realization of it moves closer. If it does, all is well. But if it does not, the image must be replaced or modified. And so, in adulthood, plans are made, efforts follow, and plans are reevaluated. There are transition periods for each phase where dreams may align to different social aspects. This creating and recreating characterizes Levinson's theory. Levinson's theory includes transition stages that are presented below (Levinson, 1978). He suggests that the period of transition last about 5 years and periods of "settling down" last about 7 years.

The ages presented below are based on life in the middle class about 30 years ago. Think about how these ages and transitions might be different today.

- *Early adult transition* (17-22): Leaving home, leaving family; making first choices about career and education
  - Entering the adult world (22-28): Committing to an occupation, defining goals, finding intimate relationships
- *Age 30 transition* (28-33): Reevaluating those choices and perhaps making modifications or changing one's attitude toward love and work
  - Settling down (33 to 40): Reinvesting in work and family commitments; becoming involved in the community
- *Midlife transition* (40-45): Reevaluating previous commitments; making dramatic changes if necessary; giving expression to previously ignored talents or aspirations; feeling more of a sense of urgency about life and its meaning
  - Entering middle adulthood (45-50): Committing to new

choices made and placing one's energies into these commitments

Levinson's theory shares that adulthood 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 others' advice but now finds that the job is not what was expected. At the age of 30, the transition may involve recommitting to the same job, not because it's stimulating, but because it pays well. Settling down may involve settling down with a new set of expectations for that job. As the adult gains status, he or she may be freer to make more independent choices. And sometimes these are very different from those previously made. The midlife transition differs from the age 30 transition in that the person is more aware of how much time has gone by and how much time is left. This brings a sense of urgency and impatience about making changes. The future focus of early adulthood gives way to an emphasis on the present in midlife. Overall, Levinson calls our attention to the dynamic nature of adulthood.



economy?

**How well do you think Levinson's theory translates culturally? Do you think that personal desire and concern with reconciling dreams with the realities of work and family is equally important in all cultures? Do you think these considerations are equally important in all social classes, races, and ethnic groups? Why or why not? How might this model be modified in today's**

## Conclusion

The new life stage of emerging adulthood has spread rapidly in the past half-century and is continuing to spread. Now that the transition to adulthood is later than in the past, is this change positive or negative for emerging adults and their societies? Certainly, there are some negatives. It means that young people are dependent on their parents for longer than in the past, and they take longer to become fully contributing members of their societies. A substantial proportion of them have trouble sorting through the opportunities available to them and struggle with anxiety and depression, even though most are optimistic. However, there are advantages to having this new life stage as well. By waiting until at least their late twenties to take on the full range of adult responsibilities, emerging adults are able to focus on obtaining enough education and training to prepare themselves for the demands of today's information- and technology-based economy. Also, it seems likely that if young people make crucial decisions about love and work in their late twenties or early thirties rather than their late teens and early twenties, their judgment will be more mature and they will have a better chance of making choices that will work out well for them in the long run.

## Chapter Review Practice Quiz



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

<https://open.maricopa.edu/psy240mm/?p=846#h5p-9>

## Chapter 8 Key terms (see Glossary)

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binge drinking

dialectical thought

dichotomies

emerging adulthood

gender

hormones

NEET

physiological peak

postsecondary education

reflective thought

sexual response cycle

socioeconomic status

tertiary education

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# Chapter 9: Early Adulthood



## Objectives:

*At the end of this lesson, you will be able to...*

1. Discuss the developmental tasks of early adulthood.
2. Describe physical development in early adulthood.
3. Explain how early adulthood is a healthy, yet risky time of life.
4. Distinguish between formal and postformal thought.
5. Describe Erikson's stage of intimacy vs. isolation.
6. Question Erikson's assertion about the focus on intimacy in early adulthood.
7. Identify trends in mate selection, age at first marriage, and cohabitation in the United States.
8. Discuss fertility issues in early adulthood.
9. Explain social exchange theory of mate selection.
10. Define the principle of least interest.

11. Apply Sternberg's theory of love to specific examples of relationships.
12. Apply Lee's love styles to specific examples of relationships.
13. Compare frames of relationships.
14. Explain the wheel theory of love.
15. Explain the process of disaffection.
16. Explain the stages of career development.

***The objectives are indicated in the reading sections below.***

## Introduction

For the purpose of this text and this chapter, we define early adulthood as ages 25 to 40. With the elongation of adolescence and the introduction of emerging adulthood, we can stay “younger” for longer now. Ask your parents and grandparents on what they were doing at age 25 and compare that with today's youth. Chances are, there will be some major differences with major milestones being delayed.

## Developmental Tasks of Early Adulthood (*Ob 1*)

Early adulthood can be a very busy time of life. Havighurst (1972) describes some of the developmental tasks of young adults. They identified developmental tasks across the lifespan into 6 different stages. These tasks are typically encountered by most people in the culture where the individual belongs. The tasks for young adulthood include:

- ***Achieving autonomy***: trying to establish oneself as an independent person with a life of one's own

- **Establishing identity:** more firmly establishing likes, dislikes, preferences, and philosophies
- **Developing emotional stability:** becoming more stable emotionally which is considered a sign of maturing
- **Establishing a career:** deciding on and pursuing a career or at least an initial career direction and pursuing an education
- **Finding intimacy:** forming first close, long-term relationships
- **Becoming part of a group or community:** young adults may, for the first time, become involved with various groups in the community. They may begin voting or volunteering to be part of civic organizations (scouts, church groups, etc.). This is especially true for those who participate in organizations as parents.
- **Establishing a residence and learning how to manage a household:** learning how to budget and keep a home maintained.
- **Becoming a parent and rearing children:** learning how to manage a household with children. Making marital adjustments and learning to parent.



Some of these tasks connect to processing in emerging adulthood whereas Havighurst would emphasize establishment of these tasks during this time frame. **To what extent do you think these tasks have changed in the last several years? How might these tasks be different across cultures?**

## Physical Development (*Ob 2*)

By the time we reach early adulthood, our physical maturation is complete, although our height and weight may increase slightly. As mentioned in chapter 8, in our twenties are probably at the peak of their physiological development (**physiological peak**), including

muscle strength, reaction time, sensory abilities, and cardiac functioning. Most professional athletes are at the top of their game during this stage, and many women have children in the early-adulthood years (Boundless, 2016).



**Facing the Physiological Peak:** People in their mid-twenties and thirties are considered young adults. After the physiological peak, one's reproductive system, motor ability, strength, and lung capacity start to decline as the aging process actually begins during early adulthood. These systems will now 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. Around the age of 30, many changes begin to occur in different parts of the body. For example, the lens of the eye starts to stiffen and thicken, resulting in changes in vision (usually affecting the ability to focus on close objects). Sensitivity to sound decreases; this happens twice as quickly for men as for women. Hair can start to thin and become gray around the age of

35, although this may happen earlier for some individuals and later for others. The level of collagen, a substance that helps keep skin firm and elastic, peaks at 25 and slowly declines afterwards (Reilly & Lozano, 2021). The skin becomes drier and wrinkles start to appear by the end of early adulthood. Although bones continue to build until age 30 to 35 years old, the skeletal bone mass of women is almost complete by the age of 20 (CDC, 2021). If you acquire high bone mass as a young adult, you're more able to sustain that bone mass until late in life. The quality and amount of synovial fluid, the lubricant keeping joints healthy, starts to show some minimal decline as early as age 28, which can lead to increased stiffness (Temple-Wong et al., 2016). For individuals who have had an injury, such as athletes or from an accident, post-traumatic arthritis osteoarthritis may also occur (Punzi et al., 2016). Changes includes a decline in response time (reaction time) and the 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. After about the age of 35, it is normal for your lung function to decline gradually as you age. This can make breathing slightly more difficult as you get older (American Lung Association, n.d.) During the aging process, muscles like the diaphragm can get weaker, lung tissue that helps keep your airways open can lose elasticity (making airways can get a little smaller), and one's rib cage bones can change and get smaller which leaves less room for your lungs to expand (American Lung Association, n.d.). The immune system also becomes less adept at fighting off illness, and women's reproductive capacity starts to decline (Boundless, 2016).

But, here is more good news. 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. How is that good news, you ask? It's good news because it means that there are things you can do to combat many of these changes. For example, the muscle strength of men and women peaks anywhere from 20 to 30 years old. If you're not suffering from

injuries or disease, you can maintain this strength for another 20 years by engaging in strength training. Additionally, although a decrease in lung function is a normal part of the aging, there are steps you can take to stay as healthy as possible. Staying active and avoiding tobacco smoke are two things you can protect and even strengthen your lungs. So, keep in mind, as we continue to discuss the life span that many of the changes we associate with aging can be turned around if we adopt healthier lifestyles.



## A Healthy, but Risky Time (*Ob 3*)

Doctors' visits are less frequent in early adulthood than for those in midlife and late adulthood and are necessitated primarily by injury and pregnancy (Berger, 2005). However, among the top five causes of death in young adulthood are unintentional injury (including motor vehicle accidents), homicide, and suicide (Heron, & Smith, 2007). Cancer and heart disease complete the list. Rates of violent death (homicide, suicide, and accidents) are highest among young adult males and vary among by race and ethnicity. Rates of violent death are higher in the United States than in Canada, Mexico, Japan,

and other selected countries. Males are three times more likely to die in auto accidents than are females (Frieden, 2011).

**Substance Abuse:** Rates of violent death are influenced by substance abuse which peaks during emerging adulthood. While illicit drug use peaks between the ages of 19 and 22, it declines in early adulthood (Berk, 2007). Additionally, 25% of those who smoke cigarettes, a third of those who smoke marijuana, and 70 percent of those who abuse cocaine began using after age 17 (Volkow, 2004). Some young adults use as a way of coping with stressors from family, personal relationships, or concerns over being on one's own. Others use because they have friends who use and in the early 20s, there is still a good deal of pressure to conform. Half of all alcohol consumed in the United States is in the form of binge drinking (Frieden, 2011).

## Sexual Responsiveness and Reproduction in Early Adulthood (*Ob 8*)

**Sexual Responsiveness:** Men and women tend to reach their peak of sexual responsiveness at different ages. For men, sexual responsiveness tends to peak in the late teens and early twenties. Sexual arousal can easily occur in response to physical stimulation or fantasizing. Sexual responsiveness begins a slow decline in the late twenties and into the thirties although a man may continue to be sexually active. Through time, a man may require more intense stimulation in order to become aroused. Women often find that they become more sexually responsive throughout their 20s and 30s and may peak in the late 30s or early 40s. This is likely due to greater self-confidence and reduced inhibitions about sexuality.



**Reproduction:** For many couples, early adulthood is the time for having children. However, delaying childbearing until the late 20s or early 30s has become more common in the United States. Couples delay childbearing for a number of reasons. Women are more likely to attend college and begin careers before starting families. And both men and women are delaying marriage until they are in their late 20s and early 30s.

**Infertility:** Infertility affects about 6.1 million women or 10 percent of the reproductive age population (American Society of Reproductive Medicine, 2000-2007). Male factors create infertility in about a third of the cases. For men, the most common cause is a lack of sperm production or low sperm production. Female factors cause infertility in another third of cases. For women, one of the most common causes of infertility is the failure to ovulate. Another cause of infertility is pelvic inflammatory disease, an infection of the female genital tract (Carroll, 2007). Pelvic inflammatory disease is experienced by 1 out of 7 women in the United States and leads to infertility about 20 percent of the time. One of the major causes of pelvic inflammatory disease is *Chlamydia trachomatis*, the most commonly diagnosed sexually transmitted infection in young

women. Another cause of pelvic inflammatory disease is gonorrhea. Both male and female factors contribute to the remainder of cases of infertility.

**Fertility treatment:** The majority of infertility cases (85-90 percent) are treated using fertility drugs to increase ovulation or with surgical procedures to repair the reproductive organs or remove scar tissue from the reproductive tract. **In vitro fertilization (IVF)** is used to treat infertility in less than 5 percent of cases. IVF is used when a woman has blocked or deformed fallopian tubes or sometimes when a man has a very low sperm count. This procedure involves removing eggs from the female and fertilizing the eggs outside the woman's body. The fertilized egg is then reinserted in the woman's uterus. The average cost of IVF is over \$12,000 and the success rate is between 5 to 30 percent. IVF makes up about 99 percent of artificial reproductive procedures.

Less common procedures include **gamete intra-fallopian tube transfer (GIFT)** which involves implanting both sperm and ova into the fallopian tube and fertilization is allowed to occur naturally. The success rate of implantation is higher for GIFT than for IVF (Carroll, 2007). **Zygote intra-fallopian tube transfer (ZIFT)** is another procedure in which sperm and ova are fertilized outside of the woman's body and the fertilized egg or zygote is then implanted in the fallopian tube. This allows the zygote to travel down the fallopian tube and embed in the lining of the uterus naturally. This procedure also has a higher success rate than IVF.

As of September 2023, insurance coverage for infertility is required in 21 states, but the amount and type of coverage available vary greatly (ASRM, 2024). The majority of couples seeking treatment for infertility pay much of the cost. Consequently, infertility treatment is much more accessible to couples with higher incomes. However, grants and funding sources are available for lower-income couples seeking infertility treatment as well.

## Cognitive Development (*Ob 4*)

### Beyond Formal Operational Thought: Postformal Thought

In the adolescence chapter, we discussed formal operational thought. In early adulthood (and beyond), we are more likely to consider multiple perspectives. As discussed in chapter 8, this ability to bring together different perspectives is referred to as **dialectical thought** and is part of postformal thinking (Basseches, 1984). The hallmark for postformal thinking is the ability to think abstractly or to consider possibilities and ideas about circumstances never directly experienced. Postformal thought is practical, realistic, and more individualistic. 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. As adults we also consider experiences and probabilities compared to adolescence. If you compare a 15-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 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 could just sit for several years without deteriorating. The son would certainly change his mind about the type of car he wanted before he was old enough

to drive and they would be stuck with a car that would not run. Having a car nearby would be too much temptation and the son might decide to sneak it out for a quick run around the block, etc.

## Psychosocial Development

**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 go to school, 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.

## Erikson’s Theory (*Ob 5,6*)

**Intimacy vs. Isolation:** Erikson believed that the main task of early adulthood was to establish intimate relationships. Intimacy is emotional or psychological closeness and Erikson would describe as relationships that have honesty, closeness, and love. Erikson theorized that during this period, the major conflict centers on

forming intimate, loving relationships with other people. 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. And having some sense of identity is essential for intimate relationships. Success at this stage leads to fulfilling relationships. People who are successful in resolving the conflict of the intimacy versus isolation stage are able to develop deep, meaningful relationships with others. They have close, lasting romantic relationships, as well as having strong relationships with family and friends. Failure, on the other hand, can result in feelings of loneliness and isolation. Those who struggle to form intimacy with others are often left feeling lonely and isolated. Some individuals may feel particularly lonely if they struggle to form close friendships with others.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=862#oembed-1>



**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. The kinds of friendships shared by women tend to differ from those shared by men (Tannen, 1990). Friendships between men are more likely to involve sharing information, providing solutions, or focusing on activities rather than discussing problems or emotions. Men tend to discuss opinions or factual information or spend time together in an activity of mutual interest. Friendships between women are more likely to focus on sharing weaknesses, emotions, or problems. Women talk about difficulties they are having in other relationships and express their sadness, frustrations, and joys. These differences in approaches lead to problems when men and women come together. She may want to vent about a problem she is having; he may want to provide a solution and move on to some activity. But when he offers a solution, she thinks he does not care!

Friendships between men and women become more difficult because of the unspoken question about whether friendships will lead to romantic involvement. It may be acceptable to have opposite-sex friends as an adolescent, but once a person begins dating or marries; such friendships can be considered threatening. Consequently, friendships may diminish once a person has a partner or single friends may be replaced with a couple of friends.

## Partners as a source of intimacy: Dating, Cohabitation, and Mate Selection (*Ob7*)

### 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. The Friday night date with dinner and a movie that may still be enjoyed by those in their 30s gives way to less formal, more spontaneous meetings that may include several couples or a group of friends. Two people may get to know each other and go somewhere alone. How would you describe a “typical” date? Who calls? Who pays? Who decides where to go? What is the purpose of the date? In general, greater planning is required for people who have additional family and work responsibilities. Teens may simply have to negotiate to get out of the house and to carve out time to be with friends.

## Cohabitation or Living Together

**How prevalent is cohabitation?** **Cohabitation** is an arrangement made by two people who are not married but live together. Among 25-29 year-olds, cohabitation rates increased from 15.5% in 2012 to 19.0% in 2022 (Julian, 2024). According to a 2018 National Center for Health Statistics report, more than one-half of U.S. adults have cohabited at some point in their lives. The number of cohabiting couples in the United States today is over 10 times higher than it was in 1960. Indeed, from examining the National Survey for Family Growth that surveyed women 15-39 in several different cohorts show generational differences (Eckenmeyer & Manning, 2018). Millennial women (born 1980-1984) were 53% more likely to live with more than one romantic partner during young adulthood compared with the late Baby Boomers (born 1960-1964), even after taking into account sociodemographic characteristics such as race and ethnicity and educational level, and relationship characteristics such as their age when their first cohabiting relationship ended and whether they had children. Not only were early Millennial women more likely to live with more than one partner without marriage, they also formed subsequent cohabiting relationships more quickly

than the late Baby Boomers—dropping from nearly four years between live-in relationships to just over two years.

Similar increases 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. The lowest rates of cohabitation are in Ireland, Italy, and Japan (Benokraitis, 2005). It's important to note that cohabitation rates can differ based on factors such as age, education level, and regional variations within countries. The global trend shows an overall increase in cohabitation among young adults, though specific rates vary significantly by country and culture.



**How long do cohabiting relationships last?** Cohabitation among younger adults tends to be short-lived. Relationships between older adults tend to last longer. Cohabitation tends to last longer in European countries than in the United States. Half of cohabiting relationships in the U.S. end within a year; only 10 percent last more

than 5 years. Short-term cohabiting relationships (lasting a year or less) are more characteristics of people in their early 20s. The majority of people who cohabit are between the ages of 25-44, while about 9 percent of those who cohabit are under age 24 (7 percent 18-24 live with spouse).. Many of these couples eventually marry. Those who cohabit more than five years tend to be older and more committed to the relationship. Cohabitation may be preferable to marriage for a number of reasons. For partners over 65, cohabitation is preferable to marriage for practical reasons. For many of them, marriage would result in a loss of Social Security benefits and consequently is not an option. Others may believe that their relationship is more satisfying because they are not bound by marriage. Consider this explanation from a 62-year-old woman who was previously in a long-term, dissatisfying marriage. She and her partner live in New York but spend winters in South Texas at a travel park near the beach. “There are about 20 other couples in this park and we are the only ones who aren’t married. They look at us and say, ‘I wish we were so in love.’ I don’t want to be like them” (Overstreet). Or another couple who have been happily cohabiting for over 12 years. Both had previously been in bad marriages that began as long-term, friendly, and satisfying relationships. But after marriage, these relationships became troubled marriages. These happily cohabiting partners stated that they believe that there is something about marriage that “ruins a friendship.”

**Why do people cohabit?** People cohabit for a variety of reasons. The largest number of couples in the United States engages in **premarital cohabitation**. These couples are testing the relationship before deciding to marry. About half of these couples eventually get married. The second most common type of cohabitation is **dating cohabitation**. These partnerships are entered into for fun or convenience and involve less commitment than premarital cohabitation. About half of these partners break up and about one-third eventually marry. **Trial marriage** is a type of cohabitation in which partners are trying to see what it might be like to be married. They are not testing the other person as a potential mate,

necessarily; rather, they are trying to find out how being married might feel and what kinds of adjustments they might have to make. Over half of these couples split up. In **substitute marriage**, partners are committed to one another and are not necessarily seeking marriage. Forty percent of these couples continue to cohabit after 5 to 7 years (Bianchi & Casper, 2000). Certainly, there are other reasons people cohabit. Some cohabit out of a feeling of insecurity or to gain freedom from someone else (Ridley et al., 1978). And many cohabit because they cannot legally marry.

**Same-Sex Couples:** As of 2024, same-sex marriage is legal in 36 countries, and counting. Other states grant same-sex couples rights as domestic partners or recognize civil unions. 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. Same-sex marriage is legal in Argentina, Belgium, Canada, Iceland, Norway, Portugal, Sweden, South Africa, Spain, Canada, and the Netherlands. 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.

Same-sex couples struggle with concerns such as the division of household tasks, finances, sex, and friendships as do heterosexual couples. One difference between same-sex and heterosexual couples, however, is that same-sex couples have to live with the added stress that comes from social disapproval and discrimination. And continued contact with an ex-partner may be more likely among homosexuals and bisexuals because of the closeness of the circle of friends and acquaintances.

## Mate-Selection (*Ob9*)

Contemporary young adults in the United States are waiting longer than before to marry. In 2017, the median age of first marriage was

27.4 for women and 29.5 for men (U.S. Census Bureau). This reflects a dramatic increase in the age of first marriage for women, but the age for men is similar to that found in the late 1800s. Marriage is being postponed for college and starting a family often takes place after a woman has completed her education and begun a career. However, the majority of women will eventually marry (Bianchi & Casper, 2000).

**Social exchange theory**, developed by sociologist George Homans (1961), suggests that people try to maximize rewards and minimize costs in social relationships. Each person entering the marriage market comes equipped with assets and liabilities or a certain amount of social currency with which to attract a prospective mate. In social encounters people weigh the potential benefits and risks of social relationships. Benefits may include social support, companionship, and pleasure being around the individual. Costs involve things that one perceives as negatives such as having to put money, time, and effort into a relationship. Relationships can be assessed and evaluated in terms of expectations. As one determines the value of the relationship, an evaluation is made if the benefits outweigh the potential costs. Positive relationships are those in which the benefits outweigh the costs while negative relationships occur when the costs are greater than the benefits. When the risks outweigh the rewards, people will terminate or abandon that relationship. For example, if you have a romantic partner who always has to borrow money from you or you always are expected to pay for the bill, then this would be seen as a high cost. However, one may also see that the time spent with the individual is very rewarding – full of companionship, social support and enjoyment. Evaluation of one's relationships are subject to change over time, as individuals continually take stock of what they have gained and lost in their relationships. This implies that relationships that a person found satisfying at one point in time may become dissatisfying later because of changes in perceived rewards and costs. This theory connects to friendships as well as romantic relationships.

## *A fair exchange (Ob 10)*

Customers in the market for relationships do not look for a 'good deal', however. Rather, most look for a relationship that is mutually beneficial or equitable. One of the reasons for this is because most a relationship in which one partner has far more assets than the other will result if power disparities and a difference in the level of commitment from each partner. According to Waller's **principle of least interest**, the partner who has the most to lose without the relationship (or is the most dependent on the relationship) will have the least amount of power and is in danger of being exploited. A greater balance of power, then, may add stability to the relationship.

**Homogamy and the filter theory of mate selection:** Societies specify through both formal and informal rules who is an appropriate mate. Consequently, mate selection is not completely left to the individual. Rules of **endogamy** indicate within which groups we should marry. For example, many cultures specify that people marry within their own race, social class, age group, or religion. These rules encourage **homogamy** or marriage between people who share social characteristics. The majority of marriages in the U. S. are homogamous with respect to race, social class, age and to a lesser extent, religion. Rules of **exogamy** specify the groups into which one is prohibited from marrying.

According to the **filter theory of mate selection** (Kerckhoff & Davis, 1962), the pool of eligible partners becomes narrower as it passes through filters used to eliminate members of the pool. One such filter is **propinquity** or geographic proximity. Mate selection in the United States typically involves meeting eligible partners face to face. Those with whom one does not come into contact are simply not contenders. Race and ethnicity is another filter used to eliminate partners. Although interracial dating has increased in recent years and interracial marriage rates are higher than before, interracial marriage still represents only 17 percent of all marriages in the United States (U.S. Census Bureau, 2017). Physical appearance is another feature considered when selecting a mate. Age, social

class, and religion are also criteria used to narrow the field of eligible mates. Thus, the field of eligible mates becomes significantly smaller before those things we are most conscious of such as preferences, values, goals, and interests, are even considered.

**Online Relationships:** What impact does the internet have on the pool of eligible mates? There are hundreds of websites designed to help people meet. Some of these are geared toward helping people find suitable marriage partners and others focus on less committed involvements. Websites focus on specific populations—big beautiful women, Christian motorcyclists, parents without partners, and people over 50, etc. Theoretically, the pool of eligible mates is much larger as a result. However, many who visit sites are not interested in marriage; many are already married. And so if a person is looking for a partner online, the pool must be filtered again to eliminate those who are not seeking long-term relationships. While this is true in the traditional marriage market as well, knowing a person's intentions and determining the sincerity of their responses becomes problematic online.



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 makes it easier to become intimate without fear of interdependence. It is easier to tell one's secrets because there is little fear of loss. One can find a virtual partner who is warm, accepting, and undemanding (Gwinnell, 1998). And exchanges can be focused more on emotional attraction than physical appearance.

When online, people tend to disclose more intimate details about themselves more quickly. A shy person can open up 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. None of the worries of home or work get in the way of the exchange. The partner can be given one's undivided attention, unlike trying to have a conversation on the phone with a houseful of others or at work between duties. Online exchanges take the place of the corner café as a place to relax, have fun, and be you (Brooks, 1997). However, breaking up or disappearing is also easier. A person can simply not respond or block e-mail.

But what happens if the partners meet face to face? People often complain that pictures they have been provided of the partner are misleading. And once couples begin to think more seriously about the relationship, the reality of family situations, work demands, goals, timing, values, and money all add new dimensions to the mix.

## Singles

The number of adults who remain single has increased dramatically in the last 30 years. We have more people who never marry, more

widows and more divorcees driving up the number of singles. Singles represent about 25 percent of American households. 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.

### *Stein's Typology of Singles*

Many of the research findings about singles reveal that they are not all alike. Happiness with one's status depends on whether the person is single by choice and whether the situation is permanent. Let's look at Stein's (1981) four categories of singles for a better understanding of this.

- **Voluntary temporary singles:** These are younger people who have never been married and divorced people who are postponing marriage and remarriage. They may be more involved in careers or getting an education or just wanting to have fun without making a commitment to any one person. They are not quite ready for that kind of relationship. These people tend to report being very happy with their single status.
- **Voluntary permanent singles:** These individuals do not want to marry and aren't intending to marry. This might include cohabiting couples who don't want to marry, priests, nuns, or others who are not considering marriage. Again, this group is typically single by choice and understandably more contented with this decision.
- **Involuntary temporary:** These are people who are actively seeking mates. They hope to marry or remarry and may be involved in going on blind dates, seeking a partner on the internet or placing "getting personal" ads in search of a mate. They tend to be more anxious about being single.
- **Involuntary permanent:** These are older divorced, widowed,

or never-married people who wanted to marry but have not found a mate and are coming to accept singlehood as a probable permanent situation. Some are bitter about not having married while others are more accepting of how their life has developed.

We now turn our attention to theories of love.

## Types of Love

### Sternberg's Triangle of Love: Three Components (*Obu*)

Sternberg (1988) suggests that there are three main components of love: passion, intimacy, and commitment, for his **triangle of love theory**. Love relationships vary depending on the presence or absence of each of these components. Passion refers to the intense, physical attraction partners feel toward one another. Intimacy involves the ability to share feelings, personal thoughts, and psychological closeness with the other. Commitment is the conscious decision to stay together. Passion can be found in the early stages of a relationship, but intimacy takes time to develop because it is based on knowledge of the partner. Once intimacy has been established, partners may resolve to stay in the relationship. Although many would agree that all three components are important to a relationship, many love relationships do not consist of all three. Let's look at other possibilities.

**Liking:** In this relationship, intimacy or knowledge of the other and a sense of closeness is present. Passion and commitment, however, are not. Partners feel free to be themselves and disclose personal information. They may feel that the other person knows them well and can be honest with them and let them know if they

think the person is wrong. These partners are friends. However, being told that your partner ‘thinks of you as a friend’ can be a devastating blow if you are attracted to them and seek a romantic involvement.

**Infatuation:** Perhaps, this is Sternberg’s version of “love at first sight.” Infatuation consists of an immediate, intense physical attraction to someone. A person who is infatuated finds it hard to think of anything but the other person. Brief encounters are played over and over in one’s head; it may be difficult to eat and there may be a rather constant state of arousal. Infatuation is rather short-lived, however, lasting perhaps only a matter of months or as long as a year or so. It tends to be based on chemical attraction and an image of what one thinks the other is all about.

**Fatuous Love:** However, some people who have a strong physical attraction push for commitment early in the relationship. Passion and commitment are aspects of fatuous love. There is no intimacy and the commitment is premature. Partners rarely talk seriously or share their ideas. They focus on their intense physical attraction and yet one, or both, is also talking of making a lasting commitment. Sometimes this is out of a sense of insecurity and a desire to make sure the partner is locked into the relationship.

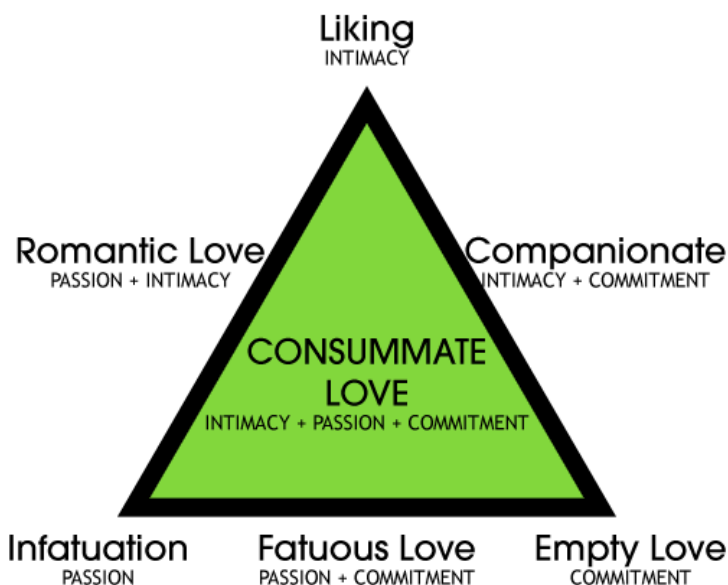
**Empty Love:** This type of love may be found later in a relationship or in a relationship that was formed to meet needs other than intimacy or passion (money, childrearing, status). Here the partners are committed to staying in the relationship (for the children, because of a religious conviction, or because there are no alternatives perhaps), but do not share ideas or feelings with each other and have no physical attraction for one another.

**Romantic Love:** Intimacy and passion are components of romantic love, but there is no commitment. The partners spend much time with one another and enjoy their closeness but have not made plans to continue ‘no matter what’. This may be true because they are not in a position to make such commitments or because they are looking for passion and closeness and are afraid it will die

out if they commit to one another and start to focus on other kinds of obligations.

**Companionate Love:** Intimacy and commitment are the hallmarks of companionate love. Partners love and respect one another and they are committed to staying together. But their physical attraction may have never been strong or may have just died out. This may be interpreted as 'just the way things are' after so much time together or there may be a sense of regret and loss. Nevertheless, partners are good friends committed to one another.

**Consummate Love:** Intimacy, passion, and commitment are present in consummate love. This is often the ideal type of love. The couple shares passion; the spark has not died, and the closeness is there. They feel like best friends as well as lovers and they are committed to staying together.



Based from intimacy, passion and commitment, Sternberg categorized types of love

## Applications of Sternberg's Theory

Do these types of love mean anything? Is love necessary or helpful for reproduction in humans?

One study tested this hypothesis using Sternberg's Triangular Love scale as their operational definition of love. The three components of passion, commitment, and intimacy were measured in a traditional hunter-gatherer tribe in Tanzania, and researchers gathered data about which type of relationship was most correlated with successful reproduction.

Try to predict the [results of the study](#).

You were probably able to discern that this study examines the correlation between types of relationships and reproductive success, or the number of children a woman has. In psychology, we learn that correlation does NOT equal causation, so just because a person is in a committed relationship, this does not mean they will have children.

So what does correlation really mean? It means there is a relationship between the variables. Remember, that with positive correlation, as one variable increases, so does the other. In a negative correlation, as one variable increases the other decreases.

How is love measured? The Sorokowski et al. (2017) study

we just covered used the short version of the Triangular Love Scale to measure participants' levels of passion, intimacy, and commitment. Think about the person with whom you are currently in a relationship with. If you are not currently in a relationship, think about a relationship in the past, or one that you would like to have in the future. Please indicate how much the statements below apply to you. (Response options: 5 very true, 4 true, 3 partly true/partly untrue, 2 untrue, 1 very untrue.)

#### Passion

- I feel a strong attraction to my partner.
- I feel sexually aroused by my partner.
- I find my partner sexually attractive.
- My partner and I clearly show each other our love.

#### Intimacy

- My partner and I always tell each other personal things.
- I tell my partner everything.
- My partner and I tell each other all our secrets.
- My partner understands how I feel.

#### Commitment

- I want my relationship to be never-ending.
- I never want to have another partner.
- I want the relationship with my partner to last forever.
- I rather be with my partner than with anyone else.

You can now average your scores in each category in

order to see your score out of 5. Which component of love did you score the highest in? Which component of love did you score the lowest in? Can you use this information to predict how many children you might have? Why or why not?

## Types of Lovers (*Ob 12*)

Lee (1973) offers a theory of love styles or types of lovers derived from an analysis of writings about love through the centuries. As you read these, think about how these styles might become part of the types of love described above.

**Pragma** is a style of love that emphasizes the practical aspects of love. The pragmatic lover considers compatibility and the sensibility of their choice of partners. This lover will be concerned with goals in life, status, family reputation, attitudes about parenting, career issues and other practical concerns.

**Mania** is a style of love characterized by volatility, insecurity, and possessiveness. This lover gets highly upset during arguments or breakups, may have trouble sleeping when in love, and feels emotions very intensely.

**Agape** is an altruistic, selfless love. These partners give of themselves without expecting anything in return. Such a lover places the partner's happiness above their own and is self-sacrificing to benefit the partner.

**Eros** is an erotic style of loving in which the person feels consumed. Physical chemistry and emotional involvement are important to this type of lover.

**Lupus** refers to a style of loving that emphasizes the game of seduction and fun. Such a lover stays away from commitment and

often has several love interests at the same time. This lover does not self-disclose and in fact, may prefer to keep the other guessing. This lover can end a relationship easily.

**Storage** is a style of love that develops slowly over time. It often begins as a friendship and becomes sexual much later. These partners are likely to remain friends even after the breakup.

## Frames of Relationships (*Ob 13*)

Another useful way to consider relationships is to consider the amount of dependency in the relationship. Davidson (1991) suggests three models: A-frame, H-frame, or M-frame.

- The **A-frame** relationship is one in which the partners lean on one another and are highly dependent on the other for survival. If one partner changes, the other is at risk of 'falling over'. This type of relationship cannot easily accommodate change and the partners are vulnerable should change occur. A breakup could be devastating.
- The **H-frame** relationship is one in which the partners live parallel lives. They rarely spend time with one another and tend to have separate lives. What time they do share is usually spent meeting obligations rather than sharing intimacies. This independent type of relationship can end without suffering emotionally.



- The **M-frame relationship** is interdependent. Partners have a strong sense of connection but also are able to stand alone without suffering devastation. If this relationship ends, partners will be hurt and saddened, but will still be able to stand alone. This ability comes from a strong sense of self-love. Partners can love each other without losing a sense of self. And each individual has self-respect and confidence that enriches the relationship as well as strengthens the self.



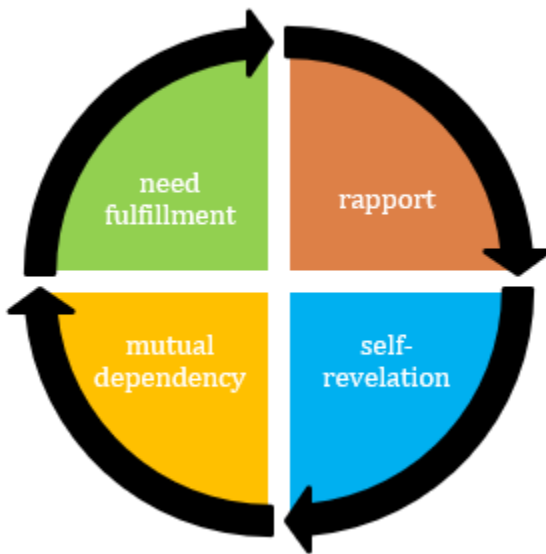
We have been looking at love in the context of many kinds of relationships. In our next lesson, we will focus more specifically on marital relationships. But before we do, we examine the dynamics of falling in and out of love.

## The Process of Love and Breaking Up (*Ob 14*)

Reiss (1960) provides a theory of love as a process. Reiss's Wheel Theory of Love was one of the first developmental stage models to conceptualize courtship, relationship development, and mate selection as a circular process that consists of four interrelated parts: rapport, self-revelation, mutual dependency, and intimacy need fulfillment.

Based on the **wheel theory of love**, love relationships begin with the establishment of rapport. **Rapport** involves sharing likes, preferences, establishing some common interests. The next step is to begin to disclose more personal information through **self-**

**revelation.** When one person begins to open up, the social expectation is that the other will follow and also share more personal information so that each has made some risk and trust is built. Sexual intimacy may also become part of the relationship. Gradually, partners begin to disclose even more about themselves and are met with support and acceptance as they build **mutual dependency**. With time, partners come to rely on each other for need fulfillment. The wheel must continue in order for love to last. It becomes important for partners to continue to establish rapport by discussing the day's events, communicating about their goals and desires, and showing signs of trust. Partners must continue to rely on one another to have certain needs fulfilled. If the wheel turns backward, partners talk less and less, rely less on one another and are less likely to disclose.



*Depiction of Reiss's wheel of love theory.*

## *Process of Disaffection: Breaking Up (Ob 15)*

When relationships are new, partners tend to give one another the benefit of the doubt and focus on what they like about one another. Flaws and imperfections do not go unnoticed; rather, they are described as endearing qualities. So, for example, the partner who has a very large nose is described as 'distinguished' or as having a 'striking feature.' This is very exhilarating because features that someone may have previously felt self-conscious about are now accepted or even appreciated. However, once partners begin the process of breaking up, these views are abandoned and questionable qualities are once again flaws and imperfections. Kerstin (1990) provides a look at the dynamics of breaking up. Although this work is primarily about divorce, the dynamics of dissolving any long-term relationship are similar. The **beginning phase** of breaking up involves seeing imperfections in the relationship but remaining hopeful that things will improve. This improvement will require the partner's cooperation because they are primarily at fault. So, as long as the offending partner makes the necessary changes, and of course the offended partner will provide the advice, support, and guidance required, the relationship will continue. (If you are thinking that this is not going to work-you are right. Attempts to change one's partner are usually doomed to failure. Would you want your partner to try to change you?)

Once it becomes clear that efforts to change are futile, the **middle phase** is entered. This phase is marked by disappointment. Partners talk less and less, make little eye contact and grow further apart. One may still try to make contact, but the other is clearly disengaged and is considering the benefits and costs of leaving the relationship.

In the **end phase**, the decision to leave has been made. The specific details are being worked out. Turning a relationship around is very difficult at this point. Trust has diminished, and thoughts have turned elsewhere. This stage is one of hopelessness.



## Parenting (*Ob 16*)

Increasingly, families are postponing or not having children. Families that choose to forego having children are known as childfree families, while families that want but are unable to conceive are referred to as childless families. As more young people pursue their education and careers, age at first marriage has increased; similarly, so has the age at which people become parents. With a college degree, the average age for women to have their first child is 30.3, but without a college degree, the average age is 23.8. Marital status is also related, as the average age for married women to have their first child is 28.8, while the average age for unmarried women is 23.1. Overall, the average age of first time mothers has increased to 26, up from 21 in 1972, and the average age of first time fathers has increased to 31, up from 27 in 1972 in the United States (Bui & Miller, 2018). The age of first-time parents in the U.S. increased sharply in the 1970s after abortion was legalized. Since the age of first-time parents varies by geographic region in the

U.S. and women's rights to abortion are being challenged in some states, it will be interesting to follow the norms and trends for first-time parents in the future. Despite the fact that young people are more often delaying childbearing, most 18- to 29-year-olds want to have children and say that being a good parent is one of the most important things in life (Wang & Taylor, 2011).

The decision to become a parent should not be taken lightly. There are positives and negatives associated with parenting that should be considered. Many parents report that having children increases their well-being (White & Dolan, 2009). Researchers have also found that parents, compared to their non-parent peers, are more positive about their lives (Nelson et al., 2013). On the other hand, researchers have also found that parents, compared to non-parents, are more likely to be depressed, report lower levels of marital quality, and feel like their relationship with their partner is more businesslike than intimate (Walker, 2011).

If you do become a parent, your parenting style will impact your child's future success in romantic and parenting relationships. Recall from chapter 5 (early childhood) that there are several different parenting styles. **Authoritative parenting**, arguably the best parenting style, is both demanding and supportive of the child (Maccoby & Martin, 1983). Support refers to the amount of affection, acceptance, and warmth a parent provides. Demandingness refers to the degree a parent controls their child's behavior. Children who have authoritative parents are generally happy, capable, and successful (Maccoby, 1992).

Support for the benefits of authoritative parenting has been found in countries as diverse as the Czech Republic (Dmitrieva et al., 2004), India (Carson et al. 1999), China (Pilgrim et al., 1999), Israel (Mayseless et al., 2003), and Palestine (Punamaki et al., 1997). 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 (Steinberg, 2001). Other researchers are less certain about the superiority of authoritative parenting and point to differences in cultural values and beliefs. For

example, while many European-American children do poorly with too much strictness (authoritarian parenting), Chinese children often do 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 (Chao, 1994).



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## The Development of Parents



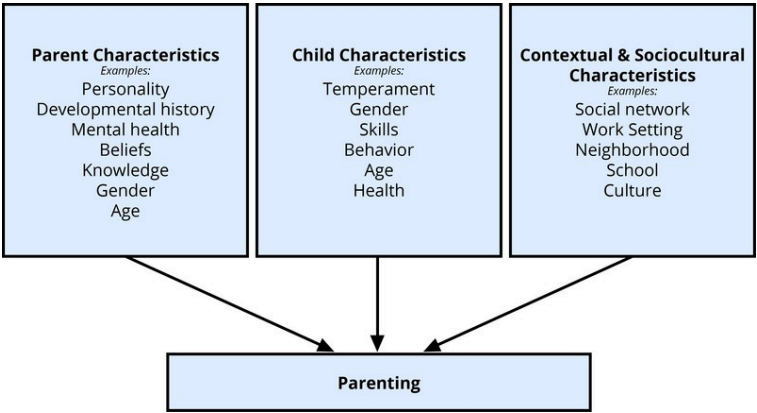
**Think back to an emotional event you experienced as a child. How did your parents react to you? Did your parents get frustrated or criticize you, or did they act patiently and provide support and guidance? Did your parents provide lots of rules for you or let you make decisions on your own? Why do you think your parents behaved the way they did?**

Psychologists have attempted to answer these questions about the influences on parents and understand why parents behave the way they do. Because parents are critical to a child's development, a great deal of research has been focused on the impact that parents have on children. Less is known, however, about the development of parents themselves and the impact of children on parents. Nonetheless, parenting is a major role in an adult's life. Parenthood is often considered a normative developmental task of adulthood.

Cross-cultural studies show that adolescents around the world plan to have children. In fact, most men and women in the United States will become parents by the age of 40 years (Martinez et al., 2012).

People have children for many reasons, including emotional reasons (e.g., the emotional bond with children and the gratification the parent-child relationship brings), economic and utilitarian reasons (e.g., children provide help in the family and support in old age), and social-normative reasons (e.g., adults are expected to have children; children provide status) (Nauck, 2007).

Parenting is a complex process in which parents and children influence 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 (Belsky, 1984; Demick, 1999).



Parents bring unique traits and qualities to the parenting relationship that affect their decisions as parents. These characteristics include the age of the parent, gender, beliefs, personality, knowledge about parenting and child development, and mental and physical health. Parents' personalities affect parenting behaviors. Mothers and fathers 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 (Prinz et al., 2009). 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.

*Parenting is bidirectional.* Not only do parents affect their children, but children also influence their parents. Child characteristics, such as gender, birth order, temperament, and health status, 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 role (Eisenberg et al., 2008). Over time, parents of more difficult children may become more punitive and less patient with their children (Clark et al., 2000; Eisenberg et al., 1999; Kiff et al., 2011). Parents who have a fussy, difficult child are less satisfied with their marriages and have greater challenges in balancing work and family roles (Hyde et al., 2004). Thus, child temperament is one of the child characteristics that influences how parents behave with their children. Another child characteristic is the gender of the child. Parents respond differently to boys and girls. Parents often assign different household chores to their sons and daughters. 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 (Grusec et al., 1996). Parents also talk differently with their sons and daughters, providing more scientific explanations to their sons and using more emotion words with their daughters (Crowley et al., 2001).

The parent-child relationship does not occur in isolation. Sociocultural characteristics, including economic hardship, religion, politics, neighborhoods, schools, and social support, also

influence parenting. Parents who experience economic hardship are more easily frustrated, depressed, and sad, and these emotional characteristics affect their parenting skills (Conger & Conger, 2002). Culture also influences parenting behaviors in fundamental ways. Although promoting the development of skills necessary to function effectively in one's community 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 (Tamis-LeMonda et al., 2008). 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. These differences in parental goals are influenced by culture and by immigration status. Other important contextual characteristics, such as the neighborhood, school, and social networks, also affect parenting, even though these settings don't always include both the child and the parent (Brofenbrenner, 1989). For example, Latina mothers who perceived their neighborhood as more dangerous showed less warmth with their children, perhaps because of the greater stress associated with living a threatening environment (Gonzales et al., 2011). Many contextual factors influence parenting.

## Career Development and Employment (*Ob 16*)

Work plays a significant role in the lives of people, and emerging and early adulthood is the time when most of us make choices that will establish our careers. Career development has a number of stages defined by Super (1980):

**Stage One:** As children, we may select careers based on what appears glamorous or exciting to us (Patton & McMahon, 1999). There is little regard in this stage for whether we are suited for our occupational choices.

**Stage Two:** In the second stage, teens include their abilities and limitations, in addition to the glamour of the occupation when narrowing their choices.

**Stage Three:** Older teens and emerging adults narrow their choices further and begin to weigh more objectively the requirements, rewards, and downsides to careers, along with comparing possible careers with their own interests, values, and future goals (Patton & McMahon, 1999). However, some young people in this stage fall into careers simply because these were what was available at the time, because of family pressures to pursue particular paths, or because these were high paying jobs, rather than from an intrinsic interest in that career path (Patton & McMahon, 1999).

**Stage Four:** Super (1980) suggests that by our mid to late thirties, many adults settle in their careers. Even though they might change companies or move up in their position, there is a sense of continuity and forward motion in their career. However, some people at this point in their working life may feel trapped, especially if there is little opportunity for advancement in a more dead-end job.



*How have things changed for Millennials compared with previous*

*generations of early adults?* 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 (Rottinghaus et al., 2007). Recent research also suggests that Millennials are looking for something different in their place of employment. According to a recent Gallup poll report (2016), 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 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.

Working adults spend a large part of their waking hours in relationships with coworkers and supervisors. People are spending as much, or more, time at work than they are with their family and friends (Kaufman & Hotchkiss, 2003). Riordan and Griffeth (1995) 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 (Armour, 2007). Elsesser and Peplau (2006) found that many workers reported that friendships grew out of collaborative work projects, and these friendships made their days more pleasant. Because these relationships are forced upon us by work, researchers focus less on their presence or absence and instead

focus on their quality. High quality work relationships can make jobs enjoyable and less stressful. This is because workers experience mutual trust and support in the workplace to overcome work challenges. Liking the people we work with can also translate to more humor and fun on the job. Research has shown that supervisors who are more supportive have employees who are more likely to thrive at work (Paterson et al., 2014; Monnot & Beehr, 2014; Winkler et al. 2015). On the other hand, poor quality work relationships can make a job feel like drudgery. Everyone knows that horrible bosses can make the workday unpleasant. Supervisors that are sources of stress have a negative impact on the subjective well-being of their employees (Monnot & Beehr, 2014). Specifically, research has shown that employees who rate their supervisors high on the so-called “dark triad”—psychopathy, narcissism, and Machiavellianism—reported greater psychological distress at work, as well as less job satisfaction (Mathieu et al, 2014). In addition to the direct benefits or costs of work relationships on our well-being, we should also consider how these relationships can impact our job performance. Research has shown that feeling engaged in our work and having a high job performance predicts better health and greater life satisfaction (Shimazu et al.,2015). Given that so many of our waking hours are spent on the job—about 90,000 hours across a lifetime—it makes sense that we should seek out and invest in positive relationships at work.

What role does gender play in career and employment? Gender also has an impact on career choices. Despite the rise in the number of women who work outside of the home, there are some career fields that are still pursued more by men than women. Jobs held by women still tend to cluster in the service sector, such as education, nursing, and child-care worker. While in more technical and scientific careers, women are greatly outnumbered by men. Jobs that have been traditionally held by women tend to have lower status, pay, benefits, and job security (Ceci & Williams, 2007). In recent years, women have made inroads into fields once dominated by males, and today women are almost as likely as men to become

medical doctors or lawyers. Despite these changes, women are more likely to have lower-status, and thus less pay than men in these professions. For instance, women are more likely to be a family practice doctor than a surgeon or are less likely to make partner in a law firm (Ceci & Williams, 2007).

Unfortunately sexism can happen in the workplace. In the United States, women are less likely to be hired or promoted in male-dominated professions, such as engineering, aviation, and construction (Blau et al., 2010; Ceci & Williams, 2011). **Occupational sexism** involves discriminatory practices, statements, or actions, based on a person's sex, that occur in the workplace. This can also include a sexist bias for expectations of workers based on their gender. For example, women are expected to be friendly, passive, and nurturing; when a woman behaves in an unfriendly or assertive manner, she may be disliked or perceived as aggressive because she has violated a gender role (Rudman, 1998). In contrast, a man behaving in a similarly unfriendly or assertive way might be perceived as strong or even gain respect in some circumstances. Another form of occupational sexism is wage discrimination. In 2008, the Organisation for Economic Co-operation and Development (OECD) found that while female employment rates have expanded, and gender employment and wage gaps have narrowed nearly everywhere, on average women still have a 20 percent less chance to have a job. Despite the fact that many countries, including the U.S., have established anti-discrimination laws, these laws are difficult to enforce (Council of Economic Advisors, 2015). US Census Bureau data from 2020 still shows that women of all races earned, on average, just 83 cents for every \$1 earned by men of all races. For reference, in 1960, when women's pay was 61% of men's in the US. In 2021, in the United States, women account for 47% of the overall labor force, yet they make only 40.9% of managers in 2021 (US Census Bureau, 2022).

## Conclusion

Early adulthood is a dynamic stage of life filled with exploration, growth, and the pursuit of significant milestones. It is a time when individuals typically reach their peak physical condition, yet also begin to experience the subtle signs of aging. Cognitively, early adults develop a more nuanced and complex way of thinking, allowing them to navigate the challenges and complexities of adult life with greater flexibility and practicality. This stage is often marked by a focus on establishing intimate relationships and building a solid foundation for future careers. While many individuals follow traditional paths such as marriage and parenthood, it is important to recognize the diverse range of choices and experiences that characterize early adulthood today.

Whether pursuing higher education, embarking on a career, forming committed relationships, or starting a family, early adults are actively shaping their identities and laying the groundwork for their future selves. This period is filled with both exciting possibilities and daunting challenges, as individuals navigate the complexities of love, work, and personal growth. As you embark on your own journey through early adulthood, remember to embrace the opportunities for self-discovery and personal fulfillment, while also remaining adaptable and resilient in the face of life's inevitable changes and uncertainties.

## Chapter Review Practice Quiz



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

<https://open.maricopa.edu/psy240mm/?p=862#h5p-10>

## Chapter 9 Key terms

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A-frame	middle phase (break up)
authoritative parenting	mutual dependency
beginning phase (break up)	occupational sexism
cohabitation	physiological peak
dating cohabitation	premarital cohabitation
dialectical thought	principle of least interest
ending phase (break up)	propinquity
endogamy	rapport
exogamy	self-revelation
filter theory of mate selection	social exchange theory
gamete intra-fallopian tube transfer (GIFT)	substance abuse
H-frame	substitute marriage
In vitro fertilization (IVF)	trial marriage
infertility	triangle love theory (Sternberg)
intimacy vs isolation (Erikson)	wheel of love theory
M-frame	Zygote intra-fallopian tube transfer (ZIFT)
monogamy	

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# Chapter 10: Middle Adulthood



## Objectives

*At the end of this chapter, you will be able to...*

1. Explain trends in life expectancy and healthy life expectancy.
2. List developmental tasks of midlife.
3. Summarize physical changes and health concerns that occur in midlife.
4. Describe physical changes that occur during menopause and the variations in cultural responses to menopause.
5. Contrast menopause and andropause.
6. Explain the relationships between the climacteric and sexual expression.
7. Discuss the impact of diet and exercise on health in midlife.
8. Describe cognitive development in midlife including

differences in crystallized and fluid intelligence.

9. Contrast the expert and the novice.
10. Evaluate the notion of the midlife crisis.
11. Define kin-keeping and the impact of caregiving.
12. Describe Erikson's stage of generativity vs. stagnation.
13. Describe personality changes in midlife.
14. Discuss communication in marriage.
15. Describe the stations of divorce.
16. Discuss issues related to recoupling including remarriage and cohabitation.
17. Describe grandparenting styles.
18. Discuss work-related issues in midlife

***The objectives are indicated in the reading sections below.***

## **Middle Adulthood (Ob 1)**

Middle adulthood (or midlife) refers to the period of the lifespan between young adulthood and old age. This is a relatively new period of life. One hundred years ago, life expectancy in the United States was about 47 years. This period lasts from 20 to 40 years depending on how these stages, ages, and tasks are culturally defined. The most common age definition is from 40 to 65, but there can be a range of up to 10 years on either side of these numbers. For the purpose of this text and this chapter, we will define middle adulthood from age 40 to 65. Research on this period of life is relatively new and many aspects of midlife are still being explored. This may be the least studied period of the lifespan.

Midlife as a central, pivotal period in the life course. It falls at a critical juncture examining changes that go on physically, cognitively, and socially. Midlife has a somewhat unique advantage in the life course with the juxtaposition of gains and losses for aspects of physical, cognitive, and psychosocial changes that go

on. We will identify social benefits and complexities in middle adulthood in addition to identifying aspects of decline in cognitive and physical functions. And this is a varied group. We can see considerable differences in individuals within this developmental stage. There is much to learn about this group.

### **Developmental Tasks (*Ob 2*)**

Lachman (2004) provides a comprehensive overview of the challenges facing midlife adults. These include:

1. Losing parents and experiencing associated grief.
2. Launching children into their own lives.
3. Adjusting to home life without children (often referred to as the empty nest).
4. Dealing with adult children who return to live at home (known as boomerang children in the United States).
5. Becoming grandparents.
6. Preparing for late adulthood.
7. Acting as caregivers for aging parents or spouses.



We will explore these tasks and this stage of life further in this chapter.

## Physical Development in Midlife (*Ob 3*)

There are few biologically based physical changes in midlife other than changes in vision, more joint pain, and weight gain (Lachman, 2004).

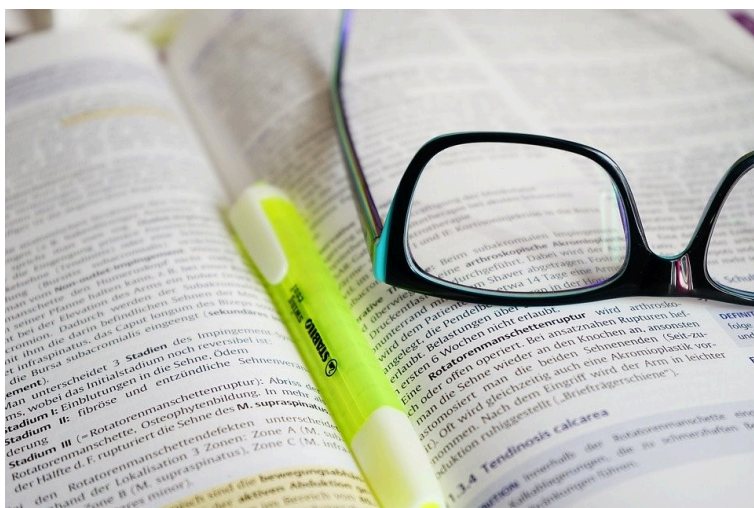
**Hair:** When asked to imagine someone in middle adulthood, we often picture someone with the beginnings of wrinkles and gray or thinning hair. What accounts for these physical changes? Hair color is due to a pigment called melanin which is produced by hair follicles (Martin, 2014). With aging, the hair follicles produce less melanin and this causes the hair to become gray. Hair color typically starts turning lighter at the temples, but eventually, all the hair will become white. For many, graying begins in the 30s, but it is largely determined by your genes. Gray hair occurs earlier in white people and later in Asians. Genes also determine how much hair remains on your head. Almost everyone has some hair loss with aging, and the rate of hair growth slows with aging. Many hair follicles stop producing new hairs and hair strands become smaller. Men begin showing signs of balding by 30 and some are nearly bald by 60. Male-pattern baldness is related to testosterone and is identified by a receding hairline followed by hair loss at the top of the head. Women can also develop female patterned baldness as their hair becomes less dense and the scalp becomes visible (Martin, 2014). Sudden hair loss, however, can be a symptom of a health problem.

**Skin:** Skin continues to dry out and is prone to more wrinkling, particularly on the sensitive face area. Wrinkles, or creases in the skin, are a normal part of aging. As we get older, our skin dries and loses the underlying layer of fat, so our face no longer appears smooth. Loss of muscle tone and thinning skin can make the face appear flabby or drooping. Although wrinkles are a natural part of

aging and genetics plays a role, frequent sun exposure and smoking will cause wrinkles to appear sooner. Dark spots and blotchy skin also occur as one ages and are due to exposure to sunlight (Moskowitz, 2014). Blood vessels become more apparent as the skin continues to dry and get thinner.

**Lungs:** The lungs serve two functions: Supply oxygen and remove carbon dioxide. Thinning of the bones with age can change the shape of the rib cage and result in a loss of lung expansion. Age-related changes in muscles, such as the weakening of the diaphragm, can also reduce lung capacity. Both of these changes will lower oxygen levels in the blood and increase the levels of carbon dioxide. Experiencing shortness of breath and feeling tired can result (NIH, 2014b). In middle adulthood, these changes and their effects are often minimal, especially in people who are non-smokers and physically active. However, in those with chronic bronchitis, or who have experienced frequent pneumonia, asthma other lung-related disorders, or who are smokers, the effects of these normal age changes can be more pronounced.

**Vision:** 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. Middle-aged adults often have trouble seeing up close as a result. A typical 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 developing presbyopia.



According to the National Eye Institute (NEI) (2016), 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 (NEI, 2009).

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 (NIH, 2016c).

**Hearing:** Prior to age 40, about 5.5% of adults report hearing problems. This jumps to 19% among 40 to 69 year-olds (American Psychological Association, 2016). Hearing loss is experienced by about 14 percent of midlife adults (Gratton & Vasquez in Berk, 2007) as a result of being exposed to high levels of noise. Men may experience some hearing loss by 30 and women by 50. High-frequency sounds are the first affected by such hearing loss. This 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. (There is new concern over hearing loss in early adulthood with the widespread use of earbuds)

### *Taking care of health*

Most of the changes that occur in midlife can be easily compensated for (e.g., by buying glasses, exercising, and watching what one eats). Things like eating calcium-rich foods, such as dairy products, almonds, dark leafy greens, salmon, and tofu. Vitamin D helps the body to absorb the calcium in these foods, starting in early adulthood, can strengthen bones and teeth. Additionally, vitamin D is produced naturally by the body but can also be supplemented by foods rich in vitamin D, such as fish, eggs, mushrooms, and

vitamin D–fortified foods, such as milk and cereal. Strength training also helps support balance, metabolism, and cognition (Mayo Clinic, 2023).

Hearing aids offer significant benefits for individuals with hearing loss, yet multiple studies and national surveys indicate that only about 14–29% of older adults with hearing loss in the United States use hearing aids, with usage rates increasing with age and severity of hearing loss. Supportive health care for hearing loss is essential as untreated hearing loss can hinder work, social interactions, daily activities, and even lead to stress, fatigue, and impaired brain function. Preventative care is important, and most midlife adults experience general 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 (Bumpass & Aquilino, 1995).

Midlife adults have to increase their level of exercise, eat less, and watch their nutrition to maintain their earlier physique. However, weight can can happen due to decreased metabolism. Sometimes referred to as the middle-aged spread, 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 during midlife by about one-third (Berger, 2005). Recently semaglutide hormone therapies are being used as medical approaches to weight management, particularly for adults at risk for diabetes and cardiovascular disease. Semaglutide acts on the hypothalamus to reduce appetite and food intake, and initial studies have found promising results for patients using these injectable medications to sustain weight loss and lower risk of cardiovascular disease and diabetes (Lincoff et al., 2023). Semaglutide, a GLP-1 receptor agonist originally developed for type 2 diabetes, is now FDA-approved as Wegovy for weight management and works by reducing appetite and food intake, with studies

showing it helps sustain weight loss and lower cardiovascular and diabetes risk, though more research is needed on its long-term safety and effectiveness.

It becomes important for midlife adults to take preventative measures to enhance physical well-being. Again, lifestyle has a strong impact on the health status of midlife adults. Choosing not to smoke, watch intake of alcohol, have a good diet, reduce stress and keep up on physical activity can improve overall health. 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 (Lachman, 2004).

## Health Concerns

**Sarcopenia:** The loss of muscle mass and strength that occurs with aging is referred to as Sarcopenia (Morley et al., 2001). Sarcopenia is thought to be a significant factor in the frailty and functional impairment that occurs when older. The decline of growth and anabolic hormones, especially testosterone, and decreased physical activity have been implicated as causes of sarcopenia (Proctor et al., 1998). This decline in muscle mass can occur as early as 40 years of age and contributes significantly to a decrease in life quality, increase in health care costs, and early death in older adults (Karakelides & Nair, 2005). In middle age, muscular performance gradually declines at a rate of approximately five percent every ten years. While men and women generally experience a loss of 30 to 40 percent of their functional strength, people can counteract the loss of muscle mass in later years by engaging in a strength training regimen. Sarcopenia has only recently been recognized 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. Exercise is certainly important to increase strength, aerobic capacity, muscle protein synthesis, and new nerve growth (Piasescki et al, 2018), but unfortunately, it does not reverse all the age-related changes that occur. The muscle-to-fat ratio for both men and women also changes throughout middle adulthood, with an accumulation of fat in the stomach area. Human beings reach peak bone mass around 35-40. Mobility can be 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).

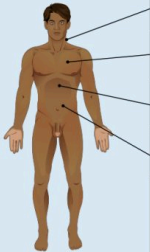

**Heart Disease:** According to the most recent National Vital Statistics Reports (Xu et al., 2016) **heart disease** continues to be the number one cause of death for Americans as it claimed 23.5% of those who died in 2013. It is also the number one cause of death worldwide (WHO, 2019). Heart disease develops slowly over time and typically appears in midlife (Hooker & Pressman, 2016). Heart disease can include heart defects and heart rhythm problems, as well as narrowed, blocked, or stiffened blood vessels referred to as a 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 stroke (Mayo Clinic, 2014a).

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 heartbeat 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.

Symptoms of cardiovascular diseases (including heart disease) differ for men and women. Males are more likely to suffer chest pain. Symptoms may include acute [chest] pain, weakness, dizziness, confusion, and shortness of breath. In fact, chest pain, such as pressure, squeezing, or fullness is a major indicator that doctors look for when diagnosing a heart attack (Becker, 2005). However, women are more likely to demonstrate shortness of breath, nausea, and extreme fatigue. The three most common early warning symptoms among women are extreme fatigue, trouble sleeping, and shortness of breath (even when not engaging in physical exertion). Other symptoms can also include pain in the arms, legs, neck, jaw, throat, abdomen, or back (Mayo Clinic, 2014a). It is important for women and their loved ones to be aware of these symptoms and get medical attention immediately in an acute situation. The most common acute symptoms include shortness of breath, weakness, and fatigue. In addition, prevention and early intervention are also important. A diet low in trans and saturated fat, no smoking, and regular exercise and stress reduction are good preventative measures.

Heart Attack Symptoms			
Men		Women	
	Your jaw, neck, or back may hurt	Your jaw, neck, or back may hurt	
	Your chest may hurt or feel squeezed	Sometimes your chest may hurt	
	You may feel like you can't breathe	You may feel like you can't breathe	
	You may feel sick to your stomach	You may feel sick to your stomach	
	<i>Women may have additional symptoms not usually experienced by men.</i>	You may feel very tired and anxious	
You may experience fainting or dizziness			
You may have indigestion			
You may have pain or pressure in the lower chest or upper abdomen			

*In middle adulthood, cardiovascular disease is a major health risk for all adults. The symptoms of a heart attack may be different for men and women.*

**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 (Nwankwo, Yoon, Burt, & Gu, 2013). It can strain the heart, increase the risk of heart attack and stroke, or damage the kidneys (CDC, 2014a). 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 (Maillard et al., 2012). Normal blood pressure is under 120/80. 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.

**High Cholesterol:** Cholesterol is a waxy fatty substance carried by lipoprotein molecules in the blood. It is created 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). The third type of fat is called triglycerides. Your total cholesterol score is based on all three types of lipids. 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 (CDC, 2015).

**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 (Xu et al., 2016). According to the National Institutes of Health (2015), 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 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 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 (National Institutes of Health, 2015).

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 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. The next most common cancers are lung cancer and prostate cancer (American Cancer Society, 2016).

**Diabetes (Diabetes Mellitus)** is a disease in which the body does not control the amount of glucose in the blood. A typical test for diabetes includes a fasting glucose test. This disease occurs when the body does not make enough insulin or does not use it the way it should (NIH, 2016a). 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 (American Diabetes Association, 2016). 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 (CDC, 2014d). 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 (CDC, 2014d). One in three adults are estimated to have prediabetes, and 9 in 10 of them do not know. According to the CDC (2014d) 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, most adults age 20 and up. The median age of diagnosis is 54 (CDC, 2014d). 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.

**Rheumatoid arthritis (RA)** is an inflammatory disease that causes pain, swelling, stiffness, and loss of function in the joints (NIH, 2016b). Between 30 and 60 is the typical onset age for **rheumatoid arthritis** (RA), with the peak onset for women being sometime in the early 40s. RA occurs when the immune system attacks the membrane lining the joints. RA is the second most common form of arthritis after osteoarthritis, which is the normal wear and tear the joints. Unlike osteoarthritis, RA is 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.



*Cartilage damage from Rheumatoid Arthritis*

Common features of RA (NIH, 2016b):

- 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

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 (NIH, 2016b). It affects women more than men by a factor of around 3 to 1. The lifetime risk for RA for women is 3.6% and 1.7% for men (Crowson et al., 2011).

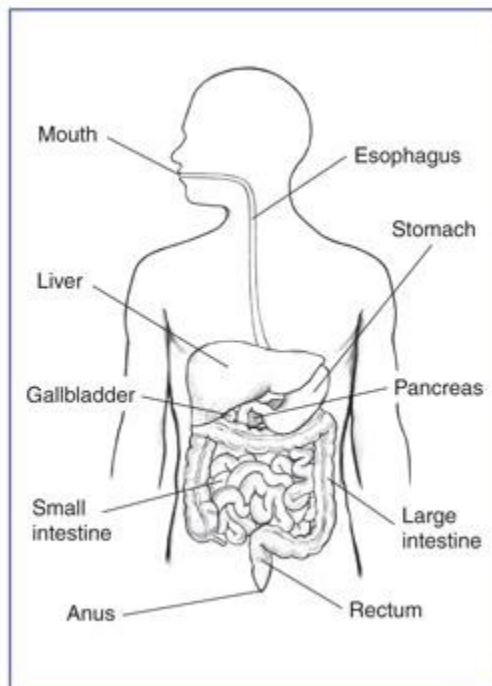
Genes play a role in the development of RA. However, individual genes by themselves confer only a small risk of developing the disease, as some people who have these particular genes never develop RA. Scientists think that something must occur to trigger the disease process in people whose genetic makeup 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 possibly deficiencies or changes in certain hormones may increase the risk of developing RA in a genetically susceptible person (NIH, 2016b).

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 (NIH, 2016b).

## Digestive Issues

In the U.S. 60 million people experience heartburn at least once a month, and 15 million experience it every day. **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. 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. 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 (American College of Gastroenterology, 2016a).



Gallstones are present in about 20% of women and 10% of men over the age of 55 (American College of Gastroenterology, 2016b).

**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. 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 (American College of Gastroenterology, 2016b). Risk factors for gallstones 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 gallstones (NIH, 2013).

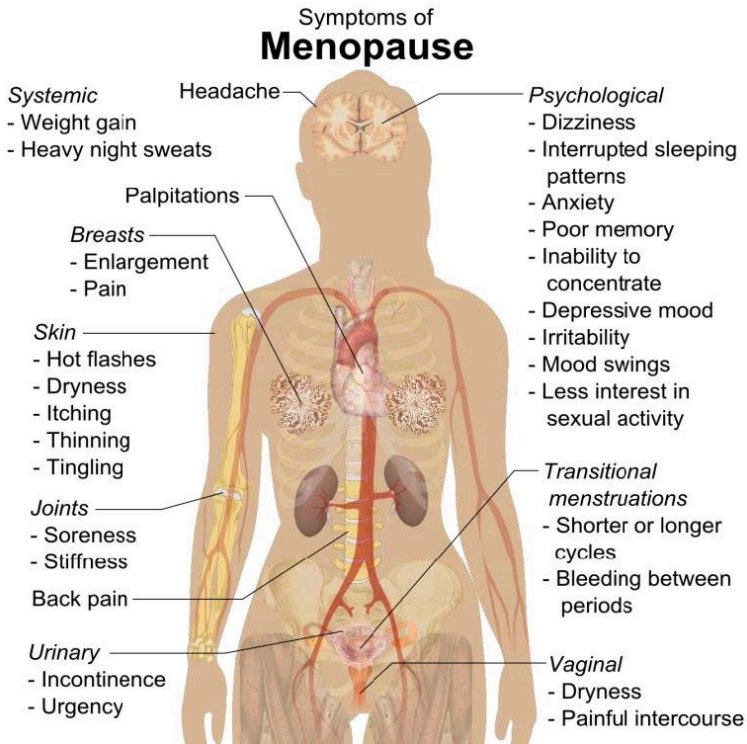
## The Climacteric(*Ob 4, Ob 5, Ob 6*)

One biologically based change that occurs during midlife is the climacteric. The climacteric, or the midlife transition when fertility declines, is biologically based but impacted by the environment. During midlife, men may experience a reduction in their ability to reproduce. Women, however, lose their ability to reproduce once they reach menopause.

**Menopause for women:** Perimenopause refers to a period of transition in which a woman's ovaries stop releasing eggs and the level of estrogen and progesterone production decreases. **Menopause** is defined as 12 months without menstruation. After menopause, a woman's menstruation ceases (U. S. National Library of Medicine and National Institute of Health, 2007).

Changes typically occur between the mid-40s and mid-50s. Many women begin experiencing symptoms in their 40s. These symptoms occur during *perimenopause*, which can occur 2 to 8 years before menopause (Huang, 2007). 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 median age range for women to have her last menstrual period is 50-52, but ages vary. The loss of estrogen also affects vaginal lubrication which diminishes and becomes waterier. The vaginal wall also becomes thinner, and less elastic. The shifting hormones can contribute to the inability to fall asleep. Additionally, the declining levels of estrogen may make a woman more susceptible to environmental factors and stressors which disrupt sleep. A hot flash is a surge of adrenaline that can awaken the brain from sleep. It often produces sweat and a change of temperature that can be disruptive to sleep and comfort levels. Unfortunately, it may take time for adrenaline to recede and allow sleep to occur again (National Sleep Foundation, 2016). Decreased estrogen can cause osteoporosis resulting in decreased bone mass. Depression, irritability, and weight gain are often associated with menopause, but they are not menopausal (Avis et al., 2001; Rossi, 2004). Weight gain can occur due to an increase in intra-abdominal fat followed by a loss of lean body mass after menopause (Morita et al., 2006). Consequently, women may need to change their lifestyle to counter any weight gain. Most American women go through menopause with few problems (Carroll, 2016). Overall, menopause is not seen as universally distressing (Lachman, 2004).



**Hormone Replacement Therapy:** Concerns about the effects of hormone replacement has 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. However, more recently, hormone replacement therapy has been associated with breast cancer, stroke, and the development of blood clots (NIH, 2007). Most women do not have symptoms severe enough to warrant estrogen or hormone replacement therapy. If so, they 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.



**Cultural influences** seem to also play a role in the way menopause is experienced. Numerous international students enrolled in my class have expressed their disbelief when we discuss menopause. For example, after listing the symptoms of menopause, a woman from Kenya or Nigeria might respond, “We do not have this in my country or if we do, it is not a big deal” to which some U. S. students reply, “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 (Obermeyer in Berk, 2007).

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.

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**Andropause for men:** Do males experience a climacteric? They do not lose their ability to reproduce as they age, although they do tend to produce lower levels of testosterone and fewer sperm. **Andropause** is related to decreases in testosterone levels that occur with age. However, men are capable of reproduction throughout life. 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 an erection, loss of muscle mass, and breast enlargement. 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 (The Patient Education Institute, 2005).

Although males can continue to father children throughout middle adulthood, erectile dysfunction (ED) becomes more common. Erectile dysfunction refers to the inability to achieve an erection or an inconsistent ability to achieve an erection (Swierzewski, 2015). Intermittent ED affects as many as 50% of men between the ages of 40 and 70. About 30 million men in the United States experience chronic ED, and the percentages increase with age. Approximately 4% of men in their 40s, 17% of men in their 60s, and 47% of men older than 75 experience chronic ED. Causes for ED are primarily due to medical conditions, including diabetes, kidney disease, alcoholism, and atherosclerosis (build-up of plaque in the arteries). Overall, diseases account for 70% of chronic ED, while psychological factors, such as stress, depression and anxiety account for 10%-20% of all cases. Many of these causes are treatable, and ED is not an inevitable result of aging. Men during middle adulthood may also experience prostate enlargement, which can interfere with urination, and deficient testosterone levels which decline throughout adulthood, but especially after age 50.

## *The Climacteric and Sexuality (Ob 7)*



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 adults. 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. As discussed in the previous paragraph, men who experience consistent problems are likely to have medical conditions (such as diabetes or heart disease) that impact sexual functioning (National Institute on Aging, 2005).

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 (Karraker et al., 2011). 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. Continued sexual activity is linked to better psychological and cognitive health—including lower depression risk and improved memory—with research suggesting a

bidirectional relationship, as both good health can promote sexual activity and sexual intimacy can enhance mood, belonging, and cognitive function, possibly due to neurotransmitter release (Jackson et al, 2019; Wright & Jenks, 2016).

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. In 2014, 16.7% of the country's new HIV diagnoses (7,391 of 44,071) were among people 50 and older, according to the Centers for Disease Control and Prevention (2014e). This was an increase from 15.4% in 2005. Practicing safe sex is important at any age, but unfortunately adults over the age of 40 have the lowest rates of condom use (Center for Sexual Health Promotion, 2010). This low rate of condom use suggests the need to enhance education efforts for older individuals regarding STI risks and prevention. 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 more able to continue to have satisfying and safe sexual relationships.

## Sleep

According to the American Academy of Sleep Medicine (Kasper, 2015), 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 (National Sleep Foundation, 2024). 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 (Jones, 2013). 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. According to a 2016 National Center for Health Statistics analysis (CDC, 2016) 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. Additionally, 43% of Americans in 2013 believed they would feel better with more sleep.

**Sleep problems:** According to the Sleep in America poll (National Sleep Foundation, 2015), 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 duration and worse sleep quality. Those in midlife with lower life satisfaction experienced a greater delay in the onset of sleep than those with higher life satisfaction. Delayed onset of 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 (National Sleep Foundation, 2016).

**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 (Ferrie et al., 2007; Kushida, 2005). Insufficient sleep is linked to an increased risk for colon cancer, breast cancer, heart disease, and type 2 diabetes (Pattison, 2015). 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 associated with longevity. Dew et al. (2003) 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 (Pattison, 2015). 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 (Taylor et al., 2016). 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 disrupting circadian timing may impair glucose metabolism and energy homeostasis.



## Stress

We all know that stress plays a major role in our mental and physical health, but what exactly is stress? The term **stress** is defined as a pattern of physical and psychological responses in an organism after it perceives a threatening event that disturbs its homeostasis and taxes its abilities to cope with the event (Hooker & Pressman, 2016). Stress was originally derived from the field of mechanics where it is used to describe materials under pressure. The word was first used in a psychological manner by researcher Hans Selye.

Selye (1946) coined the term stressor to label a stimulus that had this effect on the body (that is, causing stress). He developed a model of the stress response called the General Adaptation Syndrome, which is a three-phase model of stress, which includes a mobilization of physiological resources phase, a coping phase, and an exhaustion phase (i.e., when an organism fails to cope with the stress adequately and depletes its resources).

Psychologists have studied stress in a myriad of ways, and it is not just major life stressor (e.g., a family death, a natural disaster) that increase the likelihood of getting sick. Stress can result from negative events, chronically difficult situations, a biological fight-or-flight response, and as clinical illness, such as post-traumatic stress disorder (PTSD). Even small daily hassles, like getting stuck in traffic or fighting with your friend, can raise your blood pressure, alter your stress hormones, and even suppress your immune system function (DeLongis et al., 1988; Twisk et al., 1999). Stress continues to be one of the most important and well-studied psychological correlates of illness because excessive stress causes potentially damaging wear and tear on the body and can influence almost any disease process.



**Dispositions and Stress:** Negative dispositions and personality traits have been strongly tied to an array of health risks. One of the earliest negative trait-to-health connections was discovered in the 1950s by two cardiologists. They made the interesting discovery that there were common behavioral and psychological patterns among their heart patients that were not present in other patient samples. This pattern included being competitive, impatient, hostile, and time urgent. These patterns of behavior were associated with double the risk of heart disease as compared with those who did not display those behaviors (Friedman & Rosenman, 1959). Since the 1950s, researchers have discovered that it is the hostility and competitiveness components of personality that are especially harmful to heart health (Irribarren et al., 2000; Matthews et al., 1977; Miller et al., 1996). Hostile individuals are quick to get upset, and this angry arousal can damage the arteries of the heart. In addition, given their negative personality style, hostile people often lack a health-protective supportive social network.

**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 (Holt-Lunstad et al., 2010; House et al., 1988). 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 (Taylor et al., 2000). Social integration is the concept used to describe the number of social roles that you have (Cohen & Willis, 1985). For example, you might be a daughter, a basketball team member, a Humane Society volunteer, a coworker, or 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 (Spiegel et al., 1989).

Social support is important to buffer stress, but caregiving and spousal care can add stress. A disabled child, spouse, parent, or other family member is part of the lives of some midlife adults. 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 (Seltzer et al., 2011). Stress is felt when a caregiving spouse feels strain (Beach et al., 2000; Krause et al., 1992; Schulz et al., 1997). Women experience more caregiving burden than men, despite similar caregiving situations (Gibbons et al., 2014; Torti et al., 2004; Yeager et al., 2010). Women do not use more external support because they feel responsible to assume the caregiving roles (Torti et al., 2004) and have concerns with the opinions of others if they accepted help (Arai et al., 2000). Of concern for caregiving is that disabled males are more aggressive than females, especially males with dementia who display more physical and sexual aggression toward their caregivers (Eastley & Wilcock, 1997; Zuidema et al., 2009).

## Exercise, Nutrition, Coping, and Health (*Ob 8, Ob 9*)



Lifestyle has a strong impact on the health status of midlife adults. Smoking tobacco, drinking alcohol, poor diet, stress, physical inactivity, and chronic diseases 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 (Lachman, 2004). This next section reviews positive ways to keep health in middle adulthood.

## *Exercise*

**The impact of exercise:** Exercise is a powerful way to combat the changes we associate with aging. Exercise plays an important role in counteract normal 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. Exercise increases the levels of serotonin (Young, 2007). Physical activity is also related to reductions in depression and anxiety (De Moor et al., 2006). For example, individuals who regularly exercise are less depressed or anxious than those who do not (De Moor et al., 2006). 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 al (2018) found pronounced links between weight-bearing exercise and neuron production. Many studies suggest that voluntary physical activity extends and improves quality of life. Such studies show that even moderate physical activity can bring large gains. Exercise tends to reduce and prevent behaviors such as smoking, alcohol, and gambling, and to regulate the impulse for hunger and satiety (Vatansever-Ozen et al., 2011; Tiriyaki-Sonmez et al., 2015).

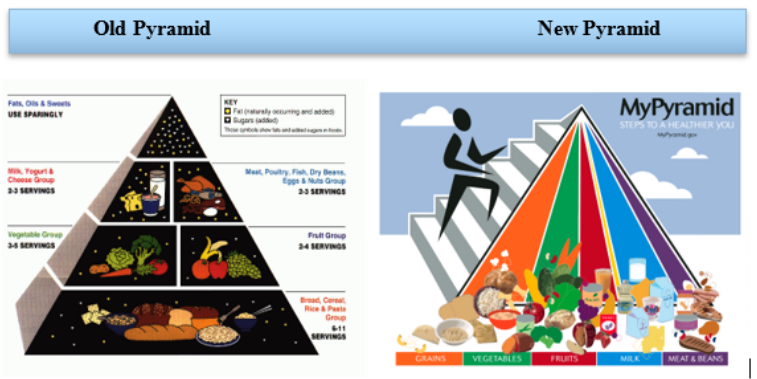
The best exercise programs are those that are engaged in regularly-regardless of the activity. But a well-rounded program that is easy to follow includes walking and weight training. Having a safe, enjoyable place to walk can make a difference in whether or not someone walks regularly. Weight lifting and stretching exercises at home can also be part of an effective program. Exercise is particularly helpful in reducing stress in midlife. 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 (Shure & Cahan, 1998).

*Nutrition*

**Nutritional concerns:** 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 typically 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.

**The new food pyramid:** The ideal diet is one low in fat, sugar, high in fiber, low in sodium, and 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 also 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). The ideal diet is also one 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) can have beneficial effects as well. Red wine can increase “good cholesterol” or HDLs (high-density lipoproteins) in the blood and provides antioxidants important to combating aging.

## *Coping*

**Stress Management:** Around three-quarters of adults (76%) said they have experienced health impacts due to stress in the prior month (American Psychological Association, 2022). Given that the sources of our stress are often difficult to change (e.g., personal finances, current job), a number of interventions have been designed to help reduce the aversive responses to duress, especially related to health. For example, relaxation activities and forms of meditation are techniques that allow individuals to reduce their stress via breathing exercises, muscle relaxation, and mental imagery. Physiological arousal from stress can also be reduced via biofeedback, a technique where the individual is shown bodily information that is not normally available to them (e.g., heart rate), and then taught strategies to alter this signal. This type of intervention has even shown promise in reducing heart and hypertension risk, as well as other serious conditions (Moravec, 2008; Patel et al., 1981). Reducing stress does not have to be complicated. For example, exercise is a great stress reduction activity (Salmon, 2001) that has a myriad of health benefits.

**Coping Strategies:** Coping is often classified into two categories: Problem-focused coping or emotion-focused coping (Carver et al., 1989). **Problem-focused coping** is thought of as actively addressing the event that is causing stress in an effort to solve the issue at

hand. For example, say you have an important exam coming up next week. A problem-focused strategy might be to spend additional time over the weekend studying to make sure you understand all of the material. **Emotion-focused coping**, on the other hand, regulates the emotions that come with stress. In the above examination example, this might mean watching a funny movie to take your mind off the anxiety you are feeling. In the short term, emotion-focused coping might reduce feelings of stress, but problem-focused coping seems to have the greatest impact on mental wellness (Billings & Moos, 1981; Herman-Stabl et al., 1995). That being said, when events are uncontrollable (e.g., the death of a loved one), emotion-focused coping directed at managing your feelings, at first, might be the better strategy. Therefore, it is always important to consider the match of the stressor to the coping strategy when evaluating its plausible benefits.

## Cognitive Development in Midlife (*Ob 10*)

### Brain Functioning

The brain at midlife has been shown to not only maintain many of the abilities of young adults but also gain new ones. Some individuals in middle age actually have improved cognitive functioning (Phillips, 2011). The brain continues to demonstrate plasticity and rewires itself in middle age based on experiences. Research has demonstrated that older adults use more of their brains than younger adults. In fact, older adults who perform the best on tasks are more likely to demonstrate bilateralization than those who perform worst. Additionally, the amount of white matter in the brain, which is responsible for forming connections among neurons, increases into the 50s before it declines.

Emotionally, the middle-aged brain is calmer, less neurotic, more

capable of managing emotions, and better able to negotiate social situations (Phillips, 2011). Older adults tend to focus more on positive information and less on negative information than those younger. In fact, they also remember positive images better than those younger. Additionally, the older adult's amygdala responds less to negative stimuli. Lastly, adults in middle adulthood make better financial decisions, which seems to peak at age 53, and show better economic understanding. Although greater cognitive variability occurs among middle adults when compared to those both younger and older, those in midlife with cognitive improvements tend to be more physically, cognitively, and socially active.

### **Brain Health & Diet**

As general health concerns increase in midlife, many people wonder how to maintain brain health and prevent cognitive decline, dementia, or illnesses like Alzheimer's disease. Researchers have investigated the connection between brain health and various lifestyle factors, including diet. The Mediterranean diet—high in fruit, vegetables, grains, and olive oil and low in red meat and processed foods—has also been associated with protecting healthy brain functioning. In particular, the brains of adults following this eating approach are less likely to exhibit the accumulation of plaques in the brain that lead to cognitive decline and Alzheimer's disease (Agarwal et al., 2023).

Many aspects of the Mediterranean diet can be more affordable than less healthy food choices. For example, protein sources such as lentils and chickpeas are often cheaper than meat-based proteins. However, other food

choices may be more costly, such as using olive oil instead of other sources of fat. Check out this article about [more affordable ways to eat the Mediterranean way](#) to learn what to prioritize on your shopping list.

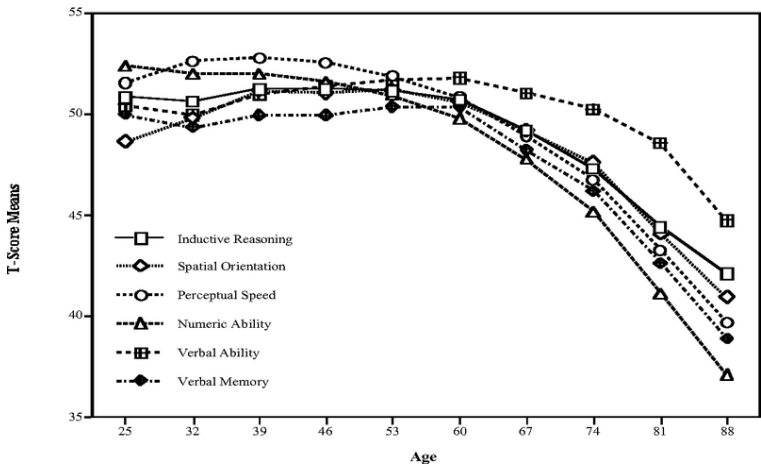
## Information processing

As we age, working memory, or our ability to simultaneously store and use information, becomes less efficient (Craik & Bialystok, 2006). The ability to process information quickly also decreases with age. This slowing of processing speed may explain age differences on many different cognitive tasks (Salthouse, 2004). 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 (Hasher & Zacks, 1988).

With age, systematic declines are observed on cognitive tasks requiring self-initiated, effortful processing, without the aid of supportive memory cues (Park, 2000). In middle age comment about becoming forgetful, yet this is likely due to cognitive overload associated with the responsibilities of parenting, looking after aging parents, maintaining a career, and so on (Mayo Clinic Health System, 2022). Research has not shown middle age people seem to generally function similarly to young adults in terms of memory (Salthouse, 2012).

We will discuss more about memory changes in the next chapter, but we can examine memory changes through longitudinal research (tracking the same individuals over time). 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 (Schaie, 2005; Willis & Shaie, 1999). However, numerical computation and perceptual speed decline in middle and late adulthood.



*Longitudinal estimates of within participant age changes on processing abilities.*

We also see that tacit knowledge and other types of practical thought skills increase with age. **Tacit knowledge** is pragmatic or practical and learned through experience rather than explicitly taught. It 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 by blue-collar workers such as carpenters, chefs, and hairdressers.

## *Plasticity of Intelligence*

Prior research on cognition and aging has been focused on comparing young and old adults and assuming that midlife adults fall somewhere in between. But some abilities may decrease while others improve during midlife. The concept of **plasticity** means that intelligence can be shaped by experience. Intelligence is influenced by culture, social contexts, and personal choices as much as by heredity and age. In fact, there is new evidence that mental exercise or training can have lasting benefits (National Institutes of Health, 2007). We explore aspects of midlife intelligence below.

## Crystalized and Fluid Intelligence

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 have acquired throughout our lives (Salthouse, 2004). These intelligences are distinct, and crystallized intelligence increases with age, while fluid intelligence tends to decrease with age (Horn et al., 1981; Salthouse, 2004). There is a general acceptance that fluid intelligence decreases continually from the 20s, but that crystallized intelligence continues to accumulate.

**Fluid intelligence** refers to information processing abilities (e.g., logical reasoning, remembering lists, spatial ability, and reaction time). Crystallized intelligence encompasses abilities that draw upon experience and knowledge (e.g., vocabulary tests, solving number problems, and understanding texts). **Crystallized**

**intelligence** includes verbal memory, spatial skills, inductive reasoning (generalizing from particular examples), and vocabulary — all of which increase with age (Willis & Shaie, 1999). 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 (Salthouse, 2004). It is this superior knowledge, combined with a slower and complete processing style, along with a more sophisticated understanding of the workings of the world around them, which gives older adults the advantage of “wisdom” over the advantages of fluid intelligence which favor the young (Baltes et al., 1999; Scheibe et al., 2009).

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 or expertise (i.e., crystallized intelligence), although they show poorer memory overall. 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 (Salthouse, 1984). Compared to younger players, older chess experts are able to focus on a smaller set of possible moves, leading to greater cognitive efficiency (Charness, 1981). A young chess player may think more quickly, for instance, but a more experienced chess player has more knowledge to draw on. Older pilots show declines in processing speed and memory capacity, but their overall performance seems to remain intact. According to Phillips (2011) researchers tested pilots age 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. Accrued knowledge of everyday tasks, such as grocery prices, can help older adults to make better decisions than young adults (Tentori et al., 2001).

## Formal Operational Thought (Piaget revisited)

Remember formal operational thought? *Formal operational thought* involves being able to think abstractly; however, this ability does not apply to all situations or subjects. Formal operational thought is influenced by experience and education. Some adults lead patterned, orderly lives in which they are not challenged to think abstractly about their world. Many adults do not receive any formal education and are not taught to think abstractly about situations they have never experienced. Nor are they exposed to conceptual tools used to formally analyze hypothetical situations. Those who do think abstractly, in fact, may be able to do so more easily in some subjects than others. For example, English majors may be able to think abstractly about literature, but be unable to use abstract reasoning in physics or chemistry. Abstract reasoning in a particular field requires a knowledge base that we might not have in all areas. So, our ability to think abstractly depends to a large extent on our experiences. As discussed previously, adults tend to think in more practical terms than do adolescents. Although they may be able to use abstract reasoning when they approach a situation and consider possibilities, they are more likely to think practically about what is likely to occur.

**Flow** is the mental state of being completely present and fully absorbed in a task (Csikszentmihalyi, 1990). When in a state of flow, the individual is able to block outside distractions and the mind are 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. Csikszentmihalyi (1996) 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 in creativity (Kaufman & Gregoire, 2016). Other characteristics of creative people identified by Csikszentmihalyi (1996) include curiosity and drive 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 Csikszentmihalyi (2002) 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.

## Learning in Older Adults(*Ob 11*)

Midlife adults in the United States often find themselves in classrooms. Whether they enroll in school to sharpen particular skills, to retool and reenter the workplace, or to pursue interests that have previously been neglected, these students tend to approach teach differently than do younger college students (Knowles et al., 1998).

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 (Lachman, 2004). An 18-year-old college student may focus more on rote memorization in studying for tests. They may be able to memorize information more quickly than an older student, but not have as thorough a grasp on the meaning of that information. Older students may take a bit longer to learn the material, but 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, “What does this mean?” or “Why is this important?” when being introduced to information or when trying to concepts or facts. Older adults are more task-oriented learners and want to organize their activity

around problem-solving. They see the instructor as a resource person rather than the “expert” and appreciate having their life experience recognized and incorporated into the material being covered. This type of learning is more easily accomplished if adequate time is allowed for mastering the material. Keeping distractions at a minimum and studying when rested and energetic enhances adult learning.

To address the educational needs of those over 50, The American Association of Community Colleges (2016) developed the Plus 50 Initiative that assists community college in creating or expanding programs that focus on workforce training and new careers for the plus-50 population. Since 2008 the program has provided grants for programs to 138 community colleges affecting over 37, 000 students. The participating colleges offer workforce training programs that prepare 50 plus adults for careers in such fields as early childhood educators, certified nursing assistants, substance abuse counselors, adult basic education instructors, and human resources specialists. These training programs are especially beneficial as 80% of people over the age of 50 say they will retire later in life than their parents or continue to work in retirement, including in a new field.

### *Gaining Expertise: The Novice and the Expert (Ob 9)*

We discussed the benefits of expertise with age and now we will discuss more about expert thought. When we work extensively in an area, we may gain expertise. Consider the study skills of a seasoned student versus a new student or a new nurse versus an experienced nurse. One of the major differences is that the new one operates as a novice while the seasoned student or nurse performs more like an expert. An expert has a different approach to learning and problem-solving than does a novice or someone new to a field. While a novice tends to rely on formal procedures or guidelines, the expert relies more on intuition and is more flexible in solving

problems. A novice's performance tends to be more conscious and methodical than experts. An expert tends to perform actions in a more automatic fashion. An expert cook, for example, may be able to prepare a difficult recipe but not really describe how they did it. The novice cook might rigidly adhere to the recipe, hanging on every word and measurement. The expert also has better strategies for tackling problems than does a novice.

**Expertise** refers to specialized skills and knowledge that pertain to a particular topic or activity. In contrast, a **novice** is someone who has limited experiences with a particular task. Everyone develops some level of “selective” expertise in things that are personally meaningful to them, such as making bread, quilting, computer programming, or diagnosing illness. Expert thought is often characterized as intuitive, automatic, strategic, and flexible.

- **Intuitive:** Novices follow particular steps and rules when problem-solving, whereas experts can call upon a vast amount of knowledge and past experience. As a result, their actions appear more intuitive than formulaic. A novice cook may slavishly follow the recipe step by step, while a chef may glance at recipes for ideas and then follow her own procedure.
- **Automatic:** Complex thoughts and actions become more routine for experts. Their reactions appear instinctive over time, and this is because expertise allows us to process information faster and more effectively (Crawford & Channon, 2002).
- **Strategic:** Experts have more effective strategies than non-experts. For instance, while both skilled and novice doctors generate several hypotheses within minutes of an encounter with a patient, the more skilled clinicians' conclusions are likely to be more accurate. In other words, they generate better hypotheses than the novice. This is because they are able to discount misleading symptoms and other distractors and hone in on the most likely problem the patient is experiencing (Norman, 2005).

- **Flexible:** Experts in all fields are more curious and creative; they enjoy a challenge and experiment with new ideas or procedures. The only way for experts to grow in their knowledge is to take on more challenging, rather than routine tasks.

Expertise takes time. It is a long process resulting from experience and practice (Ericsson et al., 2006). Middle-aged adults, with their store of knowledge and experience, are likely to find that when faced with a problem they have likely faced something similar before. This allows them to ignore the irrelevant and focus on the important aspects of the issue. Expertise is one reason why many people often reach the top of their career in middle adulthood. However, expertise cannot fully make-up for all losses in general cognitive functioning as we age. The superior performance of older adults in comparison to younger novices appears to be task specific (Charness & Krampe, 2006). As we age, we also need to be more deliberate in our practice of skills in order to maintain them. Charness and Krampe (2006) in their review of the literature on aging and expertise, also note that the rate of return for our effort diminishes as we age. In other words, increasing practice does not recoup the same advances in older adults as similar efforts do at younger ages.

## Psychosocial Development during Midlife

What do you think is the happiest stage of life? What about the saddest stages? Perhaps surprisingly, Blanchflower & Oswald (2008) 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. Stone et al. (2017) reported a

precipitous drop in perceived stress in men in the U.S. from their early 50s. 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.

## Midlife crisis?(*Ob 10*)

Remember Levinson’s theory from the last chapter? Levinson found that the men he interviewed sometimes had difficulty reconciling the “dream” they held about the future with the reality they now experience. “What do I really get from and give to my wife, children, friends, work, community-and self?” a man might ask (Levinson, 1978, p. 192). 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 early 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. Now is the time. 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. Neugarten (1968) 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.



Changes may involve ending a relationship or modifying one's expectations of a partner. These modifications are easier than changing the self (Levinson, 1978). 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. Greater awareness of aging accompanies feelings of youth. And the 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.

It's important to note that the concept of a midlife crisis is complex and not universally accepted. Although Levinson characterized midlife as a time of developmental crisis research suggests that most people in the United States today do not experience a midlife crisis and that, in fact, many women find midlife a freeing, satisfying period. Results of a 10-year study conducted by the MacArthur Foundation Research Network on Successful Midlife Development, based on telephone interviews with over 3,000 midlife adults suggest that the years between 40 and 60 are ones marked by a sense of well-being. Only 23 percent of their participants reported experiencing a midlife crisis. The crisis tended to occur among the highly educated and was triggered by a major life event rather than out of fear of aging (Research Network on Successful Midlife Development, 2007). The Midlife in the United States Study, MIDUS, survey also shows that a crisis is not a typical midlife phenomenon. Certainly, some do have a crisis in midlife, with between 10 and 20% in the U.S. reporting one (Wethington, 2000). Of those who say they have had a midlife crisis, about half say it involves inner turmoil or angst associated with getting older. For the rest, it is tied to events such as divorce, job loss, or health problems, which can occur at any age period (Wethington, 2000). Those who do experience a crisis in midlife are usually those who have upheavals at other times in their lives, and these individuals seem to be driven more by a neurotic personality than advancing age (Lachman, 2004). Nevertheless, sales of products designed to make one feel younger and “over the hill” birthday parties with black balloons and banners abound.

## Goal Perspective Taking

One of the reasons the men in Levinson's study became concerned about their life was because it had not followed the course they had envisioned. Shapiro (2006) offers an alternative to linear thinking about the future and career paths. Many plan their futures by using a map. They have a sense of where they are and where they want to be and form strategies to get from point A to point B. While this seems perfectly logical, Shapiro suggests that following a map closes one to opportunities for the future and provides a standard by which all actual events may fall short. Life, then, is evaluated by how closely actual life events have followed the map. If so, all is well. If not, a feeling of frustration and failure creeps in. Shapiro suggests using a compass rather than a map as one's guide. A compass indicates a direction but does not provide a destination. So, an individual has direction and areas of interest that guide decision-making but does not know the outcome. (Many of us do not know the outcome—even when we follow a map!) This approach opens a person up to possibilities that often occur by chance and frees one from being stressed or devastated if a preset destination is not reached by a certain time. And more importantly, compass-guided living focuses a person's attention on the process of the journey and helps them appreciate all of their experiences along the way.



**What do you think? How many of your plans were mapped out previously? Could you be happy knowing that you do not know where you will be 5 years from now?**



*Shapiro suggests a compass analogy to focus on process as one ages.*

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## Finding Gender Identity at Midlife: The Story of Erika

The late 40s brought about dramatic change in Erika's life. Erika is a transsexual who began the process of transitioning from male to female at about age 48. Since about age 8, Erika (then Richard) felt that he was more feminine than masculine. An impromptu game of "dress up" with a girl who lived in the neighborhood left Richard feeling a sense of connection and 'rightness' he had not before experienced. Through the years, dressing up and wearing make-up provided comfort and relief as well as the anxiety of possibly being discovered. Richard married and pursued a career in the military and later as a geologist, two very masculine careers, but all the while felt out of place in a masculine world.

Through the years, discomfort gave rise to depression and thoughts of suicide. "I felt like some sick, weird person." Not knowing what was wrong and not having anyone to talk to was very difficult. Erika finally found out what was wrong after searching the internet. First, she looked up "transvestite." "Is that what I am?" she wondered. But these descriptions did not apply. Finally, she learned about **gender dysphoria**, marked by a feeling of discomfort and disconnection between one's sense of self and biological gender. Eventually, Richard got the courage to tell his wife. Her response was, "you're killing my husband," to which he replied, "He would have died anyway." The couple separated after 24 years of marriage. After several months, however, the couple got back together. "We were just too good of friends to break up." But her wife did not want to see it, initially. "I would get dressed in the garage or dress like a man from the waist up and then stop behind a grocery store and finish changing before I got to my destination."

Erika found a psychologist in the phone book and began treatment under the Harry Benjamin standard of care. This care requires that an individual be identified as transsexual by two psychologists, and lives completely as a member of the other sex for one year before beginning surgical and hormonal treatments. Erika's surgery cost about \$30,000. Hormone therapy and electrolysis cost far more.

Now in their 30th year together, Erika, and her wife live under the same roof, but no longer share a bedroom. Erika now has full status through the state and government as a female. And her wife is a warm, accepting, roommate. "The day that she yelled from her bedroom, 'do you have any pantyhose' was an important one." And seeing her lipstick on the rim of a wine glass created a feeling of congruence for Erika. Erika could now be Erika.

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## Erikson's Theory (*Ob 12*)

According to Erikson, midlife adults face the crisis of **generativity vs. stagnation**. According to Erikson (1982) generativity

encompasses procreativity, productivity, and creativity. This stage includes the generation of new beings, new products, and new ideas, as well as self-generation concerned with further identity development. This involves looking at one's life while asking the question, "Am I doing anything worthwhile? Is anyone going to know that I was here? What am I contributing to others?" If not, a feeling of being stuck or stagnated may result. This discomfort can motivate a person to redirect energies into more meaningful activities. It is important to make revisions here so that in later life, one may feel a sense of pride and accomplishment and feel content with the choices that have been made.

Erikson believed that the stage of generativity, during which one established a family and career, was the longest of all the stages. Erikson believed that those in middle adulthood should "take care of the persons, the products, and the ideas one has learned to care for" (Erikson, 1982, p. 67). Erikson further argued that generativity occurred best after the individual had resolved issues of identity and intimacy (Peterson & Duncan, 2007). Individuals at midlife are primarily concerned with leaving a positive legacy of themselves, and according to Erikson (1950) parenthood is the primary generative type. Erikson understood that work and family relationships may be in conflict due to the obligations and responsibilities of each, but he believed it was overall a positive developmental time. In addition to being parents and working, Erikson also described individuals being involved in the community during this stage. A sense of stagnation occurs when one is not active in generative matters, however, stagnation can motivate a person to redirect energies into more meaningful activities.



Erikson believed that those in middle adulthood should “take care of the persons, the products, and the ideas one has learned to care for” (Erikson, 1982, p. 67). Further, Erikson believed that the strengths gained from the six earlier stages are essential for the generational task of cultivating strength in the next generation. Erikson further argued that generativity occurred best after the individual had resolved issues of identity and intimacy (Peterson & Duncan, 2007).

Research has demonstrated that generative adults possess many positive characteristics, including good cultural knowledge and healthy adaptation to the world (Peterson & Duncan, 2007). Using the **Big 5 personality traits**, generative women and men scored high on conscientiousness, extraversion, agreeableness, openness to experience, and low on neuroticism (de St. Aubin & McAdams, 1995; Peterson et al., 1997). Additionally, women scoring high in generativity at age 52, were rated high in positive personality characteristics, satisfaction with marriage and motherhood, and successful aging at age 62 (Peterson & Duncan, 2007). Similarly, men rated higher in generativity at midlife were associated with stronger

global cognitive functioning (e.g., memory, attention, calculation), stronger executive functioning (e.g., response inhibition, abstract thinking, cognitive flexibility), and lower levels of depression in late adulthood (Malone et al., 2016).

Erikson (1982) indicated that at the end of this demanding stage, individuals might withdraw as generativity is no longer expected in late adulthood. This releases elders from the task of care taking or working. However, not feeling needed or challenged may result in stagnation, and consequently one should not fully withdraw from generative tasks as they enter Erikson's last stage in late adulthood.

## Personality in Midlife (*Ob 14*)

Does personality change in midlife? If you think about your parents or other adults you've known for some time, you might notice that some seem to remain much the same, while others show new sides of themselves as they age. Some theorists argue that personality becomes more stable in middle adulthood, especially compared to the changes seen in adolescence and early adulthood. Research, including findings from the MIDUS project and other longitudinal studies, generally supports this view: most adults maintain consistent patterns in the Big Five personality traits—openness, conscientiousness, extraversion, agreeableness, and neuroticism—over time (Lucas & Donnellan, 2011; Roberts & Mroczek, 2008). This stability is thought to be rooted in both biological heredity and gene-environment correlations, where individuals seek out environments that reinforce their natural dispositions. However, contemporary research also acknowledges that while many people's personalities are relatively stable, others do experience meaningful changes, often in response to significant life events or shifting roles.

At the same time, middle adulthood is a period of ongoing personality development as adults adapt to new roles at home,

work, and in their communities. Whether it's the development of new personal qualities with age, or life changes themselves that foster growth, this stage is often marked by increasing socioemotional maturity. For example, conscientiousness tends to increase as adults take on more responsibilities, and research shows that adults in midlife are more likely to prioritize generativity, altruism, and concern for future generations—reflecting Erikson's virtue of care. Longitudinal studies reveal average increases in agreeableness and conscientiousness, mixed findings for openness, a reduction in neuroticism (especially in women), and little change in extraversion (Damian et al., 2019; Roberts, Wood & Caspi, 2008). These changes, sometimes referred to as “maturation,” may be both a cause and effect of other psychosocial developments during this stage of life. Importantly, traits like conscientiousness have been linked to positive life outcomes, including job success, health, and longevity.

The interplay between stability and change in personality during midlife is further shaped by the **goodness-of-fit**: adults are most satisfied and successful when their interests, goals, and traits align with their environments. Positive alignment can foster growth and well-being, while misalignment or negative experiences, such as family-work conflict, can predict anxiety and less adaptive personality changes. Yet growth can also emerge from adversity; for example, adults who use goal-oriented coping in response to health fears may adopt healthier behaviors, and cancer survivors often report increased personal mastery. Ultimately, personality in midlife reflects both enduring patterns and the capacity for meaningful growth and adaptation.

## Productivity at home and family (*Ob 14*)

**Family relationships:** Younger and older adults tend to experience more spouse-related stress than do midlife adults. Midlife adults

often have **overload stressors** such as having too many demands placed on them by children or due to financial concerns. Parents adjust to launching their children into lives of their own during this time. Some parents who feel uncomfortable about their children leaving home may actually precipitate a crisis to keep it from happening or push their child out too soon (Anderson & Sabatelli, 2007). When children leave the house this is known as the **empty nest**. The **empty nest**, or post-parental period (Dennerstein et al., 2002), refers to the time period when children are grown up and have left home. For most parents this occurs during midlife. This time is recognized as a “normative event” as parents are aware that their children will become adults and eventually leave home (Mitchell & Lovegreen, 2009). The empty nest creates complex emotions, both positive and negative, for many parents. Some theorists suggest this is a time of role loss for parents, others suggest it is one of role strain relief (Bouchard, 2013). A number of studies in China suggest that empty-nesters, especially in more rural areas of China, report greater loneliness and depression than their counterparts with children still at home (Wu et al., 2010). Family support for the elderly by their children is a cherished Chinese tradition (Wong & Leung, 2012).

It can be typical for those in midlife to be carrying for a parent while still supporting their grown children. The sandwich generation refers to adults who have at least one parent age 65 or older and are either raising their own children or providing support for their grown children. According to a recent Pew Research survey, 47% of middle-aged adults are part of this sandwich generation (Parker & Patten, 2013). In addition, 15% of middle-aged adults are providing financial support to an older parent while raising or supporting their own children. According to the same survey, almost half (48%) of middle-aged adults, have supported their adult children in the past year, and 27% are the primary source of support for their grown children.

Adult children typically maintain frequent contact with their parents if for no other reason, for 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. And, like 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.” And adult children who are returning after having lived independently outside the home, known as **boomerang kids**, may return home to live temporarily after divorces, for mental health issues, or if they lose employment. Parker (2012) found that 63% of 18 to 34 year-olds know someone who has returned to live with their parents (Sandberg-Thoma et al., 2015).

In previous chapters you have read about the effects that parents have on their children's development, but remember that this relationship is bidirectional. The problems faced by children, even when those children are adults, influence the lives of their parents. Greenfield and Marks (2006) found in their study of middle-aged parents and their adult children, those parents whose children were dealing with personal problems reported more negative affect, lower self-acceptance, poorer parent-child interactions, and more family relationship stress. The more problems the adult children were facing, the worse the lives and emotional health of their parents, with single parents faring the worst.



Being a midlife child sometimes involves **kinkeeping**; organizing events and communication in order to maintain family ties. Kin-keepers 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), but kin-keepers can be midlife sons as well. Leach and Braithwaite found that 86% of their respondents named a woman as their family's kin-keeper, and Brown and DeRycke found that mothers, maternal grandmothers, and paternal grandmothers were more likely to be a family's kinkeeper than were fathers, young adult children, and grandfathers combined. Brown and DeRycke also found that among young adults, women were more likely to be a kin-keeper than were young adult men. Kinkeeping can be a source of distress when it interferes with other obligations (Gerstel & Gallagher, 1993). Gerstel and Gallagher found that on average, kin-keepers provide almost a full week of work each month to kin-keeping (almost 34 hours). They also found that the more activities the kin-keeper took on, and the more kin they helped the more

stress and higher the levels of depression a kin-keeper experienced. However, unlike other studies on kin-keeping, Gerstel and Gallagher also included a number of activities that would be considered more “caregiving,” such as providing transportation, making repairs, providing meals, etc. in addition to the usual activities of kin-keeping.

**Caregiving** of a disabled child, spouse, or other family member is part of the lives of some midlife adults. Overall, one major source of stress is that of trying to balance caregiving with meeting the demands of work away from home. Caregiving can have both positive and negative consequences that depend in part on the gender of the caregiver and the person receiving the care. Men and women express greater distress when caring for a spouse than when caring for other family members. Men who care are providing care for a spouse are more likely to experience greater hostility but also more personal growth than non-caregiving males. Men who are caring for disabled children express having more positive relationships with others. Women experience more positive relationships with others and greater purpose in life when caring for parents either in or outside of their home. But women who are caring for disabled children may experience poorer health and greater distress as a result (Marks, 1998).

According to the National Alliance for Caregiving (2022), 53 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. Currently 25% of adult children, mainly baby boomers, provide personal or financial care to a parent (Metlife, 2011). 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

(Metlife, 2011). This loss can jeopardize the adult child's financial future. Consequently, there is a need for greater workplace flexibility for working caregivers.

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:

- Teach morality—fostering a sense of moral development in children can promote well-being (Damon, 2004).
- Savor the good—celebrate each other's successes (Gable et al., 2006).
- 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 (Armstrong et al., 2005).
- Create family identity—share inside jokes, fond memories, and frame the story of the family (McAdams, 1993).
- Forgive—Don't hold grudges against one another (McCullough et al., 1997).

The [National Alliance for Caregiving](#) seeks to “support and empower family caregivers to thrive at home, work, and life” through research, policy analysis, and advocacy. To increase the visibility of caregivers in the United States, they collect and share stories of the lived experiences of real people. Read some of these stories or share your own on their website.

## Intimate Relationships

**Single or Spouse-free?** The number of adults who remain single has continued to increase. As of 2022, singles represent almost half (49.3%) of American households (U.S. Census Bureau). Nearly 1 in 5 adults between the ages of 45 and 54 have never married, and over 1 in 10 adults aged 55 and older have never married. While some of these individuals may be living with a partner, the trend towards singlehood is clear. Singlehood has become an increasingly accepted lifestyle, and many singles are very happy with their status.

Many of the research findings of singles reveal that they are not all alike. Happiness with one's status depends on whether the person is single by choice and whether the situation is permanent. Bella DePaulo's (2014) 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.

**Online Dating:** Montenegro (2003) 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 & Mendelsohn (2013) 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:** Thirty-six countries (fewer than 20 percent of all countries across the globe) have legalized same-sex marriage as of 2024. It has been said that marriage can be the greatest source of happiness or pain in one's life, depending on the relationship. Those who are in marriages can experience deeper happiness and pain than those who are unattached. All marriages are not alike and the same marriage between two people may change through

the years. Pew Research indicated that 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 (Landsford et al., 2005). 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 (Umberson et al., 2005). Below we will look at how satisfaction with marriage is affected by the life cycle and two ways to characterizing marriages.



**Marital satisfaction & the life cycle:** 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 become more traditional and there are more financial hardships and stress in living. Then it begins to improve when children leave home. 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.

## Marital Communication (*Ob 15*)

Advice on how to improve one's marriage is centuries old. One of today's experts on marital communication is John Gottman. Gottman (1999) 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 measures 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, 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," also known as the **4-horsemen**: contempt, criticism, defensiveness, and stonewalling. Each of these undermines the politeness and respect that healthy marriages require. And stonewalling, or shutting someone out, is the strongest sign that a relationship is destined to fail.

### **Table. Gottman's 4 horsemen and more positive approaches**

<b>Gottman's horsemen</b>	<b>Possible Solutions</b>
Contempt: Attacking character	Make requests
Criticism: Ridicule or disrespect, thinking lesser	Appreciate and respect
Defensiveness: self-protection or retaliation, shifting to partner's flaws	Accept responsibility
Stonewalling: withdraw from interaction, avoidance of conflict, turning away, acting busy	Self-soothe & reengage

*Adapted from Gottman (2017)*



## Divorce (*Ob 16*)

Livingston (2014) found that 27% of adults age 45 to 54 were divorced. 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 women (AARP, 2009). 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 Lin (2013) 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 Levenson (2000) 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 AARP (2009) 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. Divorce at midlife is more stressful for women. In the AARP (2009) 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 used the experience to better themselves or grow emotionally (Hetherington & Kelly, 2002).

**Dating Post-Divorce:** Most divorced adults have dated by one year after filing for divorce (Anderson et al., 2004; Anderson & Greene, 2011). 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. 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.

Post-divorce parents gatekeep, that is, they regulate the flow of information about their new 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. (2004) 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.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=884#oembed-1>

## How Do Children Influence Recoupling/ 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. One of the reasons for this is because women with children have less time and fewer resources for dating. Dating is difficult for a woman who has to find a babysitter, pay for a babysitter, and 'come home on time' if she is concerned about what her children think about her relationships. There is more guilt experienced about going out and finding the time and location for sexual intimacy can be problematic. Men may shy away from the responsibility of children or may find it difficult to get along with a girlfriend's children. And parents may find it difficult to date someone who wants to change the relationship they have with their children. Sometimes, she may feel pulled in

two directions as the children and the man in her life all seek attention and engage in power struggles to get it. Some women decide that it is easier to be single than to experience such divisions. (This can also be true for men whose dates try to establish their importance over the importance of the children.) Children usually remain central to a single parent's life.

Having children in the home appears to increase single men's likelihood of marrying a woman with children (Stewart et al., 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 Kaufman (2006) 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 et al. (2003) identified two types of parents. The child- focused parent allows the child's views, reactions, and needs to influence the repartnering. In contrast, the adult-focused parent expects that their child can adapt and should accommodate to parental wishes.

Anderson and Greene (2011) 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.

## Remarriage (*Ob 17*)

**Rates of remarriage:** Half of all marriages are remarriages for at least one partner. 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 (Payne, 2015). Brown and Lin (2013) found that the rate of remarriage dropped more for younger adults than middle aged and older adults, and Livingston (2014) found that as we age we are more likely to have remarried (see Figure 8.33). 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 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.

**Success of Remarriage:** Reviews are mixed as to the happiness and success of remarriages. Cohabitation is the main way couples prepare for remarriage, but even when living together, many important issues are still not discussed. Issues concerning money, ex-spouses, children, visitation, future plans, previous difficulties in marriage, etc. can all pose problems later in the relationship. And few couples engage in premarital counseling or other structured efforts to cover this ground before entering marriage again. While some remarriages are more successful, especially if the divorce motivated the adult to engage in self-improvement and personal growth (Hetherington & Kelly, 2002), a number of divorced adults end up in very similar marriages the second or third time around (Hetherington & Kelly, 2002).

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 (Payne, 2015), which can add additional burdens, especially when children are involved.

**Factors affecting remarriage:** The chances of remarrying depend on a number of things. First, it depends on the availability of partners. As time goes by, there are more available women than men in the marriage pool. Consequently, men are more likely than women to remarry. This lack of available partners is experienced by all women, but especially by African-American women where the ratio of women to men is quite high. Women are more likely to have children living with them, and this diminishes the chance of remarriage as well. And marriage is more attractive for males than females (Seccombe & Warner, 2004). Men tend to remarry sooner (3 years after divorce on average vs. 5 years on average for women).

Many women do not remarry because they do not want to remarry. Traditionally, marriage has provided more benefits to men than to women. Women typically have to make more adjustments in work (accommodating work life to meet family demands or the approval of the husband) and at home (taking more responsibility for household duties). Further, men's physical desirability is not as influenced by aging as is women's. The cultural emphasis on youth and physical beauty for women does not apply for men. Today, there are more women with higher levels of education than before and women with higher levels are less likely to find partners matching this expectation. Being happily single requires being economically self-sufficient and being psychologically independent. Women in this situation may find remarriage much less attractive.

## 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. In the U.S., The average age of becoming a grandparent is 50, although many individuals become grandparents even earlier (AARP, 2018). The role of grandparents 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. (Pew Research Center, 2010).



Cherlin and Furstenberg (1986) describe three styles of grandparents:

1. **Remote:** Thirty percent of grandparents rarely see their grandchildren. Usually, they live far away from their grandchildren but may also have a distant relationship. Contact is typically made on special occasions, such as holidays or birthdays.

2. **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.

3. **Involved:** Fifteen percent of grandparents were described as “involved.” These grandparents take a very active role in their grandchild’s life. The 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 (Neugarten & Weinstein, 1964).

Bengtson (2001) 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 (Hayslip et al., 2003).

Early research on grandparents has routinely focused on grandmothers, with grandfathers often becoming invisible members of the family (Sorensen & Cooper, 2010). Yet, grandfathers stress the importance of their relationships with their grandchildren as strongly as do grandmothers (Waldrop et al., 1999). 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 (Sorenson & Cooper, 2010). 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 they were more openly affectionate with their grandchildren than they had been with their own children.

## **Productivity at Work (*Ob 18*)**

Middle adulthood is characterized by a time of transition, change, and renewal. The midlife worker must be flexible, stay current with technology, and be capable of working within a global community. We have already discussed expertise as part of our look at cognitive development in midlife. Work and midlife include many scenarios. A person may be at their peak of performance at work during this time. Connections between work units, companies, culture, and operations may be appreciated for the first time and with that, a midlife worker may be able to contribute to an organization in new, more comprehensive ways. Midlife may also be the peak time for earning and spending to meet the demands of launching children or caring for aging parents. Some experience stable careers while others experience layoffs and find themselves back in school to gain new skills for reemployment. Others experience discrimination due to age or find it difficult to gain employment because of the higher salary demands compared with younger, less experienced workers (Barnett, 1997). 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 (Lachman, 2004). 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. Some midlife adults anticipate retirement, while others may be postponing it for financial reasons.

**Climate in the Workplace for Middle-aged Adults:** Attitudes about work and satisfaction from work tend to undergo a transformation or reorientation during this time. Age is positively related to job satisfaction—the older we get the more we derive satisfaction from work (Ng & Feldman, 2010). A number of studies have found that job satisfaction tends to peak in middle adulthood (Besen et al., 2013; Easterlin, 2006). 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 (Tangri et al., 2003). 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 (Easterlin, 2006).

However, not all middle-aged adults are happy in the workplace. Dobrow et al. (2018) found that job satisfaction in those aged 43-51 was correlated with advancing age, but that there was increased dissatisfaction the longer one stayed in the same job. There is a reluctance to tolerate a work situation deemed unsuitable or unsatisfying. Years left, as opposed to years spent, necessitates a sense of purpose in all daily activities and interactions, including work. Additionally, 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 (Barreto et al., 2009). 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 days (International Labour Organization, 2011), the United

States does not (U.S. Department of Labor, 2016). Not all employees are covered under overtime pay laws (U.S. Department of Labor, 2016). 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 workweek for many is almost a full day longer (47 hours), with 39% working 50 or more hours per week (Saad, 2014). In comparison to workers in many other developed nations, American workers work more hours per year (Organisation for Economic Cooperation and Development, 2016). Americans work more hours than most European nations, especially western and northern Europe, although they work fewer hours than workers in other nations, especially Mexico.

One of the most influential researchers in this field, Dorien Kooij (2013) identified four key motivations in older adults continuing to work. First, growth or development motivation- looking for new challenges in the work environment. The second are feelings of recognition and power. Third, feelings of power and security afforded by income and possible health benefits. Interestingly enough, the fourth area of motivation was Erikson's generativity. The latter has been criticized for a lack of support in terms of empirical research findings, but two studies (Zacher et al, 2012; Ghislieri & Gatti, 2012) found that a primary motivation in continuing to work was the desire to pass on skills and experience, a process they describe as leader generativity. Perhaps a more straightforward term might be mentoring. In any case, the concept of generative leadership is now firmly established in the business and organizational management literature.



The workplace today is one in which many people from various walks of life come together. Work schedules are more flexible and varied, and more work independently from home or anywhere there is an internet connection. The midlife worker must be flexible, stay current with technology, and be capable of working within a global community. And the midlife mind seeks meaningful work.

***Reflection activity: Preparing for Middle Age***

*“Aging is the extraordinary process whereby you become the person you always should have been.” —David Bowie*

Visualize your possible self as a fifty-five-year-old adult self. If you are already fifty-five years old or older, then compare what you would have imagined as a twenty-two-year-old with your actual self. What is your life like at fifty-five years old? What are the most

important relationships in your life? Where are you living? What makes you happy? What have been your biggest challenges? Use that visualization to chart a pathway from early adulthood through middle adulthood that focuses on one or two important goals for well-being that utilize your current strengths and priorities to address challenges and maximize healthy and productive growth.

- Two important goals as I complete middle adulthood are (1)\_\_\_\_\_ (2)\_\_\_\_\_
- How do these goals align with my current priorities and values? \_\_\_\_\_
- What strengths do I already have that will help me to reach these goals? (1)\_\_\_\_ (2)\_\_\_\_
- What challenges do I anticipate in trying to reach these goals (could be personal, environmental, or social factors)?  
(1)\_\_\_\_\_
- (2)\_\_\_\_\_
- What resources will I need to find or develop to help address these challenges (could be personal, environmental, or social factors)?  
(1)\_\_\_\_\_ (2)\_\_\_\_\_
- What are the next best steps towards achieving this goal? (1)\_\_\_\_\_ (2) \_\_\_\_\_
- How will my life change once I achieve this goal? What will improve? What new challenges might arise?  
\_\_\_\_\_  
\_\_\_\_\_

## Conclusion

We have portrayed midlife as a central, pivotal period in the life course. Midlife is a period of transition. This is a pivotal period in the life course in terms of balancing growth and decline, linking earlier and later periods of life, and bridging younger and older generations. Midlife links childhood experiences with midlife health and lifestyle in midlife with health in old age. Overall, longitudinal research indicates that overall perceptions of well being and life satisfaction tend to increase in middle adulthood (Buecker et al., 2023). Middle adulthood also plays out at the interpersonal, intergenerational levels through roles such as parenting, caregiving, and mentoring. It is also a time of productivity and expertise; a time of putting things together. A clear sense of self, identity, and control can be important for meeting the challenges of midlife (Lachman & Firth, 2004). We understand more about midlife in the context of the life course. Yet, there is more to be learned. The story of midlife will continue to unfold as more attention is given to it as a part of the lifespan.

## Chapter Review Practice Quiz



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

<https://open.maricopa.edu/psy240mm/?p=884#h5p-11>

## Chapter 10 Key terms (see Glossary)

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4-horsemen (Gottman)	hypertension
andropause	kinkeeping
big-5 personality traits	menopause
boomerang kids	novice
crystallized intelligence	overload stressors
diabetes	plasticity
emotion-focused coping	presbyopia
empty nest	problem-focused coping
expertise	rheumatoid arthritis
flow	sarcopenia
fluid intelligence	sleep apnea
gallstones	stress
gender dysphoria	sudden cardiac arrest
generativity vs. stagnation (Erikson)	tacit knowledge
goodness-of-fit	
heart disease	
heartburn	

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# Chapter 11: Late Adulthood



## Objectives:

*At the end of this lesson, you will be able to...*

1. Differentiate between impaired, normal, and optimal aging.
2. Report numbers of people in late adulthood age categories in the United States.
3. Discuss changes in the age structure of society in the U. S. and globally.
4. Report life expectancies in the United States based on gender, race, and ethnicity.
5. Explain the reasons for changes in life expectancies.
6. Identify examples of ageism.
7. Compare primary and secondary aging.
8. Report on the leading sources of secondary aging.

9. Describe changes in the senses in late adulthood.
10. Discuss the impact of aging on the sensory register, working memory, and long-term memory.
11. Describe theories of aging.
12. Define Hayflick Limit.
13. Evaluate previous ideas about aging and cognition based on new research.
14. Describe abnormal memory loss due to Alzheimer's disease, delirium, and dementia.
15. Differentiate between organic and nonorganic causes of dementia.
16. Describe Erikson's psychosocial stage for late adulthood.
17. Contrast activity and continuity theories of aging.
18. Describe ways in which people are productive in late adulthood.
19. Compare marriage, divorce, being single, and widowhood in late adulthood.
20. Report rates at which people in late adulthood require long-term care.
21. Examine caregiving for dependent older adults.
22. Define socioemotional selectivity theory.
23. Classify types of elder abuse.

***The objectives are indicated in the reading sections below.***

## Introduction

We are considered to be in late adulthood from the time we reach our mid-sixties until death. This is the longest developmental stage across the lifespan, and a growing age group. By 2030, 1 in 6 people in the world will be aged 60 years or over (WHO, 2021). At this time the share of the population aged 60 years and over will increase from 1 billion in 2020 to 1.4 billion. By 2050, the world's population

of people aged 60 years and older will double (2.1 billion). For the purpose of this textbook and chapter, we will define late adulthood from age 65 to 100 and beyond. In this chapter, we will learn how many people are in late adulthood, how that number is expected to change, and how life changes and continues to be the same as before in late adulthood. We will also examine several theories of human aging, the physical, cognitive, and socioemotional changes that occur with this population, and the vast diversity among those in this developmental stage.

## Physical Development in Late Adulthood

### Defining Late Adulthood: Age or Quality of Life? (Ob 1)

About 17.3 percent of the U. S. population or 58 million Americans are 65 and older (U. S. Census Bureau, 2022). This number is expected to grow to 98.2 million by the year 2060 at which time people over 65 will make up 25 percent of the population. Currently, one in seven Americans is 65 years of age or older, and by the year 2050, almost one in four Americans will be over 65. This group varies considerably and is divided into categories of 65 plus, 85 plus, and centenarians for comparison by the census. Of this number, 19.7 million will be age 85 or older. Developmentalists, however, divide this population into categories based on health and social well-being. **Optimal aging** refers to those who enjoy better health and social well-being than average. **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 adjusting as needed in order to continue living as independently and actively as possible. This is referred to as selective optimization with compensation and 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 than on simply treating illnesses. Promoting health and independence are important for successful aging.

## Age Categories (Ob 2)

There have been many ways to categorize the ages of individuals in late adulthood. In this chapter, we will be dividing the stage into age categories. These categories are based on the conceptions of aging including, biological, psychological, social, and chronological differences. They also reflect the increase in longevity of those living to this latter stage.

**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% of this age group (Center for Disease Control, 2004). 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% of men and 50% of women between the ages of 65-69 continue to work full-time (He et al., 2005). 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% of those 65-74 need help with daily living skills (compared with about 22.9% of people over 85). (Another way to consider think of this is that 97% of people between 65-74 and 77% 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 (U. S. Census, 2005).

**75 to 84:** This age group is more likely to experience limitations on physical activity due to chronic diseases such as arthritis, heart conditions, hypertension (especially for women), and hearing or visual impairments. Rates of death due to heart disease, cancer, and cerebral vascular disease are double that experienced by people 65-74. Compared to those over 85, this group is less likely to require long-term care, to be dependent or poor, and more likely to be married, working for pleasure rather than income, and living independently. The majority of these 12.9 million Americans live independently or with relatives. Overall, those in this age period feel a sense of happiness and emotional well-being that is better than at any other period of adulthood (Carstensen et al., 2003; George, 2009; Robins & Trzesniewski, 2005). Widowhood is more common in this group-especially among women. In 2018, 39% of women ages 75 to 84 lived alone (U.S. Census, 2018). Poverty rates are 3 percent higher (12 percent) than for those between 65 and 74.

**Young-Old (65-84) recap:** Older adults between the ages of 65 and 84 comprise the “**young-old**” (Ortman et al., 2014). The young-old experience relatively good health and social engagement (Smith, 2000), knowledge and expertise (Singer et al., 2003), and adaptive flexibility in daily living (Riediger et al., 2005). The young-old also show strong performance in attention, memory, and crystallized intelligence. In fact, those identified as young-old are more similar to those in midlife than those who are 85 and older. This group is less likely to require long-term care, to be dependent or poor, and more likely to be married, working for pleasure rather than income, and living independently. Chronic diseases, such as cardiovascular

disease, hypertension, and cancer, are among the most common (especially later in this period), but because they are linked to lifestyle choices, they typically can be prevented, lessened, or managed (Barnes, 2011b).

**Oldest-old:** The “oldest-old” are those 85 and over. The number of people 85 and older is 34 times greater than in 1900 and now includes 5.7 million Americans. This age group is one of the fastest growing worldwide. The oldest-old are projected to be nearly 18 million by 2050, showing an increase more than 300% over its current levels (NIA, 2015b). Females comprise more than 60% of those 85 and older, but they also suffer from more chronic illnesses and disabilities than older males (Gatz et al., 2016). While this age group currently accounts for 2% of the U. S. population, it accounts for 9% of all hospitalizations (Levant et al., 2015). Those 85 and up are less likely to be discharged and more likely to die in hospital. The most common reasons for hospitalization for the oldest-old were congestive heart failure, pneumonia, urinary tract infections, septicemia, stroke, and hip fractures. In recent years, hospitalizations for many of these medical problems have been reduced. However, hospitalization for urinary tract infections and septicemia has increased for those 85 and older. This group is more likely to require long-term care and to be in nursing homes. The oldest-old are less likely to be married and living with a spouse compared with the majority of the young-old (APA, 2016; Stepler, 2016c). Almost 50% of the oldest-old require some assistance with daily living activities (APA, 2016). 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 (He et al., 2005; U. S. Census Bureau, 2011). In 2018, 55% of women ages 85 and older lived alone (U.S. Census Bureau, 2018).

**Centenarians:** A segment of the oldest-old are **centenarians**, that is, 100 and older (Wilcox et al., 2008). In 2024 there were nearly 722,000 centenarians worldwide, and it is estimated that this age group will grow to almost 3.7 million by 2050. The U. S. has the most centenarians, but Japan and Italy have the most per capita (Stepler,

2016e). Most centenarians tended to be healthier than many of their peers as they were growing older, and often there was a delay in the onset of any serious disease or disability until their 90s. 53,364 is the number of people age 100 and older counted by the 2010 US Census. In 2010, over half (62.5 percent) of the 53,364 centenarians were age 100 or 101. The ratio of men to women centenarian is 1:5 (20 men for every 100 women). Additionally, 25% reached 100 with no serious chronic illnesses, such as depression, osteoporosis, heart disease, respiratory illness, or dementia (Ash et al. 2015).

## The “Graying” of America and the Globe (*Ob 3*)

The number of Americans ages 65 and older is projected by the US Census Bureau to nearly double from 57.8 million in 2023 to 95 million by 2060, and the 65-and-older age group's share of the total population will rise from 16 percent to 23 percent (Mather et al, 2019). The older population is becoming more racially and ethnically diverse. This increasingly aged population has been referred to as the “Graying of America.” This “graying” is already having significant effects on the nation in many areas, including work, health care, housing, social security, caregiving, and adaptive technologies. Interestingly, populations are aging in most other countries of the world. One exception to this is in sub-Saharan Africa where mortality rates are high due to HIV/AIDS (He et al., 2005). There are 520 million people over 65 worldwide (8 percent) and that number is expected to increase to 17 percent by 2050. Currently, four countries, Germany, Italy, Japan, and Monaco have 20 percent of their population over 65. China has the highest number of people over 65 at 112 million (U. S. Census Bureau, 2011), while Japan has the highest percentage of individuals 65 and older. In total number, the United States is projected to have a larger older population than the other developed nations, but a smaller older population compared with China and India, the world's two most populous

nations (Ortman et al., 2014). Between 2012 and 2050, the proportion aged 65 and over is projected to increase in all developed countries. By 2050, China's older population is projected to grow larger than the total U.S. population today.

As the population ages, concerns grow about who will provide for those requiring long-term care. In 2000, there were about 10 people 85 and older for every 100 persons between ages 50 and 64. These midlife adults are the most likely care providers for their aging parents. The number of old requiring support from their children is expected to more than double by the year 2040 (He et al., 2005). These families will certainly need external physical, emotional, and financial support in meeting this challenge. Further the aging of the baby boom generation (1944-1964) could fuel more than a 50 percent increase in the number of Americans ages 65 and older requiring nursing home care, to about 1.9 million in 2030 from 1.2 million in 2017 (Population Reference Bureau, 2019).

## Life Expectancy and Quality of Life(*Ob 4, Ob 5*)

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. The life expectancy in the United States, before COVID, was 78.7 years, and the current life expectancy for the World in 2022 is 72 years, a 0.24% increase from 2020. Life-expectancy globally ranges from 53 years in low-income countries to 84 in high-income countries (World Population Review, 2022). This variation reflects an increase in life expectancy in Africa due to the availability of antiretroviral medications to reduce HIV/AIDS and a decrease in Europe and in countries in the former Soviet Union. Life expectancy in the United States for those born in 2007 is 75.9 for white males, 80.8 for white females, 70.0 for black males,

and 76.8 for black females (U.S. National Center for Health Statistics, 2010). The U. S. ranks 46th in the world and has been declining in rank. Children born in the U. S. today may be the first generation to have a shorter lifespan than their parents. Much of this decline has been attributed to the increase in sedentary lifestyle and obesity. Of course, longevity is not the only consideration. How long can we expect to lead healthy lives? **Healthy life expectancy (HLE)** or the years one can expect to live in good health was 63.7 globally in 2019 (WHO, 2021). While the HLE has increased by 8% from 58.3 in 2000 to 2019, this was due to declining mortality rather than reduced years lived with disability. In the United States, the average HLE is 78.9 years. Women enjoy good health for almost two years longer than men (79.8 to 77.9 years). Race also contributes to longevity: Whites HLE is 79.3 years, Blacks HALE is 76.1 years in good health. Certainly, living healthier lives is the goal. In the United States, Canada, and other countries where people live well in midlife, there are new concerns are about the aging process, the impact of lifestyle on health, productivity at work, and how to best spend the second half of life. As shown in the table below, regionally, people living in North, South, and Central America have the longest healthy life expectancy at 77.6 years, while those living in Africa have the shortest health life expectancy at 72.5 years.

**Table. HALE by Global Region**

HALE by Global Region			
Region	All	Men	Women
Americas	77.6	76.4	78.7
Europe	77.4	75.9	78.7
Western Pacific	76.6	75.6	77.6
Eastern Mediterranean	73.3	73.0	73.6
South-East Asia	73.3	72.7	73.9
Africa	72.5	72.0	73.0

**Table. US Life expectancy rates**

Year	Females	Males	Gender gap
1900	48.3	46.3	2 years
1950	71.1	65.6	5.5 years
1990	78.8	71.8	7 years
2000	79.7	74.3	5.4 years
2017	81.1	76.1	5 years
2020	77	74.2	2.8 years

Source: National Center for Health Statistics

Within the U.S., there are also differences in life expectancy when examining racial groups. Historic racism or years of living under oppressive prejudice and discrimination can increase the incidence of stress-related illness and contribute to a lower life expectancy. Wide economic disparities are evident across different population subgroups. Among adults ages 65 and older, 17 percent of Latinos and 19 percent of African Americans lived in poverty in 2017—more than twice the rate among older non-Hispanic whites (7 percent) (U.S. Census Bureau, Annual Social and Economic Supplement, 2017). The older population is becoming more racially and ethnically diverse. Between 2018 and 2060 the share of the older population that is non-Hispanic white is projected to drop from 77 percent to 55

percent (U.S. Census Bureau, Population Projections, 2017).Despite the increased diversity in the older adult population, the more rapidly changing racial/ethnic composition of the population under age 18 relative to those ages 65 and older has created a diversity gap between generations.

**Table. US Life expectancy rates across races**

Year	All races	Black <sup>1</sup>	White <sup>1</sup>
1900	47.3	33	47.6
1950	68.2	60.8	69.1
1990	75.4	69.1	76.1
2000	76.8	71.8	77.3
2015	78.7	75.5	78.9
<a href="#">2023</a>	78.4	74.8	78.4

Source: National Center for Health Statistics, <sup>1</sup>Non-Hispanic

Increased life expectancy brings concern over the health and independence of those living longer. When looking at large populations, the WHO (2016) measures how many equivalent years of full health on average a newborn baby is expected to have. This age considers current age-specific mortality, morbidity, and disability risks and is referred to as the Healthy Life Expectancy (HLE). In 2019, the global Healthy Life Expectancy was 63.7 years up from 58.5 years in 2000. The WHO African Region had the lowest Healthy Life Expectancy at 52.3 years, while the WHO Western Pacific Region had the highest at 68.7 years. In the United States, the overall life expectancy is 79.7 years, however, life expectancies

vary by sex, race, and ethnicity. The highest HLE was observed in Hawaii with 16.2 years of additional good health, and the lowest was in Mississippi with only 10.8 years of additional good health. Overall, the lowest HLE was among southern states. In the United States, females had a greater HLE than males at age 65 years in every state and DC. HLE was greater for whites than for blacks in DC and all states from which data were available, except in Nevada and New Mexico.

The shorter life expectancy for men, in general, is attributed to greater stress, poorer attention to health, more involvement in dangerous occupations, and higher rates of death due to accidents, homicide, and suicide. 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 (Caruso et al., 2013; Hirokawa et al., 2013). 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 (Scott, 2015). 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 (Scott, 2015). Social support can increase longevity. For men, life expectancy and health seem to improve with marriage. Spouses are less likely to engage in risky health practices and wives are more likely to monitor their husband's diet and health regimes. But men who live in stressful marriages can also experience poorer health as a result.



Key players in improving the quality of life among older adults will be those adults. By exercising, reducing stress, stopping smoking, limiting the use of alcohol, and consuming more fruits and vegetables, older adults can expect to live longer and more active lives (He et al, 2005). Stress reduction both in late adulthood and earlier in life is also crucial. The reduction of societal stressors can promote active life expectancy. In the last 40 years, smoking rates have decreased, but obesity has increased, and physical activity has only modestly increased.

Here are 13 tips to get you on your way to aging well (adapted from APA (1998), John Hopkins (2020), and Harvard Health (2019)):

**1. Don't smoke. Avoid tobacco** in all its forms.

**2. Make healthy food choices.** That means eating more healthful foods and fewer harmful foods.

- Eat more: whole grains, fruits, vegetables and legumes, fish, low- or non-fat dairy products, and nuts and seeds.
- Eat less: red meat, whole-milk dairy products, poultry skin, high-sodium (salty) processed foods, sweets, sugary drinks and refined carbohydrates, and if you need to lose weight, calories.
- Prevent osteoporosis are to eat a healthy diet with plenty of calcium, vitamin D, and protein; to exercise regularly), especially doing weight-bearing exercise; and to limit smoking and alcohol consumption (National Institute on Aging, 2022).

**3. Exercise regularly**, including:

- At least 30 minutes of moderate exercise nearly every day.
- Exercises for strength two to three times a week.
- Avoid age-related muscle loss and prevent osteoporosis doing weight-bearing exercise (National Institute on Aging, 2022)
- Exercises for flexibility and balance according to need.
- A moderate amount each day can help one stay active, independent, and maintain positive mood.

**4. Loose weight and keep it off. Stay lean.** It's equally hard for men and women, but even partial success will

help. Successful weight loss depends on being aware of your behaviors and making changes to them.

**5. Limit alcohol intake.** If you choose to drink, limit yourself to one to two drinks a day, counting 5 ounces of wine, 12 ounces of beer, and 1.5 ounces of liquor as one drink.

**6. Reduce and manage stress.** Get enough sleep. Build social ties and community support.

**7. Avoid risky behavior,** including drug abuse, unsafe sex, dangerous driving, unsafe firearm use, and living in hazardous household conditions.

**8. Reduce exposure to toxins and radiation,** including sunlight and medical x-rays.

**9. Get regular medical check-ups,** screening tests, and immunizations. Listen to your body and report sounds of discord to your doctor.

- Engage in routine preventive health behaviors (e.g., check ups and immunizations).
- Be your advocate in health care settings (or bring a knowledgeable person with you). Do not be afraid to ask questions or seek a second opinion.

10. Maintain a healthy lifestyle and make adjustments for any changes that may happen as you age (e.g., vision, strength).

11. If you feel anxious, depressed, or are using alcohol or drugs to manage your mood, seek assistance. Untreated mental health problems are associated with a

decreased quality of life, and poor physical health outcomes (e.g., increased disability and illness).

12. Be an interested and interesting person. Remain aware of new developments in the arts, sciences, politics, and other areas of cultural and social interest. Engage in something that matters to you and that you care passionately about. *Have a sense of purpose*—Be motivated and goal oriented.

13. **Seek joy and share it with others.** Laughter is good medicine. Fun and optimism improve health as well as happiness. *Surround oneself with support*—Create networks of close friends who support healthy behaviors and provide companionship.

## Attitudes about Aging(*Ob 6*)

Stereotypes about people in late adulthood lead many to assume that aging automatically brings poor health and mental decline. These stereotypes are reflected in everyday conversations, the media and even in greeting cards (Overstreet, 2006). The following examples serve to illustrate stereotypes about old age.

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 barber shop 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 acting like you can’t hear it.” (Hallmark Cards, Inc.)

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 are examples of ageism, prejudice based on age. 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. For older adults, their perceptions of aging—and their self-perceptions—can have serious effects on their health, behaviors, and even longevity. A positive, optimistic outlook about aging and the impact one can have on improving health is essential to health and longevity. A negative view about one’s physical abilities as associated with physical losses might impair health-related strategies that are important for maintaining a healthy lifestyle (Wurm et al., 2013). Removing societal stereotypes about aging and helping older adults reject those notions of aging is another way to promote health and active life expectancy among the old.



## Primary and Secondary Aging (*Ob 7, Ob 9*)

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 regimen. 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 (Berger, 2005). The failure to recognize and treat psychological problems in older patients may be one consequence of such stereotypes.

The Baltimore Longitudinal Study on Aging (BLSA) (NIA, 2011b) 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. However, some key generalization can be made including heart muscles thickening with age, arteries become less flexible, and lung capacity diminishing. Kidneys become less efficient in removing waste from the blood, and the bladder loses its ability to store urine. Brain cells also lose some functioning, but new neurons can also be produced. Many of these changes are 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.

Let's examine the aging process a bit more identifying primary and secondary aging processes. **Primary aging** refers to the inevitable changes associated with aging (Busse, 1969). 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 as we age. The skin becomes drier, thinner, and less elastic as we age. Gravity can cause the skin to sag and wrinkle, and smoking can wrinkle the skin. 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. Older people may bruise more easily, and it can take longer for these bruises to heal. Some medicines or illnesses may also cause bruising. Also, seen in older adults are age spots, previously called “liver spots.” They look like flat, brown spots and are often caused by years in the sun. Skin tags are small, usually flesh-colored

growths of skin that have a raised surface. They become common as people age, especially for women, but both age spots and skin tags are harmless (NIA, 2015f). Nearly everyone has hair loss as they age, and the rate of hair growth slows down as many hair follicles stop producing new hairs. The loss of pigment and subsequent graying begun in middle adulthood continues in late adulthood. Graying hair is inevitable.

**Height and weight** vary with age. Older people are more than an inch shorter than they were during early adulthood (Masoro in Berger, 2005). The tendency to become shorter as one ages occurs among all races and both sexes. Height loss is related to aging changes in the bones, muscles, and joints. Height loss is due to a settling of the vertebrae and a lack of muscle strength in the back. Bones lose density and may become brittle. People typically lose almost one-half inch every 10 years after age 40, and height loss is even more rapid after age 70. A total of 1 to 3 inches in height is lost with aging. 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 are important for independence. As discussed in chapter 10, **sarcopenia** is the loss of muscle tissue as a natural part of aging. Symptoms include a loss of stamina and weakness, which can decrease physical activity and subsequently further shrink muscles. Any loss of muscle is important because it lessens strength and mobility, and sarcopenia is a factor in frailty and the likelihood of falls and fractures in older adults. Maintaining strong leg and heart muscles are important for independence. Weight-lifting, walking, swimming, or engaging in other cardiovascular exercises can help strengthen the muscles and prevent atrophy.



*Top-left normal vision; top-right: cataract; bottom-left: macular degeneration; bottom-right: glaucoma.*

**Visual Problems:** The majority of people over 65 have some difficulty with vision, but most are easily corrected with prescription 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, and age-related macular degeneration (He et al., 2005). **Cataracts** are a clouding of the lens of the eye. 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. By age 75, 70% of adults will have problems with cataracts (Boyd, 2014). 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. 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. 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. 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 the 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 (NEI, 2016b). 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 (NEI, 2016b). Those with elevated eye pressure are given medicated eye drops. Reducing eye pressure lowers the risk of developing glaucoma or slow its progression in those who already have it.

**Hearing Loss** is experienced by 30 percent of people age 70 and older. Almost half of the people over 85 have some hearing loss (He et al., 2005). Among those who are in nursing homes, rates are higher. **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 (NIA, 2015c). 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 (NIA, 2015c). The incidence of both presbycusis and tinnitus increase with age and males have higher rates of both

around the world (McCormak et al., 2016). Smoking, middle ear infections, and exposure to loud noises increase hearing loss.

**Table. Common Signs of Hearing Loss**

Common Signs of Hearing Loss
<ul style="list-style-type: none"><li>• Have trouble hearing over the telephone</li><li>• Find it hard to follow conversations when two or more people are talking</li><li>• Often ask people to repeat what they are saying</li><li>• Need to turn up the TV volume so loud that others complain</li><li>• Have a problem hearing because of background noise</li><li>• Think that others seem to mumble</li><li>• Can't understand when women and children speak to you</li></ul>

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. 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** (See et al., 1999). This language reflects the stereotypes of older adults as being dependent, demented, and childlike. Imagine others are speaking to you in that way. How would you feel? I am reminded of a man dying at home and a hospice worker, on shift for the first time, comes to his bedside and shouts, “Hi, baby. Want me to rub your little feet?” His response was an indignant look of disapproval.

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 (Martin, 2014).



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://open.maricopa.edu/psy240mm/?p=900#oembed-1>

**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 (NIH: Senior Health, 2016b). 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.

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. 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. Problems with our chemical senses can be linked to other serious medical conditions such as Parkinson's, Alzheimer's, or multiple sclerosis (NIH: Senior Health, 2016a). 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:** Research has found that with age, people may experience reduced or changed sensations of vibration, cold, heat, pressure, or pain (Martin, 2014). 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. The ability to detect changes in pressure have been shown to decline with age, with it being more pronounced by the 6th decade and diminishing further with advanced age (Bowden & McNelly, 2013). Yet, there is considerable variability, with almost 40% showing sensitivity that is comparable to younger adults (Thornbury & Mistretta, 1981). Those who show increasing insensitivity to pressure, temperature, or pain are at risk for injury (Martin, 2014).

In summary, primary aging can be compensated for through exercise, corrective lenses, nutrition, and hearing aids. And, more importantly, 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.

## Secondary Aging(*Ob 7, Ob 8*)

**Secondary aging** refers to changes that are caused by illness or disease. These illnesses reduce independence, impact the quality of life, affect family members and other caregivers, and bring financial burden. Some of the most prevalent illnesses that cause impairment are discussed below. Many issues of secondary aging are chronic illnesses. **Chronic illnesses** are illnesses that are ongoing, generally incurable conditions that require continuous medical attention and affect daily life. As individuals live longer, diseases that affect older individuals will become more prevalent, and the burden of chronic illness grows with age. Less than 50% of adults 50–64 have a chronic condition, yet 90% aged 75 and up do (Cohen, 2011). Older women are more likely to have a chronic condition than are older men (83% vs. 88%) (CDC, 2009). Other studies place the figure of diabetes in older adults at 26% (CDC, 2014).

Researchers examining data from the Centers for Disease Control

and Prevention (Xu et al., 2022) found that seven of the ten leading causes of death for older adults were chronic health conditions that typically become more common in later years. The leading cause of death in the United States for 2020 and 2021 was heart disease, an example of a chronic condition associated with many lifestyle factors such as diet, exercise, and stress. The second leading cause of death was cancer, followed by COVID-19, injuries, stroke, respiratory disease, Alzheimer's disease, diabetes, liver disease/cirrhosis, and kidney disease. We will discuss some of these conditions below (while others were discussed in chapter 10). The more common age-related causes of death, such as heart disease, some types of cancer, respiratory disease, and diabetes, are all at least partly caused by environmental and lifestyle characteristics (National Center for Health Statistics, 2021).

Arthritis and other rheumatic conditions are the most common cause of disability among US adults and have been the most common cause of disability among US adults for the past 15 years (NIH: National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2014). Arthritis results in swelling of the joints and connective tissue that limits mobility. According to the NIH, approximately 62% of adults with arthritis are 65 years old and up. Almost 1 in 2 older adults with arthritis have some degree of mobility limitations, such as climbing stairs, walking, and grasping objects. The pain and other limitations of arthritis can also increase the risk of depression and other forms of mental distress. **Osteoarthritis** is the most common type of arthritis. "When the cartilage, the slick, cushioning surface on the ends of bones wears away, bone rubs against bone, causing pain, swelling, and stiffness. Over time, joints can lose strength and pain may become chronic" (Arthritis Foundation, 2017, para 3). Arthritis is more common among women than men and increases with age. About 19.3 percent of people over 75 are disabled with arthritis; 11.4 percent of people between 65 and 74 experience this disability.

**Osteoporosis** is a disease that thins and weakens bones to the point that they become fragile and break easily. After age 50, 1 in

2 women and 1 in 4 men will experience an osteoporosis-related fracture in their lifetime, often leading to hip, spine, and wrist fractures (Dailey & Cravedi, 2006). Broken hips are a very serious problem as we age. They greatly increase the risk of death, especially during the year after they break (NIH Senior Health, 2015). In the U.S., more than 53 million adults either already have osteoporosis or at high risk due to low bone mass (NIH Senior Health, 2015). As bones weaken in the spine, adults gradually lose height and their posture becomes hunched over, which is called Kyphosis. 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 (National Osteoporosis Foundation, 2016). Bone loss is four times more likely in women than in men and becomes even more prevalent in women 85 and older. Whites suffer osteoporosis more than do non-Hispanic Blacks.



As discussed in chapter 10, individuals in late adulthood may also

experience **hypertension**, **heart disease**, stroke, cancer, and **diabetes**. 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. As discussed in chapter 10, cancer and cardiovascular disease are the overall leading causes of death, and they are especially high reasons for death in middle and late adults. There are changes to the heart that happen with age, and some may increase a person's risk of heart disease. These include stiffening blood vessels and valves, which may result in leaks or problems pumping blood out of the heart (NIA, 2012). There are different types of heart disease, with the most common is atherosclerosis (discussed in chapter 10), the buildup of fatty deposits or plaques in the walls of arteries. As plaque builds up, blood is unable to flow normally and bring oxygen throughout the body, including to the heart. Depending on where the buildup is, atherosclerosis can cause a heart attack, leg pain, or a stroke. Again, atherosclerosis is not part of normal aging. Many of the problems older people have with their heart and blood vessels are caused by disease and not by aging. For example, an older heart can normally pump blood as strong as a younger heart, while less ability to pump blood is caused by disease. Therefore, leading a heart-healthy lifestyle is most important to keeping one's heart strong in late adulthood.

Advancing age is a significant risk factor for cancer, with persons over 65 accounting for 60% of newly diagnosed cancer and 70% of all cancer deaths (Berger et al., 2006). Additionally, more than 70% of the mortality associated with many cancers, including prostate, bladder, colon, uterus, pancreas, stomach, rectum, and lung occur in patients 65 and older. 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.

In 2021, almost 30 percent of those 65 and older had diabetes (CDC, 2022). Diabetes is a problem with your body that causes blood glucose (sugar) levels to rise higher than normal, known as hyperglycemia. Type 2 diabetes is the most common form of diabetes. With type 2 diabetes the body does not use insulin properly (insulin resistance). According to the American Diabetes Association, people with diabetes are 40% more likely to suffer from glaucoma than people without diabetes, and people with diabetes are 60% more likely to develop cataracts. Diabetic retinopathy is a general term for all disorders of the retina caused by diabetes. Nerve damage from diabetes is called diabetic neuropathy, and about half of all people with diabetes have some form of nerve damage (American Diabetes Association, 2018). Rates are higher among Mexican origin individuals and Blacks than non-Hispanic whites. The treatment for diabetes includes dietary changes, increasing physical activity, weight loss for those who are overweight, and medication (National Institute on Aging, 2011).

**Shingles:** According to the National Institute on Aging (2015e), **shingles** is a disease that affects your nerves. 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 body and never get shingles. However, the virus will become active in one in three adults. Instead of causing chickenpox again, it produces 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.

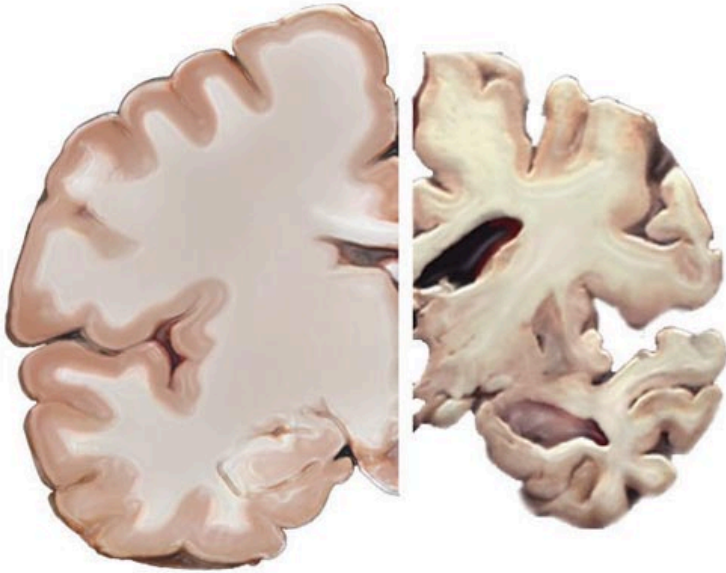
Shingles results in pain, burning, tingling, or itching in the affected area, as well as a rash and blisters. Typically, shingles develops only on one side of the body or face and in a small area

rather than all over. Most cases of shingles last 3 to 5 weeks. After the shingles rash goes away, some people may be left with ongoing pain, called post-herpetic neuralgia (PHN) in the area where the rash had been (NIA, 2015e). The older one is when getting shingles, the greater the chance of developing PHN. Some people with PHN find it hard to go about their daily activities, like dressing, cooking, and eating. They can also suffer from depression, anxiety and sleeplessness. Medicines can help with pain and usually PHN will disappear. Unfortunately, the blisters from shingles may become infected or leave a scar. Blisters near or in the eye can cause lasting eye damage or blindness. 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.

**Alzheimer's disease:** Probably the most well-known and most common neurocognitive disorder for older individuals is Alzheimer's disease. In 2016 an estimated 5.4 million Americans were diagnosed with Alzheimer's disease (Alzheimer's Association, 2016), which was approximately one in nine aged 65 and over. By 2050 the 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 Association, 2019). 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. This disease becomes more prevalent with age but is not inevitable. This typically appears after age 60 but develops slowly for years before its appearance. Social support, and aerobic exercise can reduce the risk of Alzheimer's disease. Current estimates indicate that Alzheimer disease affects approximately 50% of those identified with a neurocognitive disorder (Cohen & Eisdorfer, 2011). 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 (Erber & Szechwan, 2015). Lastly, individuals lose the ability to respond to their environment, to carry on a conversation, and eventually to control movement (Alzheimer's Association, 2016). On average people with Alzheimer's survive eight years, but some may live up to 20 years. The disease course often depends on the individual's age and whether they have other health conditions. The greatest risk factor for Alzheimer's disease is age, but there are genetic and environmental factors that can also contribute. Some forms of Alzheimer's are hereditary, and with the early onset type, several rare genes have been identified that directly cause Alzheimer's. People who inherit these genes tend to develop symptoms in their 30s, 40s, and 50s. Five percent of those identified with Alzheimer's disease are younger than age 65.

# Healthy Brain      Severe AD



*A healthy brain compared to one with severe Alzheimer's Disease.*

According to Erber and Szuchman (2015), the problems that occur with Alzheimer's disease are due to the "death of neurons, the breakdown of connections between them, and the extensive formation of plaques and tau, which interfere with neuron functioning and neuron survival" (p. 50). Plaques are abnormal formations of protein pieces called beta-amyloid. Beta-amyloid comes from a larger protein found in the fatty membrane surrounding nerve cells. Because beta-amyloid is sticky, it builds up into plaques (Alzheimer's Association, 2016). These plaques appear to block cell communication and may also trigger an inflammatory

response in the immune system, which leads to further neuronal death.

Where will these people receive care? Seventy percent of AD patients are cared for in the home. Such care can be emotionally, financially, and physically stressful. Most AD patients live 8 to 10 years with the disease and long-term care costs an average of \$174,000 per patient (He et al., 2005).

Can you reduce the risk of AD? Yes. Physical and mental inactivity, smoking, obesity, diabetes, hypertension, and depression are all associated with an increased risk for the development of Alzheimer's disease (APA, 1998). Each of these factors can be modified. Keeping mentally and physically active can help preserve cognitive skills, reduce the risk of Alzheimer's disease, and maintain overall health.



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here: <https://open.maricopa.edu/psy240mm/?p=900#oembed-2>

## 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 (National Sleep Foundation, 2009). There are sleep problems in older adults, and insomnia is the most common problem in those 60 and older (NIA, 2016). 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.

According to the National Sleep Foundation (2009), 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 (Buman, 2013).

Because of sleep problems experienced by those in late adulthood, research has looked into whether exercise can improve their quality of sleep. Results show that 150 minutes per week of exercise can improve sleep quality (Buman, 2013). 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.

## Sexuality

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 (NIA, 2013). The National Survey of Sexual Health data indicated that 20%-30% of individuals remain sexually active well into their 80s (Schick et al., 2010). However, there are issues that occur in older adults that can adversely affect their enjoyment of healthy sexual relationships. According to the National Institute on Aging (2013), 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 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 (Erber & Szuchman, 2015).

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 (Karraker et al., 2011). 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 (Erber & Szuchman, 2015). In

fact, a change in marital status does not result in a decline in the sexual behavior of men aged 57 to 85 years-old, but it does result in a decline for similar aged women (Karraker et al., 2011).

## Healthcare Costs

Health care costs for older adults represent a significant and growing challenge, both in the United States and globally. In the U.S., despite nearly universal coverage for those over 65 through Medicare, older adults face higher out-of-pocket expenses than their peers in other high-income countries. Medicare covers many essential services, but it excludes or only partially covers key needs such as dental, vision, hearing, and long-term care, leaving beneficiaries to purchase supplemental insurance or pay out of pocket (CommonFund, 2024). As a result, nearly one in four older Americans spends at least \$2,000 annually on health care expenses, a rate much higher than in countries like France or the Netherlands, where fewer than 5% of older adults report such high costs (AMJC, 2024). For those with limited income, Medicaid can provide additional support, but navigating the complex U.S. system—comprised of private insurance, employer-based coverage, and government programs—remains a significant barrier, particularly for low-income seniors (Medicaid, 2025). High costs often force older adults to delay or forgo necessary care, leading to worse health outcomes (AMJC, 2024).

In contrast, most affluent nations have established universal health care systems that provide comprehensive coverage to all citizens, including older adults, with minimal out-of-pocket costs due to government subsidies funded through taxation (AMJC, 2024). Globally, the burden of health care costs for older adults is driven largely by chronic diseases, which account for a substantial share of medical spending in both developed and developing countries (Chen et al, 2023). In places like China and India, the rapid growth

of the aging population is leading to rising health care expenditures, with older adults consuming a disproportionate share of resources (Chen et al, 2023). However, the financial burden on individuals and families tends to be lower in countries with robust public health systems, compared to the U.S., where socioeconomic status plays a larger role in access to high-quality care (AMJC, 2024, CommonFund, 2024).

## Theories of Aging (*Ob 11, Ob 12*)

### Why do we age?

There are a number of attempts to explain why we age and many factors that contribute to aging. Genetics, diet, lifestyle, activity, and exposure to pollutants all play a role in the aging process. Recent findings from the Baltimore Longitudinal Study of Aging (BLSA) have shed new light on how we age. Researchers have developed a way to measure aging across different aspects of our health, including body composition, energy use, and brain function (Ferrucci et al., 2023). This study shows that people age at different rates, even when they're all considered healthy. Interestingly, how quickly someone ages in one area (like muscle mass) doesn't necessarily match how they age in another (like cognitive function). The BLSA also found that people who age more slowly in these measured areas tend to stay healthier longer and live longer (Ferrucci et al., 2023). This research helps us understand why some people seem to age better than others and could lead to new ways to promote healthy aging. It's important to note that these findings emphasize the idea that aging isn't a one-size-fits-all process, but rather a complex and individual journey influenced by various factors throughout our lives (Schrack et al., 2023).

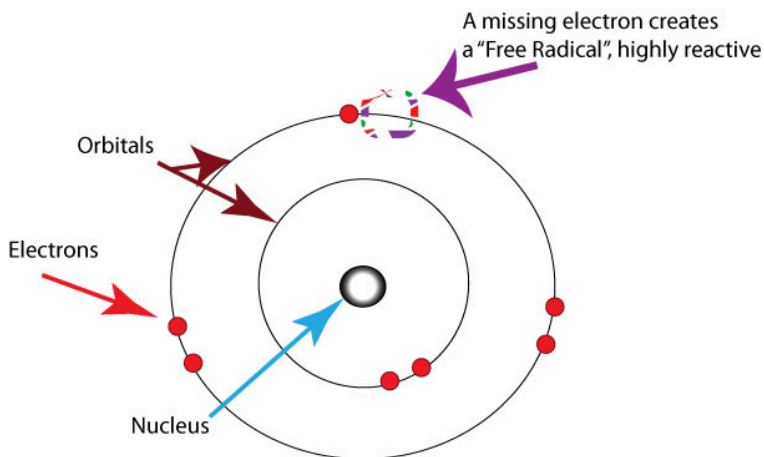
## Cell Life

Cells divide a limited number of times and then stop. This phenomenon, known as the **Hayflick limit**. Hayflick limit is evidenced in cells studied in test tubes which divide about 50 times before stopping replication. This aging theory is sometimes called the cellular clock theory for when body is no longer able to replace old or damaged cells with new ones (cellular clock has run out), this theoretically results in many of the diseases and declines associated with aging. How does this occur? At the end of each chromosomal strand is a sequence of DNA that does not code for any particular protein, but protects the rest of the chromosome, which is called a telomere. With each replication, the telomere gets shorter. Once it becomes too short the cell does one of three things. It can stop replicating by turning itself off, called cellular senescence. It can stop replicating by dying, called apoptosis. Or, as in the development of cancer, it can continue to divide and become abnormal. Senescent cells can also create problems. While they may be turned off, they are not dead, thus they still interact with other cells in the body and can lead to an increased risk of disease. When we are young, senescent cells may reduce our risk of serious diseases such as cancer, but as we age they increase our risk of such problems (NIA, 2011a). Understanding why cellular senescence changes from being beneficial to being detrimental are still under investigation. The answer may lead to some important clues about the aging process.

## Biochemistry and Aging

**Free Radical Theory:** As we metabolize oxygen, *mitochondria* (a cell organelle that uses oxygen to produce energy from food) in the cells convert oxygen to adenosine triphosphate (ATP) which provides

energy to the cell. Unpaired electrons are a byproduct of this process and these unstable electrons cause cellular damage as they find other electrons with which to bond. These free radicals have some benefits and are used by the immune system to destroy bacteria. However, cellular damage accumulates and eventually reduces the functioning of organs and systems. Free radicals are identified with disorders seen in those of advanced age, including cancer, atherosclerosis, cataracts, and neurodegeneration. Many food products and vitamin supplements are promoted as age-reducing. Some research has supported adding antioxidants to our diets to counter the effects of free radical damage because the antioxidants can donate an electron that can neutralize damaged molecules. However, the research on the effectiveness of antioxidants is not conclusive (Harvard School of Public Health, 2016).



**Protein Crosslinking:** This theory focuses on the role of blood sugar, or glucose, plays in the aging of cells. Glucose molecules

attach themselves to proteins and form chains or crosslinks. These crosslinks reduce the flexibility of tissue and tissue become stiff and lose functioning. The circulatory system becomes less efficient as the tissue of the heart, arteries and lungs lose flexibility. And joints grow stiff as glucose combines with collagen. (To conduct your own demonstration of this process, take a piece of meat and place it in a hot skillet. The outer surface of the meat will caramelize and the tissue will become stiff and hard.)

**DNA Damage:** DNA is part of cells which we discussed the aging process of cells above. Connected to Hayflick's limit, genetic programming theories of aging suggest that the body's DNA genetic code contains a built-in time limit for human cells duplication. These theories promote the view that the cells of the body can only duplicate a certain number of times and that the genetic instructions for running the body can be read only a certain number of times before they become illegible. Further, as we live, DNA is damaged by environmental factors such as toxic agents, pollutants, and sun exposure (Dollemore, 2006). The damage from different environmental factors sometimes cannot be repaired and remains in our DNA. This results in deletions of genetic material, and mutations in the DNA that is duplicated in new cells. The accumulation of these errors results in reduced functioning in cells and tissues.

**Decline in the Immune System:** As we age, B-lymphocytes and T-lymphocytes become less active. These cells are crucial to our immune system as they secrete antibodies and directly attack infected cells. The thymus, where T-cells are manufactured, shrinks as we age. This reduces our body's ability to fight infection (Berger, 2005). T-cells, or *lymphocytes*, fight bacteria, viruses, and other foreign threats to the body. T-cells are in a "naïve" state before they are programmed to fight an invader, and become "memory cells". These cells now remember how to fight a certain infection should the body ever come across this invader again. Memory cells can remain in your body for many decades, and why the measles vaccine you received as a child is still protecting you from this virus today.

As older adults produce fewer new T-cells to be programmed, they are less able to fight off new threats and new vaccines work less effectively. For example, the reason why the shingles vaccine works well with older adults is because they already have some existing memory cells against the varicella virus. The shingles vaccine is acting as a booster (NIA, 2011a).

**Hormonal Stress Theory**, also known as **Neuroendocrine Theory of Aging**, suggests that as we age the ability of the hypothalamus to regulate hormones in the body begins to decline leading to metabolic problems (American Federation of Aging Research, 2011). This decline is linked to an excess of the stress hormone cortisol. While many of the body's hormones decrease with age, cortisol does not (NIH, 2014a). The more stress we experience, the more cortisol released, and the more hypothalamic damage that occurs. Changes in hormones have been linked to several metabolic and hormone related problems that increase with age, such as diabetes (AFAR, 2011), thyroid problems (NIH, 2013), osteoporosis, and orthostatic hypotension (NIH, 2014a).

## Cognitive Development in Late Adulthood (*Ob* 13)

There are numerous stereotypes regarding older adults as being forgetful and confused, but what does the research on memory and cognition in late adulthood reveal? Memory comes in many types, such as working, episodic, semantic, implicit, and prospective. There are also many processes involved in memory, thus it should not be a surprise that there are declines in some types of memory and memory processes, while other areas of memory are maintained or even show some improvement with age. In this section, we will focus on changes in memory, attention, problem-solving, intelligence, and wisdom, including the exaggeration of losses stereotyped in the elderly.

## The Sensory Register

Aging may create small decrements in the sensitivity of the sensory register. 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.

## The Working Memory

Older people have more difficulty using memory strategies to recall details (Berk, 2007). As we age, the **working memory** loses some of its capacity. A drop in working memory capacity commonly seen in old age. In a study by Göthe et al. (2007) older and younger adults were asked to learn two tasks simultaneously. Young adults eventually managed to learn and perform each task without any loss in speed and efficiency, although it did take considerable practice. None of the older adults were able to achieve this. Yet, older adults could perform at young adult levels if they had been asked to learn each task individually. Having older adults learn and perform both tasks together was too taxing for the central executive. Older adults get more distracted and use more attention to compensate for their reduced ability to maintain information in working memory. When working memory tasks that do not require much input from the central executive, such as the digit span test, which uses predominantly auditory cues, we find that older adults perform on par with young adults (Dixon & Cohen, 2003). Older adults find it more difficult to concentrate on more than one thing at a time or to keep remember details of an event. However, people 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.

## The Long-Term Memory

This type of 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. As you should recall, long-term memory is divided into semantic (knowledge of facts), *episodic* (events), and implicit (procedural skills, classical conditioning, and priming) memories. Implicit memory requires little conscious effort and often involves skills or more habitual patterns of behavior. This type of memory shows few declines with age. Semantic and episodic memory is part of the explicit memory system, which requires conscious effort to create and retrieve. Several studies consistently reveal that episodic memory shows greater age-related declines than semantic memory (Schwartz, 2011; Spaniol et al., 2006). It has been suggested that episodic memories may be harder to encode and retrieve because they contain at least two different types of memory, the event, and when and where the event took place. Interestingly, older adults remember more about their early adulthood and adolescence than about middle adulthood (Berk, 2007). Older adults retain **semantic memory** or the ability to remember vocabulary. Unlike episodic memory, semantic memories are not tied to any particular timeline. Thus, only the knowledge needs to be encoded or retrieved (Schwartz, 2011). Spaniol et al. (2006) found that retrieval of semantic information was considerably faster for both younger and older adults than the retrieval of episodic information, with there being little difference between the two age groups for semantic memory retrieval. They

note that older adults' poorer performance on episodic memory appeared to be related to slower processing of the information and the difficulty of the task. They found that as the task became increasingly difficult, the gap between each age groups' performance increased for episodic memory more so than for semantic memory.

Younger adults rely more on mental rehearsal strategies to store and retrieve information. Older adults focus more on external cues such as familiarity and context to recall information (Berk, 2007). And they are more likely to report the main idea of a story rather than all of the details (Jepson & Labouvie-Vief, in Berk, 2007).

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 to compare the performance of older and younger adults on timed memory tests in which older adults do not perform as well. However, a 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.

In general, humans are fairly good at **prospective memory** if they have little else to do in the meantime. **Prospective memories** are of events in our future. However, when there are competing tasks that are also demanding our attention, this type of memory rapidly declines. The explanation given for this is that this form of memory draws on the central executive of working memory, and when this component of working memory is absorbed in other tasks, our ability to remember to do something else in the future is more likely to slip out of memory (Schwartz, 2011). However, prospective memories are often divided into time-based prospective memories, such as having to remember to do something at a future time, or event-based prospective memories, such as having to remember to do something when a certain event occurs. When age-related

declines are found, they are more likely to be time-based, than event-based, and in laboratory settings rather than in the real world, where older adults can show comparable or slightly better prospective memory performance (Henry et al., 2004; Luo & Craik, 2008). This should not be surprising given the tendency of older adults to be more selective in where they place their physical, mental, and social energy. Having to remember a doctor's appointment is of greater concern than remembering to hit the spacebar on a computer every time the word "tiger" is displayed.

**Recall versus Recognition:** Memory performance often depends on whether older adults are asked to simply recognize previously learned material or recall material on their own. Generally, for all humans, recognition tasks are easier because they require less cognitive energy. Older adults show roughly equivalent memory to young adults when assessed with a recognition task (Rhodes et al., 2008). With recall measures, older adults show memory deficits in comparison to younger adults. While the effect is initially not that large, starting at age 40 adults begin to show declines in recall memory compared to younger adults (Schwartz, 2011).

**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 (Jefferies et al., 2015). Research has shown that older adults are less able to selectively focus on information while ignoring distractors (Jefferies et al., 2015; Wascher et al., 2012), 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 (Tales et al., 2002). Consider the implication of these attentional changes for older adults. How do changes or maintenance of cognitive ability affect older adults' everyday lives? 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 (Park & Gutchess, 2000). 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 (Blanchard-Fields, 2007). In the context of work, researchers rarely find that older individuals perform poorer on the job (Park & Gutchess, 2000). 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 the 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 (Strough et al, 2003; Meegan & Berg, 2002).

What might explain these deficits as we age? The processing speed theory, proposed by Salthouse (1996, 2004), 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 in many different cognitive tasks. For instance, as we age, working memory becomes less efficient (Craik & Bialystok, 2006). Older adults also need a longer time to complete mental tasks or make decisions. Yet, when given sufficient time older adults perform as competently as do young adults (Salthouse, 1996). 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 (Hasher & Zacks, 1988). 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 (Andrés et al., 2004).

## New Research on Aging and Cognition

Can the brain be trained in order to build a 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 (26 percent who were African-American) 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 (Tennstedt et al., 2006). Learning new things, engaging in 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.

## Wisdom

Wisdom is the ability to use common sense and good judgment in making decisions. 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 experience, it does not always bring wisdom. Paul Baltes and his colleagues (2004) 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 (Staudinger & Gluck, 2011). Those who exhibit wisdom may have made wiser choices at younger ages as well. You may have heard that wisdom comes with age. However, wisdom may be more of a function of other factors than cognition. 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 (Baltes & Kunzmann, 2004). Age combined with certain types of experience and/or personality brings wisdom.

## Emotion Regulation

As people grow older, their capacity to regulate emotions can develop along two main trajectories. One approach involves maximizing positive emotional experiences, which may stem from a greater acceptance of life's inevitable changes and an appreciation for the potential benefits of aging, such as accumulated wisdom. This orientation aligns with concepts like integrity and a more transcendence view of life (gerotranscendence), where older adults focus on emotional positivity and meaning in later life (Kida et al., 2024; Mekonnen et al., 2023). Research consistently finds that older adults are more likely to select activities that evoke positive emotions, actively avoiding situations that could be distressing and preferring entertainment with uplifting or optimistic content. These tendencies reflect a broader pattern, sometimes described as the "positivity effect," where older adults attend to and remember more positive than negative information, and prioritize mood-enhancing experiences (Isaacowitz, 2022; Urry & Gross, 2010).

The second path emphasizes the use of cognitive resources to understand and manage negative emotions with greater objectivity.

Gisela Labouvie-Vief's dynamic integration theory suggests that as people age, emotion and cognition become more intertwined (Labouvie-Vief, 2003). While younger individuals may respond to emotions in simpler, more automatic ways, older adults tend to develop more nuanced and complex emotional responses due to this integration. This allows them to tolerate both positive and negative emotional states and to recognize the complexity of their feelings (Labouvie-Vief, 2003; Labouvie-Vief et al., 2007). For instance, when faced with a negative emotional state—such as after a serious medical diagnosis—an older adult may regulate their emotions by considering possible improvements through medication or lifestyle changes, or by comparing their situation to others in worse health, fostering gratitude. This cognitive-emotional integration enables better understanding and acceptance of negative emotions. However, this ability may decline in very late life as fluid intelligence decreases (Labouvie-Vief, 2015; Urry & Gross, 2010).

## Abnormal Loss of Cognitive Functioning During Late Adulthood (*Ob 14, Ob 15*)

**Delirium**, also known as acute confusional state, is sudden onset of confusion. Delirium is a decline from a previous level of mental function that develops over a short period of time, typically hours to days. Delirium is a relatively common problem among elderly people while hospitalized (affecting more than 2 million seniors a year), but doctors often dismiss because of the overlapping symptoms are common with dementia, depression, and psychosis. 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.

Historically, the term dementia was used to refer to an individual experiencing difficulty with memory, language, abstract thinking, reasoning, decision making, and problem-solving (Erber & Szuchman (2015). However, in the latest edition of the Diagnostic and Statistical Manual of 381 Mental Disorders Fifth Edition (DSM-5) (American Psychiatric Association, 2013) 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. Neurocognitive disorders can be caused by numerous diseases and circumstances, all of which result in similar general symptoms of impaired judgment, etc. Alzheimer's disease, discussed earlier in the chapter, is the most common neurocognitive disorder, and is incurable. But there are also non-organic causes of dementia that can be prevented. Malnutrition, alcoholism, depression, and mixing medications can result in symptoms of neurocognitive disorders. If these causes are properly identified, they can be treated.



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

here: <https://open.maricopa.edu/psy240mm/?p=900#oembed-3>

## Psychosocial Development in Late Adulthood

### Integrity vs. Despair (*Ob 16*)

How do people cope with old age? Erikson (1980) believed that late adulthood is a time for making sense out of one's life, finding meaning to one's existence, and adjusting to inevitable death. He called this stage **integrity vs. despair**. This stage includes, "a retrospective accounting of one's life to date; how much one embraces life as having been well lived, as opposed to regretting missed opportunities," (Erikson, 1982, p. 112). Those in late adulthood need to achieve both the acceptance of their life and the inevitability of their death (Barker, 2016). This stage includes finding meaning in one's life and accepting one's accomplishments, but also acknowledging what in life has not gone as hoped. It is also feeling a sense of contentment and accepting others' deficiencies, including those of their parents. This acceptance will lead to integrity, but if elders are unable to achieve this acceptance, they may experience despair. Bitterness and resentments in relationships and life events can lead one to despair at the end of life. According to Erikson (1982), successful completion of this stage leads to wisdom in late life.

Many older adults want to remain active and work toward

replacing opportunities lost with new ones. Those who prefer to keep themselves busy demonstrate the Activity Theory, *which states that greater satisfaction with one's life occurs with those who remain active* (Lemon et al., 1972). Not surprisingly, more positive views on aging and greater health are noted with those who keep active than those who isolate themselves and disengage with others. Community, faith-based, and volunteer organizations can all provide those in late adulthood with opportunities to remain active and maintain social networks. Erikson's concept of generativity applies to many older adults, just as it did in midlife.

## Work & Retirement

Older adults are working longer. Jobs that require social skills, accumulated knowledge, and relevant experiences favor older adults (Erber & Szuchman, 2015). Older adults also demonstrate lower rates of absenteeism and greater investment in their work. By 2018, 24 percent of men and about 16 percent of women ages 65 and older were in the labor force. These levels are projected to rise further by 2026, to 26 percent for men and 18 percent for women (U.S. Census Bureau, 2018). Older adults constitute about 5.6% of the U.S. labor force (AOA, 2016). U.S. Census Bureau data (2019) shows that the average retirement age in the United States comes in at about age 65 for men and 63 for women. In the United States, to receive full benefits from Social Security depends on one's age. For those born between 1943 and 1954, they must wait until age 66 for full benefits. It is currently 66 years and two months for those born after 1955 and will gradually increase to 67 for those born after 1960. For those born before 1938, they can receive full social security benefits at age 65. Medicare health insurance is another entitlement that is not available until one is aged 65.

Mandatory retirement is illegal in the United States. In 1986 the Age Discrimination in Employment Act (ADEA) was amended, and

mandatory retirement was eliminated for most workers (Erber & Szuchman, 2015). Pilots, air traffic controllers, federal law enforcement, national park rangers, and firefighters continue to have enforced retirement ages. We find that 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. For most Americans, retirement is a process and not a one-time event (Quinn & Cahill, 2016). For those that retire, 60% of workers transition straight to bridge jobs, which are often part-time, and occur between a career and full retirement. About 15% of workers get another job after being fully retired. This may be due to not having adequate finances after retirement or not enjoying their retirement. Approximately 10% of workers begin phasing into retirement by reducing their hours.



**Delayed Retirement:** Older adults primarily choose to delay retirement due to economic reasons (Erber & Szchman, 2015). Financially, continuing to work provides not only added income

but also does not dip into retirement savings which may not be sufficient. Historically, there have been three parts to retirement income; that is, social security, a pension plan, and individual savings (Quinn & Cahill, 2016). With the 2008 recession, pension plans lost value for most workers. Consequently, many older workers had to work later in life to compensate for absent or minimal pension plans and personal savings. Social security was never intended to replace full income, and the benefits provided may not cover all the expenses, so elders continue to work. Unfortunately, many older individuals are unable to secure later employment, and those especially vulnerable include persons with disabilities, single women, and individuals with intermittent work histories. Some older adults delay retirement for psychological reasons, such as health benefits and social contacts. Recent research indicates that delaying retirement has been associated with helping one live longer. When looking at both healthy and unhealthy retirees, a one-year delay in retiring was associated with a decreased risk of death from all causes (Wu et al., 2016). When individuals are forced to retire due to health concerns or downsizing, they are more likely to have negative physical and psychological consequences (Erber & Szuchman, 2015). 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.

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## Global Retirement Estimates in 2050 Compared to 2020

The world may have a retirement crisis coming up with the projected number of retirees. For many countries around the world, the number of retirees will place significant pressure on the healthcare system, labor markets, and even government-based pension systems. The data shared is from the [OECD](#) data and you can see more drastic numbers in countries like China, and some countries have 75% of the estimated working people retiring. It will be interesting to see with the technological advances, like Artificial Intelligence, and reframing how businesses are run, how labor markets will flow.

### The Looming Retirement Crisis

Projected evolution of the number of retirees per 100 working people in selected countries\*



\* Number of people older than 65 years per 100 people of working age (20–64). Projections based on 2019 demographic data. Source: OECD - Pensions at a Glance 2021



statista

### Retirement around the world (OpenStax, 2024)

- In Jamaica, the National Council for Senior Citizens provides services such as home health aides, meal and grocery delivery, and housekeeping to all older adults free of charge and regardless of income. There's also a special program to help pay for prescription medicines for certain chronic illnesses like asthma and diabetes (Jamaican Information Service, 2021).
- Japan has two public pension systems, one of which is available to people who are self-employed and spouses of employees. There are also employer-sponsored plans similar to 401(k) plans (Investment Company Institute, 2021).
- South Africa provides a pension for citizens, permanent residents, and refugees over the age of sixty years. This pension is primarily meant to support older adults with low incomes, so there are certain income and asset requirements to qualify (South African Government, 2024).
- Nepal provides small allowances and pensions for older adults, including widows (through the Single Women's Allowance program), but much of the instrumental and financial support for older adults comes from family members, community groups, and religious organizations. Most health care is private and expensive, placing a large financial burden on families (Shrestha et al., 2021).
- The Canadian pension system is available to anyone over age sixty years who has made at least one contribution to the plan. This contribution can be made through employment or through credits received from spouses including ex-spouses or common-law

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partners at the end of a relationship. People who took time off work due to disability, health problems, or childrearing may be able to get partial credit toward contributions (Government of Canada, 2024).

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## Education

As of 2022, 33.1% of people aged 65 and older have a bachelor's degree or higher (U.S. Census Bureau). While data on participation in adult education courses is less readily available, the National Center for Education Statistics (2017) reported that 8.5 million people aged 65 and over participated in adult education. 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 bring enhance the quality of life.

## Volunteering: Face-to-face and Virtually

Research suggests that generativity is not just a concern for midlife adults, but for many elders, concerns about future generations continue into late adulthood, and they are volunteering in their community. 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

volunteerism helping out neighbors or friends rather than working in an organization (Berger, 2005). 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.

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 (Kahana et al., 2013). Lee and colleagues found that even among the oldest-old, the death rate of those who volunteer is half that of non-volunteers (Lee, Steinman, & Tan, 2011). However, older adults who volunteer may already be healthier, which is why they can volunteer compared to their less healthy age-mates

New opportunities exist for older adults to serve as a **virtual volunteer** by dialoging 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 (Uscher, 2006).

## Self-identity and productivity in Old Age (*Ob 17*)

Older adults continue to want to remain active and work toward replacing opportunities lost with new ones. People in late adulthood continue to be productive in many ways. These include work (even after retirement), education, volunteering, family life, and intimate relationships. **Continuity theory** suggests that as people age, they continue to view the self in much the same way as they did when they were younger. Their approach to problems, goals, and situations is much the same as it was before. 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 of life on the ship. He is able to maintain a sense of self as a result. We do not give up who we are as we age. Hopefully, we are able to share these aspects of our 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.

## Political Activism

The elderly are very politically active. Older people are more likely to view voting as a responsibility and to care about a broad range of issues, not just those commonly associated with aging. They are more connected to their communities, which also makes them more likely to vote. 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. Older Americans consistently demonstrate high voter turnout rates. In the 2020

presidential election, over 70% of citizens aged 65 and older voted, exceeding the turnout of any other age group (U.S. Census Bureau, 2020). This trend continued in the 2022 midterm elections, where the 65+ age group again had the highest voter turnout (U.S. Census Bureau, 2022).

## Grandparents Raising Grandchildren

In chapter 10, middle adulthood, we first discussed grandparenting. Older adults continue to be generative and are raising their grandchildren in greater numbers. 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. Grandparents are increasingly taking on the role of primary caregivers for their grandchildren. According to the 2021 American Community Survey, 2.74 million U.S. children were being raised by grandparents. This often represents a long-term commitment, with nearly half of these grandparents having raised their grandchildren for five years or more. This trend reflects the complex social and economic challenges faced by many families today.

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 of traumatic events. A survey by AARP (Goyer, 2010) 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. 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.

## Relationships during Late Adulthood(*Ob 19, Ob 20*)

**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 (Fingerman & Birditt, 2011). In addition to providing for their own children, many elders are raising their grandchildren. Consistent with **socioemotional selectivity theory (SST)**, older adults seek and are helped by, their adult children providing emotional support (Lang & Schütze, 2002). SST 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. The French philosopher Sartre observed that “hell is other people”. 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 shows that increased selectivity in human relationships, rather than abstinence, leads to more positive affect. Lang and Schütze, 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 the parent up when he or she was 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. Daughters and adult children who were younger tended to provide such support more than sons and adult children who were older. They also found that adult children who were more autonomous rather than emotionally dependent on their parents, had more emotionally meaningful relationships with their parents, from both the parents' and adult children's point of view.

**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 et al. (2014) 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 confidant. In contrast, having a family member as a confidante did not provide health protection for those recently widowed.

**Marriage and Divorce:** As of 2022, more than half (57.4%) of Americans aged 65 and older were married, with a higher percentage of men (69.8%) than women (46.9%) currently married (U.S. Census Bureau). This difference likely reflects women's longer life expectancy and the increased likelihood of widowhood. About 1 in 7 older adults are divorced, and a small percentage (6.6%) have never married. 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 disagreement couples might have had earlier in their marriages may no longer be concerned. 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 (Carroll, 2007).

Divorce after long-term marriage does occur but is not very common. However, with the number of older adults on the rise, the divorce rate is likely to increase. A longer life expectancy and the expectation of happiness cause some older couples to begin a new life after divorce after 65. Consider Betty who divorced after 40 years of marriage. Her marriage had never been ideal but she stuck with it hoping things would improve and because she didn't want to hurt her husband's reputation (he was in a job in which divorce was frowned upon). But she always hoped for more freedom and happiness in life and once her family obligations were no longer as great (the children and grandchildren were on their own), she and her husband divorced. Betty characterized this as an act of love in that both she and her ex-husband were able to pursue their dreams in later life. 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.

**Widowhood:** Twenty-nine percent of people over 65 are widowed (U. S. Census Bureau, 2011). The death of a spouse is one of life's most disruptive experiences. It is especially hard for 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. In addition, they typically expect to precede their

wives in death and by losing a wife, have to adjust to something unexpected. However, if a man can adjust, he will find that he is in great demand, should he decide to remarry.

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 husbands 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 (U. S. Census Bureau, 2011).

**Loneliness or solitude?** Loneliness is a discrepancy between the social contact a person has and the contacts a person wants (Brehm et al., 2002). 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 than Blacks, and higher than for females. Rates of suicide continue to climb and peaks in males after age 85 (National Center for Health Statistics, CDC, 2002).

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 (Brehm et al., 2002). Winnie, aged 80, describes her life alone as comfortable and meaningful. "I'm up early to take care of my 3-year-old great-granddaughter who stays with me. We play and have lunch and later her mother comes after her. I love to sing and sing all the time. I sing in the choir. . . I enjoy my mornings at the kitchen table with my coffee. And me and Coco (her dog) enjoy sitting in the sun."

## Lesbian, gay, bisexual, transgender (LGBT) and

## intersex Elders

Approximately 3 million older adults in the United States identify as lesbian or gay (Hillman & Hinrichsen, 2014). Lesbian, gay, bisexual, transgender (LGBT) and intersex people are unique from their non-LGBTI counterparts in terms of retirement issues, 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. By 2025 that number is expected to rise to more than 7 million (National Gay and Lesbian Task Force, 2006). Despite the increase in numbers, older lesbian and gay adults are one of the least researched demographic groups, and the research there is portrayed a population faced with discrimination. Ageism, heterocentrism, sexism, and racism can combine cumulatively and impact the older adult beyond the negative impact of each individual form of discrimination (Hillman & Hinrichsen, 2014). David and Knight (2008) found that older gay black men reported higher rates of racism than younger gay black men and higher levels of perceived ageism than older gay white men.

Lesbian and gay older adults who belong to ethnic and cultural minorities, conservative religions, and rural communities may face additional stressors. Lesbian and gay older adults who belong to ethnic and cultural minorities, conservative religions, and rural communities may face additional stressors. According to the Centers for Disease Control and Prevention (2011), compared to heterosexuals, lesbian and gay adults experience both physical and mental health differences. More than 40% of lesbian and gay adults ages 50 and over suffer from at least one chronic illness or disability, and compared to heterosexuals they are more likely to smoke and binge drink (Hillman & Hinrichsen, 2014). When compared to heterosexuals, lesbian and gay elders have less support from others

as they are twice as likely to live alone and four times less likely to have adult children (Hillman & Hinrichsen, 2014).



Although lesbian and gay older adults face many challenges, more than 80% indicate that they engage in some form of wellness or spiritual activity (Fredrickson-Goldsen et al., 2011). They also gather social support from friends and “family members by choice” rather than legal or biological relatives (Hillman & Hinrichsen, 2014). This broader social network provides extra support to gay and lesbian elders. There is now a national hotline that provides telephone peer-support and local resources for seniors, the Lesbian, Gay, Bisexual and Transgender (LGBT) National Senior Hotline.

## Single, Cohabiting, and Remarried Older Adults (Ob 23)

About 4 percent of adults never marry. Many have long-term

relationships, however. The never married tend to be very involved in family and caregiving 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 on 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 (Carstensen et al., 2003). The socioemotional selectivity theory states that older individuals perceive time as more limited, and instead prioritize emotion-related goals. Older adults, feeling that they have less time left in life, prefer spending time with close others who provide a sense of emotional meaning. 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. According to socioemotional selectivity theory, older adults show improvements in social functioning and psychological well-being because their acknowledgment of less time creates them to prioritize emotional goals.



About 4 percent of older couples choose cohabitation over marriage (Chevan, 1996). As discussed in our chapter on early adulthood, these couples may prefer cohabitation for financial 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. There are between 1 and 3 million gay and lesbian older adults in America today and numbers will continue to increase (Cahill et al., 2000). 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. Those who are institutionalized, however, may find it harder to live together.

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 greater emotional wisdom that comes with experience.

## Older Adults, Caregiving, and Long-Term Care (*Ob 21, Ob 22*)



Fewer than 5 percent of U.S. adults aged sixty-five years and older live in an institutional setting (Hallstrom, 2023). Most older adults live at home. Some older adults need assistance when unable to do daily tasks. An **activity of daily living (ADL)** is an everyday self-care task, such as feeding yourself, bathing, and moving around your environment (Katz, 1983; Zawaly et al., 2022). People having difficulty performing ADLs require assistance from someone in their environment on a regular and consistent basis, typically several times a day. There are some tasks that are considered more complex than ADLs, such as using the phone, shopping, preparing meals, doing laundry, managing medications, and dealing with finances (Lawton & Brody, 1969; Pashmdarfard & Azad, 2020). A task like this is referred to as an *instrumental activity of daily living (IADL)*. Someone who's struggling with one or two IADL tasks may need help occasionally but not every day.

While most older adults who require long-term care receive it at home, often from family members or health aides. A home health aide is a professional who travels to clients' homes and assists with health care, ADLs, and IADLs. Home health aides can help older adults continue to live at home instead of relocating to long-term care. Another option for assistance is adult daycare. At adult daycare centers, older adults participate in supervised activities that provide physical and cognitive stimulation as well as opportunities for social interaction. This also gives informal caregivers a break and enables them to run errands, go to work, or just relax. Some older adults who require more assistance may live in congregate housing. Congregate housing arrangements are often similar to college dormitories in that there are private living areas and common spaces, such as dining areas or lounges. There is also assisted living and nursing homes for more help. An assisted living facility is for individuals with physical and/or cognitive limitations that prevent them from living at home. In assisted living, they have access to many services such as meals and housekeeping. They also get assistance with IADL and ADL, such as help using the restroom, bathing, and taking medications.. A nursing home is like an assisted

living facility but also addresses medical care needs. It provides twenty-four-hour supervision that includes skilled nursing care and services such as occupational therapy, speech therapy, and physical rehabilitation. Nursing homes are the most common institutionalized living environment for older adults.

In 2021, there were approximately 1.2 million nursing home residents in the U.S. (CMS). While the rate of nursing home residency has been declining overall, it's important to address the quality of life and care within these facilities. Focusing solely on physical needs can be detrimental to residents' psychological and social well-being. Maintaining a sense of identity, autonomy, and social connection is crucial for successful aging, even within an institutional setting. Greater attention should be given to creating person-centered care that promotes dignity, respect, and a sense of purpose for all residents.

## Elderly Abuse (*Ob 23*)

Current research indicates that at least 1 in 10, or approximately 4.3 million, older Americans are affected by at least one form of elder abuse per year (Roberto, 2016). Those between 60 and 69 years of age are more susceptible than those older. This may be because younger older adults more often live with adult children or a spouse, two groups with the most likely abusers. Perpetrators of elder abuse are typically family members and include spouses/partners and older children (Roberto, 2016). Children who are abusive tend to be dependent on their parents for financial, housing, and emotional support. Substance use, mental illness, and chronic unemployment increase dependency on parents, which can then increase the possibility of elder abuse. Victims are usually very frail and impaired and perpetrators are usually dependent on the victims for support. 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 (Tanne in Berk, 2007).



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. Abuse and neglect occurring in a nursing home is estimated to be 25%-30% (Youdin, 2016). Abuse of nursing home residents is more often found in facilities that are run down and understaffed. Cognitive impairment, including confusion and communication deficits, is the greatest risk factor for elder abuse, while a decline in overall health resulting in a greater dependency on others is another. Having a disability also places an elder at a higher risk for abuse (Youdin, 2016).

Definitions of elder abuse typically recognize five types of abuse, physical, psychological/emotional, sexual, financial/exploitation, and neglect. Consequences of elder abuse are significant and include injuries, new or exacerbated health conditions, hospitalizations, premature institutionalization, and early death (Roberto, 2016). Psychological and emotional abuse is considered

the most common form, even though it is underreported and may go unrecognized by the elder. Continual emotional mistreatment is very damaging as it becomes internalized and results in late-life emotional problems and impairment. Financial abuse and exploitation is increasing and costs seniors nearly 3 billion dollars per year (Lichtenberg, 2016). Financial abuse is the second most common form after emotional abuse and affects approximately 5% of elders.

**Table. Types of Elder Abuse**

Type	Description
Physical Abuse	Physical force resulting in injury, pain, or impairment
Sexual Abuse	Nonconsensual sexual contact
Psychological and Emotional Abuse	Infliction of distress through verbal or nonverbal acts such as yelling, threatening, or isolating
Financial Abuse and Exploitation	Improper use of an elder's finances, property, or assets
Neglect and Abandonment	Intentional or unintentional refusal or failure to fulfill caregiving duties to an elder

Adapted from Roberto (2016)

## Successful Aging



Although definitions of successful aging are value-laden, Rowe and Kahn (1997) 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 (Kramer & Erickson, 2007). 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 adjusts, as needed, in order to continue living as independently and actively as

possible (Baltes & Dickson, 2001). 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 pursuing goals. Compensation, as its name suggests, is about using alternative strategies in attaining those goals. The SOC model covers a number of functional domains—motivation, emotion, and cognition. We might become more adept at using SOC as time moves on, as we work to compensate and adjust for changing abilities across the lifespan. 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. 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 overexertion.

## Conclusion

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. 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. 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 (crystalized intelligence). Many cognitive abilities can be maintained with stimulation, practice, and motivation. 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. 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. We will explore more about death and dying in the next chapter.

We have a greater understanding of the needs of older adults and more resources identifying the needs necessary to promote healthy aging in our growing population of older adults. We are coming to recognize the strengths of late adulthood and to move beyond the stereotypes of aging. This new appreciation of the value of older adults promises to lay the groundwork for a new approach to this period of life.

## Chapter Review Practice Quiz



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

<https://open.maricopa.edu/psy240mm/?p=900#h5p-13>

## Chapter 11 Key terms (see Glossary)

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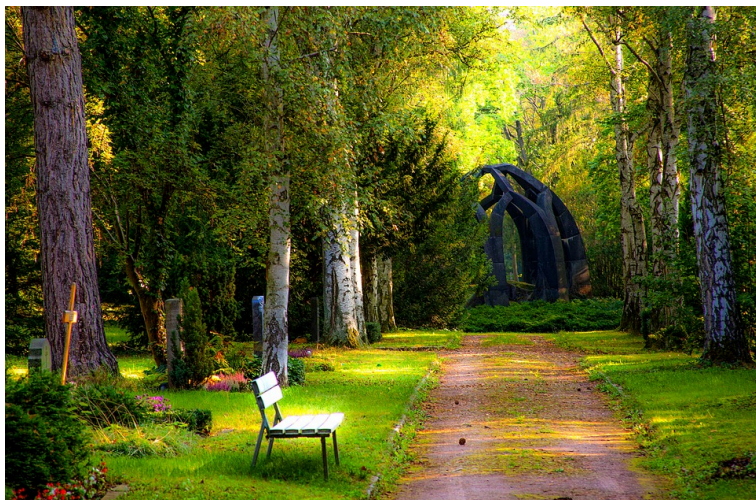
activity of daily living (ADL)	Minor Neurocognitive Disorder
advanced sleep phase syndrome	normal aging
age-related macular degeneration	optimal aging
Alzheimer's disease	osteoarthritis
cataracts	osteoporosis
centurian	presbycusis
chronic illness	primary aging
continuity theory	prospective memory
delirium	sarcopenia
elderspeak	secondary aging
glaucoma	self-fulfilling prophecy
Hayflick limit	semantic memory
healthy life expectancy (HALE)	shingles
hormonal stress theory	socioemotional selectivity theory (SST)
impaired aging	successful aging
integrity vs. despair (Erikson)	virtual volunteer
Major Neurocognitive Disorder	

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# Chapter 12: Death and Dying



## Objectives:

*At the end of this chapter, you will be able to...*

1. Compare the leading causes of death in the United States with those of developing countries.
2. Compare physiological, social, and psychic death.
3. List and describe the stages of loss based on various models including that of Kubler-Ross.
4. Explain the philosophy and practice of palliative care.
5. Describe hospice care.
6. Differentiate attitudes toward hospice care based on race and ethnicity.
7. Compare euthanasia, passive-euthanasia, and physician-assisted suicide.

8. Characterize bereavement and grief.
9. Express your own ideas about death and dying.

**The objectives are indicated in the reading sections below.**

## Introduction

We have now reached the end of the lifespan. While it is true that death occurs more commonly at the later stages of age, death can occur at any point in the life cycle. Death is a deeply personal experience evoking many different reactions, emotions, and perceptions.

*“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 confident 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 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 (Overstreet).*

Except for a handful of illnesses in which death does often quickly follow diagnosis, or in the case of accidents or trauma, most deaths come after a lengthy period of chronic illness or frailty (Institute of Medicine (IOM), 2015). 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. While modern medicine and better living conditions have led to a rise in life expectancy around the world, death will still be the inevitable final chapter of our lives.

Not all deaths include such a dialogue with family members or being able to die in familiar surroundings. People die suddenly and alone. People leave home and never return. Children precede parents in death; wives precede husbands, and the homeless are bereaved by strangers. In this chapter, we look at death and dying, grief and bereavement. We explore palliative care and hospice. And we explore funeral rites and the right to die.

## Defining Death

Death is a physical event in which our bodies stop working, including the absence of breathing and a heartbeat. However, even this statement on describing death is overly simplistic. Our body is far more complex than this, composed of an intricate set of systems working together. These systems don’t all play an equal role in keeping us alive, but if something happens to one of them, it’s likely

to affect the functioning of other systems and our body overall. For example, if our heart, lungs, and/or brain lose function, the other organs in our body may also start to fail. However, due to current medical science and advances, the failure of one organ does not guarantee that other systems of the body will inevitably and immediately lose functioning.

Medical professionals sometimes distinguish between **clinical death**, in which vital organs have stopped working but could be resuscitated, and **biological death**, in which these organs can't be resuscitated (Parish et al., 2018). Depending on what caused the death, clinical death may occur before biological death. In cardiac arrest, for example, it may be possible to start the heart beating again. Or biological death may occur on its own: If a person is stabbed in the heart, the heart may sustain too much damage to be repaired. **Brain death** is the irreversible cessation of all functions of the entire brain, including the brainstem, meaning the person will never regain consciousness or breathe without artificial support and is legally considered dead (in the US). This standard, established by the Uniform Determination of Death Act (1981), is used to ensure consistent legal and medical practices regarding the definition of death in the United States.

## Cultural Groups View of Brain Death

Not all cultures are equally accepting of brain death. In countries such as Japan, China, and the Republic of Korea, brain death is an acceptable diagnosis only in cases of organ donation and requires approval from the patient's family, but not necessarily an advance directive

from the patients themselves. In the Republic of Korea, a diagnosis of brain death also requires unanimous approval from a special committee (Terunuma & Mathis, 2021; Yang & Miller, 2015), making the process longer and more complicated.

We can also look at religious factors in acceptance of brain death. Buddhism views the body and soul holistically, as one entity, with body heat and a heartbeat being signs of life (Terunuma & Mathis, 2021; Yang & Miller, 2015). Because Buddhism has a strong belief in an afterlife and reincarnation, the body must be left intact; harvesting organs for donation is often seen as mutilation (Yang & Miller, 2015). This may explain why organ donation isn't common in countries with a large Buddhist population, such as China, Japan, and the Republic of Korea (Terunuma & Mathis, 2021).

But death isn't just a physical event. It has psychological aspects, such as the way people cope with death, prepare and make decisions about end-of-life care, and express grief. Social aspects of death include the way dying people are treated and the cultural factors like religious and spiritual values and beliefs that affect people's perceptions of dying and choices related to it. A researcher who studies the biological, psychological, and social aspects of death is called a thanatologist.

## Aspects of Death (Ob 2)

One way to understand death and dying is to look more closely at

physical death, psychological death, and social death. These deaths do not occur simultaneously. Rather, a person's physiological, social, and psychic death can occur at different times (Pattison, 1977).

**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 and the digestive tract loses moisture and chewing, swallowing, and elimination becomes 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 shallower and may make a rattling sound as air travels through mucus filled passageways. The person often sleeps more and more and may talk less although continues 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. When a person no longer has brain activity, they are clinically dead. Physiological death may take 72 or fewer hours.

**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 of the benefits that come from loving interaction with others.

Being aware (or not) of impending death might affect a person's self-concept, and how helpful that awareness is can vary person to person. **Psychic 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. They can give up their will to live.

### *Dying Trajectories*

There are 4 dying trajectories based on the nature and rate of decline.

- Sudden death is an abrupt loss of function, as in heart attack, stroke, and accidents.
- Terminal illness is a more gradual loss of function, such as from cancer.
- Organ failure is characterized by an overall gradual decline with fluctuating cycles of illness and improvement, as in kidney failure, chronic obstructive pulmonary disease (COPD), and congestive heart failure.
- Frailty is also gradual, but with a lower level of functioning and steadier decline without cycles of improvement, as in Alzheimer's disease and diabetes.

**Death Process for Terminally Ill:** For those individuals who are terminal and death is expected, a series of physical changes occur. Individual experiences may be influenced by such variables as the

cause of death, the person's general health, medications and other significant factors. All dying experiences are unique and influenced by many factors, such as the particular illness and the types of medications being taken, but there are some physical changes that are fairly common.

Bell (2010) identifies some of the major changes that occur in the weeks, days, and hours leading up to death:

### **Weeks Before Passing for death process**

- o Minimal appetite; prefer easily digested foods
- o Increase in the need for sleep
- o Increased weakness
- o Incontinence of bladder and/or bowel
- o Restlessness or disorientation
- o Increased need for assistance with care

### **Days Before Passing for death process**

- o Decreased level of consciousness
- o Pauses in breathing
- o Decreased blood pressure
- o Decreased urine volume and urine color darkens
- o Murmuring to people others cannot see
- o Reaching in air or picking at covers
- o Need for assistance with all care

### **Days to Hours Before Passing for death process**

- o Decreased level of consciousness or comatose-like state
- o Inability to swallow
- o Pauses in breathing become longer

- o Shallow breaths
- o Weak or absent pulse
- o Knees, feet, and/or hands becoming cool or cold
- o Knees, feet, and/or hand discoloring to a purplish hue
- o Noisy breathing due to relaxed throat muscles often called a “death rattle”
- o Skin coloring becoming pale, waxen (pp. 5, 176-177)

## Most Common Causes of Death (Obi)

Like life expectancy, the most common causes of death differ by demographic variables. For example, men worldwide are more likely to die of accidents, murder, and suicide than women (WHO, 2019). Geographic location also plays a role, usually due to the resources and living conditions in an area. For example, in Angola, diarrheal disease (cholera, rotavirus) is the most common cause of death, likely due to lack of clean drinking water; however, in Canada, the leading cause of death is heart disease (Global Health Observatory, n.d.-a).

As of 2019, heart disease was the most common cause of death worldwide. It accounted for 9 million deaths recorded that year; stroke and COPD were second and third (WHO, 2020). However, the COVID-19 pandemic changed the statistics somewhat. The WHO estimates that the excess mortality attributable to COVID-19 was 3 million people in 2020. In other words, in 2020, COVID-19 caused 3 million more deaths worldwide than would have occurred without it (WHO, 2021). In the United States, COVID-19 replaced unintentional injury/accidents as the third most common cause of death in 2020 and 2021 (Xu et al., 2022), then dropped to fourth in 2022 (Ahmad et al., 2023).

Falls are another frequent cause of injury-related death among adults ages sixty-five and older, and the death rate from falls is increasing (CDC, 2024). The age-adjusted fall death rate increased

by 41 percent from 2012 to 2021, from approximately 55 to nearly 80 fall-related deaths per 100,000 older adults (CDC, 2024).

Common causes of death also vary by age. In the United States, the most common cause of death for infants less than one year old is congenital abnormality (WISQARS, 2022). From ages 1 to 44, the most common cause is unintentional injury/accident. Even within that category, however, there are age-related differences. For children aged 1 to 4, the most common type of fatal unintentional injury is drowning, while from 5 to 24, it is motor vehicle accidents (CDC, n.d.). In many developing nations, infectious diseases and malnutrition are more commonly the causes of death, especially in children under five (Abubakari et al., 2019; Djoumessi, 2022; GBD 2019 Demographics Collaborators, 2020).

**Table. Top 3 Causes of Death in U.S. in 1900s and 1990s**

Top 3 leading causes of death in the United States	
1900's	1990's
Pneumonia & Influenza	Heart Disease
Tuberculosis	Cancer
Diarrhea & Enteritis	Stroke
30% of all deaths	60% of all deaths.

In the US in 2021, the top leading cause was heart disease, followed by cancer (CDC, 2021). COVID-19, newly added as a cause of death in 2020, became the 3rd leading cause of death. Unintentional injuries became the 4th leading cause in 2021 followed by stroke. Chronic lower respiratory diseases is the 6th, and Alzheimer disease is the 7th. Diabetes became the 8th, followed by pneumonia. Then, kidney disease became the 10th leading cause in 2020. The 10 leading causes accounted for 74.1% of all deaths in the United States in 2020.

These were the top causes of death for various age groups in the United States in the year 2021 (CDC):

**Table. Top Causes of Death by Age Group in the U.S. in 2021**

Age range	Top cause of death
< 1 year	Congenital anomalies (short gestation #2)
1 – 4 years	Unintentional Injury (congenital anomalies #2)
5 – 9 years	Unintentional Injury (Malignant Neoplasms (cancer) #2)
10 – 14 years	Unintentional Injury (suicide #2)
15 – 24 years	Unintentional Injury (homicide #2)
25 – 34 years	Unintentional Injury (suicide #2)
35 – 44 years	Unintentional Injury (COVID-19 #2)
45 – 54 years	COVID-19 (heart disease #2)
55 – 64 years	Malignant Neoplasms (cancer) (heart disease #2)
65 +	Heart Disease (Malignant Neoplasms (cancer) #2)



How might cause of death the way we think of death, how we grieve, and the amount of control a person has over his or her own dying process?

**Table. Leading causes of deaths for persons 65 years of age and older (Note: pre-covid; CDC, 2001)**

	American Asian	White	Black	Pacific Islander	Hispanic
1	Heart Disease	Heart Disease	Heart Disease	Heart Disease	Heart Disease
2	Cancer	Cancer	Cancer	Cancer	Cancer
3	Stroke	Stroke	Diabetes	Stroke	Stroke
4	COPD	Diabetes	Stroke	Pneu/ Influenza	COPD
5	Pneu/ Influenza	Pneu/ Influenza	COPD	COPD	Pneu/ Influenza

# Deadliest Diseases Worldwide

In 2021, the top 10 causes of death accounted for 39 million deaths, or 57% of the total 68 million deaths worldwide (WHO, 2024). The top global causes of death, in order of total number of lives lost, are associated with two broad topics: cardiovascular (ischemic heart disease, stroke) and respiratory (COVID-19, chronic obstructive pulmonary disease, lower respiratory infections), with COVID-19 emerging as the second leading causes of death globally. Causes of death can be grouped into three categories: communicable (infectious and parasitic diseases and maternal, perinatal and nutritional conditions), noncommunicable (chronic) and injuries. At a global level, 7 of the 10 leading causes of deaths in 2021 were noncommunicable diseases, accounting for 38% of all deaths, or 68% of the top 10 causes.

1. Heart disease
2. COVID-19
3. Stroke

4. Chronic obstructive pulmonary disease
5. Lower respiratory infections
6. Trachea, Bronchus, and lung cancers
7. Alzheimer's and other dementias
8. Diabetes mellitus
9. Kidney Diseases
10. Tuberculosis

## 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 (Batts, 2004; Erber & Szuchman, 2015; National Cancer Institute, 2013).



**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, sleepless, and develop physical symptoms such as weight loss.

**Early Childhood:** As you recall from Piaget's preoperational stage of cognitive 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 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 wrongdoing 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 death. Consequently, they often engage in risky behaviors, such as substance use, unsafe sexual behavior, and reckless driving, thinking they are invincible.

Talking with children about death and grief can be challenging. Here are some resources for adults to use, both with children and for themselves.

- “Sesame Workshop”: This website [provides resources and videos on how to talk to children about the loss](#) of a loved one.
- National Public Radio: NPR’s “Life Kit” series discusses [how to have difficult conversations](#) with your child.
- UNICEF: UNICEF Parenting offers [advice and tips on how to talk to children and teenagers](#) about death.
- The Cove Center for Grieving Children: Read these [FAQs about grieving children](#) for more information on what to expect from a grieving child.

**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 or late adulthood. The caretaking responsibilities for those in middle adulthood is a significant factor in their fears. As mentioned previously, middle adults often aid with

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.

## Psychological Aspects of Death

Death also has psychological aspects. The experience of death isn't the same for everyone. Even when two people share the same cause of death, such as breast cancer, they may differ in the speed of progression, the pain they experience, and the kind and amount of support they have.

Being aware (or not) of impending death might affect a person's self-concept, and how helpful that awareness is can vary person to person.

Being diagnosed with a terminal illness is likely to change a person's self-perception (Aho, 2016; Greenberg et al., 1986; Kalish, 1968; Raju & Reddy, 2018; Zhang et al., 2023). When people are unable to care for themselves or participate in typical aspects of daily life, they may experience a loss of identity (Bryden, 2019; Fang et al., 2023; Gaignard & Hurst, 2019). This may also happen when people with dementia forget important memories or loved ones and lose a general sense of continuity in their lives (Blandin, 2016). In

her 2019 account of living with dementia, biochemist Christine Bryden—diagnosed with early onset dementia at age forty-six—explained that her intellectual functioning was a key part of her identity and crucial to her career. She worried that her progressing illness was removing that aspect of herself, and that she would become her diagnosis, lose her individuality, and be seen as merely a dementia patient. A study of terminally ill brain cancer patients in India found such results: patients reported that others started to treat them as a sick person and not as an individual, whereas they wanted to be treated as they had been before getting sick (Raju & Reddy, 2018)

Death can be a difficult or awkward topic to discuss or even acknowledge. Psychologist Suzanne M. Miller (1995) proposed two relevant coping styles: *monitoring*, in which people seek out information about a problem even if it represents bad news, and *blunting*, in which people avoid potentially distressing information. These styles have implications for how much distress a person may feel when diagnosed with a terminal illness, and they may also influence how comfortable the person is discussing it with others (Pao & Mahoney, 2018).

But do people benefit from knowing they're dying? Does this knowledge make them scared or prepared? Does it cause them to seek comfort or push others away? These questions don't have simple answers. In general, thinking about death makes people anxious; however, this anxiety will prompt some people to prepare, while others will feel helpless and overwhelmed. Thinking about their own death also affects the way people interact with others, particularly people they view as different. When people feel that their sense of self is threatened, as when they're worried about their own death, they try to preserve that sense of self by becoming more committed to cultural values and showing more *outgroup bias*, negative feelings about people perceived as different (Greenberg et al., 1986; Juhl & Routledge, 2016; Ma-Kellams & Blascovich, 2011; Rubin, 2018). The idea that people try to preserve their identity in the face of a threat of impending death is called *terror management*

theory (Greenberg et al., 1986). However, not everyone reacts to this threat the same way. European-Americans are more likely to react with outgroup bias than are Asian Americans. The collectivist orientation of many Asian cultures may emphasize bonding with others during times of trouble (Ma-Kellams & Blascovich, 2011; Kwon & Park, 2022), although not all research supports this (e.g., Otsubo & Yamaguchi, 2023).

People who worry about what awaits them after death may also experience **death anxiety**. Nichols and colleagues' (2018) cross-cultural study looked at the relationship between views of the self and fear of death among Christians, Hindus, and Tibetan Buddhist monks. Christians generally view the soul (self) as separate from the body, existing continuously throughout life and after death. Hindus similarly view the self's existence as continuous, but believe it is reincarnated after death. These two perspectives may make people fear death if they're concerned about what might happen to them in the afterlife. Indo-Tibetan Buddhism, on the other hand, takes the perspective that nothing is permanent, including the self; therefore, death isn't something to fear.

## Five Stages of Loss (*Ob 3*)

Kübler-Ross (1969, 1975) describes **five themes of loss** experienced by someone who faces the news of their impending death. These are not 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 themes 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.

**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.

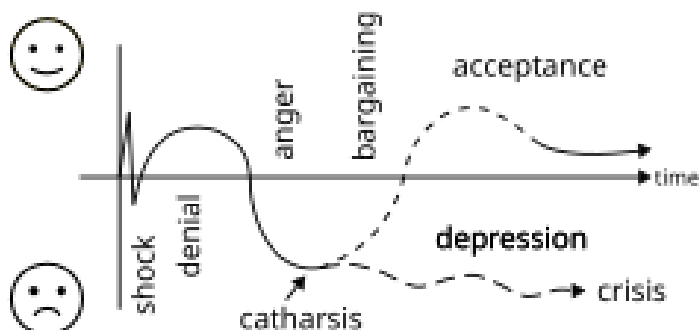
**Anger** also provides us with protection in that being angry energizes us to fight against something and gives structure to a situation that may be thrusting us into the unknown. It is much easier to be angry than to be sad or in pain or depressed. It helps us to temporarily believe that we have a 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.

**Bargaining** involves trying to think of what could be done to turn the situation around. Living better, devoting yourself 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.

**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.

**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.



*Diagram showing two possible outcomes of grief or a life-changing event (introverted depression or extroverted life enhancing overall benefit)*

There is no “right way” to experience the loss. People move through a variety of stages with different frequency and in various ways. It is important to note that Kübler-Ross’s work may not apply to everyone who is grieving. Her research focused only on those who were terminally ill. Friedman and James (2008) and Telford et al. (2006) 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.

Although there is partial support for Kübler-Ross’s themes, having a framework for processing different emotions associated with grief may be comforting or provide structure in an overwhelming situation (Hall, 2014). Regardless of preconceived notions of what grief looks like, health-care providers and others who interact with grieving people need to be flexible and adapt to the needs of the situation (Corr, 2021; Flugelman, 2021; McCoyd et al., 2021). There are different patterns of grieving that vary across individuals, cultures, and the context in which grief occurs. It may not be

possible to always accommodate all these variables, but being aware of them is a good first step (Stroebe et al., 2017).

## Palliative Care and Hospice (*Ob 4, Ob 6, Ob 7*)

When individuals become ill, they need to make choices about the treatment they wish to receive. One's age, type of illness, and personal beliefs about dying affect the type of treatment chosen (Bell, 2010).

Curative care is designed to overcome and cure disease and illness (Fox, 1997). Its aim is to promote complete recovery, not just to reduce symptoms or pain. An example of curative care would be chemotherapy. While curing illness and disease is an important goal of medicine, it is not its only goal. As a result, some have criticized the curative model as ignoring the other goals of medicine, including preventing illness, restoring functional capacity, relieving suffering, and caring for those who cannot be cured.

**Palliative care** focuses on providing comfort and relief from physical and emotional pain to patients throughout their illness even while being treated (NIH, 2007). Palliative care can be given to anyone with a chronic condition, regardless of prognosis (Casey, 2019). Palliative care is an interdisciplinary approach to specialized medical and nursing care for people with life-limiting illnesses. Although it is an important part of end-of-life care, it is not limited to that stage. 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 to provide additional support to the patient. 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. Medical staff who specialize in palliative care have 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.

Palliative care is part of hospice programs. **Hospice** 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. Hospice can be provided in a special facility, in the home, or even sometimes in a hospital setting. A doctor may suggest hospice care if the patient is expected to live for fewer than six months. 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 the 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.

#### **Table. Elements of Hospice**

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According to Shannon (2006), the basic elements of hospice include:

- Care of the patient and family as a single unit
- Pain and symptom management for the patient
- Having access to day and night care
- Coordination of all medical services
- Social work, counseling, and pastoral services

Bereavement counseling for the family up to one year after the patient's death

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Today, there are more than 6,000 hospice programs and over 1,000 of them are offered through hospitals. In 2022, an estimated 1.72 million people received hospice care (NHPCO, 2024). The majority of patients on hospice are cancer patients and typically do not enter hospice until the last few weeks prior to death. The majority of patients on hospice are cancer patients who typically do not enter hospice until the last few weeks prior to death. The average length of stay is less than 25 days (National Center for Health Statistics, 2022). The median length of stay was 18 days, and one out of three patients were on hospice for less than a week. 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 (Weitz, 2007). 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.

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% of people die in hospitals and another 16% die in institutions such as nursing homes (APA Online, 2001). Most hospice programs serve people over 65; few programs are available for terminally ill children (Wolfe et al., in Berger, 2005).



The Hospice Foundation of America notes that not all racial and ethnic groups feel the same way about hospice care. African-American families 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. Chinese-American families 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 (Hospital Foundation of America, 2009).

# Family Care

According to the 2023 Caregiving in America report, an estimated 53 million Americans are currently 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 (IOM, 2015). , 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 (Redfoot et al., 2013).

**Table. Characteristics of Family Caregivers in the United States**

Characteristic	
No home visits by health care professionals	69%
Caregivers are also employed	72%
Caregivers for the elderly	67%
% of employed workers who have been caregiving for 3+ years	55%

Adapted from IOM, 2015

# End of Life Decisions

## Advanced Directives & Medical Orders

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 healthcare agent and living wills. These are initiated by the patient. Advanced directives include a healthcare power of attorney (or medical power of attorney), which appoints a healthcare agent or proxy to make medical decisions on your behalf if you are incapacitated. The term health-care proxy, also called a durable power of attorney for health care, is a document that legally authorizes a person to make health-care decisions for someone else. A specific advanced directive is a living will. **Living wills** are written or video statements that outline the health care initiate the person wishes under certain circumstances. A living will is a legal document that outlines your preferences for medical treatment if you become incapacitated and are unable to communicate your wishes yourself (e.g., terminal illness, severe injury, or being in a persistent vegetative state).

Advance directives may also include other documents requested by the patient, such as Do Not Resuscitate (DNR) orders or psychiatric advance directives. The abbreviation “DNR” stands for “do not resuscitate (DNR).” It means that if a person’s heart stops beating or if they stop breathing, they don’t want CPR or other lifesaving measures performed on them. A DNR is similar to a living will but addresses only the issue of resuscitation if the heart stops. An advance directive is a direction from the patient, not a medical order. A related directive, a “do not intubate (DNI)” order, prevents health-care providers from inserting breathing tubes into a patient’s nose or mouth. This may be requested instead of or in addition to a DNR order. Finally, a “do not hospitalize (DNH)” order prohibits admitting an individual to a hospital. It is usually used in long-term

care settings like nursing homes and is meant to prevent a person from receiving unwanted aggressive medical care if their chances of recovery are low.

It may seem unnecessary to have both a living will and a health-care proxy. Not having a designated health-care proxy can result in family conflicts about who is authorized to make health-care decisions. A health-care proxy can cover situations not identified in the living will, which applies only to life-sustaining treatment. For example, a person with Alzheimer's disease who needs surgery for a broken arm may not be able to consent to treatment due to cognitive impairment. Because this situation isn't life-threatening, it's not covered by a living will, but a health-care proxy could consent to the surgery. Additionally, even if the person has told others what they want, their wishes may not be followed if they aren't stated in formal legal documents.

There are also medical orders for end of life decisions. In contrast to advanced directives, 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 healthcare settings (IOM, 2015).

**Table. Summary of End of Life Decisions**

<b>Feature</b>	<b>Living Will</b>	<b>Advance Directive</b>	<b>Medical Orders for End of Life (POLST/MOLST/DNR)</b>
<b>Definition</b>	Legal document specifying your wishes for end-of-life medical care if you are incapacitated	Broad term for documents guiding future medical care, often includes living will and medical power of attorney	Medical orders written and signed by a healthcare provider based on your current wishes for end-of-life care
<b>Scope</b>	End-of-life medical treatment preferences	Any instructions about future medical care and decision-makers	Specific, actionable medical orders for emergency and end-of-life care
<b>Appoints Decision-Maker</b>	No	Often yes (if it includes healthcare power of attorney)	No (but reflects patient's wishes and may be completed with a surrogate)
<b>Who Completes It?</b>	Individual	Individual	Individual (or surrogate) with healthcare provider
<b>Who Signs?</b>	Individual (may need witness/notary)	Individual (may need witness/notary)	Individual (or surrogate) and healthcare provider
<b>When It's Used</b>	When you are incapacitated and near end-of-life	When you are incapacitated (any serious illness or injury)	Immediately, especially in emergencies, across care settings
<b>Legal Status</b>	Legal document (varies by state)	Legal document (varies by state)	Medical order, must be honored by healthcare professionals and EMS
<b>Examples</b>	Living will, health care directive	Living will, medical power of attorney, combined directives	POLST, MOLST, DNR, DNI, DNH orders

Feature	Living Will	Advance Directive	Medical Orders for End of Life (POLST/MOLST/DNR)
Portability	Yes, but may need to be presented	Yes, but may need to be presented	Highly portable; follows patient across care settings
Main Purpose	Expresses treatment wishes for future incapacity	Expresses wishes and/or appoints a decision-maker	Ensures immediate compliance with specific medical wishes in emergencies

# Will

A **will** is a legal document specifying how to handle a person’s possessions, financial assets, real estate, and/or dependents after death. In some cultures, a will may even cover ideas. For example, some Jewish people make an “ethical will” to pass down their life lessons and values (Reischer & Beverley, 2019). A will may also specify what the person wants done with their body (e.g., burial, cremation, donation to science) and the type of funeral or memorial arrangements they would like. In the United States, anyone considered a legal adult, which is eighteen or older in most states, can make a will (American Bar Association, 2013).

A will names an executor, a person responsible for fulfilling the conditions in the will such as by making charitable donations and giving possessions to heirs. The executor is usually a family member or trusted friend. After a person dies, the executor may need to file the person’s will and a copy of the death certificate with the probate court, which oversees matters such as the distribution of property and the assignment of a legal guardian for any minor children. The court then gives the executor the authority to enact the terms in the will and fulfill other duties, such as selling the deceased person’s

house to pay off debts. This is not necessary for all wills, and the rules may be different between states.

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” (IOM, 2015, p. 18). If a person dies without a will, also called *dying intestate*, no one can access their assets until the probate court decides what should be done with them and who has a legitimate claim to them. (The probate court oversees matters such as the distribution of property and the assignment of a legal guardian for any minor children.) This can take several months and means that family members may be cut off from financial assets such as bank accounts and credit cards if they aren’t already recognized as users on those accounts.

### *Talking about end-of-life wishes*

These links contain information and resources to address a variety of questions related to advance directives, including definitions of terms, forms, and (for U.S. residents) state-specific guidelines.

- Learn more about advance directives on the [NIA Advance Care Planning](#) website.
- The AARP website gives [state-specific-information](#) on how to create advance directives.
- CaringInfo.org, a program of the National Hospice and Palliative Care Organization, has a [detailed website on how to create](#) an advance

directive.

Here are some practical suggestions for getting started, both for expressing your wishes and for learning about what your family members might want for themselves.

A natural opener might be, “In my lifespan development class, we’re learning about death, and that got me thinking about some things.” You can move on to, “I just finished reading about living wills, and now I’m wondering if you have a living will or anything like that.” Or, “The textbook encouraged us to talk with our families about end-of-life issues; would you be willing to have that conversation with me?”

If someone you know or a recent news story dealt with end-of-life issues, you can say, “I was thinking about what happened to \_\_\_\_\_ after they were in that accident and their family had to decide whether to keep them on life support,” or “Things are still a big mess in \_\_\_\_\_’s family because \_\_\_\_\_ didn’t have a will and now they have to wait for probate court to decide how to divide up the estate.” Examples about other people might create openings in conversations that are more comfortable than asking the person directly about their own wishes and plans.

Once you’re able to have a conversation, be sure to include both practical concerns (types of medical treatment, who makes decisions) and more philosophical concerns (what’s important in life, how much pain or discomfort is tolerable). Be sure to include

your own views and wishes as well as asking your loved ones about theirs. You don't need to discuss everything at once. Most people need time to think and decide about these things.

Talking about end-of-life wishes isn't a one-time conversation. People's desires or circumstances may change, and legal documents like health-care proxy forms typically require several conversations and legal consultation. You can express your own concerns, too: "I'm worried I won't know what to do if something happens to you," or "If you don't have a DNR order, health-care workers are legally required to try to resuscitate you." You can also offer to discuss your own wishes first. For instance, "I don't want you to wonder about my wishes, so that's why I want to talk about this."

One final point: Once you and your loved ones have completed the legal documents you decide are necessary, make sure several people know where they are so they can be accessed when needed.

## Euthanasia (*Ob 8*)

**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. Euthanasia can be by **passive euthanasia**, such as no longer feeding someone or giving them food. While voluntary euthanasia involves administering the deadly drug for a patient upon their request,

the practice of prescribing drugs that are self-administered is sometimes referred to as physician-assisted suicide.

**Physician-assisted suicide** involves active euthanasia and occurs when a physician prescribes the means by which a person can end his or her own life. Physician-assisted suicide is legal in six states in the U.S., Canada, the Netherlands, Luxembourg, Switzerland, and Belgium. The person seeking physician-assisted suicide for US states must be: (1) at least 18 years of age, (2) have six or less months until expected death, and (3) obtain two oral (or least 15 days apart) and one written request from a physician (ProCon.org, 2016). In 2014, Belgium allows the right to die to those under the age of 18. Stricter conditions were put in place for children, including parental consent, the child must be suffering from a serious and incurable disease, the child must understand what euthanasia means, and the child's death must be expected in the near future (Narayan, 2016). Physician-assisted suicides, however, are rare. Since 1997 when the law was passed in Oregon, 1545 people had lethal prescriptions written and 991 patients had died from the medication by the end of 2015 (Oregon Public Health Division, 2016).



*One or more interactive elements has been excluded from this version of the text. You*

*can view them online here:*

<https://open.maricopa.edu/psy240mm/?p=908#oembed-1>

The brain tumor was ending Brittany's life. The option of living was no longer available to her. She chose

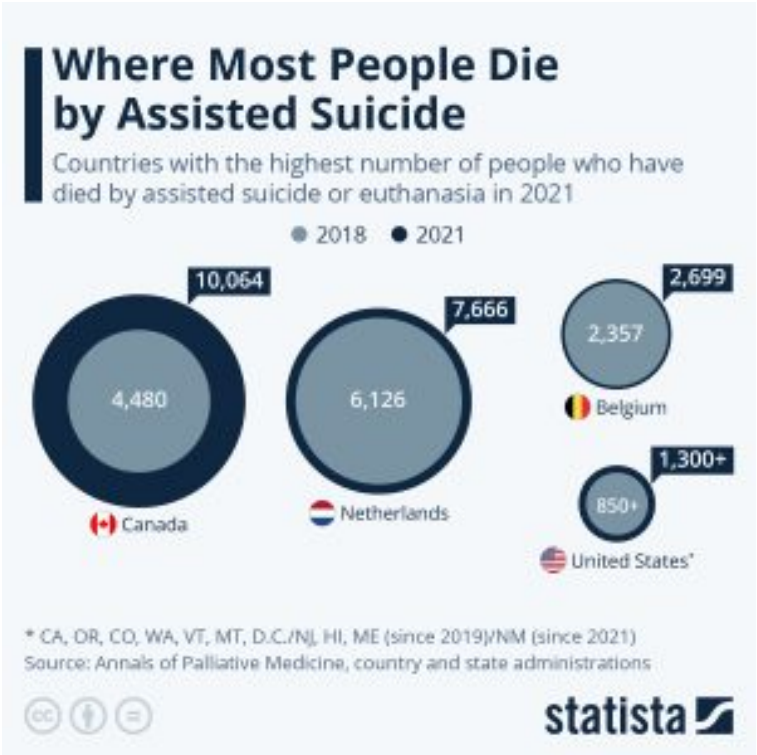
between two different *methods of dying*. One method would be gentle, peaceful. The other would result in being tortured to death by the increasingly intense symptoms she was already experiencing: unrelenting pain, nausea, sleep deprivation, seizures, and impending blindness and paralysis. Those were her reasons for moving to Oregon to have this *option* available to her. (Diaz, 2019, pp. 8–9)

**Table. Eleven States with Legal Physician-Assisted Suicide**

State	Date Passed
Oregon	Passed 11/8/1994, but enacted 10/27/ 1997
Washington	11/4/2008
Montana	12/31/2009
Vermont	5/20/2013
California	10/5/2015
D.C.	10/5/2016
Colorado	11/8/2016
Hawaii	4/5/2018
New Jersey	3/25/2019
Maine	6/12/2019
New Mexico	4/8/2021

The practice of physician-assisted suicide is certainly controversial with religious, legal, ethical, and medical experts weighing in with opinions. The main areas where there is a disagreement between

those who support physician-assisted suicide and those who do not include: (1) whether a person has the legal right to die, (2) whether active euthanasia would become a “slippery slope” and start a trend to legalize deaths for individuals who may be disabled or unable to give consent, (3) how to interpret the Hippocratic Oath and what it exactly means for physicians to do no harm, (4) whether the government should be involved in end-of-life decisions, and (5) specific religious restrictions against deliberately ending a life (ProCon.org, 2016). Not surprisingly, there are strong opinions on both sides of this topic.



*This chart shows the countries with the highest numbers of people who have died by assisted suicide or euthanasia in 2021.*

Assisted suicide and euthanasia are being legalized in an increasing number of countries and in those places where the practice has been allowed, the number of people who die with assistance is rising. The number of people dying with assistance has been rising much faster in Canada over the past three years than in other countries where assisted suicide or euthanasia are legal. The Netherlands and Belgium which, like Canada, allow both have seen numbers rise more slowly. Assisted dying has been legal there since the early 2000s, however, Canada legalized it in 2015. In 2021, assisted dying accounted for 3.3 percent of all deaths in Canada. The United States also saw a somewhat faster rise in those dying by self-administered physician-assisted suicide over the past four years (euthanasia is not legal in the U.S.). This was also aided by the fact that four states – New Jersey, Hawaii, Maine and New Mexico – legalized it between 2018 and 2021, while two more populous ones, Colorado and California, started the practice in 2016. Switzerland is another practitioner of physician-assisted suicide, but not euthanasia. Assisted dying is also legal or will become so soon in Luxembourg, Colombia, Spain, Austria, New Zealand and most Australian states.

### **Countries with Legal Euthanasia or Assisted Dying**

1. Netherlands
2. Belgium
3. Luxembourg
4. Canada
5. Colombia

6. Spain
7. New Zealand
8. Portugal
9. Switzerland (assisted suicide only)
10. Australia (in all states)
11. United States (only 11 states)

Euthanasia and assisted dying laws vary across the globe, with a limited number of countries and jurisdictions allowing some form of the practice. For more information visit, the World Federation of Right to Die Societies' World Map, <https://wfrtds.org/worldmap/>

## Cultural Differences in End-of-Life Decisions

According to Searight and Gafford (2005a), 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. (1987) 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 (Kaufert & Putsch, 1997; Herndon & Joyce, 2004). In the United States, we view the patient as autonomous in health care decisions (Searight & Gafford, 2005a), 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 (Berger, 1998; Searight & Gafford, 2005a). In many Asian cultures, illness is viewed as a “family event,” not just something that impacts the individual patient (Candib, 2002). 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 doctors, patients and families may defer some of the end-of-life decision making to the medical professionals (Searight & Gafford, 2005b).

According to a Pew Research Center Survey (Lipka, 2014), 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) 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 Gafford (2005a) suggest that the low rate of completion of advance directives among non-whites may reflect a distrust of the U.S. healthcare 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” (Morrison et al., 1998).

## *WHAT DO YOU THINK? Brain Dead and on Life Support*

What would you do if your spouse or loved one was declared brain dead but his or her body was being kept alive by medical equipment? Whose decision should it be to remove a feeding tube? Should medical care costs be a factor?

On February 25, 1990, a Florida woman named Terri Schiavo went into cardiac arrest, apparently triggered by a bulimic episode. She was eventually revived, but her brain had been deprived of oxygen for a long time. Brain scans indicated that there was no activity in her cerebral cortex, and she suffered from severe and permanent cerebral atrophy. Basically, Schiavo was in a vegetative state. Medical professionals determined that she would never again be able to move, talk, or respond in any way. To remain alive, she required a feeding tube, and there was no chance that her situation would ever improve.

On occasion, Schiavo's eyes would move, and sometimes she would groan. Despite the doctors' insistence to the contrary, her parents believed that these were signs that she was trying to communicate with them.

After 12 years, Schiavo's husband argued that his wife would not have wanted to be kept alive with no feelings, sensations, or brain activity. Her parents, however, were very much against removing her feeding tube. Eventually, the case made its way to the courts, both in the state of

Florida and at the federal level. By 2005, the courts found in favor of Schiavo's husband, and the feeding tube was removed on March 18, 2005. Schiavo died 13 days later.

Why did Schiavo's eyes sometimes move, and why did she groan? Although the parts of her brain that control thought, voluntary movement, and feeling were completely damaged, her brainstem was still intact. Her medulla and pons maintained her breathing and caused involuntary movements of her eyes and the occasional groans. Over the 15-year period that she was on a feeding tube, Schiavo's medical costs may have topped \$7 million (Arnst, 2003).

These questions were brought to popular conscience decades ago in the case of Terri Schiavo, and they have persisted. In 2013, a 13-year-old girl who suffered complications after tonsil surgery was declared brain dead. There was a battle between her family, who wanted her to remain on life support, and the hospital's policies regarding persons declared brain dead. In another complicated 2013–14 case in Texas, a pregnant EMT professional declared brain dead was kept alive for weeks, despite her spouse's directives, which were based on her wishes should this situation arise. In this case, state laws designed to protect an unborn fetus came into consideration until doctors determined the fetus unviable.

Decisions surrounding the medical response to patients declared brain dead are complex. What do you think about these issues?

## Rituals 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.

Many cultures have rituals to mark someone's death and build meaning from their passing. Some are secular ceremonies that gather people together, while others have religious significance. Some serve primarily to support the surviving family, while others sustain the memory of ancestors, such as Shinto and Buddhist shrines and the Mexican Day of the Dead (McCoyd et al., 2021). In southern Ghana, some people are buried in elaborate "fantasy coffins" (*abebuu adekai*) that commemorate aspects of the person's life, representing the belief that the afterlife is the same as this one (Gundlach, 2017; Potocnik & Adum-Kyeremeh, 2022).

Remembering and honoring the dead does not always involve official rituals from a particular culture or religious belief. For some, a ritual may be gathering friends to share memories and stories of the person's life or toasting to their memory with a small group of close loved ones.

## Religious Rituals After Death

The following are some of the religious practices regarding death, however, individual religious interpretations and practices may occur (Dresser & Wasserman, 2010; Schechter, 2009).

**Buddhism:** Buddhism views death as a natural part of life's cycle, emphasizing the impermanence of all things. Cremation is the most common practice. Funeral rites often involve monks chanting sutras and leading meditation to guide the deceased's spirit. Practices can vary widely among different Buddhist traditions, reflecting the diversity of beliefs and cultural influences within Buddhism.

**Hindu:** Hinduism, with its belief in reincarnation, approaches death as a transition in the soul's journey. Funeral rites are typically accelerated to aid this transition. Cremation is the most common practice, with the body being washed, anointed, and adorned before being placed on a decorated pyre. Ashes are often collected and dispersed in a holy river. A traditional 13-day mourning period follows, with specific rituals and observances on certain days. Shradha, an important ceremony performed after cremation, involves offerings made to the deceased's ancestors to ensure their well-being in the afterlife.

**Judaism:** Judaism encompasses diverse practices related to death, varying among Orthodox, Conservative, and Reform branches. In Orthodox tradition, the deceased undergoes Tahara, a ritual purification process performed by the Chevra Kadisha (burial society). The body is then wrapped in a simple white shroud and placed in a plain wooden coffin. Burial occurs as soon as possible after death, accompanied by a service with prayers and a eulogy. Shiva, the seven-day mourning period, follows, with family members gathering to receive visitors and observe specific customs. This is often referred to as "sitting shiva." Kriah, the symbolic tearing of clothing, is also a traditional expression of grief.

**Muslim:** Islam emphasizes community involvement in funeral rites. The deceased is washed and wrapped in a plain white shroud

called a kaftan. The Janazah, the Islamic funeral prayer, is performed by the community, followed by burial. The body is placed directly in the earth without a casket, positioned on its right side facing Mecca. Embalming and cremation are generally forbidden in Islamic tradition. Widows observe a three-day mourning period, while close family members mourn for 40 days.

**Roman Catholic:** Catholic funerals are often preceded by the Anointing of the Sick, a sacrament where a priest anoints the ill person with oil and offers prayers for healing and comfort. Viaticum, the final Eucharist (Communion), may also be given to the dying. The funeral rites typically involve a Vigil, a gathering where the body is present and prayers and eulogies are offered. This is followed by a Funeral Mass with readings, liturgy, and Communion. The final stage of the funeral takes place at the cemetery, where the grave is blessed and prayers are recited.

## Bereavement and Grief (Ob 9)

The terms grief, bereavement, and mourning are often used interchangeably, however, they have different meanings. **Grief** is the normal process of reacting to a loss. Grief can be in response to a physical loss, such as a death, or a social loss including a relationship or job. **Bereavement** is the period after a loss during which grief and mourning occur. Bereavement describes the state of being following the death of someone (bereavement leave). The time spent in bereavement for the loss of a loved one depends on the circumstances of the loss and the level of attachment to the person who died.



**Mourning** is the process by which people adapt to a loss. Mourning is greatly influenced by cultural beliefs, practices, and rituals (Casarett et al., 2001).

**Four Tasks of Mourning:** Worden (2008) 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

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 fourth 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.*

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.

## Grief

**Grief** is the psychological, physical, and emotional experience of loss. This includes Kübler-Ross five themes of grief (Kübler-Ross & Kessler, 2005). 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. There are numerous survivors for every suicide, resulting in 4.5 million survivors of suicide in the United States (American Association of Suicidology, 2007). 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.

**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. This can make adjustment after a loss somewhat easier, although the stages of loss will be experienced again after the death (Kubler-Ross & Kessler, 2005). A death after a long-term, painful illness may bring family members a sense of relief that the suffering is over. The exhausting process of caring for someone who is ill is over.

**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.

Yet grief continues as long as there is a loss. 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 (Kubler-Ross & Kessler, 2005).

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 angry 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 the modern world (Kubler-Ross & Kessler, 2005, p. 205). 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. Obviously, life does have to continue. But Kubler-Ross and Kessler suggest that contemporary American society would do well to acknowledge and make more caring accommodations to those who are in grief.

**Dual-Process Model of Grieving:** The dual-process model takes into consideration that bereaved individuals move back and forth between grieving and preparing for life without their loved one (Stroebe & Schut, 2001; Stroebe et al., 2005; Stroebe et al., 2013, 2017). This model focuses on a loss orientation, which emphasizes the feelings of loss and yearning for the deceased and a restoration orientation, which centers on the grieving individual re-establishing roles and activities they had prior to the death of their loved one. When oriented toward loss grieving individuals look back, and when oriented toward restoration they look forward. As one cannot look

both back and forward at the same time, a bereaved person must shift back and forth between the two. Both orientations facilitate normal grieving and interact until bereavement has completed.

### *Contextual Influences on Grieving and Mourning*

Grief is shaped by several factors, including the age at which death occurs, the relationship between the deceased and survivors, and the dying trajectory. The death of a child or young adult is often harder to cope with than that of an older adult, as it defies expectations of the human lifespan. When an infant or young child dies, typical mourning rituals may not take place, affecting how families process grief. Parents may avoid sharing their feelings with each other to protect one another, which can intensify their grief, and they may also struggle to care for surviving children or become overprotective. The closeness or conflict in the relationship with the deceased also influences grief, and even healthcare providers can experience significant, though often unacknowledged, grief. Sudden deaths, particularly of children, tend to elicit more intense grief responses due to the lack of time for emotional preparation. The cause of death, such as suicide, may be linked to stronger grief reactions, although this is not always consistent and may relate more to the suddenness of the loss. In cases of dementia, caregivers experience grief in multiple ways, including the loss of communication and relationship changes, which are compounded by the inability to share memories and feelings.

**How to Support a Loved One who is Grieving:** Supporting someone who is grieving requires empathy, patience, and a willingness to simply be present. Research emphasizes the importance of active listening, allowing the griever to express their emotions without judgment or interruption (Prigerson et al., 2008). Offer practical assistance with daily tasks, such as cooking, cleaning, or childcare, as grief can often make these feel overwhelming (Stroebe & Schut, 2010). Avoid offering unsolicited advice or

minimizing their loss with clichés; instead, validate their feelings and acknowledge the uniqueness of their grief journey (Neimeyer, 2001). Remember that grief is not linear, and continued support over time, even after the initial period of mourning, is crucial for healing (Bonanno & Kaltman, 2001). Finally, encourage the griever to seek professional help if they are struggling to cope, as therapy can provide valuable tools and support during this difficult time (Currier et al., 2008).

## Conclusion

Death, while a universal human experience, is deeply intertwined with cultural beliefs, values, and practices (Gutiérrez et al., 2019). As our world becomes increasingly interconnected, understanding these diverse perspectives becomes ever more crucial. By exploring our own anxieties about death and delving into the complexities of grief across cultures, we can develop greater empathy and compassion for ourselves and others as we navigate this inevitable aspect of life.

The knowledge gained from this chapter equips us not only to face our own mortality with greater awareness but also to provide support and understanding to those who are grieving. It, we can try to understand some of the factors that affect the way people experience and cope with it. We can understand the options available to those who want to ensure their designated loved ones know what to do before and after their death. We can make ourselves more aware of cultural factors that may influence what people want the end of their lives to look like. We can use this information to help ourselves as well as others. Although it's hard to be fully prepared for death, we can use this knowledge to approach it with a sense of being informed and prepared for the challenges ahead. By recognizing the diverse ways in which individuals and cultures experience and cope with death, we can foster a more

compassionate and inclusive society where individuals feel supported through the challenges of loss and bereavement.

As we conclude this exploration of death and dying, let us remember that while death marks the end of our physical existence, it also serves as a reminder to cherish life, embrace our shared humanity, and find meaning in the face of mortality.

### *Chapter Review Practice Quiz*



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

<https://open.maricopa.edu/psy240mm/?p=908#h5p-12>

## Chapter 12 Key terms (see Glossary)

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advanced directives	hospice
anticipatory grief	living wills
bereavement	mourning
biological death	palliative care
brain death	passive euthanasia
clinical death	physician-assisted suicide
death anxiety	physiological death
disenfranchised grief	psychic death
Dual-Process Model of Grieving	social death
euthanasia	will
five themes of loss	

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# Glossary

## A

**A-Frame Relationship:** is one in which the partners lean on one another and are highly dependent on the other for survival

**Achondroplasia:** a genetic disorder that is marked by abnormally slow conversion of cartilage to bone during development resulting in a form of dwarfism characterized by a usually normal torso and shortened limbs and that is usually inherited as an autosomal dominant trait

**Acne:** a disorder of the skin caused by inflammation of the skin glands and hair follicles

**Active Euthanasia:** administering a lethal dose of medication to someone who wishes to die

**Active Genotype-Environment Correlation:** occurs when individuals seek out environments that support their genetic tendencies

**Additive Pattern:** many different genes contribute to a final outcome

**Advance Directives:** include documents that mention a healthcare agent and living wills

**Agape:** is an altruistic, selfless love

**Age of Viability:** the first chance of survival outside the womb, reached between 22 and 26 weeks

**Age-Related Macular Degeneration:** macular degeneration that affects the elderly in either a slowly progressing form marked especially by the accumulation of yellow deposits in and thinning of the macula or in a rapidly progressing form marked by scarring produced by bleeding and fluid leakage below the macula

**Aggressive-Rejected:** acting out of a feeling of insecurity

**Albinism:** a human being who is congenitally deficient in pigment

and usually has a milky or translucent skin, white or colorless hair, and eyes with pink or blue iris and deep-red pupil

**Alzheimer's Disease:** a degenerative brain disease of unknown cause that is the most common form of dementia, that usually starts in late middle age or in old age, that results in progressive memory loss, impaired thinking, disorientation, and changes in personality and mood, and that is marked histologically by the degeneration of brain neurons especially in the cerebral cortex and by the presence of neurofibrillary tangles and plaques containing beta-amyloid

**Andropause:** a gradual and highly variable decline in the production of androgenic hormones and especially testosterone in the human male together with its associated effects that is held to occur during and after middle age

**Anemia:** a condition in which the blood is deficient in red blood cells, in hemoglobin, or in total volume

**Animism:** attribution of conscious life to objects in and phenomena of nature or to inanimate objects

**Anorexia:** loss of appetite especially when prolonged

**Anticipatory Greif:** occurs when a death is expected and survivors have time to prepare to some extent before the loss

**Apgar Score:** an index used to evaluate the condition of a newborn infant based on a rating of 0, 1, or 2 for each of the five characteristics of color, heart rate, response to stimulation of the sole of the foot, muscle tone, and respiration with 10 being a perfect score

**Articulation Disorder:** refers to the inability to correctly produce speech sounds (phonemes) because of imprecise placement, timing, pressure, speed, or flow of movement of the lips, tongue, or throat

**Associative Play:** children will interact with each other and share toys, but are not working toward a common goal

**Atherosclerosis:** arteriosclerosis characterized by atheromatous deposits in and fibrosis of the inner layer of the arteries

**Athletic Coach:** Parenting Style: helps children form strategies, supports their efforts, gives feedback on what went right and what went wrong, and stands at the sideline while the children perform

**Attention Deficit Hyperactivity Disorder (ADHD):** a developmental disorder that is marked especially by persistent symptoms of inattention (such as distractibility, forgetfulness, or disorganization) or by symptoms of hyperactivity and impulsivity (such as fidgeting, speaking out of turn, or restlessness) or by symptoms of all three and that is not caused by any serious underlying physical or mental disorder

**Authoritative: Parenting Style:** children develop greater competence and self-confidence when parents have high, but reasonable expectations for children's behavior, communicate well with them, are warm, loving and responsive, and use reasoning, rather than coercion as preferred responses to children's misbehavior

**Authoritarian: Parenting Style:** the traditional model of parenting in which parents make the rules and children are expected to be obedient

**Autobiographical Memory:** our personal narrative

**Autosomal Dominant Disorders (Heterozygous):** Inherits the gene change from only one parents

**Arthritis:** inflammation of joints due to infectious, metabolic, or constitutional causes

## B

**Babbling:** producing meaningless speech sounds

**Beginning Phase:** 'of breaking up' involves seeing imperfections in the relationship but remaining hopeful that things will improve

**Bereavement:** the period after a loss during which grief and mourning occurs

**Big Five:** a person's tendency toward extraversion, agreeableness, neuroticism, conscientiousness, and openness

**Bilingual:** using or able to use two languages especially with equal fluency

**Binge Eating Disorder (BED):** an eating disorder characterized by recurring episodes of binge eating accompanied by a sense of lack of control and often negative feelings about oneself but without intervening periods of compensatory behavior (as self-induced vomiting, purging by laxatives, fasting, or prolonged exercise)

**Biological death**

**Boomerang Kids:** a young adult who returns to live at his or her family home especially for financial reasons

**Braxton-Hicks-Constrictions:** relatively painless nonrhythmic contractions of the uterus that occur during pregnancy with increasing frequency over time but are not associated with labor

**Bulimia Nervosa:** a serious eating disorder that occurs chiefly in females, is characterized by compulsive overeating usually followed by self-induced vomiting or laxative or diuretic abuse, and is often accompanied by guilt and depression

**Bullying:** abuse and mistreatment of someone vulnerable by someone stronger, more powerful

## C

**Cancer:** a malignant tumor of potentially unlimited growth that expands locally by invasion and systemically by metastasis

**Case Studies:** involve exploring a single case or situation in great detail

**Cataracts:** a clouding of the lens of the eye or of its surrounding transparent membrane that obstructs the passage of light

**Centenarians:** people over the age of 100

**Cephalocaudal Development:** growth during prenatal development occurs in two major directions from head to tail

**Cesarean Section (C-Section):** a surgical procedure involving incision of the walls of the abdomen and uterus for delivery of offspring

**Chromosomal Abnormality:** occurs when a child inherits too many or too few chromosomes

**Chromosome:** any of the rod-shaped or threadlike DNA-containing structures of cellular organisms that are located in the nucleus of eukaryotes, are usually ring-shaped in prokaryotes (such as bacteria), and contain all or most of the genes of the organism

**Chronic Illnesses:** illnesses that are ongoing, generally incurable conditions that require continuing medical attention and affect daily life

**Circumcised:** to cut off the foreskin of (a male) or the prepuce or clitoris and labia minora of (a female)

**Classical Conditioning:** conditioning in which the conditioned stimulus (such as the sound of a bell) is paired with and precedes the unconditioned stimulus (such as the sight of food) until the conditioned stimulus alone is sufficient to elicit the response (such as salivation in a dog)

**Clinically Dead:** when a person no longer has brain activity

**Clustering Rehearsal:** the person rehearses previous material while adding in additional information

**Cognitive:** of, relating to, being, or involving conscious intellectual activity (such as thinking, reasoning, or remembering)

**Co-Parental Divorce:** is experienced by those couples who have children together. Determining custody and visitation are part of this station of divorce

**Co-Sleeping:** parents and infants sleeping in close proximity to each other

**Cohabitation:** involves living together in a sexually intimate relationship without being married

**Cohort:** is a group of people who are born at roughly the same period in a particular society

**Community Divorce:** involves severing ties with neighbors, coworkers, friends, and relatives following divorce

**Companionate Love:** intimacy and commitment are the hallmarks; partners love and respect one another and they are committed to staying together

**Concrete Operational Stage:** mastering the use of logic in concrete ways

**Conditioned Stimulus:** learned response to a stimulus

**Confidentiality:** Researchers must also protect the privacy of the research participants' responses by not using names or other information that could identify the participants

**Confirmation Bias:** is the tendency to look for evidence that we are right and in so doing, we ignore contradictory evidence

**Congenital Disability:** is a condition present at birth regardless of its cause. Formerly known as Birth defects, they may result in disabilities that are physical, intellectual, or developmental. The disabilities can range from mild to severe.

**Conservation:** refers to the ability to recognize that moving or rearranging matter does not change the quantity

**Consummate Love:** intimacy, passion, and commitment are present; often the ideal type of love

**Content Analysis:** involves looking at media such as old texts, pictures, commercials, lyrics or other materials to explore patterns or themes in culture

**Continuity Theory:** suggests that as people age, they continue to view the self in much the same way as they did when they were younger

**Continuous Development:** development is a slow and gradual process

**Cooing:** to make a low soft cry of a dove or a pigeon or a similar sound

**Cooperative Play:** children are interacting to achieve a common goal. Children may take on different tasks to reach that goal

**Corpus Callosum:** the great band of commissural fibers uniting the cerebral hemispheres of higher mammals including humans

**Critical Thinking:** a detailed examination of beliefs, courses of action, and evidence, involves teaching children how to think

**Cross-sectional:** research that involves beginning with a sample that represents a cross-section of the population

**Cross-sequential Research:** involves combining aspects of the

previous two techniques; beginning with a cross-sectional sample and measuring them through time

**Crystallized Intelligence:** refers to the accumulated knowledge of the world, we have acquired throughout our lives

**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 often referred to as a blueprint or guideline shared by a group of people that specifies how to live

**Cyberbullying:** the electronic posting of mean-spirited messages about a person (such as a student) often done anonymously

**Cystic Fibrosis (CF):** a common hereditary disease that appears usually in early childhood, involves functional disorder of the exocrine glands, and is marked especially by difficulty in breathing due to mucus accumulation in airways, by faulty digestion due to a deficiency of pancreatic enzymes, and by excessive loss of salt in the sweat

## D

**Dating Cohabitation:** These partnerships are entered into for fun or convenience and involve less commitment than premarital cohabitation

**Debriefing:** At the end of a study debriefing, which is a procedure designed to fully explain the purposes and procedures of the research and remove any harmful after effects of participation, must occur

**Deception:** occurs whenever research participants are not completely and fully informed about the nature of the research project before participating in it. Deception may occur when the researcher tells the participants that a study is about one thing when in fact it is about something else, or when participants are not told about the hypothesis

**Declarative Memories:** memories for facts or events that we can consciously recollect – Explicit Memories

**Deferred Imitation:** the imitation of actions after a time delay

**Dendrite:** any of the usually branching protoplasmic processes that conduct impulses toward the body of a neuron

**Depression:** a mood disorder marked especially by sadness, inactivity, difficulty in thinking and concentration, a significant increase or decrease in appetite and time spent sleeping, feelings of dejection and hopelessness, and sometimes suicidal tendencies

**Descriptive Studies:** focus on describing an occurrence

**Developmental Designs:** are techniques used in lifespan research (and other areas as well). These techniques try to examine how age, cohort, gender, and social class impact development

**Developmental Theories:** offer explanations about how we develop, why we change over time and the kinds of influences that impact development

**Diabetes:** a variable disorder of carbohydrate metabolism caused by a combination of hereditary and environmental factors and usually characterized by inadequate secretion or utilization of insulin, by excessive urine production, by excessive amounts of sugar in the blood and urine, and by thirst, hunger, and loss of weight – Diabetes Mellitus

**Dialectical Thought:** ability to bring together salient aspects of two opposing viewpoints or positions

**Dichotomy:** a division into two especially mutually exclusive or contradictory groups or entities

**Discontinuous Development:** development occurs in separate stages

**Disenfranchised Grief:** may be experienced by those who have to hide the circumstances of their loss or whose grief goes unrecognized by others

**Divided Attention:** the ability to switch our focus between tasks or external stimuli

**Dominant:** being the one of a pair of bodily structures that is the more effective or predominant in action

**Dual-Process Model of Grieving:** model takes into consideration that bereaved individuals move back and forth between grieving and preparing for life without their loved one

**Duchenne Muscular Dystrophy:** a severe progressive X-linked muscular dystrophy of males marked by early childhood onset and absence of the protein dystrophin

**Dyscalculia:** impairment of mathematical ability due to an organic condition of the brain

**Dysgraphia:** impairment of handwriting ability that is characterized chiefly by very poor or often illegible writing or writing that takes an unusually long time and great effort to complete

**Dyslexia:** a variable often familial learning disability involving difficulties in acquiring and processing language that is typically manifested by a lack of proficiency in reading, spelling, and writing

## E

**Economic Divorce:** divorce involves the division of property and debt, determining whether alimony will be paid, and determining if a spouse who provided support while their partner was in school or other lengthy training that increased their earning potential will be entitled to future earnings

**Ectopic Pregnancy:** development of a fertilized egg elsewhere than in the uterus (as in a fallopian tube or the peritoneal cavity)

**Egocentrism:** the quality or state of being egocentric: excessive interest in oneself and concern for one's own welfare or advantage at the expense of or in disregard of others

**Elderspeak:** a patronizing form of 'baby talk' used to talk down to the elderly

**Embryo:** a vertebrate at any stage of development prior to birth or hatching

**Emotional Divorce:** involves a lot of mini-divorces in which

partners make alienating remarks to one another. Partners become disengaged from one another and emotionally withdrawn. Some couples divorce emotionally, but never legally

**Empty Love:** love may be found later in a relationship or in a relationship that was formed to meet needs other than intimacy or passion (money, childrearing, status)

**Empty Nest:** the seemingly empty home after the parents' children have left the house indefinitely

**End Phase:** 'of breaking up' the decision to leave has been made

**Endogamy:** marriage within a specific group as required by custom or law

**Epidural Block:** an injection of a local anesthetic into the space outside the dura mater of the spinal cord in the lower back region to produce a loss of sensation especially in the abdomen or pelvic region

**Episodic Memories:** long-term memory of a specific event that was personally experienced at a particular time or place in the past

**Episiotomy:** surgical incision of the perineum to enlarge the vaginal opening for obstetrical purposes during the birth process

**Eros:** is an erotic style of loving in which the person feels consumed

**Ethnocentrism:** the attitude that one's own group, ethnicity, or nationality is superior to others

**Euthanasia**

**Explanatory Studies:** are efforts to answer the question "why" such as "Why have rates of divorce leveled off?" or "Why are teen pregnancy rates down?"

**Evaluation Research:** is designed to assess the effectiveness of policies or programs

**Evocative Genotype-Environment Correlation:** refers to how the social environment reacts to individuals based on their inherited characteristics

**Executive Function (EF):** the group of complex mental processes and cognitive abilities (such as working memory, impulse inhibition, and reasoning) that control the skills (such as organizing tasks,

remembering details, managing time, and solving problems) required for goal-directed behavior

**Expertise:** refers to specialized skills and knowledge that pertain to a particular topic or activity

## F

**Family Capital:** parents who have higher levels of income, occupational status, and other qualities favored in society

**Fast-Mapping:** words are easily learned by making connections between new words and concepts already known

**Fatuous Love:** some people who have a strong physical attraction push for commitment early in the relationship

**Fetal Alcohol Spectrum Disorders (FASD):** an umbrella term for a range of effects of exposure and replaces the term fetal alcohol syndrome

**Fetus:** an unborn or unhatched vertebrate especially after attaining the basic structural plan of its kind

**Filter Theory of Mate Selection:** the pool of eligible partners becomes narrower as it passes through filters used to eliminate members of the pool

**Fine Motor Skills:** exact movements of the hands and fingers and include the ability to reach and grasp an object

### **Five stages of loss**

**Flow:** the mental state of being completely present and fully absorbed in a task

**Fluency Disorders:** affect the rate of speech; speech may be labored and slow, or too fast for listeners to follow

**Fluid Intelligence:** refers to the capacity to learn new ways of solving problems and performing activities quickly and abstractly

**Fragile X Syndrome:** an X-linked inherited disorder that is characterized especially by moderate to severe intellectual and

developmental disabilities, an elongated face and prominent forehead, chin, and ears, and by large testes in males, and that often has limited or no effect in heterozygous females

## G

**Gallstones:** a burning discomfort behind the lower part of the sternum due especially to spasmodic reflux of acid from the stomach into the esophagus

**Gamete:** a mature male or female germ cell usually possessing a haploid chromosome set and capable of initiating formation of a new diploid individual by fusion with a gamete of the opposite sex

**Gamete Intra-Fallopian Tube Transfer (GIFT):** implanting both sperm and ova into the fallopian tube and fertilization is allowed to occur naturally

**Gender Constancy:** the knowledge that gender does not change

**Gender Dysphoria:** a distressed state arising from conflict between a person's gender identity and the sex the person has or was identified as having at birth

**Gender Dysmorphia:** marked by a feeling of discomfort and disconnection between one's self and biological gender

**Gender Identity:** a person's internal sense of being male, female, some combination of male and female, or neither male nor female

**Gender Roles:** the rights and expectations that are associated with being male or female are learned throughout childhood and into adulthood

**Gene:** a specific sequence of nucleotides in DNA or RNA that is located usually on a chromosome and that is the functional unit of inheritance controlling the transmission and expression of one or more traits by specifying the structure of a particular polypeptide and especially a protein or controlling the function of other genetic material

**Genotype:** all or part of the genetic constitution of an individual or group

**Genotype-Environment Correlations:** refer to the processes by which genetic factors contribute to variations in the environment

**Genotype-Environment Interactions:** involve genetic susceptibility to the environment

**Germinal Period:** begins at conception, lasts 2 weeks

**Glaucoma:** a disease of the eye marked by increased pressure within the eyeball that can result in damage to the optic disk and gradual loss of vision

**Grief:** the normal process of reacting to a loss, the psychological, physical, and emotional experience of loss

**Gross Motor Skills:** involve the use of large muscle groups and are typically large movements of the arms, legs, head, and torso

**Gestational Diabetes:** Diabetes that develops in a woman while pregnant, whom did not have diabetes prior to pregnancy

**Guided Participation:** otherwise known as scaffolding, when a teacher or capable peer helps a child learn cognitive skills within a certain range (zone of proximal development)

**Granny Dumping:** the practice of family members abandoning older family members with severe disabilities in emergency rooms is a growing problem

## H

**H-Frame Relationship:** is one in which the partners live parallel lives

**Hayflick Limit:** cells divide a limited number of times and then stop

**Hawthorne Effect:** the stimulation to output or accomplishment that results from the mere fact of being under observation

**Heart Burn:** a burning discomfort behind the lower part of the

sternum due especially to spasmodic reflux of acid from the stomach into the esophagus

**Heart Disease:** an abnormal condition of the heart or of the heart and circulation (such as coronary heart disease, arrhythmia, or heart-valve defect)

**Hemophilia:** a hereditary, sex-linked blood defect occurring almost exclusively in males that is marked by delayed clotting of the blood with prolonged or excessive internal or external bleeding after injury or surgery and in severe cases spontaneous bleeding into joints and muscles and that is caused by a deficiency of clotting factors

**Heterozygous:** having the two alleles at corresponding loci on homologous chromosomes different for one or more loci

**High Blood Pressure (Hypertension):** abnormally elevated blood pressure especially of the arteries

**High Cholesterol:** too much cholesterol in one's blood

**Holophrastic Speech:** expressing a complex of ideas in a single word or in a fixed phrase

**Home State:** occurs when parents or siblings visit the school

**Homogamy:** the mating of like with like

**Homozygous:** having the two genes at corresponding loci on homologous chromosomes identical for one or more loci

**Hormonal Stress Theory:** suggests that as we age the ability of the hypothalamus to regulate hormones in the body begins to decline leading to metabolic problems – Neuroendocrine Theory of Aging

**Hormones:** a product of living cells that circulates in body fluids (such as blood) or sap and produces a specific often stimulatory effect on the activity of cells usually remote from its point of origin

**Hospice:** 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

**Human Immunodeficiency Virus (HIV):** either of two retroviruses that infect and destroy helper T cells of the immune system causing the marked reduction in their numbers that is diagnostic of AIDS

**Huntington's Disease:** a hereditary brain disorder that is a progressive, neurodegenerative condition marked especially by impairments in thinking and reasoning, disturbances of emotion and behavior, and the involuntary spasmodic movements of chorea and that is associated with the loss or atrophy of nerve cells in the basal ganglia especially of the caudate nucleus and putamen

**Hyperactivity:** higher than usual levels of movement and activity (such as excessive talking or fidgeting) typically associated with attention deficit disorder

**Hypothesis:** an assumption or concession made for the sake of argument

## I

**Imaginary Audience:** the adolescent's belief that those around them are as concerned and focused on their appearance as they themselves are

**Impaired Aging:** more physical challenge and disease than others of the same age

**In Vitro Fertilization (IVF):** procedure involves removing eggs from the female and fertilizing the eggs outside the woman's body

**Incomplete Dominance:** the property of being expressed or inherited as a semi dominant gene or trait

**Inductive Reasoning:** logical process in which multiple premises believed to be true are combined to obtain a specific conclusion

**Infant Anoxia:** hypoxia especially of such severity as to result in permanent damage, during delivery

**Infantile Amnesia:** inability to remember the feelings and experiences of early childhood

**Infatuation:** consists of an immediate, intense physical attraction to someone

**Infertility:** not fertile or productive, incapable of or unsuccessful in achieving pregnancy

**Information Processing:** based on the ideas and research of several cognitive scientists studying how individuals perceive, analyze, manipulate, use, and remember information

**Informed Consent:** Researchers must obtain informed consent, which explains as much as possible about the true nature of the study, particularly everything that might be expected to influence willingness to participate. Participants can withdraw their consent to participate at any point

**Intrinsic Value:** the partners are together because they enjoy, love and value one another

## J

**Joint Attention:** the ability to focus on objects or individuals in social interactions

## K

**Kinkeeping:** organizing events and communication in order to maintain family ties

**Klinefelter's Syndrome:** an abnormal condition in a male characterized by usually two X and one Y chromosomes, infertility, smallness of the testicles, sparse facial and body hair, and enlarged breasts

**Kwashiorkor:** severe malnutrition in infants and children especially of impoverished regions caused by a diet low in protein

## L

**Lateralization:** the process in which different functions become localized primarily on one side of the brain

**Learning Disability (LD):** any of various conditions (such as dyslexia or dysgraphia) that interfere with an individual's ability to learn and so result in impaired functioning in language, reasoning, or academic skills (such as reading, writing, and mathematics) and that are thought to be caused by difficulties in processing and integrating information

**Legal Divorce:** involves court proceedings and negotiations that legally dissolve the partners' marital ties to one another

**Liking:** in this relationship, intimacy or knowledge of the other and a sense of closeness is present

**Limbic System:** a group of subcortical structures (such as the hypothalamus, the hippocampus, and the amygdala) of the brain that are concerned especially with emotion and motivation

**Living Wills:** written or video statements that outline the health care initiatives the person wishes under certain circumstances

**Long-Term Memory:** a memory that involves the storage and recall of information over a long period of time (such as days, weeks, or years)

**Longitudinal Research:** involves beginning with a group of people who may be of the same age and background, and measuring them repeatedly over a long period of time

**Ludus:** refers to a style of loving that emphasizes the game of seduction and fun

## M

**M-Frame Relationship:** the relationship is interdependent

**Major Neurocognitive Disorder:** diagnosed as a significant

cognitive decline from a previous level of performance in one or more cognitive domains and interferes with independent functioning

**Mania:** the style of love characterized by volatility, insecurity, and possessiveness

**Marasmus:** a condition of chronic undernourishment occurring especially in children and usually caused by a diet deficient in calories and proteins

**Marriage Gradient:** suggests among couples, the man is supposed to have more education than the woman

**Martyr:** a parent who will do anything for the child; even tasks that the child should do for himself or herself

**Mediation Deficiency:** occurs when a child does not grasp the strategy being taught, and thus, does not benefit from its use

**Meiosis:** the cellular process that results in the number of chromosomes in gamete-producing cells being reduced to one half and that involves a reduction division in which one of each pair of homologous chromosomes passes to each daughter cell and a mitotic division

**Menopause:** the natural cessation of menstruation that usually occurs between the ages of 45 and 55

**Metacognition:** awareness or analysis of one's own learning or thinking processes

**Middle Phase:** 'of breaking up' once it becomes clear that efforts to change are futile; marked by disappointment

**Minor Neurocognitive Disorder:** 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

**Mitosis:** a process that takes place in the nucleus of a dividing cell, involves typically a series of steps consisting of prophase, metaphase, anaphase, and telophase, and results in the formation of two new nuclei each having the same number of chromosomes as the parent nucleus

**Mourning:** the process by which people adapt to a loss

**Multidisciplinary:** combining or involving more than one discipline or field of study

**Multifactorial:** caused or marked by a polygenic mode of inheritance dependent on a number of genes at different loci; also, caused by or dependent on the interaction of multiple genes combined with one or more environmental factors

**Multitasking:** the ability to switch our focus between tasks or external stimuli

**Mutual Dependency:** partners begin to disclose even more about themselves and are met with support and acceptance

**Myelin:** a soft white material that forms a thick layer around the axons of some neurons and is composed chiefly of lipids (such as cerebroside and cholesterol), water, and smaller amounts of protein

## N

**Nature:** heredity plays the most important role in bringing about a feature

**Negative Reinforcement:** involves taking something away from the situation in order to encourage a behavior

**Neuroplasticity:** the capacity for continuous alteration of the neural pathways and synapses of the living brain and nervous system in response to experience or injury

**No Harm:** The most direct ethical concern of the scientist is to prevent harm to the research participants

**Normal Aging:** changes are similar to most of those of the same age

**Nondeclarative Memories:** typically automated skills that do not require conscious recollection – Implicit Memories

**Novice:** someone who has limited experiences with a particular task

**Nurture:** one's environment is most significant in shaping the way we are

## O

**Observational Studies:** involve watching and recording the actions of participants

**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

**Oogenesis:** the process of female gamete formation including the formation of an oocyte from an oogonium followed by meiotic division

**Operant Conditioning:** conditioning in which the desired behavior or increasingly closer approximations to it are followed by a rewarding or reinforcing stimulus

**Operational:** refers to logical manipulation of information, so children at this stage are considered pre-operational

**Optimal Aging:** good health, active, stimulating life

**Osteoarthritis (OA):** a common form of arthritis typically with onset during middle or old age that is characterized by progressive degenerative changes in the cartilage of one or more joints (as of the knees, hips, and hands) accompanied by thickening and overgrowth of adjacent bone and that is marked symptomatically chiefly by stiffness, swelling, pain, deformation of joints, and loss of range of motion

**Osteoporosis:** a condition that affects especially older women and is characterized by a decrease in bone mass with decreased density and enlargement of bone spaces producing porosity and fragility

**Overload Stressors:** having too many demands placed on them by children or do to financial concerns

## P

**Pal:** permissive parent, wants to be the child's friend

**Palliative Care:** focuses on providing comfort and relief from physical and emotional pain to patients throughout their illness even while being treated

**Parallel Play:** children play alongside each other, using similar toys, but do not directly act with each other

**Passive Euthanasia:** no longer feeding someone or giving them food

**Passive Genotype-Environment Correlation:** occurs when children passively inherit the genes and the environments their family provides

**Permissive:** Parenting Style: involves holding expectations of children that are below what could be reasonably expected from them

**Personal Fable:** belief that one is unique, special, and invulnerable to harm

**Phenotype:** the observable properties of an organism that are produced by the interaction of the genotype and the environment

**Phenylketonuria (PKU):** an inherited metabolic disorder caused by an enzyme deficiency resulting in accumulation of phenylalanine and its metabolites in the blood causing usually severe mental retardation and seizures unless phenylalanine is restricted from the diet beginning at birth

**Photoaging:** the cumulative detrimental effects (such as wrinkles or dark spots) on the skin that result from long-term exposure to sunlight and especially ultraviolet light

**Physical Bullying:** involves hurting a person's body or possessions

**Physician-Assisted Suicide:** occurs when a physician prescribes the means by which a person can end his or her own life

**Physiological Death:** occurs when the vital organs no longer function

**Placenta:** the vascular organ in mammals except for monotremes and marsupials that unites the fetus to the maternal uterus and mediates its metabolic exchanges through a more or less intimate association of uterine mucosal with chorionic and usually allantoic tissues

**Plasticity:** intelligence can be shaped by experience

**Police Officer/Drill Sergeant:** Parenting Style: focuses primarily making sure that the child is obedient and that the parent has full control of the child

**Polygenic:** any of a group of nonallelic genes that collectively control the inheritance of a quantitative character or modify the expression of a qualitative character

**Popular-Antisocial:** gain popularity by acting tough or spreading rumors about others

**Popular-Prosocial:** are nice and have good social skills, tend to do well in school and are cooperative and friendly

**Positive Reinforcement:** involves adding something to the situation in order to encourage a behavior

**Pragma:** the style of love that emphasizes the practical aspects of love

**Preeclampsia:** a serious condition developing in late pregnancy that is characterized by a sudden rise in blood pressure, excessive weight gain, generalized edema, proteinuria, severe headache, and visual disturbances and that may result in eclampsia if untreated. – Toxemia

**Premarital Cohabitation:** people testing the relationship before marriage by living together

**Preoperational Stage:** of, relating to, or being the stage of cognitive development according to Jean Piaget's theory in which thought is egocentric and intuitive and not yet logical or capable of performing mental tasks

**Presbycusis:** a lessening of hearing acuteness resulting from degenerative changes in the ear that occur especially in old age

**Presbyopia:** a visual condition which becomes apparent especially in middle age and in which loss of elasticity of the lens of the eye causes defective accommodation and inability to focus sharply for near vision

**Primary Aging:** refers to the inevitable changes associated with aging

**Primary Sexual Characteristics:** changes in the reproductive organs

**Principle of Least Interest:** the partner who has the most to lose without the relationship (or is the most dependent on the relationship) will have the least amount of power and is in danger of being exploited

**Production Deficiency:** the child does not spontaneously use a memory strategy, and has to be prompted to do so

**Propinquity:** nearness in place or time

**Prospective Memory:** the memory of planned events in the future

**Proximodistal Development:** growth during prenatal development occurs from the midline outward

**Psychic Death:** occurs when the dying person begins to accept death and to withdraw from others and regress into the self

**Psychic Divorce:** involves grieving, becoming more objective about one's role in the breakup, and feeling whole again as a single person

**Psychosocial:** involving both psychological and social aspects

**Punisher:** anything that follows an act and decreases the chance it will reoccur

## R

**Rapport:** a friendly, harmonious relationship

**Reactive Attachment Disorder:** a psychological disorder of infancy and early childhood that is characterized by disturbed or developmentally inappropriate patterns of social interaction and is typically associated with inadequate parental care (such as neglect of the basic emotional and physical needs of the child)

**Recessive:** producing little or no phenotypic effect when occurring in heterozygous condition with a contrasting allele

**Reciprocal Determinism:** the interplay between our personality and the way we interpret events and how they influence us

**Reinforcer:** used to encourage a behavior

**Resiliency:** being able to overcome challenges and successfully adapt

**Rh Disease:** hemolytic disease of the fetus and newborn that is characterized by an increase in circulating erythroblasts and by jaundice and that occurs when the immune system of an Rh-negative mother produces antibodies to an antigen in the blood of an Rh-positive fetus which cross the placenta and destroy fetal red blood cells. – Erythroblastosis Fetalis, Hemolytic Disease of the newborn

**Rheumatoid Arthritis (RA):** a usually chronic autoimmune disease that is characterized especially by pain, stiffness, inflammation, swelling, and sometimes destruction of joints

**Romantic Love:** intimacy and passion are components of romantic love, but there is no commitment

**Rubella:** an acute contagious virus disease that is caused by a toga virus (species Rubella virus of the genus Rubi virus) and is milder than typical measles but is damaging to the fetus when occurring early in pregnancy. German Measles

**Rules of Exogamy:** specify the groups into which one is prohibited from marrying

## S

**Sample:** a representative part or a single item from a larger whole or group especially when presented for inspection or shown as evidence of quality

**Sampling Bias:** selecting samples in such a way to exclude certain factors

**Sanctity State:** a time in which the child is contemplative, quiet, or prayerful and is a very brief part of the day

**Sarcopenia:** reduction in skeletal muscle mass due to aging

**Scaffolding:** is the temporary support that parents or teachers give a child to do a task

**Secondary Aging:** refers to changes that are caused by illness or disease

**Secondary Sexual Characteristics:** visible physical changes not directly linked to reproduction, but signal sexual maturity

**Secondary/Content Analysis:** involves analyzing information that has already been collected or examining documents or media to uncover attitudes, practices, or preferences

**Selective Attention:** the ability to focus on a single task or stimulus while ignoring distracting information

**Self-Concept:** the mental image one has of oneself

**Self-Efficacy:** the belief that you are capable of carrying out a specific task or of reaching a specific goal

**Self-Esteem:** confidence and satisfaction in oneself

**Self-Fulfilling Prophecy:** tendency to act in such a way as to make what you predict will happen come true, calls our attention to the power that labels can have whether or not they are accurately applied

**Self-Revelation:** the revelation of one's own thoughts, feelings, and attitudes especially without deliberate intent

**Semantic Memories:** long-term memory of facts, information, and meanings that is not related to any specific event personally experienced in the past

**Sensory Memory:** the first stage of the memory system, and it stores sensory input in its raw form for a very brief duration; essentially long enough for the brain to register and start processing the information – Sensory Register

**Sex-Linked Chromosomal Abnormality:** when one is missing a whole sex chromosome

**Sexual Abuse:** the infliction of sexual contact upon a person by forcible compulsion

**Sexual Response Cycle:** sexual motivation, often referred to as libido, is a person's overall sexual drive or desire for sexual activity

**Sexually Transmitted Disease:** any one of various diseases that can be transmitted by direct sexual contact

**Short-Term Memory:** a memory that involves recall of information for a relatively short time (such as a few seconds) – Working Memory

**Sickle Cell Disease (SCD):** a chronic anemia that occurs in individuals (as those of African or Mediterranean descent) who are homozygous for the gene controlling hemoglobin S and that is characterized by destruction of red blood cells and by episodic blocking of blood vessels by the adherence of sickle cells to the vascular endothelium which causes the serious complications of the disease (as organ failure)

**Simple Random Sampling:** randomly selected samples

**Social Bullying:** involves spreading rumors, purposefully excluding someone from a group, or embarrassing someone on purpose

**Social Death:** occurs when others begin to withdraw from someone who is terminally ill or has been diagnosed with a terminal illness

**Social Exchange Theory:** people try to maximize rewards and minimize costs in social relationships

**Social Intelligence:** recognizing that others can think differently about situations

**Social Learning Theory:** actions that are learned by watching others

**Socioeconomic Status:** is a way to identify families and households based on their shared levels of education, income, and occupation

**Socioemotional Selectivity Theory:** older adults become more selective in their friendships than when they were younger

**Solitary Play:** children play by themselves, do not interact with others, nor are they engaging in similar activities as the children around them

**Spontaneous Abortion:** naturally occurring expulsion of a nonviable fetus

**Spermatogenesis:** the process of male gamete formation including the formation of a spermatocyte from a spermatogonium, meiotic division of the spermatocyte, and transformation of the four resulting spermatids into spermatozoa

**Stage Theorists:** developmental change occurs in distinct stages that are qualitatively different from each other, and inset, universal sequence

**Storge:** is a style of love that develops slowly over time

**Stranger Anxiety:** fear of unfamiliar people

**Street Corner State:** the child is playful, energetic, excited, and expresses personal opinions, feelings, and beliefs

**Stress:** one of bodily or mental tension resulting from factors that tend to alter an existent equilibrium

**Student State:** the student focuses on a task or tries to stay focused on a task, is passive, compliant, and often frustrated

**Substance Abuse:** excessive use of a drug (such as alcohol, narcotics, or cocaine); use of a drug without medical justification

**Substitute Marriage:** partners are committed to one another and are not necessarily seeking marriage

**Sudden Infant Death Syndrome (SIDS):** the death of an apparently healthy infant usually before one year of age that is of unknown cause and occurs especially during sleep

**Sudden Unexpected Infant Deaths (SUID):** death occurring among infants less than 1 years old and have no immediate obvious cause

**Sustained Attention:** the ability to stay on task for long periods of time

**Synaptic Blooming:** a period of rapid neural growth

**Synaptic Pruning:** neural connections are reduced thereby making those that are used much stronger

**Synaptogenesis:** the formation of nerve synapses

## T

**Tacit Knowledge:** pragmatic or practical and learned through experience rather than explicitly taught

**Tay-Sachs Disease:** a hereditary disorder of lipid metabolism typically affecting individuals of eastern European Jewish ancestry that is characterized by the accumulation of lipids especially in nervous tissue due to a deficiency of hexosaminidase, that is inherited as a recessive autosomal trait, and that causes death in early childhood

**Teacher-Counselor:** Parenting Style: one who pays a lot of attention to expert advice on parenting and who believes that as long as all of the steps are followed, the parent can rear a perfect child

**Theory:** a plausible or scientifically acceptable general principle or body of principles offered to explain phenomena

**Theory of Mind:** is the understanding that the mind can be tricked or that the mind is not always accurate

**Tourette's Syndrome:** a familial neurological disorder of variable expression that is characterized by recurrent involuntary tics involving body movements (such as eye blinks or grimaces) and vocalizations (such as grunts or utterance of inappropriate words), often has one or more associated conditions (such as obsessive-compulsive disorder), is more common in males than females, and usually has an onset in childhood and often stabilizes or ameliorates in adulthood

**Toxic Stress:** children who live in extremely stressful situations of abuse over long periods of time can suffer long-lasting effects

**Toxoplasmosis:** infection of humans, other mammals, or birds with a disease caused by a toxoplasma (*Toxoplasma gondii*) that invades the tissues and may seriously damage the central nervous system especially of infants

**Trial Marriage:** type of cohabitation in which partners are trying to see what it might be like to be married

**Trisomy 13:** a congenital condition that is characterized especially by usually severe mental retardation and by craniofacial, cardiac, ocular, and cerebral abnormalities, is caused by trisomy of the human chromosome numbered 13, and is typically fatal especially within the first six months of life. Patau Syndrome

**Trisomy 18:** a congenital condition that is characterized especially by mental retardation and by craniofacial, cardiac, gastrointestinal, and genitourinary abnormalities, is caused by trisomy of the human chromosome numbered 18, and is typically fatal especially within the first year of life. Edwards Syndrome

**Trisomy 21:** occurs when there are three rather than two chromosomes on #21. Down syndrome

**Turner's Syndrome:** a genetically determined condition that is typically associated with the presence of only one complete X chromosome and no Y chromosome and is characterized especially by a female phenotype with underdeveloped and usually infertile ovaries and short stature

## U

**Unconditioned Stimulus:** natural response to a stimulus

**Uninvolved:** Parenting Style: are disengaged from their children

**Unoccupied Play:** children's behavior seems more random and without a specific goal. This is the least common form of play

**Utilitarian Marriages:** are unions entered primarily for practical reasons

**Utilization Deficiency:** child using an appropriate strategy, but it fails to aid their performance

## V

**Variable:** able or apt to vary; subject to variation or changes

**Verbal Bullying:** saying or writing mean things, teasing, name-calling, taunting, threatening, or making inappropriate sexual comments

**Vicarious Reinforcement:** the act of engaging in a behavior because we have seen it work for someone else

**Virtual Volunteer:** dialoguing online with others from around their world and sharing their support, interests, and expertise

**Voice Disorders:** involve problems with pitch, loudness, and quality of the voice

**Voluntary Euthanasia:** helping someone fulfill their wish to die by acting in such a way to help that person's life end

## W

**Wheel Theory of Love:** love relationships begin with the establishment of rapport

**Withdrawn-Rejected:** easy targets for bullies because they are unlikely to retaliate when belittled

## Z

**Zone of Proximal Development:** the learner can do with guidance

**Zygote:** a cell formed by the union of two gametes

**Zygote Intra-Fallopian Tube Transfer (ZIFT):** sperm and ova are fertilized outside of the woman's body and the fertilized egg or zygote is then implanted in the fallopian tube

# References

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