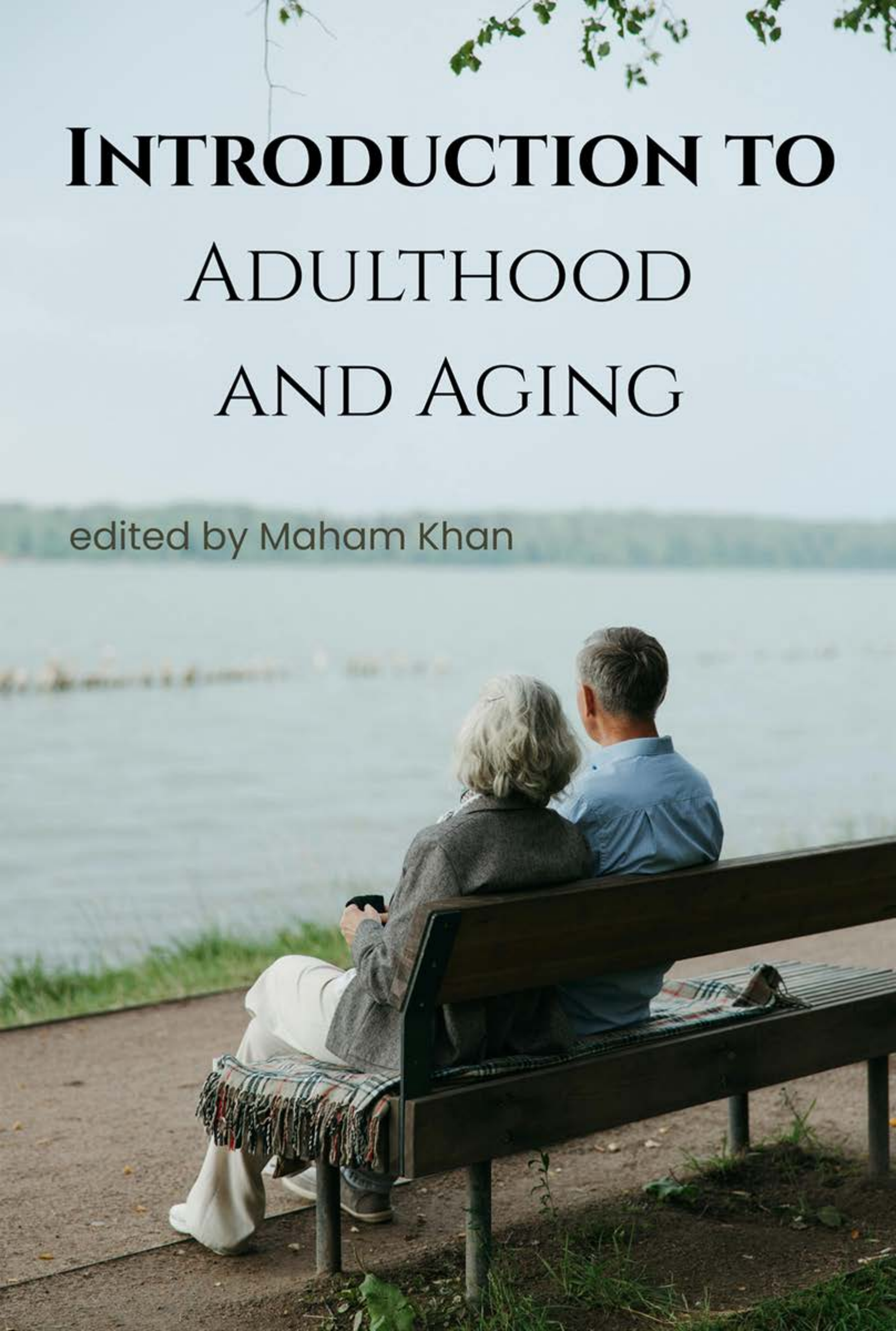


INTRODUCTION TO ADULTHOOD AND AGING

edited by Maham Khan



*To my parents and teachers,
who nurtured my curiosity and guided my path
with patience and compassion.*

M. Khan

INTRODUCTION TO ADULTHOOD AND AGING

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INTRODUCTION TO ADULthood AND AGING

Edited by Maham Khan

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LETTER TO STUDENTS

Dear Students,

This book was created with you in mind. *Introduction to Adulthood and Aging* explores topics that are deeply human: development, loss, resilience, and change. This Open Educational Resource (OER) was developed in response to the increasing cost of textbooks, with the goal of reducing the financial burden on students and families. While this resource is freely available, the value of the content remains high, grounded in research, empathy, and a commitment to accessible education.

More than just a textbook, this resource is intended to spark reflection, empathy, and connection. It aims to challenge common assumptions about aging and help you engage with the topic in both practical and meaningful ways. I hope it challenges how you think about aging, not as a decline, but as a dynamic and meaningful part of life. Whether planning to work directly with aging populations or simply seeking to better understand the human lifespan, you will find here a foundation of knowledge and compassion that can be applied in both academic and personal settings.

From early adulthood to the end of life, the chapters ahead will help you understand the science, stories, and social contexts that shape the aging experience.

Best Regards,
Maham Khan, PhD
Department of Human Development and Family Science
Virginia Tech
December 2025

FOR INSTRUCTORS

Report Your Interest

Are you reviewing or adopting this book for a course? Please help us understand your use by filling out this form: https://bit.ly/interest_introductiontoadulthoodandaging

About the Book

Introduction to Adulthood and Aging (2026) is a research-based, 358-page Open Educational Resource (OER) adapted with original material added for use in Virginia Tech's 2000-level undergraduate course, Adulthood and Aging (HD 2004). Developed in response to the increasing cost of textbooks, with the goal of reducing the financial burden on students and families, *Introduction to Adulthood and Aging* adapts and expands the openly-licensed works of other authors. It was first developed as a Canvas-embedded course reader in Canvas and has been converted into MSWord and PDF. It is shared broadly in an effort to increase access to the content. While it is freely available under a Creative Commons Attribution NonCommercial ShareAlike (CC BY NC-SA) 4.0 license, the value of the content remains high, grounded in research, empathy, and a commitment to accessible education.

Introduction to Adulthood and Aging aims to spark reader ideas to address the significant global challenges and opportunities related to aging worldwide, exploring development, loss, resilience, and change and challenging common assumptions about aging. More than just a textbook, this resource is intended to spark reflection, empathy, and connection. The text is a foundation of knowledge and compassion that can be applied in both academic and personal settings, assisting readers to engage with the topic in practical and meaningful ways.

Learning Objectives

Readers will be able to:

1. Explain the fundamental concepts and theories in the developmental sciences and gerontology.
2. Analyze human behavior, social institutions, and patterns of culture as related to aging through the use of theories and methods of developmental science and gerontology.

3. Analyze how values and beliefs relate to our attitudes about aging, which shape our own aging processes and interactions with older adults in family, work, and society.
4. Discuss personal, cultural, and international views about social, economic, political, and ethical issues in aging.

Chapter-Level Features

- Learning objectives
- Structured reading materials with clearly defined subsections
- Relevant images, figures, and videos
- Interactive quizzes embedded throughout or at the end of the readings.
- Summaries of key points at the end of each week's material
- References
- Additional resources for further study

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ABOUT THE EDITOR

Maham Khan, Ph.D. is a researcher and educator whose work focuses on cognitive aging, resilience, and the diverse factors that shape well-being in later life. She completed her Ph.D. in Human Development and Family Science (Adulthood & Aging) at Virginia Tech in 2025. Her research examined cognitive superaging and lifestyle behaviors that contribute to healthier cognitive trajectories among older adults. She has also worked on chronic conditions and cognition, and functional limitations among older adults and unmet needs for caregiving. Her work draws on large-scale longitudinal datasets and advanced latent-variable modeling to better understand the behavioral, biological, and social determinants of optimal aging.

During her doctoral training, Maham taught Adulthood and Aging at Virginia Tech as Instructor of Record and contributed to cognitive wellness initiatives for older adults through her work at the Engagement Center for Creative Aging. She has also served as a Visiting Lecturer in Pakistan, teaching healthcare management and primary healthcare, reflecting her commitment to interdisciplinary education and global perspectives on aging.

Her publications span cognitive health, unmet needs, mobility limitations, and biomarker-informed aging research. She is now pursuing postdoctoral research training at Northwestern University, where she is expanding her work on cognitive resilience, aging trajectories, and translational approaches to cognitive health.

Unit 1: Introduction to Lifespan Development, Gerontology Theories, and Research Methods

This unit contains the following chapters:

1. Introduction to Lifespan Development and Adulthood
2. Theories of Adulthood and Aging
3. Research Methods in Aging

Chapter 1: Introduction to Lifespan Development and Adulthood

1.1 Learning objectives

- Define key terms in human development and adulthood.
- Explain the lifespan perspective and its assumptions.
- Describe human development and its three domains: physical, cognitive, and psychosocial development.
- Describe the main stages of adulthood and key transitions.

1.2 Introduction

Lifespan Development or Human Development is a lifelong, complex, and dynamic process that is shaped by the interplay of biological, psychological, and social factors. It is the scientific study of ways in which people change, as well as stay the same, from conception to death. Originally concerned with infants and children, the field has expanded to include adolescence, and more recently, aging and the entire life span.

Previously, the message was once you are twenty-five, your development is essentially completed. Our academic knowledge of the lifespan has changed, and although there is still less research on adulthood than on childhood, adulthood is gaining increasing attention. This is particularly true now that the large cohort known as the "baby boomers" are beginning to enter late adulthood. The assumption that early childhood experiences dictate our future is also being called into question. Rather, 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. We now recognize that adulthood is a dynamic period of life marked by continued cognitive, social, and psychological development.

This chapter introduces the study of human development with a focus on adulthood. It begins by exploring the foundational principles of the lifespan perspective, which frames development as continuous and multidimensional, occurring within a range of contexts and influenced by both individual and societal factors. From this viewpoint, adulthood is not a static period, but a sequence of transitions marked by growth, adaptation, and change. To understand adulthood fully, we must first examine how it is defined. Is adulthood determined by age, responsibility, social roles, or something more abstract like independence or maturity? This chapter considers various ways in which adulthood is conceptualized through chronological, biological, psychological, and social lenses, and highlights the cultural and historical variability in how adult roles are constructed.

As an entry point into the broader study of adulthood and aging, this chapter lays the conceptual groundwork for understanding development. It challenges assumptions about aging as decline, introduces the life stages within adulthood, and provides a framework for thinking critically about the factors that shape adult lives over time.

1.3 Lifespan Perspective

Paul Baltes identified several underlying principles of the lifespan perspective (Baltes, 1987; Baltes et al., 2006).

Development is lifelong: Lifespan theorists believe that development is life-long, and change is apparent across the lifespan. No single age period is more crucial, characterizes, or dominates human development. Consequently, the term lifespan development will be used throughout the textbook.

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.

Development is multidimensional: We change across three general domains/dimensions; *physical, cognitive, and psychosocial*. The *physical domain* includes changes in height and weight, sensory capabilities, the nervous system, as well as the propensity for disease and illness. The *cognitive domain* encompasses the changes in intelligence, wisdom, perception, problem-solving, memory, and language. The *psychosocial domain* focuses on changes in emotion, self-perception and interpersonal relationships with families, peers, and friends. All three domains influence each other. It is also important to note that a change in one domain may cascade and prompt changes in the other domains. For instance, an infant who has started to crawl or walk will encounter more objects and people, thus fostering developmental change in the child's understanding of the physical and social world.

Development is multidisciplinary: As mentioned at the start of the chapter, human development is such a vast topic of study that it requires the theories, research methods, and knowledge base of many academic disciplines.

Development is characterized by plasticity: Plasticity is all about our ability to change and that many of our characteristics are malleable. For instance, plasticity is illustrated in the brain's ability to learn from experience and how it can recover from injury.

Development is multicontextual: Development occurs in many contexts. Baltes (1987) identified three specific contextual influences.

- *Normative age-graded influences:* An age-grade is a specific age group, such as toddler, adolescent, or senior. Humans in a specific age-grade share particular experiences and developmental changes.
- *Normative history-graded influences:* The time period in which you are born (see Table 1.1) shapes your experiences. A cohort is a group of people who are born at roughly the same period in a particular society. These people travel through life often experiencing similar circumstances.
- *Non-normative life influences:* Despite sharing an age and history with our peers, each of us also has unique experiences that may shape our development. A child who loses his/her parent at a young age has experienced a life event that is not typical of the age group.

Table 1.1. Which generation (cohort) are you?

<i>Generation</i>	<i>Born Between...</i>
Silent Generation	1928 and 1945
Baby Boomers	1946 and 1964
Generation X	1965 and 1980
Millennials	1981 - 1996
Generation Z	1997 - 2010
Generation Alpha	2020 - Present

Knowledge Check

1a. Which of the following are principles of the lifespan perspective identified by Paul Baltes? (Choose all that apply)

- A) Development is unidirectional.
- B) Development is multidisciplinary.
- C) Development is plastic.
- D) Development is multicontextual.

1b. Which of the following best reflects the assumption of the lifespan perspective?

- A) Development ends after adolescence.
- B) Early childhood determines all future outcomes.
- C) Development continues throughout life and is influenced by many factors.
- D) Adulthood is a static and unchanging period of life.

1c. According to lifespan theorists, only early life stages, such as childhood and adolescence, are important in human development.

- A) True
- B) False

1.4 Some Other Contexts Influencing Our Lifespan Development

Socioeconomic status (SES)

SES is a way to identify families and households based on their shared levels of education, income, and occupation. While there is certainly individual variation, members of a social class tend to share similar lifestyles, patterns of consumption, parenting styles, stressors, religious preferences, and other aspects of daily life. All of us born into a class system are socially located, and we may move up or down depending on a combination of both socially and individually created limits and opportunities. Families with higher socioeconomic status usually are in occupations (e.g., attorneys, physicians, executives) that not only pay better but also grant them a certain degree of freedom and control over their job. Having a sense of autonomy or control is a key factor in experiencing job satisfaction, personal happiness, and ultimately health and well-being (Weitz, 2007). Those families with lower socioeconomic status are typically in occupations that are more routine, more heavily supervised, and require less formal education. These occupations are also more subject to job disruptions, including lay-offs and lower wages.

Poverty level

Poverty level is an income amount established by the federal government that is based on a set of income thresholds that vary by family size (United States Census Bureau, 2016). If a family's income is less than the government threshold, that family is considered in poverty. Those living at or near the poverty level may find it extremely difficult to sustain a household with this amount of income. Poverty is associated with poorer health and a lower life expectancy due to poorer diet, less healthcare, greater stress, working in more dangerous occupations, higher infant mortality rates, poorer prenatal care, greater iron deficiencies, greater difficulty in school, and many other problems. Members of higher income status may fear losing that status, but the poor may have greater concerns over losing housing.

Culture

Culture is the totality of our shared language, knowledge, material objects, and behavior. 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 by previous generations. Culture is learned from parents, schools, houses of worship, media, friends and others throughout a lifetime. The kinds of traditions and values that evolve in a particular culture serve to help members function and value their own society. We tend to believe that our own culture's practices and expectations are the right ones. This belief that our own culture is superior is called *ethnocentrism* and is a normal byproduct of growing up in a culture. It becomes a roadblock, however, when it inhibits understanding of cultural practices from other societies. *Cultural relativity* is an appreciation for cultural differences and the understanding that cultural practices are best understood from the standpoint of that particular culture.

Culture is an extremely important context for human development and understanding development requires being able to identify which features of development are culturally based. This understanding is somewhat new and still being explored. Much of what developmental theorists have described in the past has been culturally bound and difficult to apply to various cultural contexts. The reader should keep this in mind and realize that there is still much that is unknown when comparing development across cultures.

Lifespan versus Life Expectancy

- Lifespan, or longevity, refers to the length of time a species can exist under the most optimal conditions. For instance, the grey wolf can live up to 20 years in captivity, the bald eagle up to 50 years, and the Galapagos tortoise over 150 years (Smithsonian National Zoo, 2016). The longest recorded lifespan for a human was that of Jean Calment, who died in 1994 at the age of 122 years, 5 months, and 14 days (Guinness World Records, 2016).
- Life expectancy is the predicted number of years a person born in a particular time period can reasonably expect to live (Vogt & Johnson, 2016).

1.5 Conceptions of Age

Chronological age

The question, “How old are you?” is usually answered based on the number of years since a person’s birth, or what is called ‘chronological age’. Have you ever felt older than your chronological age? Some days we might “feel” like we are older, especially if we are not feeling well, tired, or stressed out. We might notice that a peer seems more emotionally mature than we are, or that they are physically more capable. So, years since birth is not the only way we can conceptualize age.

Biological age

Another way developmental researchers can think about the concept of age is to examine how quickly the body is aging; this is your biological age. Several factors determine the rate at which our bodies age. Our nutrition, level of physical activity, sleeping habits, smoking, alcohol consumption, how we mentally handle stress, and the genetic history of our ancestors, to name but a few.

Psychological age

Our psychologically adaptive capacity compared to others of our chronological age is our psychological age. This includes our cognitive capacity, along with our emotional beliefs about how old we are. An individual who has cognitive impairments might be 20 years of age yet have the mental capacity of an 8-year-old. A 70-year-old might be traveling to new countries, taking courses at college, or starting a new business. Compared to others of our age group, we may be more or less adaptive and excited to meet new challenges.



Figure 1.1 You are as young as you feel

Social age

Our social age is based on the social norms of our culture and the expectations our culture has for people of our age group. Our culture often reminds us whether we are "on target" or "off target" for reaching certain social milestones, such as completing our education, moving away from home, having children, or retiring from work. However, there have been arguments that social age is becoming less relevant in the century (Neugarten, 1979; 1996).

If you look around at your fellow students in your courses at college, you might notice more people who are older than the more traditional-aged college students of ages eighteen to twenty-five. Similarly, the age at which people are moving away from the home of their parents, starting their careers, getting married or having children, or even whether they get married or have children at all, is changing. Those who study lifespan development recognize that chronological age does not completely capture a person's age. Our age profile is much more complex than this. A person may be physically more competent than others in their age group, while being psychologically immature.

Knowledge Check

1d. Which of the following statements best defines the term ethnocentrism?

- A) The belief that aging is entirely biological.
- B) The assumption that one's own culture is superior to others.
- C) The belief that development is determined by socioeconomic status.
- D) The idea that people should follow the same life path.

1e. Match each conception of age with its correct description:

Table 1.2 Exercise

<i>Type of age</i>	<i>Description</i>
A. Chronological Age	1. Based on how a person handles cultural expectations (e.g., starting a career)
B. Biological Age	2. Based on time since birth
C. Psychological Age	3. Based on body functioning and physical health
D. Social Age	4. Based on emotional, cognitive, and behavioral adaptability

1f. People living in poverty tend to experience more health-related challenges and have a lower life expectancy compared to those with higher SES.

- A) True
- B) False

1.6 Identify Stages of Human Development

Human development is a lifelong process of physical, cognitive, emotional, and social growth and change. Each stage of life presents unique challenges, milestones, and transformations. Below is an overview of the major stages of development from conception to late adulthood.

Prenatal Development: Conception occurs and development begins. 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 birth defects, and labor and delivery are primary concerns.

Infancy and Toddlerhood: The first two years of life are ones of dramatic growth and change. A newborn, with a keen sense of hearing but very poor vision, is transformed into a walking, talking toddler within a relatively short period of time. Caregivers are also transformed from someone who manages feeding and sleep schedules to a constantly moving guide and safety inspector for a mobile, energetic child.

Early Childhood: This period is also referred to as the preschool years and consists of the years which follow toddlerhood and precede formal schooling. As a two- to six-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.



Figure 1.2 Early Childhood

Middle and Late Childhood: The ages of six to the onset of puberty comprise middle and late 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.

Adolescence: Adolescence is a period of dramatic physical change marked by an overall growth spurt and sexual maturation, known as puberty. 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 greater risk of dying from accidents or contracting sexually transmitted infections that can have lifelong consequences.

Emerging Adulthood: The period of emerging adulthood is a transitional time between the end of adolescence and before individuals acquire all the benchmarks of adulthood. Continued identity exploration and preparation for full independence from parents are demonstrated. Although at one's physiological peak, emerging adults are most at risk for involvement in violent crimes and substance abuse.

Established Adulthood: The thirties and early forties are identified as established adulthood. Intimate relationships, establishing families, and work are primary concerns at this stage of life.

Middle Adulthood: The mid-forties through the mid-sixties is referred to as middle adulthood. This is a period in which aging becomes more noticeable and when many people are at their peak of productivity in love and work.

Late Adulthood: Late adulthood is sometimes subdivided into two categories: The *young-old*, who are from 65-84 years, and the *oldest-old*, who are 85 years and older. One of the primary differences between these groups is that the young-old are still relatively healthy, productive, active, and the majority continue to live independently. With both age groups the risks of diseases such as arteriosclerosis, cancer, and cerebral vascular disease increase substantially.



Figure 1.3 Older Adulthood

Table 1.3 (Approximate) Age Periods of Development

Age Period	Description
Prenatal	Starts at conception, continues through implantation in the uterine wall by the embryo, and ends at birth.
Infancy and Toddlerhood	Starts at birth and continues to two years of age
Early Childhood	Starts at two years of age until six years of age
Middle and Late Childhood	Starts at six years of age and continues until the onset of puberty
Adolescence	Starts at the onset of puberty until 18
Emerging Adulthood	Starts at 18 until 29
Early Adulthood	Starts at 30 until 45
Middle Adulthood	Starts at 46 until 65
Late Adulthood	Starts at 65 onward

Table 1.3 reflects unique aspects of the various stages of childhood and adulthood that will be explored in this book. So, while both an 8-month old and an 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, as both are considered adults.

1.7 Issues in Lifespan Development

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 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 side of nature would argue that heredity plays the most important role in bringing about that feature. Those on the side of nurture would argue that one's environment is most significant in shaping the way we are. This debate continues in all aspects of human development, and most scholars agree that there is 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 theories of Freud, Erikson, Piaget, and Kohlberg are called stage theories. Stage theories or discontinuous development assume that developmental changes often occur in distinct stages that are qualitatively different from each other, and in a set, universal sequence.

At each stage of development, children and adults have different qualities and characteristics. Thus, stage theorists assume 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. 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 developed skills.

Active versus Passive

How much do you play a role in your own 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 own development. Piaget, for instance, believed that children actively explore their world and construct new ways of thinking to explain the things they experience. In contrast, many behaviorists view humans as being more passive in the developmental process.

Stability versus Change

How similar are you to how you were as a child? Were you always as out-going or reserved as you are now? Some theorists argue that the personality traits of adults are rooted in the behavioral and emotional tendencies of the infant and young child. Others disagree and believe that these initial tendencies are modified by social and cultural forces over time.

Knowledge Check

1g. Stage theories such as those proposed by Freud and Piaget suggest that human development occurs gradually and without abrupt transitions.

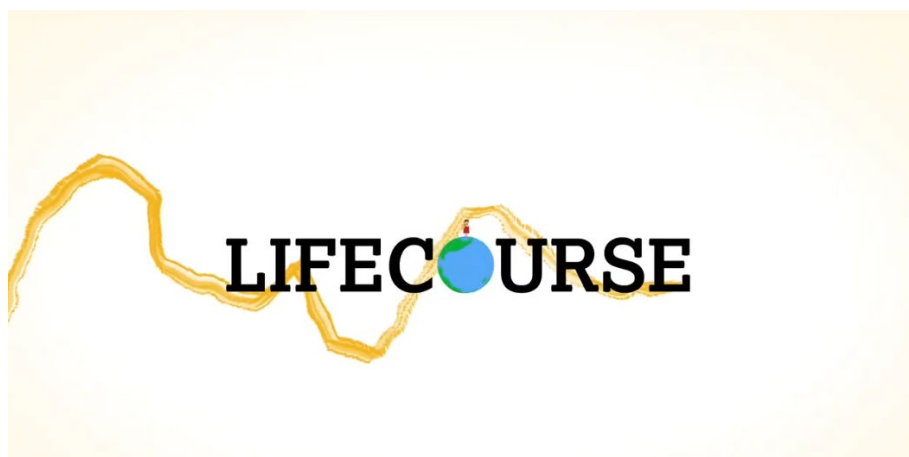
- A) True
- B) False

1h. Which of the following pairs of terms represent key debates in lifespan development? (Choose all that apply)

- A) Nature vs. Nurture
- B) Active vs. Passive
- C) Heredity vs. Maturity
- D) Stability vs. Change

1i. Which of the following best describes the "continuity vs. discontinuity" debate in human development?

- A) Whether people are influenced more by genetics or environment
- B) Whether development is a gradual process or occurs in distinct stages
- C) Whether aging leads to physical or psychological decline
- D) Whether individuals have control over their development or are passive recipients



Video 1.1 [Lifecourse perspective to aging](#)

Key Takeaways

- **Lifespan development** is lifelong, multidimensional (physical, cognitive, psychosocial), multidirectional, plastic, and influenced by multiple contexts.
- **Contexts influencing development:** socioeconomic status (SES), poverty, and culture significantly shape developmental outcomes.
- **Age concepts:** chronological (actual age), biological (physical health), psychological (cognitive/emotional maturity), social (cultural expectations).
- **Adult development stages:** emerging adulthood (18-29), established adulthood (30-45), middle adulthood (46-65), late adulthood (65+).
- **Core issues in development:** nature vs. nurture, continuity vs. discontinuity, active vs. passive development, stability vs. change.

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Sources

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- Made changes to 'learning objectives'.
- Changes included addition of introductory text in section 1.2.
- Figures have also been changed from the original.
- Table 1.2 "Generation Cohort" table has been expanded. Videos and original quiz questions have also been added to the text.
- Added 'key takeaways'.
- Portions of section.1.1 have been omitted from this version. Omitted sections include content from Lally & Valentine-French's Chapter 1 "Introduction to Lifespan Development".
- Added some original text to section 1.6 (stages of development).

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Video Attributions

Video 1.1. helpage. (2017, July 13). *What is the lifecourse approach to ageing?* [Video]. Youtube. <https://www.youtube.com/watch?v=qMLggK1jfR0>

Long Descriptions

Figure 1.1 (c) Adam Coppola. [Older women walking with bikes bike-ped pfluger bridge austin](#). CC0 1.0 Universal Public Domain Dedication. Alt Text: Three older adults walk side by side on a path; two are pushing bicycles while the third walks between them. Urban buildings are visible in the background.

Figure 1.2 (c) Pavel Danilyuk. [Group of Children Sitting on White Chairs](#). [Pexels license](#). Alt Text: Seven young children sit in a row on small chairs in a classroom while two young adult teachers stand nearby, one facing the children and the other standing behind them.

Figure 1.3 (c) Funk Dooby. [The Folkestone 2016 FNK 5322](#). CC BY SA 2.0. Alt Text: Elderly woman jogging outdoors in athletic attire, including a pink shirt and black leggings. She appears focused and determined with her hair tied back.

Chapter 2: Lifespan Development Theories

2.1 Learning Objectives

- Describe the major theoretical perspectives on adulthood and aging from biological, psychological, and sociocultural domains.
- Compare and contrast key theories in terms of their assumptions, explanatory focus, and application to adult development.
- Critically evaluate the strengths and limitations of these theories in explaining changes and continuity across adulthood.
- Apply selected theories to real-life examples and developmental challenges experienced in adulthood.

2.2 Introduction

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

Two key concepts in the scientific approach are theory and hypothesis. A **theory** is a well-developed set of ideas that propose an explanation for observed phenomena that can be used to make predictions about future observations. A **hypothesis** is a testable prediction that is arrived at logically from a theory. It is often worded as an if-then statement (e.g., if I study all night, I will get a passing grade on the test). The hypothesis is extremely important because it bridges the gap between the realm of ideas and the real world. As specific hypotheses are tested, theories are modified and refined to reflect and incorporate the result of these tests. In essence, lifespan theories explain observable events in a meaningful way. Theories offer more general explanations about behavior and events. Think of theories as guidelines, much like directions that come with an appliance or other object that requires assembly. The instructions can help one piece together smaller parts more easily than if trial and error are used. Theories can be developed using induction, in which a number of single cases are observed and after patterns or similarities are noted, the theorist develops ideas based on these 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. People who study lifespan development approach it from different perspectives. Each perspective encompasses one or more theories—the broad, organized explanations and predictions concerning phenomena of interest. Theories of development provide a framework for thinking about human growth, development, and learning. If you have ever wondered about what motivates human thought and behavior, understanding these theories can provide useful insight into individuals and society. Throughout psychological history and still in the present day, three key issues remain among which developmental theorists often disagree. Particularly oft-disputed is the role of early experiences on later development in opposition to current behavior reflecting present experiences—namely the passive versus active issue. Likewise, whether or not development is best viewed as occurring in stages or rather as a gradual and cumulative process of change has traditionally been up for debate – a question of continuity versus discontinuity. Further, the role of heredity and the environment shaping human development is a much-contested topic of discussion – also referred to as the nature/nurture debate.

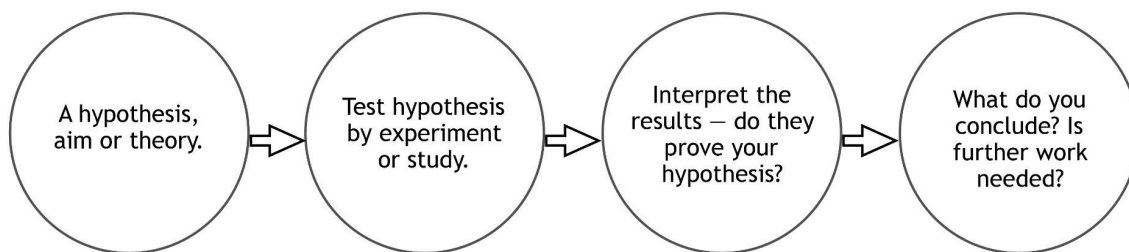


Figure 2.1 Stages of Scientific Method

In this chapter, we examine the primary theoretical frameworks that inform our understanding of lifespan development. These include biological theories that focus on physical aging processes, psychological theories that emphasize inner developmental tasks and personality trajectories, cognitive theories that focus on how individuals perceive, think, remember, and learn, emphasizing internal mental processes, and sociocultural theories that highlight the role of environment, roles, and relationships across the lifespan.

2.3 Historical Theories on Development

Preformationist View

Well into the century, children were merely thought of as little adults. Preformationism, or the belief that a tiny, fully formed human is implanted in the sperm or egg at conception and then grows in size until birth, was the predominant early theory. Children were believed to possess all their sensory capabilities, emotions, and mental aptitude at birth, and as they developed these abilities unfolded on a predetermined schedule (Thomas, 1979). The environment was thought to play no role in determining development.

John Locke (1632-1704)

Locke, a British philosopher, refuted the idea of innate knowledge and instead proposed that children are largely shaped by their social environments, especially their education as adults teach them important knowledge. He believed that through education a child learns socialization, or what is needed to be an appropriate member of society. Locke advocated thinking of a child's mind as a *tabula rasa* or blank slate, where whatever comes into the child's mind comes from the environment. Locke emphasized that the environment is especially powerful in the child's early life because he considered the mind the most pliable then. Locke indicated that the environment exerts its effects through associations between thoughts and feelings, behavioral repetition, imitation, and rewards and punishments (Crain, 2005). Locke's ideas laid the groundwork for the behavioral perspective and subsequent learning theories of Pavlov, Skinner and Bandura.

Jean-Jacques Rousseau (1712-1778)

Like Locke, Rousseau also believed that children were not just little adults. However, he did not believe they were blank slates but instead developed according to a natural plan which unfolded in different stages (Crain, 2005). He did not believe in teaching them the correct way to think, but believed children should be allowed to think by themselves according to their own ways and an inner, biological timetable. This focus on biological maturation resulted in Rousseau being considered the father of developmental psychology. Followers of Rousseau's developmental perspective include Gesell, Montessori, and Piaget.

Arnold Gesell (1880-1961)

Gesell spent 50 years at the Yale Clinic of Child Development, and with his colleagues he studied the neuromotor development of children. Gesell believed that the child's development was activated by genes and he called this process maturation (Crain, 2005).

Further, he believed that development unfolded in fixed sequences, and he opposed efforts to teach children ahead of schedule as he believed they will engage in behaviors when their nervous systems had sufficiently matured.

Sigmund Freud (1856-1939)

Freud was a very influential figure in the area of development. Freud emphasized the importance of early childhood experiences in shaping our personality and behavior. In our natural state, we are biological beings and are driven primarily by instincts. During childhood, however, we begin to become social beings as we learn how to manage our instincts and transform them into socially acceptable behaviors. His assumptions were that personality formed during the first few years of life. The ways in which parents or other caregivers interacted with children were assumed to have a long-lasting impact on children's emotional states. His beliefs formed the psychodynamic perspective, and his theories of psychosexual development and psychopathology dominated the field of psychiatry until the growth of behaviorism in the 1950s.

However, Freud's theory has been heavily criticized for several reasons. One is that it is very difficult to test scientifically (Crews, 1998). Freud suggested that much of what determines our actions are unknown to us, and as scientists we cannot measure these unconscious concepts. A second criticism is that Freud's case studies were not validated and cannot be used as evidence for his theories. Many later theories, particularly behaviorism and humanism, came about as challenges to Freud's views.

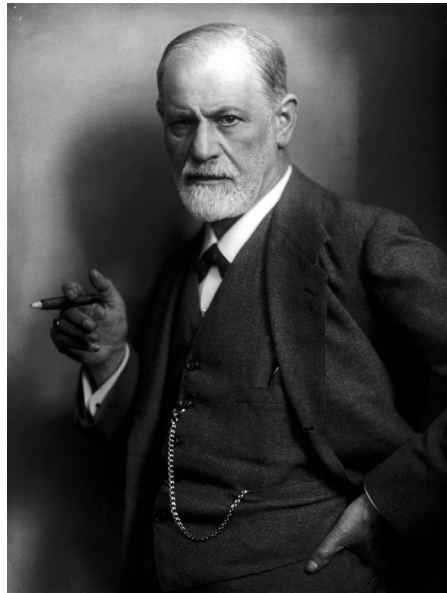


Figure 2.2 Sigmund Freud

Knowledge Check

2a. What is the primary difference between a *theory* and a *hypothesis* in the scientific method?

- A) A theory is always true, while a hypothesis is a guess.
- B) A theory is a testable prediction, while a hypothesis is a proven fact.
- C) A theory is a broad explanation; a hypothesis is a specific, testable prediction derived from a theory.
- D) A theory applies to children; a hypothesis applies to adults.

2b. Match the historical theorist to their key idea or contribution:

Table 2.1: Matching activity

<i>Theorist</i>	<i>Key Idea</i>
A. John Locke	1. Development unfolds on a biological timetable (maturation)
B. Jean-Jacques	2. Children are blank slates shaped by environment
C. Arnold Gesell	3. Children follow an inner natural plan, not imposed teaching
D. Sigmund Freud	4. Early experiences shape personality through unconscious processes

2c. According to Sigmund Freud, much of human behavior is influenced by unconscious processes that begin in early childhood.

- A) True
- B) False

2.4 Contemporary Theories on Development

Erikson (1902-1994) and Psychosocial Theory

Now, let's turn to a less controversial psychodynamic theorist, Erik Erikson. Erikson presents eight developmental stages that encompass the entire lifespan. For that reason, Erikson's psychosocial theory forms the foundation for much of our discussion of psychosocial development. Erikson (1950) proposed a model of lifespan development

that provides a useful guideline for thinking about the changes we experience throughout life. Erikson broke with Freud's emphasis on sexuality as the cornerstone of social-emotional development and instead suggested that social relationships fostered development. Erikson proposed that each period of life has a unique challenge or crisis that the person who reaches it must face, referred to as psychosocial crises. According to Erikson, successful development involves dealing with and resolving the goals and demands of each of these psychosocial crises in a positive way. These crises are usually called stages, although that is not the term Erikson used. If a person does not resolve a stage successfully, it may hinder their ability to deal with later stages. For example, the person who does not develop a sense of trust (Erikson's first stage) may find it challenging as an adult to form a positive intimate relationship (Erikson's sixth stage). Or an individual who does not develop a clear sense of purpose and identity (Erikson's fifth stage) may become self-absorbed and stagnate rather than work toward the betterment of others (Erikson's seventh stage). However, most individuals are able to successfully complete the eight stages of his theory (see Table 2.2).

Table 2.2. Erikson's Psychosocial Stages

Age range	Psychosocial crisis	Positive resolution of crisis
Birth to 12 to 18 months	Trust versus Mistrust	The child develops a feeling of trust in caregivers.
18 months to 3 years	Autonomy versus Shame/Doubt	The child learns what can and cannot be controlled and develops a sense of free will.
3 to 6 years	Initiative versus Guilt	The child learns to become independent by exploring, manipulating, and taking action.
6 to 12 years	Industry versus Inferiority	The child learns to do things well or correctly according to standards set by others, particularly in school.
12 to 18 years	Identity versus Role Confusion	The adolescent develops a well-defined and positive sense of self in relationship to others.
19 to 40 years	Intimacy versus Isolation	The person develops the ability to give and receive love and to make long-term commitments.
40 to 65 years	Generativity versus Stagnation	The person develops an interest in guiding the development of the next generation, often by becoming a parent.
65 to death	Ego Integrity versus Despair	The person develops acceptance of how one has lived.

Erikson's theory has been criticized for focusing so heavily on crises and assuming that the completion of one crisis is a prerequisite for the next crisis of development. His theory also focused 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.

Learning Theory

Also known as *Behaviorism*, this theory is based on the premise that it is not possible to objectively study the mind, and therefore psychologists should limit their attention to the study of behavior itself. The most famous behaviorist was Burrhus Frederick (B. F.) Skinner (1904–1990), who expanded the principles of behaviorism and also brought them to the attention of the public at large. Skinner used the ideas of stimulus and response, along with the application of rewards or reinforcements, to train pigeons and other animals. In addition, he used the general principles of behaviorism to develop theories about how best to teach children and how to create societies that were peaceful and productive (Skinner, 1957, 1968, 1972). The behaviorists made substantial contributions to psychology by identifying the principles of learning. Although the behaviorists were incorrect in their beliefs that it was not possible to measure thoughts and feelings, their ideas provided new insights that helped further our understanding regarding the nature-nurture debate as well as the question of free will. The ideas of behaviorism are fundamental to psychology and have been developed to help us better understand the role of prior experiences in a variety of areas of psychology.



Figure 2.3 Social Learning

Social Learning Theory

Social learning theory, or learning by watching others, was developed by Albert Bandura (1977). His theory calls our attention to the ways in which many of our actions are not learned through conditioning, as suggested by Skinner. Young children frequently learn behaviors through imitation. Especially when children do not know what else to do, they learn by modeling or copying the behavior of others. Bandura (1986) suggests that there is 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*.

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 with 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, Ross and Ross (1963) began a series of studies to look at the impact of television on the

behavior of children. 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 during their play they began to hit it. The children also demonstrated novel ways of being aggressive toward the doll that were not demonstrated by those children who did not see the aggressive model. Bandura's research raised concerns about the impact of violence on young children. Since then, considerable research has been conducted on the impact of violent media on children's aggression including playing video games.



Figure 2.4 Albert Bandura

Knowledge Check

2d. According to Erikson, what is the central psychosocial task of early adulthood (ages 19–40)?

- A) Identity vs. Role Confusion
- B) Initiative vs. Guilt
- C) Intimacy vs. Isolation
- D) Generativity vs. Stagnation

2e. Which of the following statements best reflects Bandura's concept of reciprocal determinism?

- A) Environment shapes behavior, but individuals cannot influence their environment.
- B) Individuals and their environment influence each other continuously.
- C) Behavior is solely determined by unconscious instincts.
- D) Learning is based on biological readiness alone.

2f. Behaviorism assumes that mental states like thoughts and emotions cannot be studied and that only observable behavior should be the focus of psychology.

- A) True
- B) False

Cognitive Theory

The cognitive theories focus on how our mental processes or cognitions change over time. Three important theories are Jean Piaget's, Lev Vygotsky's, and Information-processing.

Jean Piaget (1896-1980)

Jean Piaget was one of the most influential cognitive theorists in development. He was 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 the ways in which children's intelligence differs from that of adults (Piaget, 1929). 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. Piaget theorized that children progressed through four stages of cognitive development (see Table 2.3)

Table 2.3 Piaget's Stages of Cognitive Development

Stage	Approximate age range	Characteristics	Stage attainment
Sensorimotor	Birth to about 2 years	Children experience the world through their fundamental senses of seeing, hearing, touching, and tasting.	Object permanence
Preoperational	2 to 7 years	Children acquire the ability to internally represent the world through language and mental imagery. They also start to see the world from other people's perspectives.	Theory of mind; rapid increase in language ability
Concrete	7 to 11 years	Children become able to think logically. They can increasingly perform operations on objects that are real.	Conservation
Formal operational	11 years to adulthood	Adolescents can think systematically, can understand ethics and scientific reasoning.	Abstract logic

Piaget has been criticized for overemphasizing the role that physical maturation plays in cognitive development and in underestimating the role that culture and experience plays. Looking across cultures reveals considerable variation in what children are able to do at various ages. Research has shown considerable overlap among the four stages and that development is more continuous.

Lev Vygotsky (1896-1934)

Lev Vygotsky was a Russian psychologist who wrote in the early 1900s, but whose work was not discovered by researchers in the United States until the 1960s and became more widely known in the 1980s (Crain, 2005). His sociocultural theory emphasizes the importance of culture and interaction in the development of cognitive abilities. Vygotsky differed with Piaget in that he believed that a person not only has a set of abilities, but also a set of potential abilities that can be realized if given the proper guidance from others. Vygotsky developed theories on teaching that have been adopted by educators today.

Information Processing Theory

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. This approach assumes that humans gradually improve in their processing skills; that is, cognitive development is continuous rather than stage-like. The more complex mental skills of adults are built from the primitive abilities of children. 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.

Urie Bronfenbrenner (1917-2005)

Bronfenbrenner developed the Ecological Systems Theory, which provides a framework for understanding and studying the many influences on human development (Bronfenbrenner, 1979). Bronfenbrenner recognized that human interaction is influenced by larger social forces and that an understanding of these forces is essential for understanding an individual. The individual is impacted by several systems including:

- A **microsystem** includes an 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 the person.
- A **mesosystem** includes larger organizational structures, such as school, the family, or religion. These institutions impact the microsystems just described. The philosophy of the school system, daily routine, assessment methods, and other characteristics can affect the child's self-image, growth, sense of accomplishment, and schedule thereby impacting the child, physically, cognitively, and emotionally.
- An **exosystem** includes larger contexts of community. A community's values, history, and economy can impact the organizational structures it houses. Mesosystems both influence and are influenced by the exosystem.
- A **macrosystem** includes cultural elements, such as global economic conditions, war, technological trends, values, philosophies, and a society's responses to the global community.
- A **chronosystem** is the historical context in which these experiences occur. This relates to the different generational time periods previously discussed, such as the baby boomers and millennials.

In sum, a child's experiences are shaped by larger forces, such as the family, schools, religion, culture, and time period. Bronfenbrenner's model helps us understand all of the different environments that impact each one of us simultaneously. 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. Figure 2.5 is a model of Bronfenbrenner's Ecological Systems Theory.

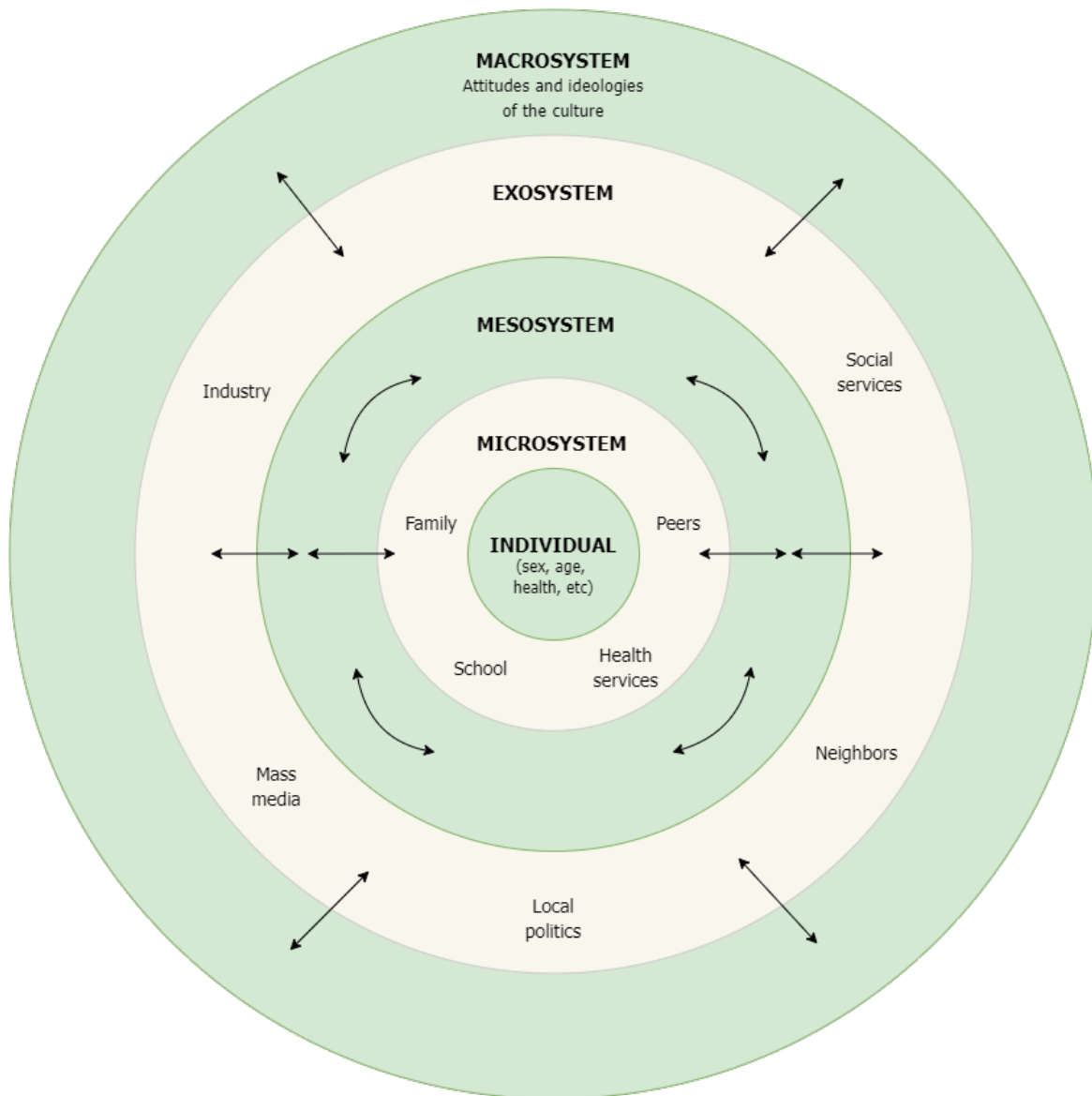


Figure 2.5 Bronfenbrenner's Ecological Theory of Development

Knowledge Check

2g. Which of the following is a key feature of Piaget's concrete operational stage of cognitive development?

- A) Understanding object permanence
- B) Using abstract logic and ethical reasoning
- C) Thinking logically about real, tangible objects
- D) Rapid increase in language ability

2h. Vygotsky's sociocultural theory emphasizes which of the following in cognitive development?

- A) Maturation and predetermined biological stages
- B) The role of social interaction and cultural context
- C) Classical conditioning and reinforcement
- D) The importance of abstract reasoning at all ages

2i. Which cognitive theory views human thinking as a continuous, gradual process and emphasizes skills like memory, perception, and attention?

- A) Piaget's Cognitive Stage Theory
- B) Information Processing Theory
- C) Social Learning Theory
- D) Freud's Psychodynamic Theory

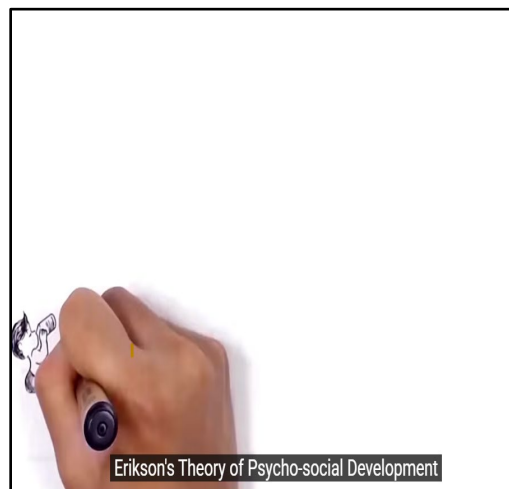
2j. In Bronfenbrenner's ecological systems theory, which level includes direct relationships like those with parents, teachers, and siblings?

- A) Microsystem
- B) Mesosystem
- C) Macrosystem
- D) Exosystem

Key Takeaways

- **Theories provide structure** for understanding human development by explaining how and why changes occur across the lifespan, including adulthood and aging.
- **The lifespan perspective** emphasizes that development is lifelong, multidimensional, and influenced by biological, psychological, and sociocultural factors.

- **Historical perspectives** such as those of John Locke, Jean-Jacques Rousseau, and Arnold Gesell laid the foundation for modern developmental thought, emphasizing either environmental shaping or biological unfolding.
- **Freud's psychodynamic theory** stressed the impact of early childhood and unconscious motivations on personality, although it is difficult to empirically validate.
- **Erikson's psychosocial theory** extends development across the lifespan with eight stages, each characterized by a unique psychosocial crisis that influences future development.
- **Learning theories** (e.g., behaviorism by Skinner and social learning by Bandura) emphasize observable behavior, reinforcement, and the influence of modeling and environmental feedback.
- **Cognitive theories** focus on how thinking and reasoning develop:
 - *Piaget* proposed four stages of cognitive development.
 - *Vygotsky* emphasized the importance of social interaction and cultural tools in learning.
 - *Information processing theory* views cognitive development as a gradual improvement in mental processing systems.
- **Bronfenbrenner's ecological systems theory** situates the individual within a series of nested environmental contexts, from immediate settings like family and school to broader cultural and historical systems.
- Developmental theories differ in **scientific testability**, **cultural applicability**, and **emphasis on nature vs. nurture, continuity vs. discontinuity**, and **active vs. passive roles of the individual**.
- No single theory fully explains adult development and aging; an integrative, multidisciplinary approach provides the most comprehensive understanding.



Video 2.1: [8 Stages of Development by Erik Erikson](#)

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- Made some changes to ‘learning objectives’.
- Changes included addition of introductory text in section 2.2.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

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Video Attributions

Video 2.1. Sprouts. (2017, April 23). *8 Stages of Development by Erik Erikson*. [Video]. Youtube. <https://www.youtube.com/watch?v=aYCBdZLCDBQ>

Long Descriptions

Figure 2.1 (c) Brightyellowjeans. [4 stage Scientific Method](#). CC BY-SA 4.0. Alt Text: A diagram of a scientific experiments. first circle depicting 'hypothesis construction', leading to the second circle showing 'testing the hypothesis', leading to interpreting results, to finally 'interpreting results.'

Figure 2.2 (c) Max Halberstadt. [Sigmund Freud LIFE](#). Public Domain. Alt Text: Black and white portrait of Sigmund Freud in a suit, holding a cigar. He has a white beard and pocket watch chain.

Figure 2.3 (c) Sejal Sekhar. [Students are still grappling with significant learning loss in their schools](#). CC BY-NC 4.0. Alt Text: Children sit and kneel on a colorful classroom floor, engaged in an activity with paper and pictures. They collaborate and converse with focus and curiosity.

Figure 2.4 (c) bandura@stanford.edu. [Albert Bandura Psychologist](#). CC BY-SA 4.0. Alt Text: A portrait of Albert Bandura with glasses, smiling gently. He wears a suit with a blue shirt and tie.

Figure 2.5 (c) Abbeyelder. [Bronfenbrenner's Ecological Theory of Development](#). CC BY-SA 4.0. Alt Text: Diagram illustrating Bronfenbrenner's ecological systems theory: individual at center, surrounded by microsystem, mesosystem, exosystem, and macrosystem layers.

Chapter 3: Research in Lifespan Development

3.1 Learning Objectives

- Distinguish among the primary research designs used in lifespan and aging research, including cross-sectional, longitudinal, and sequential methods.
- Identify the strengths and limitations of different methodological approaches in studying adult development and aging.
- Understand key ethical issues relevant to research with older adult populations.
- Explain the value of both quantitative and qualitative research in understanding complex developmental processes.
- Recognize the importance of cultural, historical, and contextual influences on research findings in adulthood and aging.

3.2 Introduction

An important part of learning any science is having a basic knowledge of the techniques used in gathering information. The hallmark of scientific investigation is that of following a set of procedures designed to keep questioning or skepticism alive while describing, explaining, or testing any phenomenon. Science is all about continuously renewing our understanding of the subjects in question and an ongoing investigation of how and why events occur. It is a vehicle for going on a never-ending journey. In the area of development, we have seen changes in recommendations for nutrition, in explanations of psychological states as people age, and in parenting advice.

Without systematic observation, measurement, and analysis, our knowledge of how humans develop over time would be based largely on anecdote, tradition, or assumption. This chapter introduces the primary methods used to study human development, with particular attention to how these tools are applied to adult populations. Studying lifespan presents unique methodological and ethical challenges. Unlike research with children or young adults, studies involving older adults must account for diverse aging trajectories, cohort effects, selective attrition, and often, the presence of chronic health conditions or cognitive decline. Researchers must also navigate ethical considerations such as informed consent, vulnerability, and autonomy.

This chapter will examine the strengths and limitations of the main research designs used in developmental science: cross-sectional, longitudinal, and sequential designs, and how each contributes to our understanding of age-related changes. We will also explore both quantitative and qualitative approaches, the role of mixed methods, and innovations in longitudinal studies that address the complexities of aging populations. In addition to

methodological rigor, responsible research with aging adults must reflect respect for their experiences and individuality. Ethical research design is not merely about adhering to formal guidelines, it is about ensuring that research contributes meaningfully to the lives and wellbeing of participants.

3.3 Personal Knowledge

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

Philosopher Karl Popper suggested 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. And 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 true with others who share the same views.

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

3.4 Scientific Methods

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

- Determining a research question
- Reviewing previous studies addressing the topic in question (known as a literature review)
- Determining a method of gathering information
- Conducting the study
- Interpreting the results
- Drawing conclusions; stating limitations of the study and suggestions for future research
- Making the findings available to others (both to share information and to have the work scrutinized by others)

The findings of these scientific studies can then be used by others as they explore the area of interest. Through this process, a literature or knowledge base is established. This model of scientific investigation presents research as a linear process guided by a specific research question. And it typically involves **quantitative research**, which relies on numerical data or using statistics to understand and report what has been studied.

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

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

In this type of research, theoretical ideas are “grounded” in the experiences of the participants. The researcher is the student and the people in the setting are the teachers as they inform the researcher of their world (Glazer & Strauss, 1967). Researchers should 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.

3.5 Research Methods and Objectives

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

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

The main types of descriptive studies include observation, case studies, surveys, and content analysis (which we'll examine further in the module). Descriptive research is distinct from **correlational research**, in which psychologists formally test whether a relationship exists between two or more variables. **Experimental research** goes a step further beyond descriptive and correlational research and randomly assigns people to different conditions, using hypothesis testing to make inferences about how these conditions affect behavior. Some experimental research includes **explanatory studies**, which are efforts to answer the question “why” such as:

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

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



Figure 3.1 The Scientific Method

Knowledge Check

3a. Which of the following best describes the difference between cross-sectional and longitudinal research designs in lifespan development?

- A) Cross-sectional studies follow individuals over time; longitudinal studies compare people of different ages at one point in time.
- B) Cross-sectional studies compare people of different ages at one time; longitudinal studies follow the same individuals over time.
- C) Both designs involve randomly assigning individuals to treatment groups.
- D) Cross-sectional studies are used only with children; longitudinal studies are used only with older adults.

3b. In scientific research, confirmation bias is the tendency to seek evidence that supports what we already believe while ignoring evidence that contradicts it.

- A) True
- B) False

3.6 Research Methods

All types of research methods have unique strengths and weaknesses, and each method may only be appropriate for certain types of research questions. For example, studies that rely primarily on observation produce incredible amounts of information, but the ability to apply this information to the larger population is somewhat limited because of small

sample sizes. Survey research, on the other hand, allows researchers to easily collect data from relatively large samples. While this allows for results to be generalized to the larger population more easily, the information that can be collected on any given survey is somewhat limited and subject to problems associated with any type of self-reported data. Some researchers conduct archival research by using existing records. While this can be a fairly inexpensive way to collect data that can provide insight into a number of research questions, researchers using this approach have no control on how or what kind of data was collected.



Video 3.1: [Psychological Research](#)

Types of Descriptive Research

Observation

Observational studies, also called *naturalistic observation*, involve watching and recording the actions of participants. This may take place in the natural setting, such as observing children at play in a park, or behind a one-way glass while children are at play in a laboratory playroom. The researcher may follow a checklist and record the frequency and duration of events 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 nonparticipant. What would be the strengths of being a participant? What would be the weaknesses?

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

Case Studies

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

Surveys

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

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

and analyzed using statistical software. The analysis takes much longer when respondents give lengthy responses that must be analyzed in a different way. Surveys are useful in examining stated values, attitudes, opinions, and reporting on practices. However, they are based on self-report, or what people say they do rather than on observation, and this can limit accuracy. **Validity** refers to accuracy, and **reliability** refers to consistency in responses to tests and other measures; great care is taken to ensure the validity and reliability of surveys.



Figure 3.2 Survey Design

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 or for ageism. Passages in text or television programs can be randomly selected for analysis as well. Again, one advantage of analyzing work such as this is that the researcher does not have to go through the time and expense of finding respondents, but the researcher cannot know how accurately the media reflects the actions and sentiments of the population.

Secondary content analysis, or archival research, involves analyzing information that has already been collected or examining documents or media to uncover attitudes, practices or preferences. There are a number of data sets available to those who wish to conduct this type of research. The researcher conducting secondary analysis does not

have to recruit subjects but does need to know the quality of the information collected in the original study. And unfortunately, the researcher is limited to the questions asked and data collected originally.

Knowledge Check

3c. Which of the following is a key limitation of case study research?

- A) It requires expensive laboratory equipment.
- B) It cannot explore unusual or rare conditions.
- C) Its findings are not generalizable to a larger population.
- D) It is based solely on numerical data and lacks detail.

3d. Which of the following is a primary weakness of survey research?

- A) It takes too long to collect data from participants.
- B) It cannot be analyzed using statistics.
- C) It is only useful for small samples in clinical settings.
- D) It relies on self-report, which may not reflect actual behavior.

Correlational Research

When scientists passively observe and measure phenomena it is called correlational research. Here, researchers do not intervene and change behavior, as they do in experiments. In correlational research, the goal is to identify patterns of relationships but not cause and effect. Importantly, with correlational research, you can examine only two variables at a time, no more and no less. To find out how well two variables correlate, you can plot the relationship between the two scores on what is known as a scatterplot. In the scatterplot, each dot represents a data point. (In this case it's individuals, but it could be some other unit.) Importantly, each dot provides us with two pieces of information.

The association between two variables can be summarized statistically using the correlation coefficient (abbreviated as r). A **correlation coefficient** provides information about the direction and strength of the association between two variables. With a positive correlation, the two variables go up or down together. A **negative correlation** is one in which the two variables move in opposite directions. That is, as one variable goes up, the other goes down. The strength of a correlation has to do with how well the two variables align. A strong correlation is one in which the two variables always, or almost always, go together. The r value of a strong correlation will have a high absolute value (a perfect correlation has an absolute value of the whole number one, or 1.00). In other words, you disregard whether there is a negative sign in front of the r value and just consider the size of the numerical value itself. If the absolute value is large, it is a strong correlation. A weak

correlation is one in which the two variables correspond some of the time, but not most of the time.

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

Experimental Design

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

The experimental method is the only research method that can measure cause and effect relationships between variables. Three conditions must be met in order to establish cause and effect. Experimental designs are useful in meeting these conditions:

- *The independent and dependent variables must be related.* In other words, when one is altered, the other changes in response. The **independent variable** is something altered or introduced by the researcher; sometimes thought of as the treatment or intervention. The **dependent variable** is the outcome or the factor affected by the introduction of the independent variable; the dependent variable depends on the independent variable. For example, if we are looking at the impact of exercise on stress levels, the independent variable would be exercise; the dependent variable would be stress.

- *The cause must come before the effect.* Experiments measure subjects on the dependent variable before exposing them to the independent variable (establishing a baseline). So, we would measure the subjects' level of stress before introducing exercise and then again after the exercise to see if there has been a change in stress levels. (Observational and survey research does not always allow us to look at the timing of these events which makes understanding causality problematic with these methods.)
- *The cause must be isolated.* The researcher must ensure that no outside, perhaps unknown variables, are actually causing the effect we see. The experimental design helps make this possible. In an experiment, we would make sure that our subjects' diets were held constant throughout the exercise program. Otherwise, the diet might really be creating a change in stress level rather than exercise.

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



Figure 3.3 Researchers conducting Lab Experiments

Knowledge Check

3e. Which of the following statements about correlational research is TRUE?

- A) It can determine cause and effect relationships.
- B) It involves manipulating the independent variable to observe outcomes.
- C) It shows how strongly two variables are related, but not why.
- D) It always involves an experimental and a control group.

3f. In an experiment, the independent variable is the outcome being measured and the dependent variable is the treatment or condition introduced by the researcher.

- A) True
- B) False

3.7 Developmental Research Designs

Research design is the strategy or blueprint for deciding how to collect and analyze information. Research design dictates which methods are used and how. Developmental research designs are techniques used particularly in lifespan development research. When we are trying to describe development and change, the research designs become especially important because we are interested in what changes and what stays the same with age. These techniques try to examine how age, cohort, gender, and social class impact development.

Cross-Sectional Designs

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

No, that would not be a valid conclusion because the researchers did not follow individuals as they aged from twenty to fifty to eighty years old. One of the primary limitations of cross-sectional research is that the results yield information about age differences, not necessarily changes with age or over time. That is, although the study described above can show that in 2010, the eighty-year-olds scored lower on the intelligence test than the fifty-year-olds, and the fifty-year-olds scored lower on the intelligence test than the twenty-year-olds, the data used to come up with this conclusion were collected from different individuals (or groups of individuals). It could be, for instance, that when these twenty-year-olds get older (fifty and eventually eighty), they will still score just as high on the intelligence test as they did at age twenty. In a similar way, maybe the eighty-year-olds would have scored relatively low on the intelligence test even at ages fifty and twenty; the researchers don't know for certain because they did not follow the same individuals as they got older.

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

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

Another disadvantage of cross-sectional research is that it is limited to one time of measurement. Data are collected at one point in time and it's possible that something could have happened in that year in history that affected all of the participants, although possibly each cohort may have been affected differently.

Longitudinal Research Designs

Longitudinal research involves beginning with a group of people who may be of the same age and background (cohort) and measuring them repeatedly over a long period of time. One of the benefits of this type of research is that people can be followed through time and be compared with themselves when they were younger; therefore, changes with age over time are measured. What would be the advantages and disadvantages of longitudinal research? Problems with this type of research include being expensive, taking a long time, and subjects dropping out over time. Think about the film, *63 Up*, part of the *Up Series* mentioned earlier, which is an example of following individuals over time. In the videos, filmed every seven years, you see how people change physically, emotionally, and socially over time; and some remain the same in certain ways, too. But many of the participants really disliked being part of the project and repeatedly threatened to quit; one disappeared for several years; another died before her 63rd year. Would you want to be interviewed every seven years? Would you want to have it made public for all to watch?

Longitudinal research designs are used to examine behavior in the same individuals over time. For instance, with our example of studying intelligence and aging, a researcher might conduct a longitudinal study to examine whether 20-year-olds become less intelligent with age over time. To this end, a researcher might give an intelligence test to individuals when they are 20 years old, again when they are 50 years old, and then again when they are 80 years old. This study is longitudinal in nature because the researcher

plans to study the same individuals as they age. Based on these data, the pattern of intelligence and age might look different than from the cross-sectional research; it might be found that participants' intelligence scores are higher at age 50 than at age 20 and then remain stable or decline a little by age 80. How can that be when cross-sectional research reveals declines in intelligence with age?

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

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

Another limitation of longitudinal research is that the data are limited to only one cohort. As an example, think about how comfortable the participants in the 2010 cohort of 20-year-olds are with computers. Since only one cohort is being studied, there is no way to know if findings would be different from other cohorts. In addition, changes that are found as individuals age over time could be due to age or to time of measurement effects. That is, the participants are tested at different periods in history, so the variables of age and time of measurement could be confounded (mixed up). For example, what if there is a major shift in workplace training and education between 2020 and 2040 and many of the participants experience a lot more formal education in adulthood, which positively impacts

their intelligence scores in 2040? Researchers wouldn't know if the intelligence scores increased due to growing older or due to a more educated workforce over time between measurements.

Sequential Research Designs

Sequential research designs include elements of both longitudinal and cross-sectional research designs. Similar to longitudinal designs, sequential research features participants who are followed over time; similar to cross-sectional designs, sequential research includes participants of different ages. This research design is also distinct from those that have been discussed previously in that individuals of different ages are enrolled into a study at various points in time to examine age-related changes, development within the same individuals as they age, and to account for the possibility of cohort and/or time of measurement effects. In 1965, K. Warner Schaie¹ (a leading theorist and researcher on intelligence and aging), described particular sequential designs: cross-sequential, cohort sequential, and time-sequential. The differences between them depended on which variables were focused on for analyses of the data (data could be viewed in terms of multiple cross-sectional designs or multiple longitudinal designs or multiple cohort designs). Ideally, by comparing results from the different types of analyses, the effects of age, cohort, and time in history could be separated out.

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

Studies with sequential designs are powerful because they allow for both longitudinal and cross-sectional comparisons—changes and/or stability with age over time can be measured and compared with differences between age and cohort groups. This research design also allows for the examination of cohort and time of measurement effects. For example, the researcher could examine the intelligence scores of twenty-year-olds in different times in history and different cohorts. This might be examined by researchers who are interested in sociocultural and historical changes (because we know that lifespan development is multidisciplinary). One way of looking at the usefulness of the various developmental research designs was described by Schaie and Baltes (1975)²: cross-sectional and longitudinal designs might reveal change patterns while sequential designs might identify developmental origins for the observed change patterns.

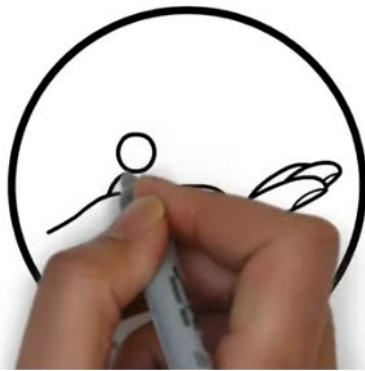
Since they include elements of longitudinal and cross-sectional designs, sequential research has many of the same strengths and limitations as these other approaches. For example, sequential work may require less time and effort than longitudinal research (if data are collected more frequently than over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

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

Table 3.1 Advantages and disadvantages of different research designs

	Advantages	Disadvantages
Cross-Sectional	- Examines changes between participants of different ages at the same point in time - Provides information on age differences	- Cannot examine change over time - Limited to one time in history - Cohort differences confounded with age differences
Longitudinal	- Examines changes within individuals over time - Provides a developmental analysis	- Expensive - Takes a long time - Participant attrition - Possibility of practice effects - Limited to one cohort - Time in history effects confounded with age changes
Sequential	- Examines changes within individuals over time - Examines changes between participants of different ages at the same point in time - Can be used to examine cohort effects - Can be used to examine time in history effects	- May be expensive - May take a long time - Possibility of practice effects - Some participant attrition

Cross-sectional research



Video 3.2: [Cross-Sectional Research \(Explained in 3 Minutes\)](#)

Knowledge Check

3g. Which of the following is a key limitation of cross-sectional research designs?

- A) They require decades of data collection.
- B) They do not allow for cohort comparisons.
- C) They cannot track individual developmental changes over time.
- D) They are the most expensive and time-consuming designs.

3h. What is selective attrition in longitudinal research?

- A) When participants who drop out share specific characteristics, making the remaining sample less representative.
- B) When all participants remain until the end of the study.
- C) When participants drop out due to random chance.
- D) When a new cohort is added halfway through the study.

3i. Which research design combines elements of both longitudinal and cross-sectional methods and allows researchers to study age, cohort, and time of measurement effects?

- A) Experimental Design
- B) Sequential Design
- C) Correlational Design
- D) Cross-Cohort Design

3.8 Challenges Conducting Developmental Research

Ethical Concerns

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

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

When thinking about special accommodations in developmental research, consider the **informed consent process**. As part of this process, participants are informed of the procedures to be used in the research, along with any expected risks or benefits. Infants and young children cannot verbally indicate their willingness to participate, much less understand the balance of potential risks and benefits. As such, researchers are oftentimes required to obtain written informed consent from the parent or legal guardian of the child participant, an adult who is almost always present as the study is conducted. In fact, children are not asked to indicate whether they would like to be involved in a study

at all (a process known as assent) until they are approximately seven years old. Because infants and young children cannot easily indicate if they would like to discontinue their participation in a study, researchers must be sensitive to changes in the state of the participant (determining whether a child is too tired or upset to continue) as well as to parent desires (in some cases, parents might want to discontinue their involvement in the research). As in adult studies, researchers must always strive to protect the rights and well-being of the minor participants and their parents when conducting developmental research.

Recruitment

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

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

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



Video 3.3: [How IRBs Protect Human Research Participants](#)

Attrition

Another important consideration when conducting research within lifespan studies is attrition. Although attrition is quite common in longitudinal research in particular, it is also problematic in developmental science more generally, as studies with infants and young

children tend to have higher attrition rates than studies with adults. For example, high attrition rates in ERP (event related potential, which is a technique to understand brain function) studies oftentimes result from the demands of the task: infants are required to sit still and have a tight, wet cap placed on their heads before watching still photographs on a computer screen in a dark, quiet room. In other cases, attrition may be due to motivation (or a lack thereof). Whereas adults may be motivated to participate in research in order to receive money or extra course credit, infants and young children are not as easily enticed. In addition, infants and young children are more likely to tire easily, become fussy, and lose interest in the study procedures than are adults. For these reasons, research studies should be designed to be as short as possible – it is likely better to break up a large study into multiple short sessions rather than cram all of the tasks into one long visit to the lab. Researchers should also allow time for breaks in their study protocols so that infants can rest or have snacks as needed. Happy, comfortable participants provide the best data.

Knowledge Check

3j. Why are infants and young children considered a vulnerable population in developmental research?

- A) They are difficult to recruit and often unwilling to participate.
- B) They are not legally allowed to participate in research under any condition.
- C) They cannot fully understand the research or provide informed consent themselves.
- D) They have high cognitive capacity, which could bias the study results.

Key Takeaways

- Scientific research in development follows structured methodologies that reduce bias and allow for evidence-based conclusions about human growth and aging.
- Personal knowledge and inquiry, while meaningful, are subject to cognitive biases such as confirmation bias and are not reliable substitutes for scientific investigation.
- Quantitative methods rely on numerical data and statistical analysis; qualitative methods emphasize depth, context, and lived experience. Both have unique strengths and are often used in combination (mixed methods).
- Descriptive research (e.g., observation, case studies, surveys, content analysis) is useful for exploring new topics or gaining insight into patterns and behaviors but does not establish causality.

- Correlational research identifies relationships between variables but cannot determine cause-and-effect relationships due to the possibility of third variables and reverse causation.
 - Experimental research is the only design that can establish causal relationships, requiring manipulation of variables, control groups, and random assignment.
 - Developmental research designs include:
 - Cross-sectional designs, which compare different age groups at one point in time; these are efficient but confounded by cohort effects.
 - Longitudinal designs, which follow the same individuals over time to observe age-related changes; these offer strong developmental insights but are costly and prone to attrition and practice effects.
 - Sequential designs, which combine cross-sectional and longitudinal approaches to better control for cohort and historical effects.
 - Ethical considerations in developmental research are critical, especially when working with vulnerable populations such as children or cognitively impaired adults. Informed consent, assent, and protection of participant welfare are foundational principles.
 - Recruitment challenges vary by age group; while young adults are accessible through university settings, recruiting infants, children, and older adults often requires more effort and sensitivity to context and accessibility.
 - Attrition, especially in long-term studies, is a major limitation in lifespan research. Selective attrition may bias results if certain groups (e.g., less healthy or lower socioeconomic participants) are more likely to drop out.
 - An effective research design aligns the research question with appropriate methodology while minimizing bias, maintaining ethical integrity, and maximizing the generalizability and utility of findings.
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<https://uen.pressbooks.pub/7weekhdfs1500/chapter/the-lifespan-perspective-2/>.

- Made some changes to 'learning objectives'.
- Changes included addition of introductory text in section 3.2.
- Figures have also been changed from the original.
- Added 'key takeaways'.
- Videos and original quiz questions have also been added to the text.

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Video 3.1 CrashCourse. (2014, February 10). *Psychological Research: Crash Course Psychology #2*. [Video]. Youtube. <https://www.youtube.com/watch?v=hFV71QPvX2I>

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Long Descriptions

Figure 3.1 (c) Thebiologyprimer, [The Scientific Method \(simple\)](#). CC0 1.0 Universal Public Domain Dedication. Alt Text: Circular flowchart illustrating the scientific method with arrows labeled: Observation, Question, Hypothesis, Experiment, Analysis, Conclusion.

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Figure 3.3 © [Students in lab](#). CC0 1.0 Universal. Alt Text: Young adult students in lab coats sit attentively at a science classroom table, smiling and taking notes, conveying an atmosphere of focused learning and engagement.

Unit 2: Early Adulthood

This unit contains the following chapters:

4. Physical and Cognitive Development in Early Adulthood
5. Cognitive Development in Early Adulthood
6. Psychosocial Development in Emerging and Early Adulthood
7. Friendships and Love

Chapter 4: Emerging Adulthood and Early Adulthood

4.1 Learning Objectives

- Define emerging adulthood and explain how it differs from both adolescence and established adulthood.
- Identify and describe the five core features of emerging adulthood.
- Discuss how socioeconomic status and cultural context influence the experience of emerging adulthood.
- Outline key developmental tasks of early adulthood.
- Describe physical development in early adulthood, including physiological peak and early signs of aging.
- Evaluate health risks in early adulthood, including rates and causes of injury, substance use, and risky sexual behavior.
- Understand patterns of fertility, infertility, and reproductive health during early adulthood.
- Compare reproductive technologies and their accessibility for individuals and couples with varied social, economic, and identity backgrounds.
- Differentiate between emerging adulthood and established adulthood in terms of career development, relationships, and parenting roles.
- Analyze changes in young adult living arrangements and the factors contributing to these shifts.

4.2 Introduction

Early adulthood spans from approximately 18 (the end of adolescence) until 45 (beginning of middle adulthood). More recently, developmentalists have divided this age period into two separate stages: emerging adulthood (ages 18-29), followed by established adulthood (ages 30-45) (Mehta et al., 2020). Although these age periods differ in their physical, cognitive, and social development, overall, the age period from 18 to 45 is a time of peak physical capabilities and the emergence of more mature cognitive development, financial independence, and intimate relationships.

4.3 Emerging Adulthood Defined

Emerging adulthood is the period between the late teens and late twenties; ages 18 to 29 (Mehta et al., 2020; Society for the Study of Emerging Adulthood, 2016). Arnett (2000) argues that emerging adulthood is neither adolescence, nor is it 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 is greater for most people than it will be at any other period of the life course" (Arnett, 2000, p. 469). Arnett identified five characteristics of emerging adulthood that distinguished 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.
- 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.
- 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.
- This is also the age of **feeling in-between**. When asked if they feel like adults, more eighteen- to twenty-five-year-olds answer "yes and no" than do teens or adults over the age of twenty-five (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 eighteen- to twenty-five-year-olds felt that in some ways they were adults, but in some ways, they were not (Arnett, 2001).
- Emerging adulthood is the **age of possibilities**. It is a time period of optimism as more 18- to 25-year-olds feel that they will someday get to where they want to be in life. 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 soul mate 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.



Figure 4.1 Early Adulthood

Knowledge Check

4a. Which of the following best describes the concept of emerging adulthood as proposed by Arnett?

- A) It is a stage where individuals are completely independent and established in careers and relationships.
- B) It is the transitional phase between adolescence and full adulthood, characterized by exploration and instability.
- C) It is the period when puberty ends and identity formation is completed.
- D) It refers to middle adulthood marked by a decline in physical health and fertility.

4b. Which of the following is NOT one of the five core features of emerging adulthood as described by Arnett?

- A) Age of identity exploration
- B) Age of self-focus
- C) Age of career fulfillment
- D) Age of instability

4c. Why do many 18- to 25-year-olds report feeling "in-between" adolescence and adulthood?

- A) They are physically still undergoing puberty.
- B) They lack any responsibility or independence.
- C) They have completed all major adult roles.
- D) They have experienced some adult roles but still depend on parents in other ways.

Socioeconomic Class and Emerging Adulthood

The theory of emerging adulthood was initially criticized as only reflecting upper-middle-class, college-attending young adults in the United States and not those who were working class or poor (Arnett, 2016). Consequently, Arnett reviewed results from the 2012 Clark University Poll of Emerging Adults, whose participants were demographically similar to the United States population. Results primarily indicated consistencies across aspects of the theory, including positive and negative perceptions of the time period and views on education, work, love, sex, and marriage. Two significant differences were found, the first being that emerging adults from lower socioeconomic classes identified more negativity in their emotional lives, including higher levels of depression. Secondly, those in the lowest socioeconomic group were more likely to agree that they had not been able to find sufficient financial support to obtain the education they believed they needed. Overall, Arnett concluded that emerging adulthood exists wherever there is a period between the end of adolescence and entry into adult roles, but acknowledging social, cultural, and historical contexts was also important.

Cultural Variations

The five features proposed in the theory of emerging adulthood originally were based on research involving Americans between ages 18 and 29 from various ethnic groups, social classes, and geographical regions (Arnett, 2004, 2016). To what extent does the theory of emerging adulthood apply internationally?

The answer to this question depends greatly on what part of the world is considered. Demographers make a useful distinction between the developing countries that comprise the majority of the world's population and the economically developed countries that are part of the Organization for Economic Cooperation 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 developed countries) is 1.2 billion, about 18% of the total world population (United Nations Development Programme, 2011). The rest of the human population resides in developing countries, which have much lower median incomes, much lower median educational attainment, and much higher incidence of illness, disease, and early death. Let us consider emerging adulthood in other OECD countries, as little is known about the experiences of eighteen- to twenty-nine-year-olds in developing countries. 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 the age of thirty 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 developed countries, such as Japan and South Korea, are in some ways similar to the lives of emerging adults in Europe and in some ways strikingly different. Like European emerging adults, Asian emerging adults tend to enter marriage and parenthood around age thirty (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, including free university education and substantial unemployment benefits. However, in other ways, the experience of emerging adulthood in Asian OECD countries is markedly different than in Europe. Europe has a long history of individualism, and today's emerging adults carry that legacy with them in their focus on self-development and leisure during emerging adulthood. In contrast, Asian cultures have a shared cultural history emphasizing collectivism and family obligations.

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 et al., 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).

Knowledge Check

4d. What is one key finding from the 2012 Clark University Poll regarding emerging adults from lower socioeconomic backgrounds?

- A) They reported higher levels of depression and difficulties affording education.
- B) They were more likely to marry earlier than other groups.
- C) They reported fewer emotional struggles than wealthier peers.
- D) They rejected the concept of emerging adulthood altogether.

4e. How does emerging adulthood in Asian OECD countries (e.g., Japan, South Korea) differ from that in European countries?

- A) Asian emerging adults marry earlier and prioritize leisure.
- B) Asian emerging adults emphasize individualism more than Europeans.
- C) Asian emerging adults value family obligation and supporting parents financially.
- D) European emerging adults prioritize family duties over self-exploration.

4.4 When Does Adulthood Begin?

According to Rankin and Kenyon (2008), historically, the process of becoming an adult was more clearly marked by rites of passage. For many, marriage and parenthood were considered entry into adulthood. However, these role transitions are no longer considered important markers of adulthood (Arnett, 2001). Economic and social changes have resulted in more young adults attending college (Rankin & Kenyon, 2008) and a delay in marriage and having children (Arnett & Taber, 1994; Laursen & Jensen-Campbell, 1999). Consequently, current research has found financial independence and accepting responsibility for oneself to be the most important markers of adulthood in Western culture.

across age (Arnett, 2001) and ethnic groups (Arnett, 2004). In looking at college students' perceptions of adulthood, Rankin and Kenyon (2008) found that some students still view rites of passage as important markers. These were college students who had placed more importance on role transition markers, such as parenthood and marriage; belonged to a fraternity/sorority; were traditionally aged (eighteen–twenty-five); belonged to an ethnic minority; were of a traditional marital status, i.e., not cohabitating; or belonged to a religious organization, particularly for men. These findings supported the view that people holding collectivist or more traditional values place more importance on role transitions as markers of adulthood. In contrast, older college students and those cohabitating did not value role transitions as markers of adulthood as strongly.

Established Adulthood Defined

Established adults, or those individuals between ages thirty and forty-five, differ from emerging adults in a variety of ways, but especially in the areas of career development, establishment of intimate relationships, and child rearing. In contrast to previous generations, individuals residing in developed countries are obtaining advanced education well into their twenties (Mehta et al., 2020). Following their education, those entering careers typically engage in frequent job changes in their twenties before settling into a stable long-term job in their thirties. In contrast to the career exploration of emerging adults, established adults take on greater career responsibilities, gain expertise, and begin moving up in their organizations. Regarding the establishment of intimate relationships, those in more developed countries are delaying both marriage and having children until their thirties. Consequently, established adults typically have young children at home, and a significant part of their day is spent caring for them.

Emerging and Established Adults Living Arrangements

In 2014, for the first time in more than 130 years, adults 18 to 34 were more likely to be living in their parents' home than they were to be living with a spouse or partner in their own household (Fry, 2016). The current trend is that young Americans are not choosing to settle down romantically before age 35. Since 1880, living with a romantic partner was the most common living arrangement among young adults. In 1960, 62% of America's eighteen to thirty-four-year-olds were living with a spouse or partner in their own household, while only 20% were living with their parents.

By 2014, 31.6% of early adults were living with a spouse or partner in their own household, while 32.1% were living in the home of their parent(s). Another 14% of early adults lived alone, were a single parent, or lived with one or more roommates. The remaining 22% lived in the home of another family member (such as a grandparent, in-law, or sibling), a non-relative, or in group quarters (e.g., college dormitories). Comparing

ethnic groups, 36% of Black and Hispanic early adults lived at home, while 30% of white young adults lived at home.

What are some factors that help explain these changes in living arrangements?

Emerging and established adults are postponing marriage or choosing not to marry or cohabitate. Lack of employment and lower wages have especially contributed to males residing with their parents. Men who are employed are less likely to live at home. Wages for young men (adjusting for inflation) have been falling since 1970 and correlate with the rise in young men living with their parents. The recent recession and recovery (2007-present) have also contributed to the increase in early adults living at home. College enrollments increased during the recession, which further increased early adults living at home. However, once early adults possess a college degree, they are more likely to establish their own households (Fry, 2016).

Knowledge Check

4f. A researcher is comparing two groups of college students. One group places high importance on marriage and parenthood as markers of adulthood, while the other emphasizes financial independence and personal responsibility. Based on the research by Rankin & Kenyon (2008), which of the following most likely describes the first group?

- A) Older students who are cohabitating and financially independent.
- B) Students who are members of fraternities/sororities and religious organizations.
- C) Students from urban, high-income backgrounds focused on career advancement.
- D) Non-traditional students with no strong affiliation to any social or cultural group.

4g. In recent decades, more emerging adults are living with their parents rather than with romantic partners. Based on the text, which combination of factors best explains this shift in living arrangements?

- A) Increased cost of education, stronger parental bonds, and rising marriage rates.
- B) Delayed marriage, falling wages for young men, and economic recession impacts.
- C) Rising fertility rates, lack of parental housing, and career instability.
- D) More social freedom, early marriage, and improved job opportunities.

4.5 Physical Development in Early Adulthood

In this section, we will see how young adults are often at their peak physically, sexually, and in terms of health and reproduction; yet they are also particularly at risk for injury, violence, substance abuse, sexually transmitted diseases, and more. As you read, consider whether or not you think young adults are in the prime of their lives.

Before we dive into the specific physical changes and experiences of early adulthood, let's consider the key developmental tasks during this time—the ages between eighteen and forty. The beginning of early adulthood, ages eighteen to twenty-five, is sometimes considered its own phase, emerging adulthood, but the developmental tasks that are the focus during emerging adulthood persist throughout the early adulthood years. Look at the list below and try to think of someone you know between eighteen and forty who fits each of the descriptions.

Developmental Tasks of Early Adulthood

Havighurst (1972) describes some of the developmental tasks of young adults. These include:

1. Achieving autonomy: trying to establish oneself as an independent person with a life of one's own.
2. Establishing identity: more firmly establishing likes, dislikes, preferences, and philosophies.
3. Developing emotional stability: becoming more stable emotionally which is considered a sign of maturing.
4. Establishing a career: deciding on and pursuing a career or at least an initial career direction and pursuing an education.
5. Finding intimacy: forming first close, long-term relationships.
6. 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.
7. Establishing a residence and learning how to manage a household: learning how to budget and keep a home maintained.
8. Becoming a parent and rearing children: learning how to manage a household with children.
9. Making marital or relationship adjustments and learning to parent.



Video 4.1: [When are you actually an adult? - Shannon Odell](#)

Physical Development in Early Adulthood - The Physiological Peak

People in their twenties and thirties are considered young adults. If you are in your early twenties, you are probably at the peak of your physiological development. Your body has completed its growth, though your brain is still developing (as explained in the previous module on adolescence). Physically, you are in the “prime of your life” as your reproductive system, motor ability, strength, and lung capacity are operating at their best. However, these systems will start a slow, gradual decline so that by the time you reach your mid to late 30s, you will begin to notice signs of aging. This includes a decline in your immune system, your response time, and in your ability to recover quickly from physical exertion. For example, you may have noticed that it takes you quite some time to stop panting after running to class or taking the stairs. But remember that both nature and nurture continue to influence development. Getting out of shape is not an inevitable part of aging; it is probably due to the fact that you have become less physically active and have experienced greater stress. The good news is that there are things you can do to combat many of these changes. So, keep in mind, as we continue to discuss the lifespan, that some of the changes we associate with aging can be prevented or turned around if we adopt healthier lifestyles.

In fact, research shows that the habits we establish in our twenties are related to certain health conditions in middle age, particularly the risk of heart disease. What are healthy habits that young adults can establish now that will prove beneficial in later life? Healthy habits include maintaining a lean body mass index, moderate alcohol intake, a smoke-free lifestyle, a healthy diet, and regular physical activity. When experts were asked to

name one thing they would recommend young adults do to facilitate good health, their specific responses included: weighing self often, learning to cook, reducing sugar intake, developing an active lifestyle, eating vegetables, practicing portion control, establishing an exercise routine (especially a “postparty” routine, if relevant), and finding a job you love.

Being overweight or obese is a real concern in early adulthood. Medical research shows that American men and women with moderate weight gain from early to middle adulthood have significantly increased risks of major chronic disease and mortality (Zheng, et al, 2017).² Given the fact that American men and women tend to gain about one to two pounds per year from early to middle adulthood, developing healthy nutrition and exercise habits across adulthood is important (Nichols, 2017).



Figure 4.2 Young Adulthood Physical Fitness

4.6 A Healthy, but Risky Time

Early adulthood tends to be a time of relatively good health. For instance, in the United States, adults ages eighteen to forty-four have the lowest percentage of physician office visits than any other age group, younger or older. However, early adulthood seems to be a particularly risky time for violent deaths (rates vary by gender, race, and ethnicity). The leading causes of death for both age groups fifteen to twenty-four and twenty-five to thirty-four in the U.S. are unintentional injury, suicide, and homicide. Cancer and heart disease follow as the fourth and fifth top causes of death among young adults (Centers for Disease Control and Prevention, 2019).

Substance Abuse

Rates of violent death are influenced by substance abuse, which peaks during early adulthood. Some young adults use drugs and alcohol as a way of coping with stress from family, personal relationships, or concerns over being on one's own. Others "use" because they have friends who use and in their early 20s, there is still a good deal of pressure to conform. Youth transitioning into adulthood have some of the highest rates of alcohol and substance abuse. For instance, rates of binge drinking (drinking five or more drinks on a single occasion) in 2014 were: 28.5 percent for people ages 18 to 20 and 43.3 percent for people ages 21-25.⁴ Recent data from the Centers for Disease Control and Prevention show increases in drug overdose deaths between 2006 and 2016 (with higher rates among males), but with the steepest increases between 2014 and 2016 occurring among males aged 24-34 and females aged 24-34 and 35-44. Rates vary by other factors including race and geography; increased use and abuse of opioids may also play a role.

Drugs impair judgment, reduce inhibitions, and alter mood, all of which can lead to dangerous behavior. Reckless driving, violent altercations, and forced sexual encounters are some examples. College campuses are notorious for binge drinking, which is particularly concerning since alcohol plays a role in over half of all student sexual assaults. Alcohol is involved nearly 90 percent of the time in acquaintance rape (when the perpetrator knows the victim). Over 40 percent of sexual assaults involve alcohol use by the victim and almost 70 percent involve alcohol use by the perpetrator

Drug and alcohol use increase the risk of sexually transmitted infections because people are more likely to engage in risky sexual behavior when under the influence. This includes having sex with someone who has had multiple partners, having anal sex without the use of a condom, having multiple partners, or having sex with someone whose history is unknown. Such risky sexual behavior puts individuals at increased risk for both sexually transmitted diseases (STDs) and human immunodeficiency virus (HIV). STDs are especially common among young people. There are about 20 million new cases of STDs each year in the United States and about half of those infections are in people between the ages of 15 and 24. Also, young people are the most likely to be unaware of their HIV infection, with half not knowing they have the virus (Centers for Disease Control and Prevention, 2019).



Video 4.2: [Caring for Young Adults with Substance Use Disorder](#)



Figure 4.3 Early Adulthood Substance Abuse

Sex and Fertility in Early Adulthood

Sexual Responsiveness and Reproduction in Early Adulthood 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 throughout adulthood. Over time, a man may require more intense stimulation in order to become aroused. Women often find that they become more sexually responsive throughout their twenties and thirties and may peak in

the late thirties or early forties. This is likely due to greater self-confidence and reduced inhibitions about sexuality.

There are a wide variety of factors that influence sexual relationships during emerging adulthood; this includes beliefs about certain sexual behaviors and marriage. For example, among emerging adults in the United States, it is common for oral sex to not be considered “real sex”. In the 1950s and 1960s, about 75 percent of people between the ages of twenty to twenty-four engaged in premarital sex; today, that number is 90 percent. Unintended pregnancy and sexually transmitted infections and diseases (STIs/STDs) are a central issue. As individuals move through emerging adulthood, they are more likely to engage in monogamous sexual relationships and practice safe sex.

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. The mean age of first-time mothers in the United States increased 1.4 years, from 24.9 in 2000 to 26.3 in 2014. This shift can primarily be attributed to a larger number of first births to older women along with fewer births to mothers under age 20 (CDC, 2016). Couples delay childbearing for a number of reasons. Women are now 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. In 2018, the average age for a first marriage in the United States was 29.8 for men and 27.8 for women.

Infertility

Infertility affects about 6.7 million women or 11 percent of the reproductive age population (American Society of Reproductive Medicine [ASRM], 2006-2010). 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 ovulation disorder. Other causes of female infertility include blocked fallopian tubes, which can occur when a woman has had pelvic inflammatory disease (PID) or endometriosis. PID 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 PID is Chlamydia, 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 and approximately 20 percent are unexplained.

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 an IVF cycle in the U.S. is \$10,000-15,000 and the average live delivery rate for IVF in 2005 was 31.6 percent per retrieval. IVF makes up about 99 percent of artificial reproductive procedures. [ASRM, 2006-2010]

Less common procedures include gamete intrafallopian tube transfer (GIFT) which involves implanting both sperm and ova into the fallopian tube and fertilization is allowed to occur naturally. Zygote intrafallopian 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.

Insurance coverage for infertility is required in fourteen states, but the amount and type of coverage available vary greatly (ASRM, 2006-2010). 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 may be available for lower-income couples seeking infertility treatment.

Fertility for Singles and Same-Sex Couples

The journey to parenthood may look different for singles same-sex couples. However, there are several viable options available to them to have their own biological children. Men and women may choose to donate their sperm or eggs to help others reproduce for monetary or humanitarian reasons. Some gay couples may decide to have a surrogate pregnancy. One or both of the men would provide the sperm and choose a carrier. The chosen woman may be the source of the egg and uterus, or the woman could be a third party that carries the created embryo. Reciprocal IVF is used by couples who both possess female reproductive organs. Using in vitro fertilization, eggs are removed from one partner to be used to make embryos that the other partner will hopefully carry in a successful pregnancy.

Artificial insemination (AI) is the deliberate introduction of sperm into a female's cervix or uterine cavity for the purpose of achieving a pregnancy through in vivo fertilization by means other than sexual intercourse. AI is most often used by single women who desire to give birth to their own child, women who are in a lesbian relationship, or women who

are in a heterosexual relationship but with a male partner who is infertile or who has a physical impairment which prevents intercourse. The sperm used could be anonymous or from a known donor.

Knowledge Check

4h. Which of the following best explains why establishing health habits in early adulthood is emphasized as crucial for later life outcomes?

- A) Early adulthood health behaviors are strong predictors of middle-age diseases like heart disease.
- B) Health habits formed in early adulthood are unlikely to change later in life.
- C) Most young adults experience chronic illness, making early intervention necessary.
- D) Physical development is complete, and there's no more opportunity for improvement.

4i. Which scenario best illustrates a developmental task of early adulthood as outlined by Havighurst?

- A) A 20-year-old high school graduate relying on their parents for all financial decisions.
- B) A 25-year-old who is exploring romantic relationships and managing their own apartment.
- C) A 17-year-old student trying to choose a college major.
- D) A 40-year-old deciding to retire early.

4j. Men and women tend to peak in sexual responsiveness at the same time during early adulthood.

- A) True
- B) False

Key Takeaways

- Emerging adulthood (ages 18–29) is a distinct developmental phase characterized by identity exploration, instability, self-focus, feeling in-between, and optimism about the future.
- This life stage is shaped by cultural and socioeconomic factors. While common in industrialized countries, the experience of emerging adulthood varies widely across class and culture.

- The transition to established adulthood (ages 30–45) involves greater stability in career, intimate partnerships, and parenting responsibilities.
 - Developmental tasks of early adulthood include achieving autonomy, establishing identity, forming intimate relationships, and setting career and family goals.
 - Physically, early adulthood represents the peak of biological functioning, but lifestyle habits formed during this stage strongly affect long-term health outcomes.
 - Risk behaviors, including substance abuse, reckless driving, and unsafe sexual activity, are prevalent in this stage and contribute to higher rates of injury and mortality.
 - Fertility is typically at its highest in early adulthood, but many individuals delay childbearing due to educational or career priorities. Infertility affects a significant portion of the population and may require medical intervention.
 - Assisted reproductive technologies such as IVF, GIFT, ZIFT, and artificial insemination offer pathways to parenthood but remain financially inaccessible to many.
 - Reproductive options and parenting pathways are expanding, particularly for same-sex couples and single adults, highlighting the importance of inclusivity in family-building frameworks.
 - The structure of young adult life is changing: delayed marriage, economic instability, and increased college enrollment have shifted living patterns, with many young adults living with parents well into their late twenties.
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- Made some changes to 'learning objectives'.
- Figures have also been changed from the original.
- Added 'key takeaways'.
- Videos and original quiz questions have also been added to the text.

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Figure Attributions

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Video Attributions

Video 4.1. Ted-Ed. (2023, January 19). *When are you actually an adult?* - Shannon Odell. [Video]. Youtube. <https://www.youtube.com/watch?v=AESkozhaT4s>

Video 4.2. Grayken Center for Addiction TTA. (2019, November 14). *Caring for Young Adults with Substance Use Disorder*. [Video]. Youtube. https://www.youtube.com/watch?v=m0Btr_wwSk

Long Descriptions

Figure 4.1 (c) [The free high-resolution photo of computer, working, person, group, people, meeting, office](#). CC0 Public Domain. Alt Text: A diverse group of six people engaged in a meeting. A woman gestures while speaking, evoking a collaborative and focused atmosphere in a modern office.

Figure 4.2 (c) [Joyful Exercise Group](#). CC0 Public Domain. Alt Text: A group of diverse women in athletic wear stand outdoors, smiling and applauding. The sun is shining, creating a warm and motivating atmosphere.

Figure 4.3 (c) [Rehab Center Parusi](#). [Representative image of a drug addict](#). CC BY SA 4.0 Alt Text: A person in a gray hoodie sits outdoors, face hidden, holding a syringe at their arm. The scene conveys a sense of solitude and danger.

Chapter 5: Cognitive Development in Early Adulthood

5.1 Learning Objectives

- Explain the concept of postformal thought and how it builds on or differs from Piaget's theory of formal operations.
- Describe key characteristics of postformal thinking, including dialectical reasoning, flexibility, and relativism.
- Summarize William Perry's theory of cognitive development during college years and its stages from dualism to commitment.
- Discuss the role of higher education in shaping advanced cognitive development and career readiness.
- Analyze patterns of educational attainment in early adulthood and their impact on socioeconomic status and employment.
- Evaluate the relationship between formal education and the modern workplace, including employer expectations and skill gaps.
- Describe theoretical and practical approaches to career decision-making in early adulthood, including Holland's theory of vocational personalities.

5.2 Introduction

We have learned about cognitive development from infancy through adolescence, ending with Piaget's stage of formal operations. Does that mean that cognitive development stops with adolescence? Couldn't there be different ways of thinking in adulthood that come after (or "post") formal operations?

In this section, we will learn about these types of postformal operational thought and consider research done by William Perry related to types of thought and advanced thinking. We will also look at education in early adulthood, the relationship between education and work, and some tools used by young adults to choose their careers.



Figure 5.1 Cognitive Development in Early Adulthood

5.3 Cognitive Development in Early Adulthood

Beyond Formal Operational Thought: Postformal Thought

In the adolescence module, we discussed Piaget's formal operational thought. The hallmark of this type of thinking is the ability to think abstractly or to consider possibilities and ideas about circumstances never directly experienced. Thinking abstractly is only one characteristic of adult thought, however. If you compare a 14-year-old with someone in their late 30s, you would probably find that the latter considers not only what is possible, but also what is likely. Why the change? The young adult has gained experience and understands why possibilities do not always become realities. This difference in adult and adolescent thought can spark arguments between the generations.

Here is an example. A student in her late 30s relayed such an argument she was having with her 14-year-old son. The son had saved a considerable amount of money and wanted to buy an old car and store it in the garage until he was old enough to drive. He could sit in it, pretend he was driving, clean it up, and show it to his friends. It sounded like a perfect opportunity. The mother, however, had practical objections. The car would

just sit for several years while deteriorating. The son would probably change his mind about the type of car he wanted by the time he was old enough to drive, and they would be stuck with a car that would not run. She was also concerned that having a car nearby would be too much temptation and the son might decide to sneak it out for a quick ride before he had a permit or license.

Piaget's theory of cognitive development ended with formal operations, but it is possible that other ways of thinking may develop after (or "post") formal operations in adulthood (even if this thinking does not constitute a separate "stage" of development). Postformal thought is practical, realistic and more individualistic, but also characterized by understanding the complexities of various perspectives. As a person approaches their late 30s, chances are they make decisions out of necessity or because of prior experience and are less influenced by what others think. Of course, this is particularly true in individualistic cultures such as the United States. Postformal thought is often described as more flexible, logical, willing to accept moral and intellectual complexities, and dialectical than previous stages in development.



Video 5.1: [Piaget's Theory of Cognitive Development | Nursing Memory Tricks](#)

Knowledge Check

5a. A young adult decides not to pursue an ambitious travel plan because of work and financial responsibilities. This decision best reflects which aspect of postformal thought?

- A) Egocentrism
- B) Hypothetical reasoning
- C) Abstract symbolism
- D) Practical and realistic thinking

5b. In the example of the mother and son disagreeing about buying a car before the son is old enough to drive, the mother's reasoning best demonstrates:

- A) Abstract reasoning typical of adolescence
- B) Inflexible moral judgment
- C) Dialectical thinking and consideration of consequences
- D) Egocentric thought from adulthood

5c. Postformal thought is characterized by rigid logic and a strict adherence to one correct solution.

- A) True
- B) False

Perry's Scheme

One of the first theories of cognitive development in early adulthood originated with William Perry (1970)¹, who studied undergraduate students at Harvard University. Perry noted that over the course of students' college years, cognition tended to shift from dualism (absolute, black and white, right and wrong type of thinking) to multiplicity (recognizing that some problems are solvable and some answers are not yet known) to relativism (understanding the importance of the specific context of knowledge—it's all relative to other factors). Similar to Piaget's formal operational thinking in adolescence, this change in thinking in early adulthood is affected by educational experiences.

Table 5.1 Stages of Perry's Scheme

	Summary of Perry' Scheme	Basic Example
Dualism	The authorities know	"The tutor knows what is right and wrong"
	The true authorities are right; the others are frauds	"My tutor doesn't know what is right and wrong, but others do"
Multiplicity	There are some uncertainties and the authorities are working on them to find the truth	"My tutors don't know, but somebody out there is trying to find out"
	(a) Everyone has the right to their own opinion	"Different tutors think different things"

	(b) The authorities don't want the right answers. They want us to think in a certain way	"There is an answer that the tutors want and we have to find it"
Relativism	Everything is relative but not equally valid	"There are no right and wrong answers, it depends on the situation, but some answers might be better than others"
	You have to make your own decisions	"What is important is not what the tutor thinks but what I think"
	First commitment	"For this particular topic I think that...."
	Several Commitments	"For these topics I think that...."
	Believe in your own values, respect others, be ready to learn	"I know what I believe in and what I think is valid, others may think differently and I'm prepared to reconsider my views"

Dialectical Thought

In addition to moving toward more practical considerations, thinking in early adulthood may also become more flexible and balanced. Abstract ideas that the adolescent believes in firmly may become standards by which the individual evaluates reality. As Perry's research pointed out, adolescents tend to think in dichotomies or absolute terms; ideas are true or false; good or bad; right or wrong and there is no middle ground. However, with education and experience, the young adult comes to recognize that there is some right and some wrong in each position. Such thinking is more realistic because very few positions, ideas, situations, or people are completely right or wrong.

Some adults may move even beyond the relativistic or contextual thinking described by Perry; they may be able to bring together important aspects of two opposing viewpoints or positions, synthesize them, and come up with new ideas. This is referred to as dialectical thought and is considered one of the most advanced aspects of postformal thinking (Basseches, 1984). There isn't just one theory of postformal thought; there are variations, with emphasis on adults' ability to tolerate ambiguity or to accept contradictions or find new problems, rather than solve problems, etc. (as well as relativism and

dialecticism that we just learned about). What they all have in common is the proposition that the way we think may change during adulthood with education and experience.

Knowledge Check

5d. According to Perry's Scheme, what type of thinking is most likely demonstrated when a student believes that "everything is relative, but not equally valid"?

- A) Dualism
- B) Multiplicity
- C) Relativism
- D) First commitment

5e. What characterizes dialectical thought, as described in the text?

- A) Rigid classification of information into right and wrong.
- B) Acceptance of contradictions and synthesis of opposing ideas.
- C) Focus on solving concrete operational problems only.
- D) Viewing all knowledge as absolute and externally defined.

5.f Which of the following best illustrates a student in the Multiplicity phase of Perry's Scheme?

- A) "I must accept what the tutor says is right."
- B) "Everyone has their own opinion, but some answers are still being researched."
- C) "Truth is contextual and I need to decide what I believe."
- D) "There is no answer, just perspectives, and some are better than others."

5.4 Education and Work

Education in Early Adulthood

According to the U.S. Census Bureau (2017), 90 percent of the American population 25 and older have completed high school or higher level of education—compare this to just 24 percent in 1940! Each generation tends to earn (and perhaps need) increased levels of formal education. As we can see in the graph, approximately one-third of the American adult population has a bachelor's degree or higher, as compared with less than 5 percent in 1940. Educational attainment rates vary by gender and race. All races combined, women are slightly more likely to have graduated from college than men; that gap widens with graduate and professional degrees. However, wide racial disparities still exist. For example, 23 percent of African-Americans have a college degree and only 16.4 percent of Hispanic Americans have a college degree, compared to 37 percent of non-Hispanic

white Americans. The college graduation rates of African-Americans and Hispanic Americans have been growing in recent years. However, the rate has doubled since 1991 for African-Americans and it has increased 60 percent in the last two decades for Hispanic-Americans.

What about those young or emerging adults graduating high school today—is the majority of that group going to college? According to the U.S. Bureau of Labor Statistics (2017), 66.7 percent of youth ages 16-24 who graduated high school between January and October 2017 were enrolled in colleges or universities in October 2017. There were gender differences (71.7 percent of females vs. 61.1 percent of males) and racial differences (83 percent of Asians, 67.1 percent of non-Hispanic whites, 61 percent Hispanics, and 59.4 percent Blacks). Not all of these students will persist and earn college degrees, however.

Education and the Workplace

With the rising costs of higher education, various news headlines have asked if a college education is worth the cost. One way to address this question is in terms of the earning potential associated with various levels of educational achievement. In 2016, the average earnings for Americans 25 and older with only a high school education was \$35,615, compared with \$65,482 for those with a bachelor's degree, compared with \$92,525 for those with more advanced degrees. Average earnings vary by gender, race, and geographical location in the United States.

Of concern in recent years is the relationship between higher education and the workplace. In 2005, American educator and then Harvard University President, Derek Bok, called for a closer alignment between the goals of educators and the demands of the economy. Companies outsource much of their work, not only to save costs but to find workers with the skills they need. What is required to do well in today's economy? Colleges and universities, he argued, need to promote global awareness, critical thinking skills, the ability to communicate, moral reasoning, and responsibility in their students. Regional accrediting agencies and state organizations provide similar guidelines for educators. Workers need skills in listening, reading, writing, speaking, global awareness, critical thinking, civility, and computer literacy—all skills that enhance success in the workplace.

Knowledge Check

5g. Which of the following best reflects the relationship between educational attainment and average earnings in the U.S.?

- A) Higher educational attainment generally leads to higher average earnings.
- B) High school graduates earn more on average than those with bachelor's degrees.
- C) Earnings remain the same regardless of educational level.
- D) Those with graduate degrees earn the same as those with only a high school diploma.

5h. In recent years, college graduation rates for Hispanic Americans and African Americans have shown significant improvement.

- A) True
- B) False



Figure 5.2 Young Adulthood Education

More than a decade later, the question remains: does formal education prepare young adults for the workplace? It depends on whom you ask. 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 percent 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. Only in terms of digital technology skills were more employers confident about students' competencies than were the students (66 percent compared to 60 percent).

It appears that students need to learn what some call "soft skills," as well as the particular knowledge and skills within their college major. As education researcher Loni Bordoloi Pazich (2018) noted, most American college students today are enrolling in business or other pre-professional programs and to be effective and successful workers and leaders, they would benefit from the communication, teamwork, and critical thinking skills, as well as the content knowledge, gained from liberal arts education.⁵ In fact, two-thirds of children starting primary school now will be employed in jobs in the future that currently do not exist. Therefore, students cannot learn every single skill or fact that they may need to know, but they can learn how to learn, think, research, and communicate well so that they are prepared to continually learn new things and adapt effectively in their careers and lives since the economy, technology, and global markets will continue to evolve.

Career Choices in Early Adulthood

Hopefully, we are each becoming lifelong learners, particularly since we are living longer and will most likely change jobs multiple times during our lives. However, for many, our job changes will be within the same general occupational field, so our initial career choice is still significant. We've seen with Erikson that identity largely involves occupation, 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, 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.



Video 5.2: [How to Choose the Right Career Path in 7 Simple Steps](#)

Knowledge Check

5i. According to the 2018 Job Outlook Survey discussed in the text, what is a major disconnect between employers and college seniors?

- A) Employers undervalue digital technology skills in students.
- B) Employers believe students lack professionalism and work ethic more than students realize.
- C) Students tend to underestimate their written communication skills.
- D) Students are not aware of the importance of technical training.

5j. John Holland's theory suggests that matching personality type with a compatible work environment can lead to greater career satisfaction and success.

- A) True
- B) False

Key Takeaways

- Cognitive development continues beyond adolescence through postformal thought, which emphasizes flexibility, practicality, relativism, and dialectical thinking.
- Postformal thought is more realistic and context-aware than formal operational thinking, accounting for life experience, ambiguity, and multiple perspectives.

- William Perry's Scheme outlines a developmental trajectory in thinking from dualism (black-and-white thinking) to relativism and eventual personal commitment to beliefs and values.
 - Dialectical thought represents an advanced form of postformal thinking, in which conflicting ideas are integrated to form more nuanced conclusions.
 - Higher education plays a significant role in shaping adult cognition, but access and attainment vary widely across racial, ethnic, and socioeconomic groups.
 - Formal education and workplace readiness are not always aligned; employers report gaps in "soft skills" such as communication, critical thinking, and work ethic.
 - Career development is a central task of early adulthood, involving identity formation, personal aspirations, and adaptation to labor market realities.
 - John Holland's vocational theory suggests that career satisfaction is influenced by the match between personality type and work environment, though practical constraints like economy and education also play key roles.
 - In an evolving global economy, lifelong learning and adaptability are essential skills, as many future jobs do not yet exist and career paths are increasingly non-linear.
-

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Sources

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- Made some changes to 'learning objectives'.
- Figures have also been changed from the original.
- Added 'key takeaways'.
- Videos and original quiz questions have also been added to the text.

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Video Attributions

Video 5.1. SimpleNursing. (2022, September 21). *Piaget's Theory of Cognitive Development | Nursing Memory Tricks*. [Video]. Youtube. <https://www.youtube.com/watch?v=Ce4Vnkuhepl>

Video 5.2. CareerAddict. (2021, February 17). *How to Choose the Right Career Path in 7 Simple Steps*. [Video]. Youtube. <https://www.youtube.com/watch?v=zhpcgpqWc1Q>

Long Descriptions

Figure 5.1 (c) Annushka Ahuja. [A Woman Writing on the Notebook. Pexels license](#). Alt Text: A person with tied-back hair writes in a notebook at a wooden table. Nearby are an open book, tablet, potted plant, and a cup of tea, creating a cozy workspace.

Figure 5.2 (c) Douglas Edric Stanley. [Public school students in New York complete exams](#). CC BY-NC-SA 4.0. Alt Text: Students seated in a classroom, focused on writing a test. The atmosphere is serious, with concentration evident on their faces.

Chapter 6: Psychosocial Development in Emerging and Early Adulthood

6.1 Learning Objectives

- Describe the relationship between infant and adult temperament
- Explain personality in early adulthood
- Explain the five-factor model of personality
- Describe adult attachment styles
- Describe Erikson's stage of intimacy vs. isolation
- Identify the factors affecting attraction
- Differentiate among the types of love
- Describe adult lifestyles, including singlehood, cohabitation and marriage
- Describe the factors that influence parenting

6.2 Introduction

Emerging and early adulthood represent critical periods in psychosocial development, characterized by significant transitions and developmental milestones. During these stages, individuals navigate complex interactions between temperament, personality, attachment styles, and evolving relationships. Temperament, often evident from infancy, forms the foundation of adult personality, which is further shaped by environmental and cultural influences. Adult personality traits can be organized into the Five-Factor Model, highlighting dimensions such as openness, conscientiousness, extraversion, agreeableness, and neuroticism. Attachment styles developed in early childhood continue to impact adult relationships, influencing intimacy, satisfaction, and conflict management. Erikson's psychosocial theory emphasizes the importance of successfully establishing intimacy versus facing isolation during early adulthood. Additionally, attraction factors like similarity, proximity, self-disclosure, and repeated exposure significantly shape the formation and maintenance of adult relationships. This chapter explores these key psychosocial elements, offering insights into the complexities of human development during emerging and early adulthood.

6.3 Temperament and Personality

Temperament is defined as the innate characteristics of the infant, including mood, activity level, and emotional reactivity, noticeable soon after birth. Does one's temperament remain stable through the lifespan? Do shy and inhibited babies grow up to be shy adults, while the sociable child continues to be the life of the party? As with most

developmental research, the answer is more complicated than a simple yes or no. Chess and Thomas (1987), who identified children as easy, difficult, slow-to-warm-up or blended, found that children identified as easy grew up to become well-adjusted adults, while those who exhibited a difficult temperament were not as well-adjusted as adults. Kagan (2002) studied the temperamental category of inhibition to the unfamiliar in children. Infants exposed to unfamiliarity reacted strongly to the stimuli and cried loudly, pumped their limbs, and had an increased heart rate. Research has indicated that these highly reactive children show temperamental stability into early childhood, and Bohlin and Hagekull (2009) found that shyness in infancy was linked to social anxiety in adulthood.

An important aspect of this research on inhibition was looking at the response of the amygdala, which is important for fear and anxiety, especially when confronted with possible threatening events in the environment. Using functional magnetic resonance imaging (fMRIs), young adults identified as strongly inhibited toddlers were found to have heightened activation of the amygdala when compared to those identified as uninhibited toddlers (Davidson & Begley, 2012).

The research does seem to indicate that temperamental stability holds for many individuals through their lifespan, yet we know that one's environment can also have a significant impact. Note Epigenesis, or how environmental factors are thought to change gene expression by switching genes on and off. Many cultural and environmental factors can affect one's temperament, including supportive versus abusive child-rearing, socioeconomic status, stable homes, illnesses, teratogens, etc. Additionally, individuals often choose environments that support their temperament, which in turn further strengthens them (Cain, 2012). In summary, because temperament is genetically driven, genes appear to be the major reason why temperament remains stable into adulthood. In contrast, the environment appears mainly responsible for any change in temperament (Clark & Watson, 1999).

Everybody has their own unique personality; that is, their characteristic manner of thinking, feeling, behaving, and relating to others (John et al., 2008). Personality traits refer to these characteristics, routine ways of thinking, feeling, and relating to others. Personality integrates one's temperament with cultural and environmental influences. Consequently, there are signs or indicators of these traits in childhood, but they become particularly evident when the person is an adult. Personality traits are integral to each person's sense of self, as they involve what people value, how they think and feel about things, what they like to do, and, basically, what they are like most every day throughout much of their lives.



Video 6.1: [The Four Temperaments - How To Assess People Quickly](#)

Knowledge Check

6a. Which of the following statements best explains why temperament may appear stable over the lifespan?

- A) Temperament is entirely determined by parenting style
- B) Environmental factors have no influence on temperament
- C) Temperament is fixed during adolescence and cannot change afterward
- D) Temperament is largely genetically driven, though environmental factors may modify it

6b. Research using fMRI has shown that young adults who were inhibited as toddlers tend to show heightened amygdala activity compared to those who were uninhibited.

- A) True
- B) False

6c. Which of the following Big Five traits is most consistently associated with better health, career success, and longevity?

- A) Openness
- B) Neuroticism
- C) Extraversion
- D) Conscientiousness

Table 6.1 Descriptions of Big Five Personalities

Dimension	Description	Examples of behaviors predicted by the trait
Openness to experience	A general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience	Individuals who are highly open to experience tend to have distinctive and unconventional decorations in their home. They are also likely to have books on a wide variety of topics, a diverse music collection, and works of art on display.
Conscientiousness	A tendency to show self-discipline, act dutifully, and aim for achievement	Individuals who are conscientious have a preference for planned rather than spontaneous behavior.
Extraversion	The tendency to experience positive emotions and to seek out stimulation and the company of others	Extroverts enjoy being with people. In groups they like to talk, assert themselves, and draw attention to themselves.
Agreeableness	A tendency to be compassionate and cooperative rather than suspicious and antagonistic toward others; reflects individual differences in general concern for social harmony	Agreeable individuals value getting along with others. They are generally considerate, friendly, generous, helpful and willing to compromise their interests with those of others.
Neuroticism	The tendency to experience negative emotions, such as anger, anxiety, or depression; sometimes called "emotional instability"	Those who score high in neuroticism are more likely to interpret ordinary situations as threatening and minor frustrations as hopelessly difficult. They may have trouble thinking clearly, making decisions, and coping effectively with stress.



Video 6.2: [The Big Five Personality Traits](#)

Five Factor model

There are hundreds of different personality traits, and all of these traits can be organized into the broad dimensions referred to as the Five-Factor Model (John et al., 2008). These five broad domains include: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (Think OCEAN to remember). This applies to traits that you may use to describe yourself. Table 6.1 provides illustrative traits for low and high scores on the five domains of this model of personality.

Does personality change throughout adulthood?

Previously the answer was held to be no, but contemporary research shows that although some people's personalities are relatively stable over time, others' are not (Lucas & Donnellan, 2011; Roberts & Mroczek, 2008). Longitudinal studies reveal average changes during adulthood in the expression of some traits (e.g., neuroticism and openness decrease with age and conscientiousness increases) and individual differences in these patterns due to idiosyncratic life events (e.g., divorce, illness). Longitudinal research also suggests that adult personality traits, such as conscientiousness, predict important life outcomes including job success, health, and longevity (Friedman et al., 1993; Roberts et al., 2007).

The Harvard Health Letter (2012) identifies research correlations between conscientiousness and lower blood pressure, lower rates of diabetes and stroke, fewer joint problems, being less likely to engage in harmful behaviors, being more likely to stick to healthy behaviors, and more likely to avoid stressful situations. Conscientiousness also appears related to career choices, friendships, and stability of marriage. Lastly, a person

possessing both self-control and organizational skills, both related to conscientiousness, may withstand the effects of aging better and have stronger cognitive skills than one who does not possess these qualities.

Knowledge Check

6d. Which of the following Big Five traits is most consistently associated with better health, career success, and longevity?

- A) Openness
- B) Neuroticism
- C) Extraversion
- D) Conscientiousness

6e. According to longitudinal studies, neuroticism and openness tend to increase with age, while conscientiousness decreases.

- A) True
- B) False

6f. Match each Big Five trait with the best behavioral example:

- a. Agreeableness
 - b. Openness
 - c. Extraversion
-
- A) Tends to be sociable and enjoys group interactions
 - B) Enjoys diverse music, books, and art collections
 - C) Values harmony, cooperates well with others

6.4 Attachment in Young Adulthood

Hazan and Shaver (1987) described the attachment styles of adults, using the same three general categories proposed by Ainsworth's research on young children: secure, avoidant, and anxious/ambivalent. Hazan and Shaver developed three brief paragraphs describing the three adult attachment styles. Adults were then asked to think about romantic relationships they were in and select the paragraph that best described the way they felt, thought, and behaved in these relationships (See Table 6.2).

Table 6.2 Adult attachment styles according to Hazan and Shaver

Which of the following best describes you in your romantic relationships?

Secure	I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me.
Avoidant	I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being.
Anxious/Ambivalent	I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't stay with me. I want to merge completely with another person, and this sometimes scares people away.

Bartholomew (1990) challenged the categorical view of attachment in adults and suggested that adult attachment was best described as varying along two dimensions: attachment related-anxiety and attachment-related avoidance.

Attachment-related anxiety refers to the extent to which an adult worries about whether their partner really loves them. Those who score high on this dimension fear that their partner will reject or abandon them (Fraley, Hudson, Heffernan, & Segal, 2015).

Attachment-related avoidance refers to whether an adult can open up to others, and whether they trust and feel they can depend on others. Those who score high on attachment-related avoidance are uncomfortable with opening up and may fear that such dependency may limit their sense of autonomy (Fraley et al., 2015). According to Bartholomew (1990) this would yield four possible attachment styles in adults: secure, dismissing, preoccupied, and fearful-avoidant (see Figure 6.1)

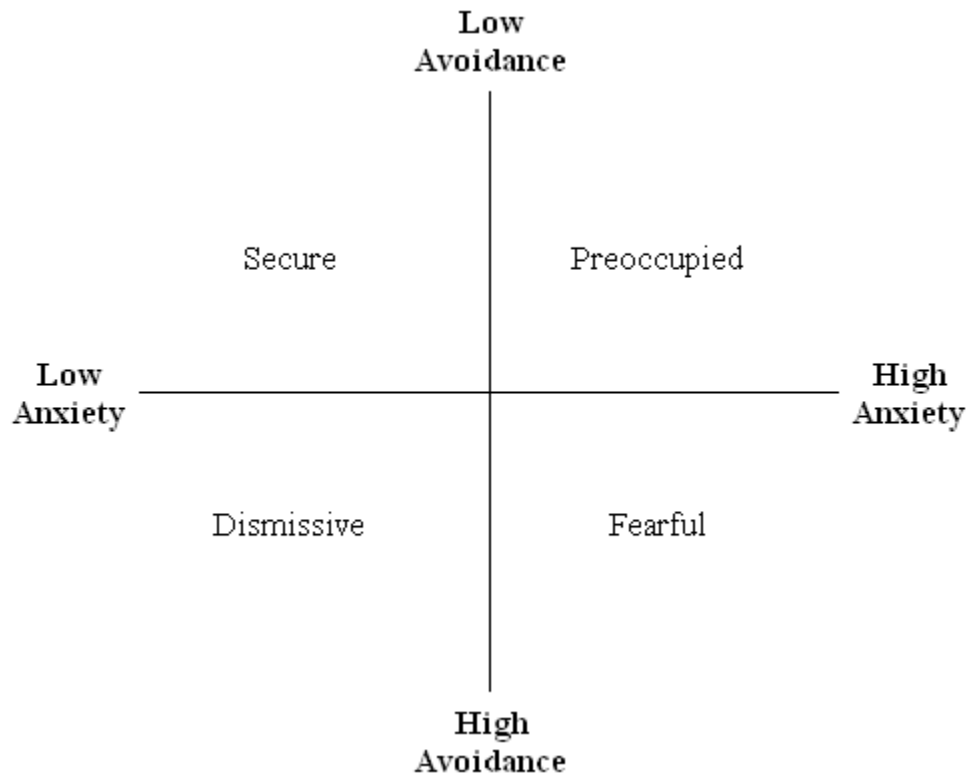


Figure 6.1 Attachment Theory Two Dimension Model

Securely attached adults score lower on both dimensions. They are comfortable trusting their partners and do not worry excessively about their partner's love for them. Adults with a dismissing style score low on attachment-related anxiety, but higher on attachment-related avoidance. Such adults dismiss the importance of relationships. They trust themselves, but do not trust others, thus do not share their dreams, goals, and fears with others. They do not depend on other people and feel uncomfortable when they have to do so.

Those with a preoccupied attachment are low in attachment-related avoidance, but high in attachment-related anxiety. Such adults are often prone to jealousy and worry that their partner does not love them as much as they need to be loved. Adults whose attachment style is fearful-avoidant score high on both attachment-related avoidance and attachment-related anxiety. These adults want close relationships, but do not feel comfortable getting emotionally close to others. They have trust issues with others and often do not trust their own social skills in maintaining relationships.

Research on attachment in adulthood has found that:

- Adults with insecure attachments report lower satisfaction in their relationships (Butzer & Campbell, 2008; Holland et al., 2012).
- Those high in attachment-related anxiety report more daily conflict in their relationships (Campbell et al., 2005).
- Those with avoidant attachment exhibit less support to their partners (Simpson et al., 2002).
- Young adults show greater attachment-related anxiety than do middle-aged or older adults (Chopik et al., 2013).
- Some studies report that young adults show more attachment-related avoidance (Schindler et al., 2010), while other studies find that middle-aged adults show higher avoidance than younger or older adults (Chopik et al., 2013).
- Young adults with more secure and positive relationships with their parents make the transition to adulthood more easily than those with more insecure attachments (Fraley, 2013).
- Young adults with secure attachments and authoritative parents were less likely to be depressed than those with authoritarian or permissive parents or who experienced an avoidant or ambivalent attachment (Ebrahimi et al., 2017).

Do people with certain attachment styles attract those with similar styles?

When people are asked what kinds of psychological or behavioral qualities they are seeking in a romantic partner, a large majority of people indicate that they are seeking someone who is kind, caring, trustworthy, and understanding, that is the kinds of attributes that characterize a "secure" caregiver (Chappell & Davis, 1998). However, we know that people do not always end up with others who meet their ideals. Are secure people more likely to end up with secure partners, and, vice versa, are insecure people more likely to end up with insecure partners? The majority of the research that has been conducted to date suggests that the answer is "yes." Frazier et al. (1996) studied the attachment patterns of more than 83 heterosexual couples and found that, if the man was relatively secure, the woman was also likely to be secure.

One important question is whether these findings exist because (a) secure people are more likely to be attracted to other secure people, (b) secure people are likely to create security in their partners over time, or (c) some combination of these possibilities. Existing empirical research strongly supports the first alternative. For example, when people have the opportunity to interact with individuals who vary in security in a speed-dating context, they express a greater interest in those who are higher in security than those who are more insecure (McClure et al., 2010). However, there is also some evidence that people's

attachment styles mutually shape one another in close relationships. For example, in a longitudinal study, Hudson et al. (2012) found that, if one person in a relationship experienced a change in security, his or her partner was likely to experience a change in the same direction.

Do early experiences as children shape adult attachment?

The majority of research on this issue is retrospective; that is, it relies on adults' reports of what they recall about their childhood experiences. This kind of work suggests that secure adults are more likely to describe their early childhood experiences with their parents as being supportive, loving, and kind (Hazan & Shaver, 1987). A number of longitudinal studies are emerging that demonstrate prospective associations between early attachment experiences and adult attachment styles and/or interpersonal functioning in adulthood. For example, Fraley et al. (2013) found in a sample of more than 700 individuals studied from infancy to adulthood that maternal sensitivity across development prospectively predicted security at age 18. Simpson et al. (2007) found that attachment security, assessed in infancy in the strange situation, predicted peer competence in grades one to three, which, in turn, predicted the quality of friendship relationships at age 16, which, in turn, predicted the expression of positive and negative emotions in their adult romantic relationships at ages 20 to 23.



Video 6.3: [The Attachment Theory: How Childhood Affects Life](#)

It is easy to come away from such findings with the mistaken assumption that early experiences "determine" later outcomes. To be clear, attachment theorists assume that the relationship between early experiences and subsequent outcomes is probabilistic, not deterministic. Having supportive and responsive experiences with caregivers early in life is assumed to set the stage for positive social development, but that does not mean that attachment patterns are set in stone. In short, even if an individual has far from optimal experiences in early life, attachment theory suggests that it is possible for that individual to develop well-functioning adult relationships through a number of corrective experiences, including relationships with siblings, other family members, teachers, and close friends. Security is best viewed as a culmination of a person's attachment history rather than a reflection of his or her early experiences alone. Those early experiences are considered important, not because they determine a person's fate, but because they provide the foundation for subsequent experiences.



Figure 6.2 Parents and Children Playing

Knowledge Check

6f. According to Bartholomew's model, which adult attachment style is characterized by high anxiety and high avoidance?

- A) Secure
- B) Dismissing
- C) Preoccupied
- D) Fearful-avoidant

6g. Adults with insecure attachments tend to report lower relationship satisfaction and provide less support to their partners.

- A) True
- B) False

6h. Which two dimensions are used in Bartholomew's model to define adult attachment styles?

- A) Trust and dependence
- B) Emotional stability and sociability
- C) Attachment-related anxiety and attachment-related avoidance
- D) Self-esteem and partner responsiveness

6.5 Relationships with Parents and Siblings

In early adulthood the parent-child relationship has to transition toward a relationship between two adults. This involves a reappraisal of the relationship by both parents and young adults. One of the biggest challenges for parents, especially during emerging adulthood, is coming to terms with the adult status of their children. Aquilino (2006) suggests that parents who are reluctant or unable to do so may hinder young adults' identity development. This problem becomes more pronounced when young adults still reside with their parents. Arnett (2004) reported that leaving home often helped promote psychological growth and independence in early adulthood.

Sibling relationships are one of the longest-lasting bonds in people's lives. Yet, there is little research on the nature of sibling relationships in adulthood (Aquilino, 2006). What is known is that the nature of these relationships change, as adults have a choice as to whether they will maintain a close bond and continue to be a part of the life of a sibling. Siblings must make the same reappraisal of each other as adults, as parents have to with their adult children. Research has shown a decline in the frequency of interactions between siblings during early adulthood, as presumably peers, romantic relationships, and children become more central to the lives of young adults. Aquilino (2006) suggests that the task in early adulthood may be to maintain enough of a bond so that there will be a foundation for this relationship in later life. Those who are successful can often move away from the "older-younger" sibling conflicts of childhood, toward a more equal relationship between two adults. Siblings that were close to each other in childhood are typically close in adulthood (Dunn, 1984, 2007), and in fact, it is unusual for siblings to develop closeness for the first time in adulthood. Overall, the majority of adult sibling relationships are close (Cicirelli, 2009).

6.5 Relationships and Intimacy

Erikson: Intimacy vs. Isolation

Erikson's (1950, 1968) sixth stage focuses on establishing intimate relationships or risking social isolation. Intimate relationships are more difficult if one is still struggling with identity. Achieving a sense of identity is a life-long process, as there are periods of identity crisis and stability. However, once identity is established intimate relationships can be pursued. These intimate relationships include acquaintanceships and friendships, but also the more important close relationships, which are the long-term romantic relationships that we develop with another person, for instance, in a marriage (Hendrick & Hendrick, 2000).

Factors influencing Attraction

Because most of us enter into a close relationship at some point, it is useful to know what psychologists have learned about the principles of liking and loving. A major interest of psychologists is the study of interpersonal attraction, or what makes people like, and even love, each other.

Similarity: One important factor in attraction is a perceived similarity in values and beliefs between the partners (Davis & Rusbult, 2001). Similarity is important for relationships because it is more convenient if both partners like the same activities and because similarity supports one's values. We can feel better about ourselves and our choice of activities if we see that our partner also enjoys doing the same things that we do. Having others like and believe in the same things we do makes us feel validated in our beliefs. This is referred to as consensual validation and is an important aspect of why we are attracted to others.

Self-Disclosure: Liking is also enhanced by self-disclosure, the tendency to communicate frequently, without fear of reprisal, and in an accepting and empathetic manner. Friends are friends because we can talk to them openly about our needs and goals and because they listen and respond to our needs (Reis & Aron, 2008). However, self-disclosure must be balanced. If we open up about our concerns that are important to us, we expect our partner to do the same in return. If the self-disclosure is not reciprocal, the relationship may not last.



Figure 6.3 Birds of a feather flock together

Proximity: Another important determinant of liking is proximity, or the extent to which people are physically near us. Research has found that we are more likely to develop friendships with people who are nearby, for instance, those who live in the same dorm that we do, and even with people who just happen to sit nearer to us in our classes (Back, Schmukle, & Egloff, 2008).

Proximity has its effect on liking through the principle of mere exposure, which is the tendency to prefer stimuli (including, but not limited to people) that we have seen more frequently. The effect of mere exposure is powerful and occurs in a wide variety of situations. Infants tend to smile at a photograph of someone they have seen before more than they smile at a photograph of someone they are seeing for the first time (Brooks-Gunn & Lewis, 1981), and people prefer side-to-side reversed images of their own faces over their normal (non-reversed) face, whereas their friends prefer their normal face over

the reversed one (Mita et al., 1977). This is expected on the basis of mere exposure, since people see their own faces primarily in mirrors, and thus are exposed to the reversed face more often.

Mere exposure may well have an evolutionary basis. We have an initial fear of the unknown, but as things become familiar, they seem more similar and safer, and thus produce more positive affect and seem less threatening and dangerous (Harmon-Jones & Allen, 2001; Freitas et al., 2005). When the stimuli are people, there may well be an added effect. Familiar people become more likely to be seen as part of the ingroup rather than the outgroup, and this may lead us to like them more. Zebrowitz and her colleagues found that we like people of our own race in part because they are perceived as similar to us (Zebrowitz et al., 2007).

Knowledge Check

6i. According to Erikson's theory, which of the following is a prerequisite for forming intimate relationships in early adulthood?

- A) Establishing a clear sense of identity
- B) Parental approval
- C) Financial independence
- D) Having multiple romantic experiences

6j. According to research, siblings who were not close in childhood often become much closer for the first time during early adulthood.

- A) True
- B) False

Key Takeaways

- Temperament shows moderate stability from infancy into adulthood, especially when supported by consistent environments, though change is possible through experience and epigenetic influences.
- Personality traits, as outlined in the Five-Factor Model (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism), tend to become more stable with age, with Conscientiousness often increasing and Neuroticism decreasing across early adulthood.
- Attachment styles in adulthood—secure, avoidant, anxious/ambivalent (or, in Bartholomew's model, secure, dismissing, preoccupied, and fearful)—are strongly associated with childhood experiences and have meaningful consequences for romantic satisfaction and conflict.

- Secure attachment is linked to healthier relationships, greater life satisfaction, and reduced likelihood of depression, while insecure attachments may hinder intimacy and increase emotional conflict.
 - Relationships with parents and siblings require renegotiation in early adulthood, with successful adult bonds being more likely when early attachments were secure.
 - Erikson's stage of intimacy vs. isolation highlights the importance of forming close, committed relationships in early adulthood as a foundation for psychological well-being.
 - Attraction is influenced by similarity, proximity, self-disclosure, and mere exposure, all of which increase the likelihood of developing and sustaining close relationships.
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Sources

This chapter has been adapted from Chapter 7 “Emerging and Early Adulthood”(7.9 & 7.10) in Martha Lally and Suzanne Valentine-French. Development A Psychological Perspective 4e. <https://commons.libretexts.org/book/socialsci-183955>. licensed CC BY-NC-SA 4.0.

- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

Resources

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Figure Attributions

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Video Attributions

Video 6.1. BRAINY DOSE. (2021, January 13). *The Four Temperaments - How To Assess People Quickly*. [Video]. Youtube. <https://www.youtube.com/watch?v=yBasnNclE38>

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Long Descriptions

Figure 6.1 (c) Liftarn. [Attachment Theory Two Dimension Model](#). CC0 Public Domain. Alt Text: Quadrant chart showing attachment styles. Top left: Secure (low anxiety, low avoidance). Top right: Preoccupied (high anxiety, low avoidance). Bottom left: Dismissive (low anxiety, high avoidance). Bottom right: Fearful (high anxiety, high avoidance).

Figure 6.2 (c) [family playing Free Stock Image](#). CC0 1.0 Universal. Alt Text: Family sitting on a living room floor, smiling and waving at a tablet. Includes a woman, man, and three children. A cozy atmosphere, warm and joyful.

Figure 6.3 (c) Alan Murray-Rust. [Birds of a feather \(1\) - geograph.org.uk](#). CC BY-SA 2.0. Alt Text: A line of seagulls perched on a wooden beam above calm water. The serene scene conveys a sense of tranquility and balance. Reflections mirror the birds.

Chapter 7: Relationships and Intimacy in Early Adulthood

7.1 Learning Objectives

- Explain how friendships evolve during young adulthood and identify gender differences in friendship styles.
- Describe Sternberg's Triangular Theory of Love and distinguish among the various types of love.
- Analyze how emerging and established adulthood lifestyles have changed, particularly in relation to singlehood, hooking up, and cohabitation.
- Evaluate the emotional and psychological consequences of casual sexual relationships, including hookups and friends-with-benefits arrangements.
- Examine gender differences in attitudes toward and experiences of uncommitted sex.
- Understand the role and impact of online dating in shaping modern romantic relationships.
- Compare cultural and economic explanations for the rise of cohabitation and delayed marriage.
- Discuss changing patterns in marriage and same-sex unions across different cultures and historical periods.
- Identify how the transition to parenthood is changing in timing, context, and expectations.
- Explain how parenting is influenced by parent, child, and contextual sociocultural factors.

7.2 Introduction

Young adulthood is a critical period marked by significant personal growth, exploration, and changes in relationships and intimacy. During this stage, individuals navigate evolving friendships, explore romantic partnerships, and increasingly engage with various lifestyles including singlehood, cohabitation, and marriage. The emergence of digital platforms for dating, shifting cultural norms regarding sexual relationships, and evolving attitudes toward parenthood reflect broader societal transformations. Understanding these dynamics provides valuable insight into how relationships and intimacy are formed, maintained, and experienced by young adults in contemporary society.

7.3 Friendships

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 discussion 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 the friendships will lead to a romantic involvement. Consequently, friendships may diminish once a person has a partner or single friends may be replaced with couple friends.

7.4 Love

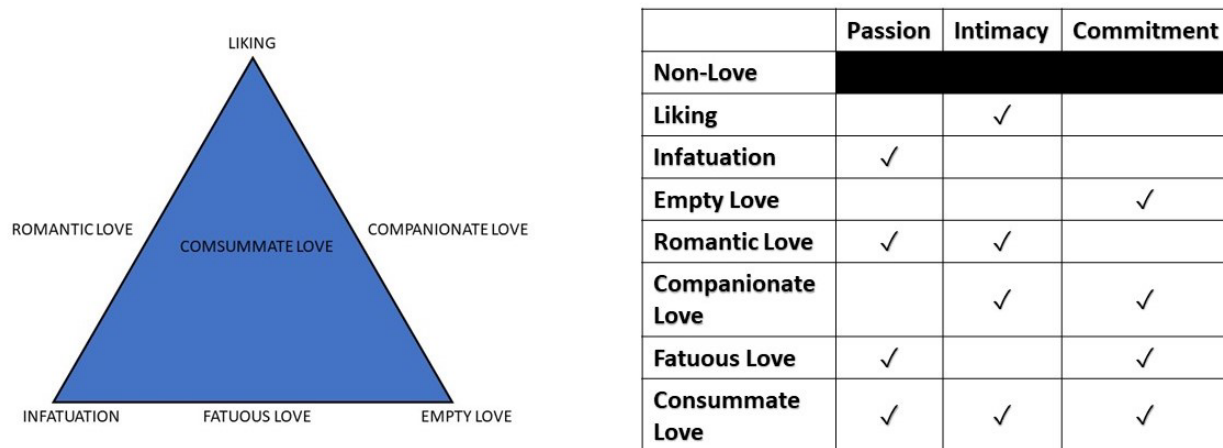


Figure 7.1 Triangular Theory of Love (Sternberg, 1988)

Sternberg (1988) suggests that there are three main components of love: Passion, intimacy, and commitment (see Figure 7.1). 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, psychological closeness and personal thoughts 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 seeking 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 physical attraction and an image of what one "thinks" the other is all about.

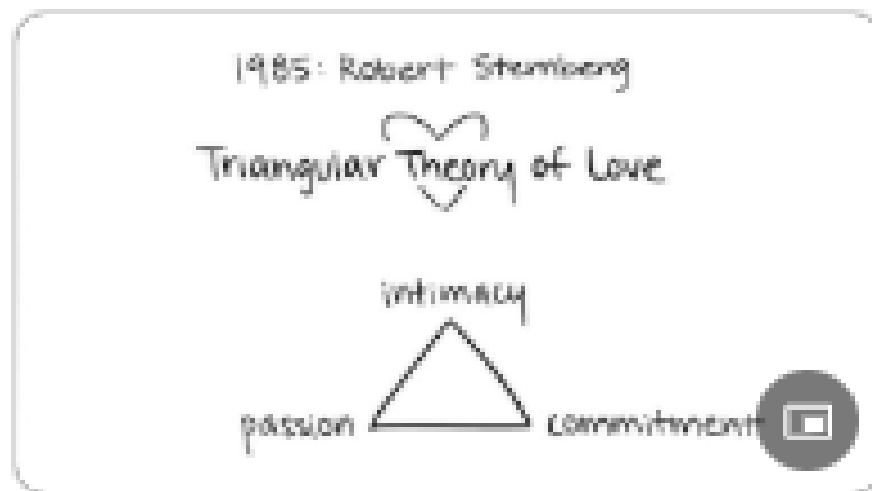
Fatuous Love: However, some people who have a strong physical attraction push for commitment early in the relationship. Passion and commitment are aspects of fatuous love. There is no intimacy and the commitment is premature. Partners rarely talk seriously or share their ideas. They focus on their intense 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, including financial needs, childrearing assistance, or attaining/maintaining 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. However, they 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. 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. However, their physical attraction may have never been strong or may have just died out over time. Nevertheless, partners are good friends and committed to one another.

Consummate Love: Intimacy, passion, and commitment are present in consummate love. This is often perceived by western cultures as "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.



Video 7.1: [Sternberg's Theory of Love: Intimacy, Commitment, Passion](#)

Knowledge Check

7a. According to Sternberg's Triangular Theory of Love, which type of love is characterized by passion and commitment, but lacks intimacy?

- A) Romantic Love
- B) Companionate Love
- C) Fatuous Love
- D) Consummate Love

7b. Men's friendships in young adulthood are typically centered around emotional sharing and discussing problems in depth.

- A) True
- B) False

7.5 Emerging and Established Adult Lifestyles

Singlehood

Being single is the most common lifestyle for people in their early twenties, and there has been an increase in the number of adults staying single. In 1960, only about 1 in 10 adults age 25 or older had never been married, in 2012 that had risen to 1 in 5 (Wang & Parker, 2014). While just over half (53%) of unmarried adults say they would eventually like to get married, 32% are not sure, and 13% do not want to get married. It is projected that by the time current young adults reach their mid-40s and 50s, almost 25% of them may not have married. The U.S. is not the only country to see a rise in the number of single adults.

Table 7.1 lists some of the reasons young adults give for staying single. In addition, adults are marrying later in life, cohabitating, and raising children outside of marriage in greater numbers than in previous generations. Young adults also have other priorities, such as education, and establishing their careers. This may be reflected by changes in attitudes about the importance of marriage. In a recent Pew Research survey of Americans, respondents were asked to indicate which of the following statements came closer to their own views:

- "Society is better off if people make marriage and having children a priority."
- "Society is just as well off if people have priorities other than marriage and children."

Slightly more adults endorsed the second statement (50%) than those who chose the first (46%), with the remainder either selecting neither, both equally, or not responding (Wang & Parker, 2014). Young adults age 18-29 were more likely to endorse this view than adults age 30 to 49; 67 percent and 53 percent respectively. In contrast, those age 50 or older were more likely to endorse the first statement (53 percent).

Table 7.1 Reasons for Staying Single

Have not met the right person	30%
Do not have financial stability	27%
Not ready to settle down	22%
Too young to marry	22%

Hooking up

United States demographic changes have significantly affected the romantic relationships among emerging and early adults. As previously described, the age for puberty has declined, while the times for one's first marriage and first child have been pushed to older ages. This results in a "historically unprecedented time gap where young adults are physiologically able to reproduce, but not psychologically or socially ready to settle down and begin a family and child rearing," (Garcia et al., 2012, p. 172). Consequently, according to Bogle (2007, 2008) traditional forms of dating have shifted to more casual hookups that involve uncommitted sexual encounters.

Even though most research on hooking up involves college students, 70% of sexually active 12–21-year-olds reported having had uncommitted sex during the past year (Grello et al., 2003). Additionally, Manning et al. (2006) found that 61% of sexually active seventh, ninth, and eleventh graders reported being involved in a sexual encounter outside of a dating relationship.

Friends with Benefits: Hookups are different from those relationships that involve continued mutual exchange. These relationships are often referred to as Friends with Benefits (FWB) or "Booty Calls." These relationships involve friends having casual sex without commitment. Hookups do not include a friendship relationship. Bisson and Levine (2009) found that 60% of 125 undergraduates reported a FWB relationship. The concern with FWB is that one partner may feel more romantically invested than the other (Garcia et al., 2012).

Gender Differences in Hooking Up: When asked about their motivation for hooking up, both males and females indicated physical gratification, emotional gratification, and a desire to initiate a romantic relationship as reasons (Garcia & Reiber, 2008). Although males and females are more similar than different in their sexual behaviors, a consistent finding among the research is that males demonstrate a greater permissiveness to casual sex (Oliver & Hyde, 1993). In another study involving 16,288 individuals across 52 nations, males reported a greater desire of sexual partner variety than females, regardless of relationship status or sexual orientation (Schmitt et al., 2003). This difference can be attributed to gender role expectations for both males and females regarding sexual promiscuity. Additionally, the risks of sexual behavior are higher for females and include unplanned pregnancy, increased sexually transmitted diseases, and susceptibility to sexual violence (Garcia et al., 2012). Although hooking up relationships have become normalized for emerging adults, some research indicates that the majority of both sexes would prefer a more traditional romantic relationship (Garcia et al., 2012).

Additionally, Owen and Fincham (2011) surveyed 500 college students with experience with hookups, and 65% of women and 45% of men reported that they hoped their hookup encounter would turn into a committed relationship. Further, 51% of women and 42% of men reported that they tried to discuss the possibility of starting a relationship with their hookup partner. Casual sex has also been reported to be the norm among gay men, but they too indicate a desire for romantic and companionate relationships (Clarke & Nichols, 1972).

Emotional Consequences of Hooking Up: Concerns regarding hooking up behavior certainly are evident in the research literature. One significant finding is the high comorbidity of hooking up and substance use. Those engaging in non-monogamous sex are more likely to have used marijuana, cocaine, and alcohol, and the overall risks of sexual activity are drastically increased with the addition of alcohol and drugs (Garcia et al., 2012). Regret has also been expressed, and those who had the most regret after hooking up also had more symptoms of depression (Welsh et al., 2006). Hookups were also found to lower self-esteem, increase guilt, and foster feelings of using someone or feeling used. Females displayed more negative reactions than males, and this may be due to females identifying more emotional involvement in sexual encounters than males.

Hooking up can best be explained by a biological, psychological, and social perspective. Research indicates that emerging adults feel it is necessary to engage in hooking up behavior as part of the sexual script depicted in the culture and media. Additionally, they desire sexual gratification. However, they also want a more committed romantic relationship and may feel regret with uncommitted sex.

Online Dating

The ways people are finding love has changed with the advent of the Internet. Nearly 50 million Americans have tried an online dating website or mobile app (Bryant & Sheldon, 2017). Online dating has also increased dramatically among those age 18 to 24. Today, one in five emerging adults report using a mobile dating app, while in 2013 only 5% did, and 27% report having used online dating, almost triple the rate in 2013 (Smith & Anderson, 2016).

According to a recent survey of couples who met online versus offline (Brown, 2019), those who met online tended to have slightly different levels of education, and political views from their partners, but, the biggest difference was that they were much more likely to come from different racial and ethnic backgrounds (see Figure 7.2). This is not surprising as the average age of the couples who met online was 36, while the average age of couples who met offline was 51. Young adults are more likely to have a relationship with people who are different from them, regardless of how they met.

As Finkel et al. (2007) found, social networking sites and the Internet perform three important tasks. Specifically, sites provide individuals with access to a database of other individuals who are interested in meeting someone. Dating sites generally reduce issues of proximity, as individuals do not have to be close in proximity to meet. Also, they provide a medium in which individuals can communicate with others. Finally, some Internet dating websites advertise special matching strategies, based on factors such as personality, hobbies, and interests, to identify the "perfect match" for people looking for love online. Social networking sites have provided opportunities for meeting others you would not have normally met. However, social networking sites can also be forums for unsuspecting people to be duped, as the person may not be who he or she says.

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. 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. Someone who has been abused may feel safer in virtual relationships. 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.

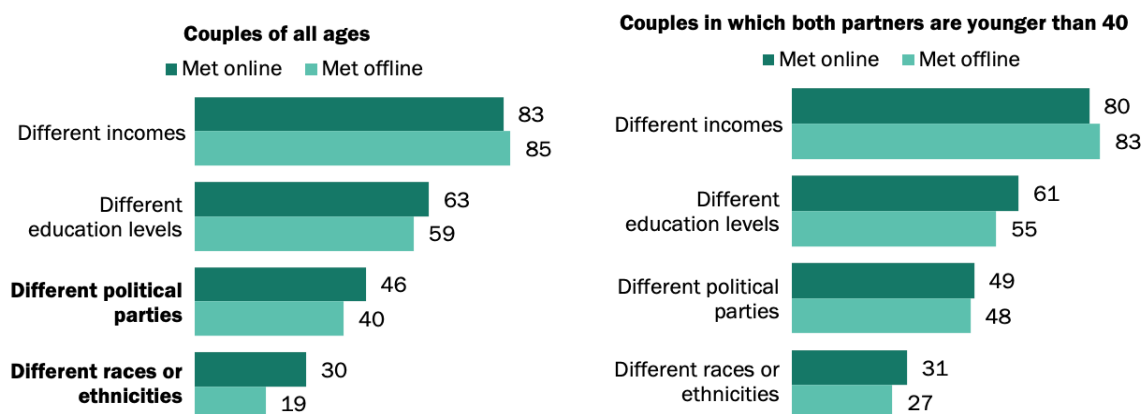
To evaluate what individuals are looking for online, Menkin et al. (2015) reviewed data from an eHarmony.com relationship questionnaire completed by a cross-sectional representation of 5,434 new users. Their results indicated that users consistently valued communication and characteristics, such as personality and kindness over sexual attraction. Females valued communication over sexual attraction, even more when compared to males, and older users rated sexual attraction as less important than younger users. Alterovitz and Mendelsohn (2011) analyzed 600 Internet personal ads across the lifespan and found that men sought physical attractiveness and offered status related information more than women, while women were more selective than men and sought status more than men. These findings were consistent with previous research on gender differences regarding the importance of physical/sexual attraction.

Catfishing and other forms of scamming is an increasing concern for those who use dating and social media sites and apps. Catfishing refers to "a deceptive activity involving the creation of a fake online profile for deceptive purposes" (Smith et al., 2017, p. 33). Notre Dame University linebacker Manti Ta'o fell victim to a catfishing scam. The young woman

"Kekua" who he had struck up an online relationship with was a hoax, and he was not the first person to have been scammed by this fictitious woman. A number of US states have passed legislation to address online impersonation, from stealing the information and creating a fake account of a real person to the creation of a fictitious persona with the intent to defraud or harm others (National Conference of State Legislatures, 2017).

Couples who meet online are more likely to be of different races or ethnicities and political parties, but these differences disappear among young couples

% of U.S. adults who have ever been in a relationship and met their current or most recent partner online/offline saying they and their partner have ...



Note: **Bold** labels indicate that the difference between those who met online and offline is significant for those items.

Source: How Couples Meet and Stay Together 2017 survey (fresh sample), conducted by Stanford University July 13-Aug. 1, 2017.

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Figure 7.2 Couples meeting their partners online/offline

Cohabitation

In American society, as well as in a number of other cultures, cohabitation has become increasingly commonplace (Gurrentz, 2018). For many emerging adults, cohabitation has become more commonplace than marriage, while marriage is still a more common living arrangement for those aged 25–34, cohabitation has increased, while marriage has declined.

Three explanations have been given for the rise of cohabitation in Western cultures. The first notes that the increase in individualism and secularism, and the resulting decline in religious observance, has led to greater acceptance and adoption of cohabitation (Lesthaeghe & Surkyn, 1988). Moreover, the more people view cohabitating couples, the more normal this relationship becomes, and the more couples who will then cohabit. Thus, cohabitation is both a cause and the effect of greater cohabitation.

A second explanation focuses on the economic changes. The growth of industry and the modernization of many cultures have improved women's social status, leading to greater gender equality and sexual freedom, with marriage no longer being the only long-term relationship option (Bumpass, 1990). A final explanation suggests that the change in employment requirements, with many jobs now requiring more advanced education, has led to competition between marriage and pursuing post-secondary education (Yu & Xie, 2015). This might account for the increase in the age of first marriage in many nations. Taken together, the greater acceptance of premarital sex, and the economic and educational changes would lead to a transition in relationships. Overall, cohabitation may become a step in the courtship process or may, for some, replace marriage altogether.

Similar increases in cohabitation have also occurred in other industrialized countries. For example, rates are high in Great Britain, Australia, Sweden, Denmark, and Finland. In fact, more children in Sweden are born to cohabiting couples than to married couples. The lowest rates of cohabitation in industrialized countries are in Ireland, Italy, and Japan (Benokraitis, 2005).

Knowledge Check

7c. Which of the following best reflects a societal trend contributing to increased singlehood among young adults?

- A) Increased availability of affordable housing for single individuals.
- B) A cultural shift emphasizing personal development and career before marriage.
- C) Decreasing number of educational opportunities for young adults.
- D) Rising rates of early marriage in industrialized nations.

7d. Males are more likely than females to report regret and emotional distress after engaging in a hookup.

- A) True
- B) False

7e. Which of the following is one of the major reasons for the rise in cohabitation according to research?

- A) Increase in divorce rates.
- B) Increase in religious conservatism.
- C) Government support for cohabiting couples.
- D) Economic shifts requiring advanced education.

Marriage

Cohen (2013) reviewed data assessing most of the world's countries and found that marriage has declined universally during the last several decades. This decline has occurred in both poor and rich countries, however, the countries with the biggest drops in marriage were mostly rich: France, Italy, Germany, Japan and the U.S. Cohen states that the decline is not only due to individuals delaying marriage, but also because of high rates of nonmarital cohabitation. Delayed or reduced marriage is associated with higher income and lower fertility rates that are reflected worldwide.

In 1960, 72% of adults age 18 or older were married, in 2010 this had dropped to barely half (Wang & Taylor, 2011). At the same time, the age of first marriage has been increasing for both men and women. In 1960, the average age for first marriage was 20 for women and 23 for men. By 2010 this had increased to 26.5 for women and nearly 29 for men. Many of the explanations for increases in singlehood and cohabitation previously given can also account for the drop and delay in marriage.

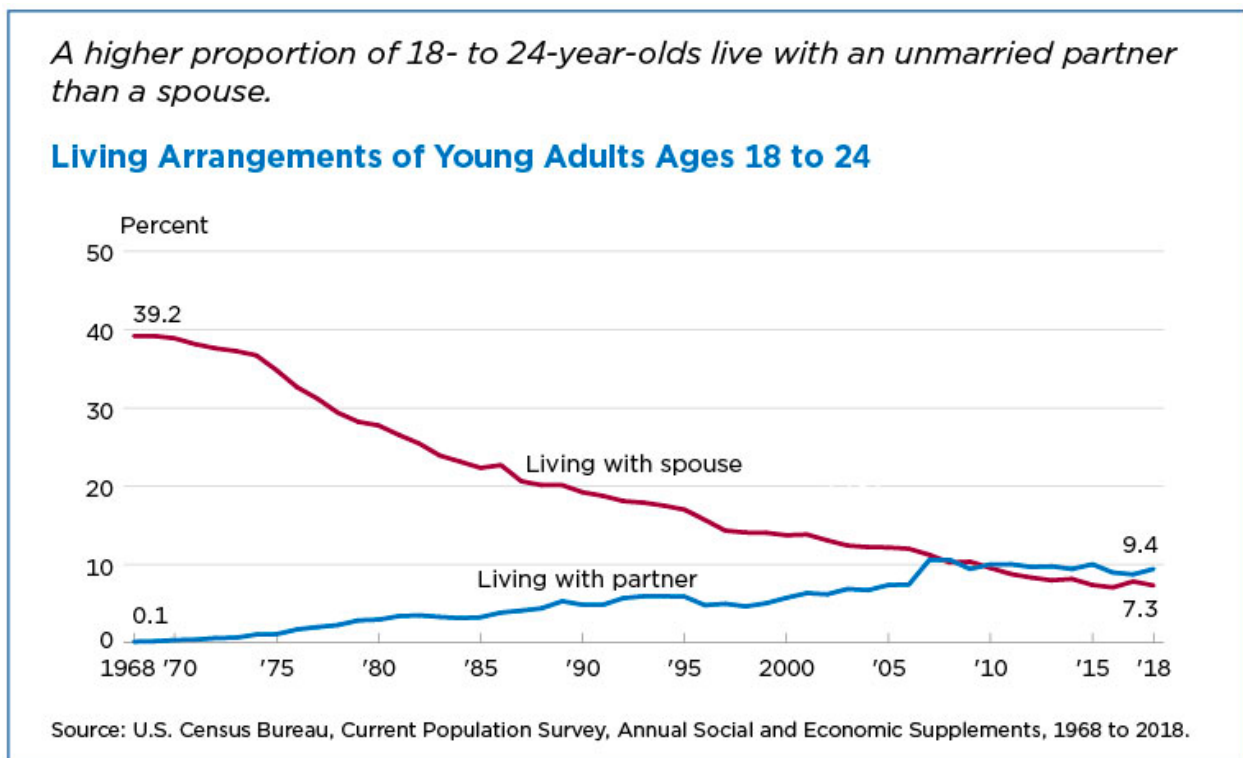


Figure 7.3 Living arrangements of young adults ages 18-24

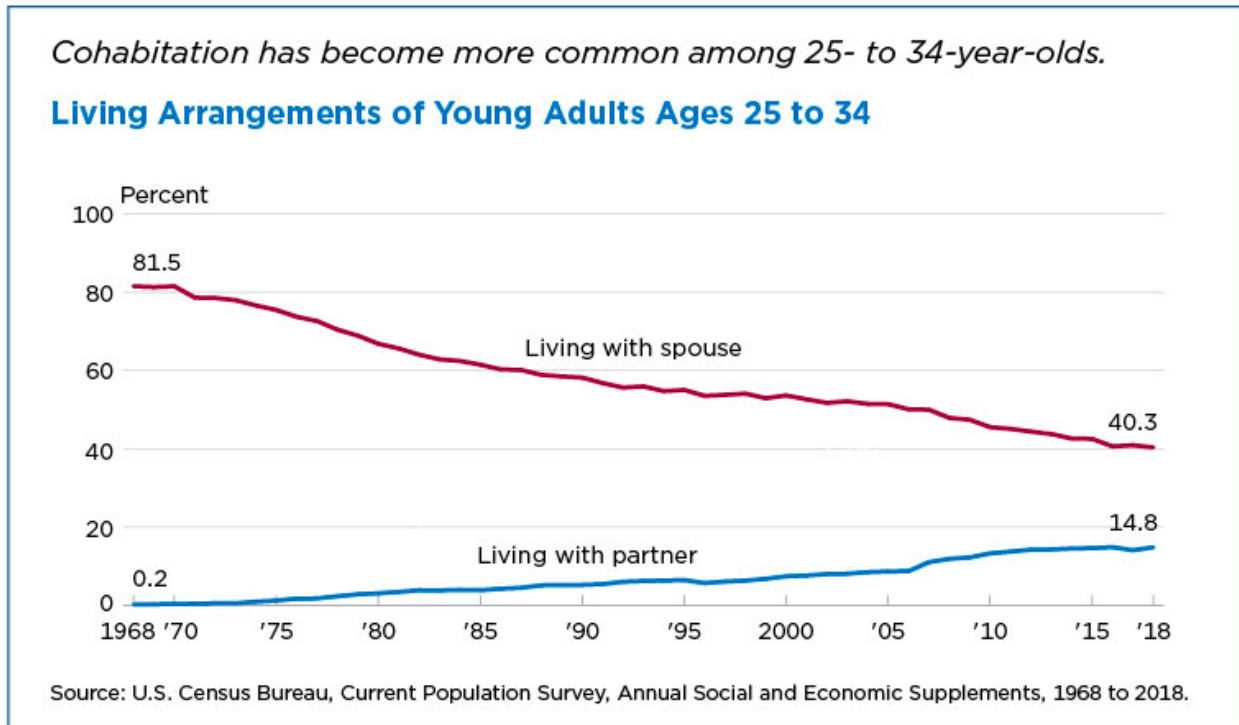


Figure 7.4 Living arrangements of young adults ages 25-34

In June 26, 2015, the United States Supreme Court ruled that the Constitution guarantees same-sex marriage. The decision indicated that limiting marriage to only heterosexual couples violated the 14th amendment's guarantee of equal protection under the law. This ruling occurred 11 years after same-sex marriage was first made legal in Massachusetts, and at the time of the high court decision, 36 states and the District of Columbia had legalized same sex marriage. Worldwide, 29 countries currently have national laws allowing gays and lesbians to marry (Pew Research Center, 2019).

Many cultures have both explicit and unstated rules that specify who is an appropriate mate. Consequently, mate selection is not completely left to the individual. Rules of endogamy indicate the groups we should marry within and those we should not marry in (Witt, 2009). For example, many cultures specify that people marry within their own race, social class, age group, or religion. Endogamy reinforces the cohesiveness of the group. Additionally, these rules encourage homogamy, or marriage between people who share social characteristics. The majority of marriages in the U.S. are homogamous with respect to race, social class, age and to a lesser extent, religion. Homogamy is also seen in couples with similar personalities and interests.

Knowledge Check

7f. Which of the following factors has contributed most significantly to the global decline in marriage rates, particularly in wealthier countries?

- A) Lower educational attainment and early childbearing.
- B) Cultural shifts discouraging long-term relationships.
- C) High rates of nonmarital cohabitation and delayed marriage.
- D) Legal restrictions on marriage in developing nations.

7g. The average age of first marriage in the United States has decreased since 1960 for both men and women.

- A) True
- B) False

7.6 Parenthood

Parenthood is undergoing changes in the United States and elsewhere in the world. Children are less likely to be living with both parents, and women in the United States have fewer children than they did previously. The average fertility rate of women in the United States was about seven children in the early 1900s and has remained relatively stable at 2.1 since the 1970s (Hamilton et al., 2011; Martinez et al., 2012). Not only are parents having fewer children, the context of parenthood has also changed. Parenting outside of marriage has increased dramatically among most socioeconomic, racial, and ethnic groups, although college-educated women are substantially more likely to be married at the birth of a child than are mothers with less education (Dye, 2010).

People are having children at older ages, too. This is not surprising given that many of the age markers for adulthood have been delayed, including marriage, completing education, establishing oneself at work, and gaining financial independence. In 2014 the average age for American first-time mothers was 26.3 years (CDC, 2015a). The birth rate for women in their early twenties has declined in recent years, while the birth rate for women in their late thirties has risen. In 2011, 40% of births were to women ages 30 and older. For Canadian women, birth rates are even higher for women in their late 30s than in their early 20s. In 2011, 52% of births were to women ages 30 and older, and the average first-time Canadian mother was 28.5 years old (Cohn, 2013). Improved birth control methods have also enabled women to postpone motherhood. 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).



Figure 7.5 Parenthood

Influences on Parenting

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 parenting include: Parent characteristics, child characteristics, and contextual and sociocultural characteristics. (Belsky, 1984; Demick, 1999).

Parent Characteristics

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, developmental history, 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.

Parents' developmental histories, or their experiences as children, also affect their parenting strategies. Parents may learn parenting practices from their own parents. Fathers whose own parents provided monitoring, consistent and age-appropriate discipline, and warmth were more likely to provide this constructive parenting to their own children (Kerr et al., 2009). Patterns of negative parenting and ineffective discipline also appear from one generation to the next. However, parents who are dissatisfied with their own parents' approach may be more likely to change their parenting methods with their own children.

Child Characteristics

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, as previously discussed in Chapter 3, 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 emotional words with their daughters (Crowley et al., 2001).

Contextual Factors and Sociocultural Characteristics

The parent-child relationship does not occur in isolation. Sociocultural characteristics, including economic hardship, religion, politics, neighborhoods, schools, and social support, 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). Parents vary in how much they emphasize goals for independence and individual achievements, maintaining harmonious relationships, and being embedded in a strong network of social relationships. Other important contextual characteristics, such as the neighborhood, school, and social networks, also affect parenting, even though these settings do not always include both the child and the parent (Bronfenbrenner, 1989). Culture is also a contributing contextual factor, as discussed previously in chapter four. 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 in a threatening environment (Gonzales et al., 2011).

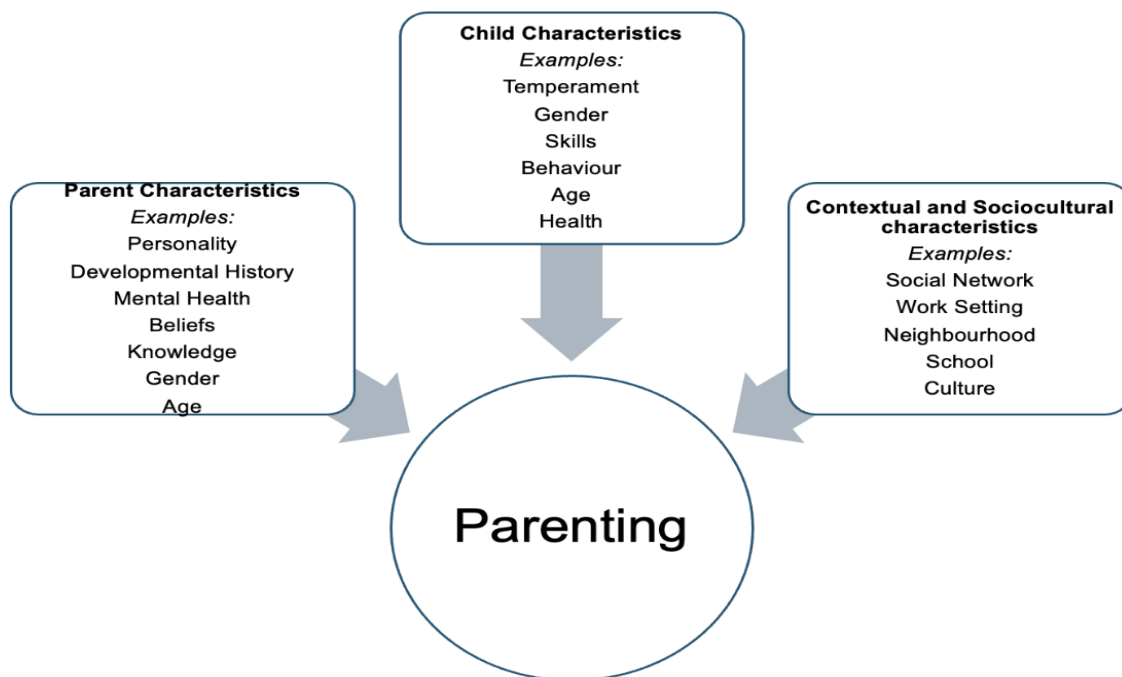


Figure 7.6 Influences on parenting



Video 7.2: [5 Parenting Styles and Their Effects on Life](#)

Knowledge Check

7h. Parents who are agreeable, less anxious, and less negative tend to support their children's autonomy more than anxious, less agreeable parents.

- A) True
- B) False

7i. _____ refers to marriage between people who share social characteristics such as age, race, and religion.

7j. What is one reason parents might change the parenting practices they learned from their own parents?

- A) They believe their children require fewer rules.
- B) They are satisfied with their own upbringing.
- C) They want to replicate traditional discipline methods.
- D) They are dissatisfied with how they were parented.

Key Takeaways

- Friendships in early adulthood remain important, particularly as individuals postpone long-term romantic commitments. Women and men tend to differ in the emotional depth and focus of their friendships.

- Sternberg's Triangular Theory of Love outlines love as composed of passion, intimacy, and commitment. Different combinations of these components yield distinct types of love, from infatuation to consummate love.
 - Emerging adulthood is marked by experimentation in relationships and lifestyles, including increased rates of singlehood, cohabitation, and casual sexual encounters.
 - Hooking up and friends-with-benefits relationships are common among emerging adults, though they are often accompanied by emotional ambiguity, unmet expectations, and gendered experiences of regret or dissatisfaction.
 - Online dating has become a widespread method for initiating relationships and is associated with more cross-racial and cross-cultural pairings, though it introduces unique challenges related to deception and reduced contextual cues.
 - Cohabitation has risen significantly in Western countries and is shaped by changes in individualism, gender roles, economic pressures, and shifting cultural norms.
 - Marriage rates are declining, and people are marrying later in life. This is influenced by educational and career pursuits, evolving cultural values, and broader acceptance of alternative relationship structures, including same-sex marriage.
 - Parenthood is being delayed, and family structures are diversifying. Fertility rates have declined, and nonmarital parenting has become more common.
 - Parenting is influenced by multiple factors, including the personality and upbringing of the parent, the temperament and gender of the child, and broader contextual influences such as culture, socioeconomic status, and community environment.
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Sources

This chapter has been adapted from Module 8 “Early Adulthood” in “Lifespan Development”. 2020. Lumen Learning. licensed under a Creative Commons Attribution 4.0 International License. <https://uen.pressbooks.pub/7weekhdfs1500/chapter/the-lifespan-perspective-2>.

- Did not include the graphics representation of couples from Pew Research Center.

- Removed the cohabitation in China heading.
- Removed the different cultures and marriage etc.
- Removed the Intimate partner abuse.
- Made some changes to 'learning objectives'.
- Added the chapter 'introduction' section.
- Figures have also been changed from the original.
- Added 'key takeaways'.
- Videos and original quiz questions have also been added to the text.

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Figure Attributions

Figure 7.1 (c) [Triangular Theory of Love \(Sternberg, 1988\)](#). CC BY-SA 4.0

Figure 7.2 (c) Brown (2019). [Couples meeting their partners online/offline](#). Pew Research Center. Used under fair use.

Figure 7.3 U.S. Census Bureau. [Living arrangement among young adults ages 18-24](#). Public Domain. .

Figure 7.4 U.S. Census Bureau. [Living arrangements among young adults ages 25-34](#). Public Domain.

Figure 7.5 (c) Mikhail Kapychka. [Parents](#). CC BY-SA 4.0

Figure 7.6 (c) Marissa L. Diener. University of Utah. Influences on parenting

Video Attributions

Video 7.1. Psych2Go. (2017, October 29). *Sternberg's Theory of Love: Intimacy, Commitment, Passion*. [Video]. Youtube. <https://www.youtube.com/watch?v=-Cxxq7ZmnFLU>

Video 7.2. Sprouts. (2021, April 30). *5 Parenting Styles and Their Effects on Life*. [Video]. Youtube. <https://www.youtube.com/watch?v=fyO8pvpnTdE>

Long Descriptions

Figure 7.1 (c) [Triangular Theory of Love \(Sternberg, 1988\)](#). CC BY-SA 4.0. Alt Text: A blue triangle labeled with types of love at each corner: Liking, Romantic, Companionate, Infatuation, Fatuous, Empty, Consummate. A chart shows love types with checks for Passion, Intimacy, and Commitment.

Figure 7.2 (c) Brown (2019). [Couples meeting their partners online/offline](#). Alt Text: The image is a comparative bar chart displaying survey data on relationship characteristics between couples who met online versus offline. The chart is divided into two sections: "Couples of all ages" and "Couples in which both partners are younger than 40." Each section compares the percentage of couples with different incomes, education levels, political parties, and races or ethnicities. Darker bars represent couples who met online, and lighter bars represent those who met offline.

Figure 7.3 [Living arrangement among young adults ages 18-24](#). Alt Text: The image is a line graph illustrating the living arrangements of young adults aged 18 to 24 from 1968 to 2018. The vertical axis represents the percentage, ranging from 0 to 50 percent, and the horizontal axis represents the years, marked at intervals from 1968 to 2018. The graph contains two lines: a red line labeled "Living with spouse," which starts at 39.2 percent in 1968 and declines steadily, reaching 7.3 percent in 2018. A blue line labeled "Living with partner" begins at 0.1 percent, slowly rising and surpassing the "living with spouse" line around the year 2005, continuing to increase slightly to 9.4 percent in 2018. At the top of the graph is a statement highlighting that a higher proportion of young adults live with an unmarried partner than a spouse. At the bottom, the source is credited to the U.S. Census Bureau.

Figure 7.4 [Living arrangement among young adults ages 25-34](#). Alt Text: The image is a line graph depicting the living arrangements of young adults aged 25 to 34 from 1968 to 2018. The y-axis represents the percentage of individuals, scaled from 0 to 100 percent. The x-axis shows the years in intervals from 1968 to 2018. Two lines are displayed: a red line representing individuals "Living with spouse," which starts at 81.5% in 1968 and decreases to 40.3% by 2018. A blue line represents individuals "Living with partner" without marriage, starting at 0.2% in 1968 and increasing to 14.8% in 2018. The graph highlights the trend of increasing cohabitation among young adults over the five decades.

Figure 7.5 (c) Mikhail Kapychka. [Parents](#). CC BY-SA 4.0. Alt Text: A baby being kissed on the cheeks by two adults in an outdoor setting.

Figure 7.6 (c) Marissa L. Diener. University of Utah. Influences on parenting. Alt Text: The image is a diagram consisting of three rectangular boxes at the top and a large circle at the bottom. Each box contains a set of characteristics that influence the circle labeled "Parenting" at the center. Three blue arrows point downwards from each box to the circle, indicating the influences converging on parenting. The left box is titled "Parent Characteristics" and lists examples like personality, developmental history, mental health, beliefs, knowledge, gender, and age. The central box is titled "Child Characteristics" and includes examples such as temperament, gender, skills, behavior, age, and health. The right box is titled "Contextual and Sociocultural characteristics" with examples like social network, work setting, neighborhood, school, and culture. Each box and the circle are outlined with a simple blue line.

Unit 3: Middle Adulthood

This unit contains the following chapters:

8. Middle Adulthood
9. Cognition, Social, and Emotional Development Among Middle Adulthood
10. Relationships in Middle Adulthood

Chapter 8: Middle Adulthood

8.1 Learning Objectives

- Define middle adulthood and its age range.
- Identify key developmental tasks in midlife.
- Describe typical physical changes during this stage.
- Explain the importance of exercise in midlife health.
- Distinguish between normal aging and age-related diseases.
- Describe menopause and andropause and their effects.
- Understand cultural and emotional responses to the climate.
- Discuss sexuality and intimacy in middle adulthood.
- Outline key nutritional needs and risks at this stage.
- Recognize the role of lifestyle and social support in healthy aging.

8.2 Introduction

In 1225, St. Marher observed that “time and tide wait for no man.” It is perhaps during middle adulthood that this observation begins its journey from the subconscious to its realization in the world of the everyday—too old to dream, but too young to die (we hope). However, this stage of life is truly as multi-faceted as any other. It is a period of negotiation, and renegotiation, across the three main facets of human existence: physical, psychological, and social.

Firstly, we will learn about the maintenance, protection, and promotion of physical health in middle adulthood. Our body may be the basis of our identity, of how we see ourselves; and one of the sources of our sense of self and self-worth. Who do you see when, quite literally, you look in the mirror? Secondly, there is the psychological accompaniment to that change. Does an individual resent, accept, or confront issues that arise at this time of life? Positive attitudes and mindfulness impact how change is perceived. Thirdly, social engagement and social support are critically important at this stage of life. Social roles may feel limiting, but they can also motivate and energize and provide impetus to neurological and cognitive acuity. Our concept of self may not be fully ours to shape or control alone. How others see us, and their expectations of us, are age-sensitive as well.

From the developmental perspective, middle adulthood (or midlife) refers to the period of the lifespan between young adulthood and old age. This period lasts from 20 to 40 years depending on how these stages, ages, and tasks are culturally defined. The most common definition by chronological age for middle adulthood is from 40 to 65, but there can be a range of up to 10 years (ages 30-75) on either side of these parameters.

Research on this period of life is relatively sparse, and many aspects of midlife are still relatively unexplored; in fact, it may be the least studied period of the lifespan. This is not as surprising as it might initially appear. One hundred years ago, life expectancy in the United States was about 47 years. According to the Centers for Disease Control (CDC), in 2017 it stood at 76.1 for males and 81.1 for females. There is variation between groups, and it is generally agreed that this is due to patterns of social and economic inequality which impact health outcomes across the board, not just longevity. There are also variations across cultures. By 2040 it is estimated that the USA will have been reduced to 64th in the world from a position of 43rd in 2016 in mortality rankings (Foreman et al, 2018).[\[1\]](#). Such projections must be placed in context. Longevity in the USA is still projected to rise, albeit more slowly than other developed countries such as Japan and Spain. Rates of so-called “lifestyle diseases” such as HBP, diabetes Type 2, substance abuse, smoking, are difficult to predict with exactness, as is the level of air pollution and other toxic environmental contaminants. This is not simply a question of people living longer, it is about the quality of life that they will enjoy, and how individuals and society are equipped to deal with these non-communicable diseases.

In the United States, the large Baby Boom cohort (those born between 1946 and 1964) are now midlife adults, which has led to increased interest in this developmental stage. The U.S. Census (2018) predicts that by 2030, when all boomers will be over 65, they will constitute 21% of the population, up from 15% today. Older adults (those over 65) will outnumber children (those under 18) for the first time in U.S. history by 2035. This will have profound social consequences. This demographic shift is already well advanced in European countries like Germany and Italy. How individuals prepare in middle adulthood for living longer, and being part of an older community, will assume even more critical importance. It may also present a formidable challenge in the areas of health and public policy, as the relative numbers of those who are economically active, or economically inactive, shift.

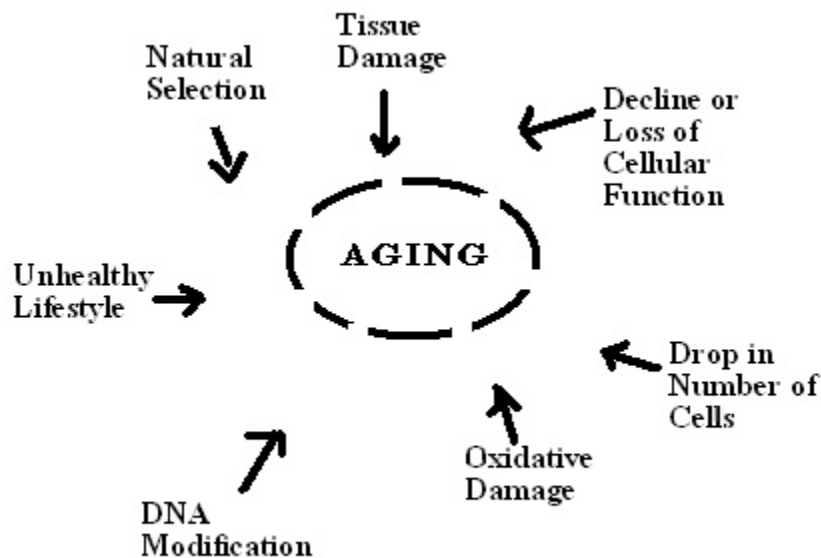


Figure 8.1 Hallmarks of Aging

8.3 Developmental Tasks

Margie Lachman (2004) provides a comprehensive overview of the challenges facing midlife adults, outlining the roles and responsibilities of those entering the “afternoon of life” (Jung). 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.

Taken singly or together, these can represent a fundamental reorientation of outlook, investment, attitudes, and personal relationships which can present formidable obstacles in terms of social and economic challenges. They may also be affected by circumstances outside our control, at a time that we may have envisaged as planned and under control.



Video 8.1: [Middle Age Secrets Revealed: The Physical and Mental Changes You Need to Know](#)

Knowledge Check

8a. Which of the following is NOT one of the developmental tasks commonly faced during middle adulthood?

- A) Launching children into their own lives
- B) Preparing for retirement and late adulthood
- C) Experiencing first-time parenthood
- D) Acting as caregivers for aging parents or spouses

8b. Middle adulthood is one of the most thoroughly researched and understood stages in human development.

- A) True
- B) False

8.4 Physical Development Across Middle Adulthood

Hippocrates (author of the famous “Hippocratic oath”) was of the opinion that “walking is the best medicine.” This was his learned opinion in 400 BCE and there is now considerable, and increasing, evidence that he may have been correct.

As we will see, there are simple physiological changes that accompany middle adulthood. These are somewhat inevitable, but the importance of physical activity at this age range would be difficult to overstate looking at the evidence. Exercise does not necessarily mean running marathons, it may simply mean a commitment to using your legs in a brisk fashion for thirty minutes. “Use it or lose it” is a good mantra for this stage of development—the technical term for the loss of muscle tissue and function as we age is sarcopenia. From age 30, the body loses 3-8% of its muscle mass per decade, and this accelerates after the age of 60 (Volpi et al, 2010). Diet and exercise can ameliorate both the extent and lifestyle consequences of these kinds of processes. In this section, we will examine some of the changes associated with middle adulthood and consider how they impact human life.

Physical Mobility in Middle Adulthood

The importance of not succumbing to the temptations of a sedentary lifestyle was as obvious to Hippocrates in 400 BCE as it is now. Piasecki et al (2018) are of the opinion that sarcopenia (loss of muscle tissue and function as we age) in legs might be the result of leg muscles becoming detached from the nervous system. Further, Piasescki et al (2018) believe that exercise encourages new nerve growth slowing the progression of sarcopenia. Persons aged 75 may have up to 30-60% fewer nerve endings in their leg muscles than they did in their early 20s.[\[2\]](#)

Sarcopenia has only recently been recognized as an independent disease entity since 2016 (ICD-10). In 2018 the U.S. Center for Disease Control and prevention assigned sarcopenia its own discrete medical code. Disease entities that affect mobility will become an increasingly costly phenomenon, and will affect the quality of life of millions of people as the population ages. In many ways it is a natural phenomenon, and many doctors and researchers have been reticent to overly pathologize natural changes associated with age. However, mobility is now becoming a central concern, and some researchers are now identifying some conditions like osteosarcopenia, which describes the decline of both muscle tissue (sarcopenia) and bone tissue (osteoporosis). Diagnoses and pharmaceuticals which deal with the central question of mobility will become ever more important, even more so as the burgeoning costs associated with caring for those with mobility issues becomes apparent.

The years between 30 and 60 can see the onset of rheumatoid arthritis (RA). This is the third most common form of arthritis and its specific etiology is unknown at this time. RA occurs when antibodies attack normal synovial fluid in the joints, mistaking them for an alien threat. It affects women more than men by a factor of around 3 to 1. Peak onset for women is reckoned to be sometime in the early 40s. This has led to the conclusion, albeit a preliminary one, that RA is caused by hormonal changes. Women who are pregnant,

and have RA, often experience a temporary remission, again leading to the identification of hormonal changes in the body as the most likely culprit. Women also experience symptoms at an earlier age. This condition is often associated with people in their 60s, but only about a third first experience symptoms at this age, though they become more acute with the passage of time.



Figure 8.2 Physical Activity in Older Adulthood

Human beings reach peak bone mass around 35-40. Osteoporosis is a “silent disease” which progresses until a fracture occurs. The sheer scale and cost of this illness is radically underestimated. It is often associated with women due to the fact that bone mass can deteriorate in women much more quickly in middle age due to menopause. After menopause women can lose 5-10% bone mass per year, rendering it advisable to monitor intakes of calcium and Vitamin D, and evaluate individual risk factors. Beginning in their 60s, though, men and women lose bone mass at roughly the same rate. The number of American men diagnosed with osteoporosis is currently around the 2 million mark, with a further 12 million reckoned to be at risk. The National Osteoporosis Foundation (NOF) estimates that 50% of women and 25% of men over the age of 50 will suffer a bone fracture due to osteoporosis. Attention at this stage of life may bring pronounced health benefits now and later for both women and men. Fixing the damage takes a considerable amount of the Medicare budget.

The health benefits that walking and other physical activity have on the nervous system are becoming increasingly obvious to those who study aging. Adami et al (2018) found

pronounced links between weight bearing exercise and neuron production. We tend to think of the brain as a central processing unit giving instructions to the body via the conduit of the central nervous system, but contemporary science is now coalescing around the idea that muscles and nerves also communicate with the brain—it is a two-way informational and sustaining process. Many studies suggest that voluntary physical activity (VPA) extends and improves quality of life. Such studies show that even moderate physical activity can bring large gains.

In addition, there is often an increase in chronic inflammation at this time of life with no discernible discrete cause (as opposed to acute inflammation associated with something like an infection). Inflammation is the body's natural way of responding to injury or harmful pathogens in the body. The function of inflammation is to eliminate the initial cause of injury and initiate tissue repair, but when this happens consistently and for longer periods of time, the body's stress response systems become overworked. This can have serious effects on health, such as fatigue, fever, chest or abdominal pain, rashes, or greater susceptibility to diseases such as cancer, rheumatoid arthritis, and heart disease. Untreated acute inflammation, autoimmune disorders, or long-term exposure to irritants are some contributing factors,[\[4\]](#) as is social isolation (Nersessian et al, 2018).

Chronic inflammation has been implicated as part of the cause of the muscle loss that occurs with aging.[\[5\]](#) Chronic inflammatory disorder is now implicated in a whole series of chronic diseases such as dementia, and the biomedical evidence for its centrality is now emerging in the medical research literature.

Because of the aging population, health issues associated with autoimmune disease, chronic inflammation, and bone mass density will become central concerns in health and social policy in the coming decades.

Normal Physiological Changes in Middle Adulthood

There are a few primary biological physical changes in midlife. There are changes in vision, hearing, more joint pain, and weight gain (Lachman, 2004). Vision is affected by age. As we age, the lens of the eye gets larger, but the eye loses some of the flexibility required to adjust to visual stimuli. This is known as presbyopia. Middle aged adults often have trouble seeing up close as a result. Night vision is also affected as the pupil loses some of its ability to open and close to accommodate drastic changes in light.

Presbycusis is the most common cause of hearing loss, afflicting one out of four persons between ages 65 and 74, and one out of two by age 75. This loss accumulates after years of being exposed to intense noise levels, and is generally due to the loss or damage of nerve hair cells inside the cochlea. It is more common in men, but men are also more

likely to work in noisy occupations, which may explain their nearly doubled rates of hearing loss levels.^[6] Hearing loss is also exacerbated by cigarette smoking, high blood pressure, and stroke. High frequency sounds are the first affected by such hearing loss. Hearing loss could be prevented by guarding against being exposed to extremely noisy environments.

There is new concern over hearing loss as early as childhood with the widespread use of headphones, as loud and/or prolonged listening can cause damage to the cilia, or the tiny sensory hairs, within the cochlea. Another cause of hearing loss in middle age is otosclerosis, a physiological condition affecting the middle ear and its bone structure. This occurs when one of the bones in the middle ear, the stapes, acquires a rigidity via abnormal bone growth which it should not have. Unable to vibrate, it induces hearing impairment. Otosclerosis is often described as a rare condition, but it afflicts a good number of Americans, with white women being more prone, though there has been some speculation that this was the origin of deafness in the composer Beethoven. Its cause is unknown, but chronic inflammation may be a risk factor. We tend to associate hearing loss with older adults, but peak onset is in the middle adulthood age bracket.

Weight gain, sometimes referred to as the middle-aged spread, or the accumulation of fat in the abdomen is one of the common complaints of midlife adults. Men tend to gain fat on their upper abdomen and back while women tend to gain more fat on their waist and upper arms. Many adults are surprised at this weight gain because their diets have not changed. However, the metabolism slows by about one-third during midlife (Berger, 2005). Consequently, midlife adults have to increase their level of exercise, eat less, and watch their nutrition to maintain their earlier physique.

Many of the changes that occur in midlife can be easily compensated for (by buying glasses, exercising, and watching what one eats, for example.) Most midlife adults experience generally good health. However, the percentage of adults who have a disability increases through midlife; while 7 percent of people in their early 40s have a disability, the rate jumps to 30 percent by the early 60s. This increase is highest among those of lower socioeconomic status (Bumpass and Aquilino, 1995).

What can we conclude from this information? Again, lifestyle has a strong impact on the health status of midlife adults. Smoking tobacco, drinking alcohol, poor diet, stress, physical inactivity, and chronic disease such as diabetes or arthritis reduce overall health. It becomes important for midlife adults to take preventative measures to enhance physical well-being. Those midlife adults who have a strong sense of mastery and control over their lives, who engage in challenging physical and mental activity, who engage in weight bearing exercise, monitor their nutrition, and make use of social resources are most likely to enjoy a plateau of good health through these years. Not only that, but those who begin

an exercise regimen in their 40s may enjoy comparable benefits to those who began in their 20s according to Saint-Maurice et al (2019), who also found that while it is never too late to begin, continuing to do as much as possible, is just as important.

Knowledge Check

8c. Which of the following statements about sarcopenia is TRUE?

- A) It only affects people over the age of 75.
- B) It is primarily caused by calcium deficiency.
- C) It can be slowed by regular physical exercise.
- D) It is more common in women than men.

8d. Women typically begin losing bone mass at a much faster rate than men after menopause, potentially up to 10% per year.

- A) True
- B) False

8e. Which of the following changes is most associated with presbycusis?

- A) Increased flexibility of the eye lens.
- B) High-frequency hearing loss due to nerve hair cell damage.
- C) Improved night vision.
- D) Sudden weight loss in midlife adults.

8.5 The Climacteric

One biologically based change that occurs during midlife is the climacteric. During midlife, men may experience a reduction in their ability to reproduce. Women, however, lose their ability to reproduce once they reach menopause.

Menopause

Menopause refers to a period of transition in which a woman's ovaries stop releasing eggs and the level of estrogen and progesterone production decreases. After menopause, a woman's menstruation ceases (U. S. National Library of Medicine and National Institute of Health [NLM/NIH], 2007).

Changes typically occur between the mid 40s and mid 50s. The median age range for a woman to have her last menstrual period is 50-52, but ages vary. A woman may first begin to notice that her periods are more or less frequent than before. These changes in

menstruation may last from 1 to 3 years. After a year without menstruation, a woman is considered menopausal and no longer capable of reproduction. (Keep in mind that some women, however, may experience another period even after going for a year without one.) The loss of estrogen also affects vaginal lubrication which diminishes and becomes more watery. The vaginal wall also becomes thinner, and less elastic.

Menopause is not seen as universally distressing (Lachman, 2004). Changes in hormone levels are associated with hot flashes and sweats in some women, but women vary in the extent to which these are experienced. Depression, irritability, and weight gain are not necessarily due to menopause (Avis, 1999; Rossi, 2004). Depression and mood swings are more common during menopause in women who have prior histories of these conditions rather than those who have not. The incidence of depression and mood swings is not greater among menopausal women than non-menopausal women.

Cultural influences seem to also play a role in the way menopause is experienced. For example, once after listing the symptoms of menopause in a psychology course, a woman from Kenya responded, "We do not have this in my country or if we do, it is not a big deal," to which some U.S. students replied, "I want to go there!" Indeed, there are cultural variations in the experience of menopausal symptoms. Hot flashes are experienced by 75 percent of women in Western cultures, but by less than 20 percent of women in Japan (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.

Concerns about the effects of hormone replacement have changed the frequency with which estrogen replacement and hormone replacement therapies have been prescribed for menopausal women. Estrogen replacement therapy was once commonly used to treat menopausal symptoms. But more recently, hormone replacement therapy has been associated with breast cancer, stroke, and the development of blood clots (NLM/NIH, 2007). Most women do not have symptoms severe enough to warrant estrogen or hormone replacement therapy (HRT). Women who do require HRT can be treated with lower doses of estrogen and monitored with more frequent breast and pelvic exams. There are also some other ways to reduce symptoms. These include avoiding caffeine and alcohol, eating soy, remaining sexually active, practicing relaxation techniques, and using water-based lubricants during intercourse.

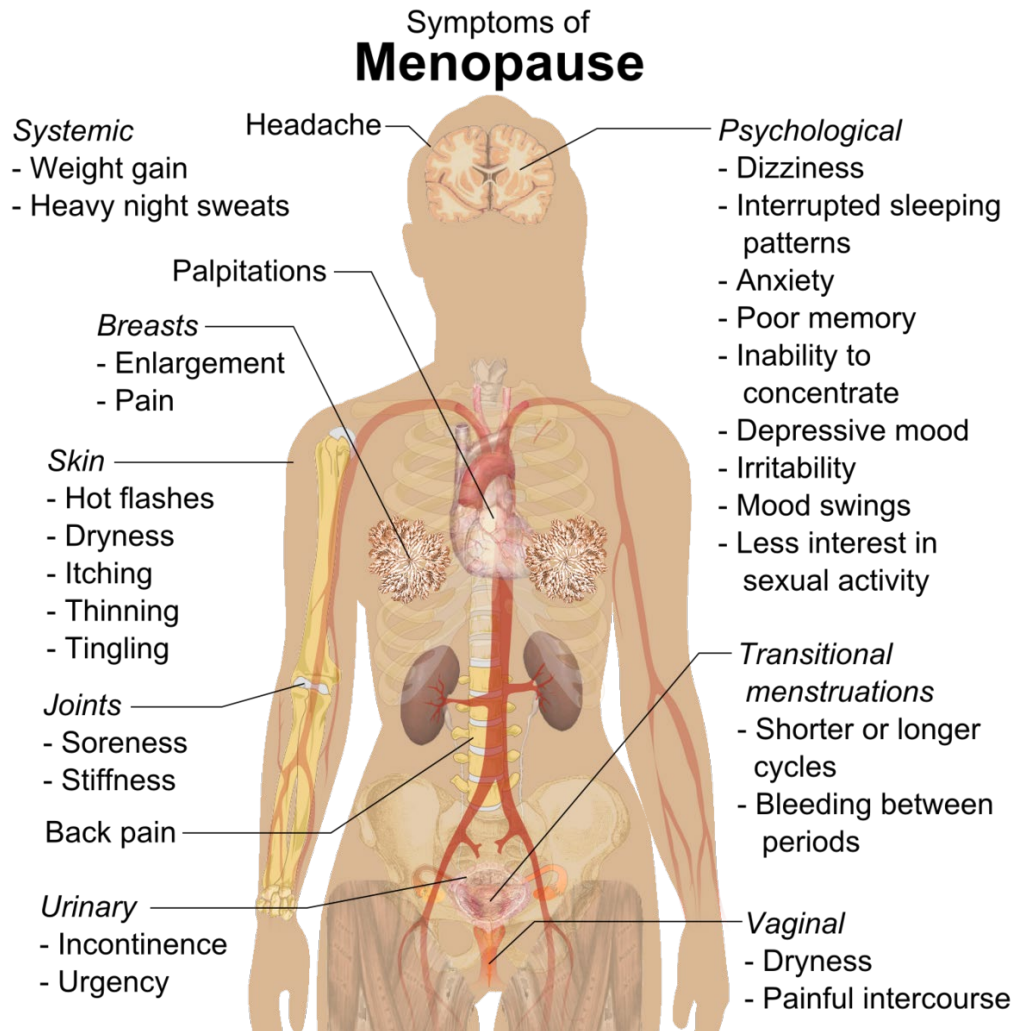


Figure 8.3 Menopause

Fifty million women in the USA aged 50-55 are post-menopausal. During and after menopause a majority of women will experience weight gain. Changes in estrogen levels lead to a redistribution of body fat from hips and back to stomachs. This is more dangerous to general health and wellbeing because abdominal fat is largely visceral, meaning it is contained within the abdominal cavity and may not look like typical weight gain. That is, it accumulates in the space between the liver, intestines and other vital organs. This is far more harmful to health than subcutaneous fat which is the kind of fat located under the skin. It is possible to be relatively thin and retain a high level of visceral fat, yet this type of fat is deemed especially harmful by medical research.

Andropause

Do males experience a climacteric? Yes. While they do not lose their ability to reproduce as they age, they do tend to produce lower levels of testosterone and fewer sperm. However, men are capable of reproduction throughout life after puberty. It is natural for sex drive to diminish slightly as men age, but a lack of sex drive may be a result of extremely low levels of testosterone. About 5 million men experience low levels of testosterone that results in symptoms such as a loss of interest in sex, loss of body hair, difficulty achieving or maintaining erection, loss of muscle mass, and breast enlargement. This decrease in libido and lower testosterone (androgen) levels is known as andropause, although this term is somewhat controversial as this experience is not clearly delineated, as menopause is for women. Low testosterone levels may be due to glandular disease such as testicular cancer. Testosterone levels can be tested and if they are low, men can be treated with testosterone replacement therapy. This can increase sex drive, muscle mass, and beard growth. However, long term HRT for men can increase the risk of prostate cancer (The Patient Education Institute, 2005).

The debate around declining testosterone levels in men may hide a fundamental fact. The issue is not about individual males experiencing individual hormonal change at all. We have all seen the advertisements in the media promoting substances to boost testosterone: "Is it low-T?" The answer is probably in the affirmative, if somewhat relative. That is, in all likelihood they will have lower testosterone levels than their fathers. However, it is equally likely that the issue does not lie solely in their individual physiological make up, but is rather a generational transformation (Travison et al, 2007). Why this has occurred in such a dramatic fashion is still unknown. There is evidence that low testosterone may have negative health effects on men. In addition, there are studies which show evidence of rapidly decreasing sperm count and grip strength. Exactly why these changes are happening is unknown and will likely involve more than one cause.

The Climacteric and Sexuality

Sexuality is an important part of people's lives at any age. Midlife adults tend to have sex lives that are very similar to that of younger adulthood. And many women feel freer and less inhibited sexually as they age. However, a woman may notice less vaginal lubrication during arousal and men may experience changes in their erections from time to time. This is particularly true for men after age 65. Men who experience consistent problems are likely to have other medical conditions (such as diabetes or heart disease) that impact sexual functioning (National Institute on Aging, 2005).

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. The risk of pregnancy continues until a woman has been without menstruation for at least 12 months, however, and couples should continue to use contraception. People continue

to be at risk of contracting sexually transmitted infections such as genital herpes, chlamydia, and genital warts. Seventeen percent of new cases of AIDS in the United States are in people 50 and older of all people living with HIV, 47% are aged 50 or over. Practicing safe sex is important at any age- safe sex is not just about avoiding an unwanted pregnancy, It is about protecting yourself from STDs as well. Hopefully, when partners understand how aging affects sexual expression, they will be less likely to misinterpret these changes as a lack of sexual interest or displeasure in the partner and be more able to continue to have satisfying and safe sexual relationships.

Knowledge Check

8f. Which of the following statements about menopause is FALSE?

- A) Menopause marks the end of a woman's reproductive capability.
- B) Hormone Replacement Therapy (HRT) is always recommended for all menopausal women.
- C) Cultural expectations can influence how women experience menopausal symptoms.
- D) Some women view menopause as a liberating experience.

8g. Men experience a clearly defined climacteric similar to women's menopause, called andropause, which leads to a complete end of reproductive ability.

- A) True
- B) False

8.6 Exercise, Nutrition, and Health



Figure 8.4 Exercise and Nutrition for Healthy Aging

The impact of exercise

Exercise is a powerful way to combat the changes we associate with aging. Exercise builds muscle, increases metabolism, helps control blood sugar, increases bone density, and relieves stress. Unfortunately, fewer than half of midlife adults exercise and only about 20 percent exercise frequently and strenuously enough to achieve health benefits. Many stop exercising soon after they begin an exercise program—particularly those who are very overweight. The best exercise programs are those that are engaged in regularly—regardless of the activity, but a well-rounded program that is easy to follow includes walking and weight training. Having a safe, enjoyable place to walk can make the difference in whether or not someone walks regularly. Weightlifting 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

Aging brings about a reduction in the number of calories a person requires. Many Americans respond to weight gain by dieting. However, eating less does not necessarily mean eating right and people often suffer vitamin and mineral deficiencies as a result. Very often, physicians will recommend vitamin supplements to their middle-aged patients. As stated above, chronic inflammation is now identified as one of the so-called “pillars of aging”. The link between diet and inflammation is yet unclear, but there is now some information available on the [Diet Inflammation Index](#) (Shivappa et, 2014), which in popular parlance, supports a diet rich in plant-based foods, healthy fats, nuts, fish in moderation, and sparing use of red meat— often referred to as “the Mediterranean Diet.”

The ideal diet is one low in fat, low in sugar, high in fiber, low in sodium, and low in cholesterol. In 2005, the Food Pyramid, a set of nutritional guidelines established by the U. S. Government was updated to accommodate new information on nutrition and to provide people with guidelines based on age, sex, and activity levels. The ideal diet is low in sodium (less than 2300 mg per day). Sodium causes fluid retention which may in turn exacerbate high blood pressure. The ideal diet is also low in cholesterol (less than 300 mg per day) and high in fiber. Fiber is thought to reduce the risk of certain cancers and heart disease. Finally, an ideal diet is low in sugar. Sugar is not only a problem for diabetics; it is also a problem for most people. Sugar satisfies the appetite but provides no protein, vitamins or minerals. It provides empty calories. High starch diets are also a problem because starch is converted to sugar in the body. A 1-2 ounce serving of red

wine (or grape juice) may have beneficial effects on health, as red wine can increase “good cholesterol” or HDLs (high density lipoproteins) in the blood and provide antioxidants important for combating aging.



Video 8.2: [Research shows our bodies go through rapid changes in middle-age](#)

Knowledge Check

8h. Which of the following is NOT recommended as part of an ideal midlife diet?

- A) High intake of fiber
- B) Less than 2300 mg of sodium per day
- C) High consumption of red meat and sugar
- D) Moderate consumption of fish and healthy fats

8i. Exercise is considered a form of preventative health care that may help reduce long-term healthcare costs and improve quality of life in midlife adults.

- A) True
- B) False

8j. Which of the following is a developmental task commonly faced during middle adulthood?

- A) Entering the workforce for the first time
- B) Becoming a caregiver for aging parents
- C) Learning basic motor coordination
- D) Experiencing rapid growth and puberty

Key Takeaways

- Andropause: age-related hormone changes in men due to lower testosterone levels
 - Chronic inflammation: when the body's immune system is working to fight off infections and toxins for prolonged periods of time, having a negative impact on tissues and organs
 - Climacteric: term used to describe the menopausal period and hormonal changes associated with the gradual change in ovarian production
 - Menopause: period of transition in which a woman's ovaries stop releasing eggs and the level of estrogen and progesterone production decreases
 - Osteoporosis: the decline and loss of bone density and the increasing fragile and brittle condition of bones from a loss of tissue
 - Osteosarcopenia: when someone has both sarcopenia and osteoporosis, or both muscle and bone tissue loss
 - Presbycusis: hearing loss as a result of aging
 - Presbyopia: farsightedness caused by loss of flexibility of the lens of the eye as a result of aging
 - Sarcopenia: the technical term for the loss of muscle tissue and function as we age.
-

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Sources

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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

- 'Glossary' turned into 'key takeaways'.

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Figure Attributions

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Figure 8.2 (c), SHVETS production. [An Elderly Man Doing Push Ups](#). Pexels License.

Figure 8.3 (c) Mikael Häggström. [Symptoms of menopause \(raster\)](#). CC0 1.0 Universal

Figure 8.4 (c) [Healthy Lifestyle Setup](#). CC0 1.0 Universal

Video Attributions

Video 8.1. Health After 50. (2023, January 27). Middle Age Secrets Revealed: *The Physical and Mental Changes You Need to Know*. [Video]. Youtube.

<https://www.youtube.com/watch?v=Z6GuRSExCvs>

Video 8.2. NBC News. (2024, August 15). *Research shows our bodies go through rapid changes in middle-age*. [Video]. Youtube.

<https://www.youtube.com/watch?v=9SYE2wEXd2s>

Long Descriptions

Figure 8.1 (c) Mshahin. [Aging Factors](#). CC0 BY SA 3.0 Unported. Alt Text: The image is a diagram illustrating the factors contributing to aging. At the center, the word "AGING" is encircled by a dashed oval. Surrounding this central element are six concepts, each with an arrow pointing towards the word "AGING," indicating their contribution. Starting from the top and moving clockwise, the terms are: "Tissue Damage," "Decline or Loss of Cellular Function," "Drop in Number of Cells," "Oxidative Damage," "DNA Modification," "Unhealthy Lifestyle," and "Natural Selection." Each concept is evenly spaced around the central oval, suggesting that each of these factors can contribute towards the collective process of aging.

Figure 8.2 (c), SHVETS production. [An Elderly Man Doing Push Ups](#). [Pexels License](#). Alt Text: An elderly man is performing a push-up on a smooth wooden floor in a well-lit room. He is wearing a blue t-shirt, gray shorts, and white athletic shoes. Two small dumbbells are placed on the floor near the man.

Figure 8.3 (c) Mikael Häggström. [Symptoms of menopause \(raster\)](#). CC0 1.0 Universal. Alt Text: An anatomical illustration of a woman's body showing major organs and systems, including the brain, heart, lungs, and kidneys. The image shows the symptoms of menopause.

Figure 8.4 (c) [Healthy Lifestyle Setup](#). CC0 1.0 Universal. Alt Text: A blue water bottle, fresh fruits, nuts, and a yoga mat beside running shoes on a wooden floor, bathed in soft sunlight.

Chapter 9: Cognition, Social, and Emotional Development Among Middle Adulthood

9.1 Learning Objectives

- Outline cognitive gains/deficits typically associated with middle adulthood
- Explain changes in fluid and crystallized intelligence during adulthood
- Describe Erikson's stage of generativity vs. stagnation
- Evaluate Levinson's notion of the midlife crisis
- Examine key theories on aging, including socio-emotional selectivity theory (SSC) and selection, optimization, and compensation (SOC)
- Describe personality and work related issues in midlife

9.2 Introduction

While we sometimes associate aging with cognitive decline (often due to the way it is portrayed in the media), aging does not necessarily mean a decrease in cognitive function. In fact, tacit knowledge, verbal memory, vocabulary, inductive reasoning, and other types of practical thought skills increase with age. We'll learn about these advances as well as some neurological changes that happen in middle adulthood in the section that follows.

9.3 Cognition in Middle Adulthood

One of the most influential perspectives on cognition during middle adulthood has been that of the [Seattle Longitudinal Study \(SLS\) of adult cognition](#), which began in 1956. Schaie & Willis (2010) summarized the general findings from this series of studies as follows: "We have generally shown that reliably replicable average age decrements in psychometric abilities do not occur prior to age 60, but that such reliable decrement can be found for all abilities by 74 years of age." In short, decreases in cognitive abilities begin in the sixth decade and gain increasing significance from that point on. However, Singh-Maoux et al (2012) argue for small but significant cognitive declines beginning as early as age 45. There is some evidence that adults should be as aggressive in maintaining their cognitive health as they are their physical health during this time as the two are intimately related.

A second source of longitudinal research data on this part of the lifespan is [The Midlife in the United States Studies](#) (MIDUS), which began in 1994. The MIDUS data supports the view that this period of life is something of a trade-off, with some cognitive and physical decreases of varying degrees. The cognitive mechanics of processing speed, often

referred to as fluid intelligence, physiological lung capacity, and muscle mass, are in relative decline. However, knowledge, experience and the increased ability to regulate our emotions can compensate for these losses. Continuing cognitive focus and exercise can also reduce the extent and effects of cognitive decline.

Control Beliefs

Central to all of this are personal control beliefs, which have a long history in psychology. Beginning with the work of Julian Rotter (1954), a fundamental distinction is drawn between those who believe that they are the fundamental agent of what happens in their life, and those who believe that they are largely at the mercy of external circumstances. Those who believe that life outcomes are dependent on what they say and do are said to have a strong internal locus of control. Those who believe that they have little control over their life outcomes are said to have an external locus of control.

Empirical research has shown that those with an internal locus of control enjoy better results in psychological tests across the board; behavioral, motivational, and cognitive. It is reported that this belief in control declines with age, but again, there is a great deal of individual variation. This raises another issue: directional causality. Does my belief in my ability to retain my intellectual skills and abilities at this time of life ensure better performance on a cognitive test compared to those who believe in their inexorable decline? Or, does the fact that I enjoy that intellectual competence or facility instill or reinforce that belief in control and controllable outcomes? It is not clear which factor is influencing the other. The exact nature of the connection between control beliefs and cognitive performance remains unclear.

Brain science is developing exponentially and will unquestionably deliver new insights on a whole range of issues related to cognition in midlife. One of them will surely include the brain's capacity to renew, or at least replenish itself, at this time of life. The capacity to renew is called neurogenesis; the capacity to replenish what is there is called neuroplasticity. At this stage it is impossible to ascertain exactly what effect future pharmacological interventions may have on possible cognitive decline at this, and later, stages of life.

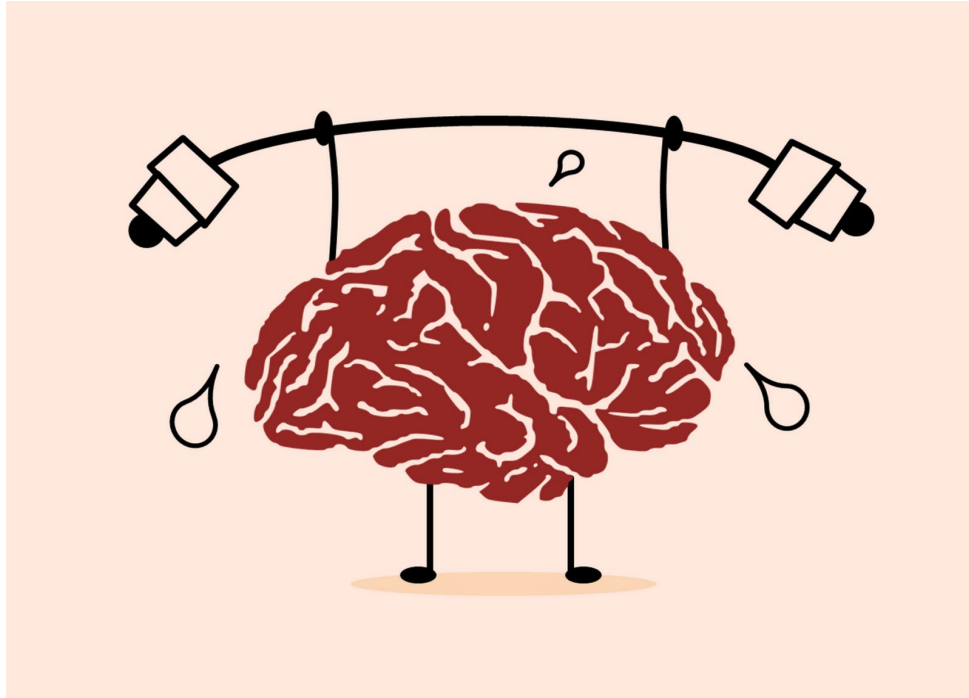


Figure 9.1 Brain Training Exercises are effective for cognitive stability

Cognitive Aging

Researchers have identified areas of loss and gain in cognition in older age. Cognitive ability and intelligence are often measured using standardized tests and validated measures. The psychometric approach has identified two categories of intelligence that show different rates of change across the life span (Schaie & Willis, 1996). Fluid and crystallized intelligence were first identified by Cattell in 1971. Fluid intelligence refers to information processing abilities, such as logical reasoning, remembering lists, spatial ability, and reaction time. Crystallized intelligence encompasses abilities that draw upon experience and knowledge. Measures of crystallized intelligence include vocabulary tests, solving number problems, and understanding texts. There is a general acceptance that fluid intelligence decreases continually from the 20s, but that crystallized intelligence continues to accumulate. One might expect to complete the NY Times crossword more quickly at 48 than 22, but the capacity to deal with novel information declines.

With age, systematic declines are observed on cognitive tasks requiring self-initiated, effortful processing, without the aid of supportive memory cues (Park, 2000). Older adults tend to perform poorer than young adults on memory tasks that involve recall of information, where individuals must retrieve information they learned previously without the help of a list of possible choices. For example, older adults may have more difficulty

recalling facts such as names or contextual details about where or when something happened (Craik, 2000). What might explain these deficits as we age?

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).

Fewer age differences are observed when memory cues are available, such as for recognition memory tasks, or when individuals can draw upon acquired knowledge or experience. For example, older adults often perform as well if not better than young adults on tests of word knowledge or vocabulary. With age often comes expertise, and research has pointed to areas where aging experts perform as well or better than younger individuals. For example, older typists were found to compensate for age-related declines in speed by looking farther ahead at printed text (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). Accrued knowledge of everyday tasks, such as grocery prices, can help older adults to make better decisions than young adults (Tentori, Osheron, Hasher, & May, 2001).

We began with Schaie and Willis (2010) observing that no discernible general cognitive decline could be observed before 60, but other studies contradict this notion. How do we explain this contradiction? In a thought-provoking article, Ramscar et al (2014) argued that an emphasis on information processing speed ignored the effect of the process of learning/experience itself; that is, that such tests ignore the fact that more information to process leads to slower processing in both computers and humans. We are more complex cognitive systems at 55 than 25.



Video 9.1: [Aging and cognitive abilities | Processing the Environment | MCAT | Khan Academy](#)

9.4 Performance in Middle Adulthood

Research on interpersonal problem solving suggests that older adults use more effective strategies than younger adults to navigate through social and emotional problems (Blanchard-Fields, 2007). In the context of work, researchers rarely find that older individuals perform less well 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.

Empirical studies of cognitive aging are often difficult, and quite technical, given their nature. Similarly, experiments focused on one kind of task may tell you very little in terms of general capacities. Memory and attention as psychological constructs are now divided into very specific subsets which can be confusing and difficult to compare.

However, one study does show with relative clarity the issues involved. In the USA, The Federal Aviation Authority insists that all air traffic controllers retire at 56 and that they cannot begin until age 31 unless they have previous military experience. However, in Canada controllers are allowed to work until aged 65 and are allowed to train at a much earlier age. Nunes and Kramer (2009) studied four groups: a younger group of controllers (20-27), an older group of controllers aged 53 to 64, and two other groups of the same age who were not air traffic controllers. On simple cognitive tasks, not related to their occupational lives as controllers, older controllers were slower than their younger peers. However, when it came to job-related tasks their results were largely identical. This was not true of the older group of non-controllers who had significant deficits in comparison.

Specific knowledge or expertise in a domain acquired over time (crystallized intelligence), can offset a decline in fluid intelligence.



Figure 9.2 While typing speed and reaction time slow with age, older typists can compensate in other ways, by looking farther ahead at printed text.

Tacit Knowledge

The idea of tacit knowledge was first introduced by Michael Polanyi (1954). He argued that each individual had a huge store of knowledge based on life experience, but that it was often difficult to describe, codify, and thus transfer, as stated in his famous formulation, “we always know more than we can tell.” Organizational theorists have spent a great deal of time thinking about the problem of tacit knowledge in this setting. Think of someone you have encountered who is extremely good at what they do. They may have no more (or less) education, formal training, and even experience, than others who are supposedly at an equivalent level. What is the “something” that they have? Tacit knowledge is highly prized and older workers often have the greatest amount, even if they are not conscious of that fact.

Knowledge Check

9a. Which of the following best illustrates the concept of "tacit knowledge"?

- A) A younger employee uses a guidebook to complete tasks correctly.
- B) A person remembers detailed historical facts from textbooks.
- C) An individual solves math problems quickly using formal formulas.
- D) An experienced worker excels at their job without being able to clearly explain how.

9b. Which of the following best captures Erikson's concept of generativity in midlife?

- A) The desire to accumulate wealth and personal achievements.
- B) A focus on resolving past regrets from early adulthood.
- C) A concern for guiding and supporting the next generation.
- D) A feeling of rejection toward societal obligations.

9.5 Emotional and Social Development in Middle Adulthood

Traditionally, middle adulthood has been regarded as a period of reflection and change. In the popular imagination (and academic press) there has been reference to a "mid-life crisis." There is an emerging view that this may have been an overstatement—certainly, the evidence on which it is based has been seriously questioned. However, there is some support for the view that people do undertake a sort of emotional audit, reevaluate their priorities, and emerge with a slightly different orientation to emotional regulation and personal interaction in this time period. Why, and the mechanisms through which this change is affected, are a matter of some debate. We will examine the ideas of Erikson, Baltes, and Carstensen, and how they might inform a more nuanced understanding of this vital part of the lifespan.

Psychosocial Development in 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, Schneider and Bradoch (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.



Figure 9.3 Middle Adulthood

Erikson's Theory

As you know by now, Erikson's theory is based on an idea called epigenesis, meaning that development is progressive and that each individual must pass through the eight different stages of life—all while being influenced by context and environment. Each stage forms the basis for the following stage, and each transition to the next is marked by a crisis which must be resolved. The sense of self, each "season", was wrested, from and by, that conflict. The ages 40-65 are no different. The individual is still driven to engage productively, but the nurturing of children and income generation assume lesser functional importance. From where will the individual derive their sense of self and self-worth?

Generativity versus Stagnation is Erikson's characterization of the fundamental conflict of adulthood. It is the seventh conflict of his famous "8 seasons of man" (1950) and negotiating this conflict results in the virtue of care. Generativity is "primarily the concern

in establishing and guiding the next generation” (Erikson, 1950 p.267). Generativity is a concern for a generalized other (as well as those close to an individual) and occurs when a person can shift their energy to care for and mentor the next generation. One obvious motive for this generative thinking might be parenthood, but others have suggested intimations of mortality by the self. John Kotre (1984) theorized that generativity is a selfish act, stating that its fundamental task was to outlive the self. He viewed generativity as a form of investment. However, a commitment to a “belief in the species” can be taken in numerous directions, and it is probably correct to say that most modern treatments of generativity treat it as a collection of facets or aspects—encompassing creativity, productivity, commitment, interpersonal care, and so on.

On the other side of generativity is stagnation. It is the feeling of lethargy and a lack of enthusiasm and involvement in both individual and communal affairs. It may also denote an underdeveloped sense of self, or some form of overblown narcissism. Erikson sometimes used the word “rejectivity” when referring to severe stagnation.



Video 9.2: [8 Stages of Development by Erik Erikson](#)

The Stage-Crisis View and the Midlife Crisis

In 1977, Daniel Levinson published an extremely influential article that would be seminal in establishing the idea of a profound crisis which lies at the heart of middle adulthood. The concept of a midlife crisis is so pervasive that over 90% of Americans are familiar

with the term, although those who actually report experiencing such a crisis is significantly lower (Wethington, 2000).

Levinson based his findings about a midlife crisis on biographical interviews with a limited sample of 40 men (no women!), and an entirely American sample at that. Despite these severe methodological limitations, his findings proved immensely influential. Levinson (1986) identified five main stages or “seasons” of a man’s life as follows:

1. Pre Adulthood: Ages 0-22 (with 17 – 22 being the Early Adult Transition years)
2. Early Adulthood: Ages 17-45 (with 40 – 45 being the Midlife Transition years)
3. Middle Adulthood: Ages 40-65 (with 60-65 being the Late Adult Transition years)
4. Late Adulthood: Ages 60-85
5. Late Late Adulthood: Ages 85+

Levinson’s theory is known as the stage-crisis view. He argued that each stage overlaps, consisting of two distinct phases—a stable phase, and a transitional phase into the following period. The latter phase can involve questioning and change, and Levinson believed that 40-45 was a period of profound change, which could only culminate in a reappraisal, or perhaps reaffirmation, of goals, commitments and previous choices—a time for taking stock and recalibrating what was important in life. Crucially, Levinson would argue that a much wider range of factors, involving, primarily, work and family, would affect this taking stock – what he had achieved, what he had not; what he thought important, but had brought only a limited satisfaction.

In 1996, two years after his death, the study he was conducting with his co-author and wife Judy Levinson, was published on “the seasons of life” as experienced by women. Again, it was a small scale study, with 45 women who were professionals / businesswomen, academics, and homemakers, in equal proportion. The changing place of women in society was reckoned by Levinson to be a profound moment in the social evolution of the human species, however, it had led to a fundamental polarity in the way that women formed and understood their social identity. Levinson referred to this as the “dream.” For men, the “dream” was formed in the age period of 22-28, and largely centered on the occupational role and professional ambitions. Levinson understood the female “dream” as fundamentally split between this work-centered orientation, and the desire/imperative of marriage/family; a polarity which heralded both new opportunities, and fundamental angst.

Levinson found that the men and women he interviewed sometimes had difficulty reconciling the “dream” they held about the future with the reality they currently experienced. “What do I really get from and give to my wife, children, friends, work,

community-and self?" a man might ask (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 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!!").



Figure 9.4 According to Levinson, we go through a midlife crisis. While most people have heard of the midlife crisis, and often associate it with sports cars, joining a band, or exploring new relationships, there is very little support for the theory as proposed by Levinson.

This new perspective on time brings about a new sense of urgency to life. The person becomes focused more on the present than the future or the past. The person grows impatient at being in the "waiting room of life," postponing doing the things they have always wanted to do. "If it's ever going to happen, it better happen now." A previous focus on the future gives way to an emphasis on the present. 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. A greater awareness of aging accompanies feelings of youth, and harm that may have been done previously in relationships haunts new dreams of contributing to the well-being of others. These polarities are the quieter struggles that continue after outward signs of "crisis" have gone away.

Levinson characterized midlife as a time of developmental crisis. However, like any body of work, it has been subject to criticism. Firstly, the sample size of the populations on which he based his primary findings is too small. By what right do we generalize findings from interviews with 40 men, and 45 women, however thoughtful and well conducted? Secondly, Chiriboga (1989) could not find any substantial evidence of a midlife crisis, and it might be argued that this, and further failed attempts at replication, indicate a cohort effect. The findings from Levinson's population indicated a shared historical and cultural situatedness, rather than a cross-cultural universal experience by all or even most individuals. Midlife is a time of revaluation and change that may escape precise determination in both time and geographical space, but people do emerge from it, and seem to enjoy a period of contentment, reconciliation and acceptance of self.



Video 9.3: [Does Everyone Have a 'Midlife Crisis'?](#)

Knowledge Check

9c. Crystallized intelligence, which draws on accumulated knowledge and experience, tends to decline steadily after the mid-20s.

- A) True
- B) False

9d. According to Levinson, which of the following is a key task during the midlife transition?

- A) Ending early adulthood and reassessing current life circumstances
- B) Focusing entirely on future aspirations
- C) Avoiding change and maintaining consistency
- D) Emphasizing physical accomplishments over emotional growth

Socio-Emotional Selectivity Theory (SST)

It is the inescapable fate of human beings to know that their lives are limited. As people move through life, goals and values tend to shift. What we consider priorities, goals, and aspirations are subject to renegotiation. Attachments to others, current and future, are no different. Time is not the unlimited good as perceived by a child under normal social circumstances; it is very much a valuable commodity, requiring careful consideration in terms of the investment of resources. This has become known in the academic literature as mortality salience.

Mortality salience posits that reminders about death or finitude (at either a conscious or subconscious level), fills us with dread. We seek to deny its reality, but awareness of the increasing nearness of death can have a potent effect on human judgement and behavior. This has become a very important concept in contemporary social science. It is with this understanding that Laura Carstensen developed the theory of socioemotional selectivity theory, or SST. The theory maintains that as time horizons shrink, as they typically do with age, people become increasingly selective, investing greater resources in emotionally meaningful goals and activities. According to the theory, motivational shifts also influence cognitive processing. Aging is associated with a relative preference for positive over negative information. This selective narrowing of social interaction maximizes positive emotional experiences and minimizes emotional risks as individuals become older. They systematically hone their social networks so that available social partners satisfy their emotional needs. 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 is a theory which emphasizes a time perspective rather than chronological age. When people perceive their future as open ended, they tend to focus on future-oriented development or knowledge-related goals. When they feel that time is running out, and the opportunity to reap rewards from future-oriented goals' realization is dwindling, their focus tends to shift towards present-oriented and emotion or pleasure-related goals. Research on this theory often compares age groups (e.g., young adulthood vs. old adulthood), but the shift in goal priorities is a gradual process that begins in early adulthood. Importantly, the theory contends that the cause of these goal shifts is not age itself, i.e., not the passage of time itself, but rather an age-associated shift in time perspective. The theory also focuses on the types of goals that individuals are motivated to achieve. Knowledge-related goals aim at knowledge acquisition, career planning, the development of new social relationships and other endeavors that will pay off in the future. Emotion-related goals are aimed at emotion regulation, the pursuit of emotionally gratifying interactions with social partners, and other pursuits whose benefits can be realized in the present.

This shift in emphasis, from long term goals to short term emotional satisfaction, may help explain the previously noted "paradox of aging." That is, that despite noticeable physiological declines, and some notable self-reports of reduced life-satisfaction around this time, post- 50 there seems to be a significant increase in reported subjective well-being. SST does not champion social isolation, which is harmful to human health, but shows that increased selectivity in human relationships, rather than abstinence, leads to more positive affect. Perhaps "midlife crisis and recovery" may be a more apt description of the 40-65 period of the lifespan.

Selection, Optimization, Compensation (SOC)

Another perspective on aging was identified by German developmental psychologists Paul and Margret Baltes. Their text *Successful Aging* (1990) marked a seismic shift in moving social science research on aging from largely a deficits-based perspective to a newer understanding based on a holistic view of the life-course itself. The former had tended to focus exclusively on what was lost during the aging process, rather than seeing it as a balance between those losses and gains in areas like the regulation of emotion, experience and wisdom.

The Baltes' model for successful aging argues that across the lifespan, people face various opportunities or challenges such as jobs, educational opportunities, and illnesses. According to the SOC model, a person may select particular goals or experiences, or circumstances might impose 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 processes of selection, optimization, and compensation can be found throughout the lifespan. As we progress in years, we select areas in which we place resources, hoping that this selection will optimize the resources that we have, and compensate for any defects accruing from physiological or cognitive changes. Previous accounts of aging had understated the degree to which possibilities from which we choose had been eliminated, rather than reduced, or even just changed. As we select areas in which to invest, there is always an opportunity cost. We are masters of our own destiny, and our own individual orientation to the SOC processes will dictate “successful aging.” Rather than seeing aging as a process of progressive disengagement from social and communal roles undertaken by a group, Baltes argued that “successful aging” was a matter of sustained individual engagement, accompanied by a belief in individual self-efficacy and mastery.

The SOC model covers a number of functional domains—motivation, emotion, and cognition. We might become more adept at playing the SOC game as time moves on, as we work to compensate and adjust for changing abilities across the lifespan. For example, a soccer player at 35 may no longer have the vascular and muscular fitness that they had at 20 but her “reading” of the game might compensate for this decline. She may well be a better player than she was at 20, even with fewer physical resources in a game which ostensibly prioritizes them. The work of Paul and Margaret Baltes was very influential in the formation of a very broad developmental perspective which would coalesce around the central idea of resiliency.

Knowledge Check

9e. According to Socioemotional Selectivity Theory, which factor primarily drives the shift in a person’s goals as they age?

- A) Chronological age
- B) Number of life achievements
- C) Perceived time left in life
- D) Cognitive decline

9f. Socioemotional Selectivity Theory suggests that as people age, they seek more emotionally gratifying experiences and reduce contact with people who bring negativity.

- A) True
- B) False

9g. In the SOC model, what does the process of compensation refer to?

- A) Prioritizing emotion-based goals over knowledge-based goals
- B) Avoiding aging-related activities to reduce stress
- C) Using alternative strategies to achieve goals when capabilities decline
- D) Accepting age-related losses without making any changes

9.6 Personality and Work Satisfaction

Personality in Midlife

Research on adult personality examines normative age-related increases and decreases in the expression of the so-called “Big Five” traits—extroversion, neuroticism, conscientiousness, agreeableness, and openness to experience. These are assumed to be based largely on biological heredity. These five traits are sometimes summarized via the OCEAN acronym. Individuals are assessed by the measurement of these traits along a continuum (e.g. high extroversion to low extroversion). They now dominate the field of empirical personality research. Does personality change throughout adulthood? Previously the answer was thought to be no. It was William James who stated in his foundational text, *The Principles of Psychology* (1890), that “[i]n most of us, by the age of thirty, the character is set like plaster and will never soften again”. Not surprisingly, this became known as the plaster hypothesis.

Contemporary research shows that, although some people’s personalities are relatively stable over time, others’ are not (Lucas & Donnellan, 2011; Roberts & Mroczek, 2008). Longitudinal studies reveal average changes during adulthood, and individual differences in these patterns over the lifespan may be due to idiosyncratic life events (e.g., divorce, illness). Roberts, Wood & Caspi (2008) report evidence of increases in agreeableness and conscientiousness as persons age, mixed results in regard to openness, reduction in neuroticism but only in women, and no change with regard to extroversion. Whether this “maturation” is the cause or effect of some of the changes noted in the section devoted to psycho social development is still unresolved. Longitudinal research also suggests that adult personality traits, such as conscientiousness, predict important life outcomes including job success, health, and longevity (Friedman, Tucker, Tomlinson-Keasey, Schwartz, Wingard, & Criqui, 1993; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). How important these changes are remains somewhat unresolved. Thus, we have the hard plaster hypothesis, emphasizing fixity in personality over the age of thirty with some very minor variation, and the soft plaster version which views these changes as possible and important.

Carl Jung believed that our personality actually matures as we get older. A healthy personality is one that is balanced. People suffer tension and anxiety when they fail to express all of their inherent qualities. Jung believed that each of us possess a “shadow side.” For example, those who are typically introverted also have an extroverted side that rarely finds expression unless we are relaxed and uninhibited. Each of us has both a masculine and feminine side, but in younger years, we feel societal pressure to give expression only to one. As we get older, we may become freer to express all of our traits as the situation arises. We find gender convergence in older adults. Men become more interested in intimacy and family ties. Women may become more assertive. This gender convergence is also affected by changes in society’s expectations for males and females. With each new generation we find that the roles of men and women are less stereotypical, and this allows for change as well.



Figure 9.5 Personalities in midlife are not as set as researchers once thought and may still mature as we get older.

Subjective Aging

One aspect of the self that particularly interests life span and life course psychologists is the individual’s perception and evaluation of their own aging and identification with an age group. Subjective age is a multidimensional construct that indicates how old (or young) a person feels, and into which age group a person categorizes themselves. After early adulthood, most people say that they feel younger than their chronological age, and the gap between subjective age and actual age generally increases. On average, after age 40 people report feeling 20% younger than their actual age (e.g., Rubin & Berntsen,

2006). Asking people how satisfied they are with their own aging assesses an evaluative component of age identity. Whereas some aspects of age identity are positively valued (e.g., acquiring seniority in a profession or becoming a grandparent), others may be less valued, depending on societal context. Perceived physical age (i.e., the age one looks in a mirror) is one aspect that requires considerable self-related adaptation in social and cultural contexts that value young bodies. Feeling younger and being satisfied with one's own aging are expressions of positive self-perceptions of aging. They reflect the operation of self-related processes that enhance well-being. Levy (2009) found that older individuals who are able to adapt to and accept changes in their appearance and physical capacity in a positive way report higher well-being, have better health, and live longer.

There is now an increasing acceptance of the view within developmental psychology that an uncritical reliance on chronological age may be inappropriate. People have certain expectations about getting older, their own idiosyncratic views, and internalized societal beliefs. Taken together they constitute a tacit knowledge of the aging process. A negative perception of how we are aging can have real results in terms of life expectancy and poor health. Levy et al (2002) estimated that those with positive feelings about aging lived 7.5 years longer than those who did not. Subjective aging encompasses a wide range of psychological perspectives and empirical research. However, there is now a growing body of work centered around a construct referred to as Awareness of Age Related Change (AARC) (Diehl et al, 2015), which examines the effects of our subjective perceptions of age and their consequential, and very real, effects. Newport & Bellinger (2017) report that this subjective awareness can change on a daily basis, and that negative events or comments can disproportionately affect those with the most positive outlook on aging.

Work Satisfaction

Middle adulthood is characterized by a time of transition, change, and renewal. Accordingly, 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). However, that is far from the entire story and repeats, once more, the paradoxical nature of the research findings from this period of the life course. Dobrow, Gazach & Liu (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. Again, as socio-emotional selectivity theory would predict, there is a marked 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.

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.

Relationships at Work

Working adults spend a large part of their waking hours in relationships with coworkers and supervisors. 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, Luthans, & Jeung, 2014; Monnot & Beehr, 2014; Winkler, Busch, Clasen, & Vowinkel, 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, Neumann, Hare, & Babiak, 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, Schaufeli, Kamiyama, & Kawakami, 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.

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.

Organizations, public and private, are going to have to deal with an older workforce. The proportion of people in Europe over 60 will increase from 24% to 34% by 2050 (United Nations 2015), the US Bureau of Labor Statistics predicts that 1 in 4 of the US workforce will be 55 or over. Workers may have good reasons to avoid retirement, although it is often viewed as a time of relaxation and well-earned rest, statistics may indicate that a continued focus on the future may be preferable to stasis, or inactivity. In fact, Fitzpatrick & Moore (2018) report that death rates for American males jump 2% immediately after they turn 62, most likely a result of changes induced by retirement. Interestingly, this small spike in death rates is not seen in women, which may be the result of women having stronger social determinants of health (SDOH), which keep them active and interacting with others out of retirement.

Knowledge Check

9h. Which of the following Big Five personality traits tends to increase in adulthood according to longitudinal research?

- A) Neuroticism
- B) Openness
- C) Extroversion
- D) Conscientiousness

9i. According to research, which of the following is a key motivation for older adults to remain in the workforce?

- A) Desire to pass on knowledge and skills to others.
- B) Need to delay retirement benefits.
- C) Lack of interest in leisure.
- D) Pressure from employers.

9j. What does the term "paradox of aging" refer to?

- A) The idea that aging always results in lower cognitive performance.
- B) The observation that subjective well-being often increases with age despite physical decline.
- C) The belief that older adults are more isolated and unhappy.
- D) The concept that personality becomes completely fixed after midlife.

Key Takeaways

- Control beliefs: the belief that an individual can influence life outcomes, encompassing estimations of relevant external constraints and our own capabilities
 - Crystallized intelligence: knowledge, skills, and experience acquired over a lifetime, accessible via memory and expressible in word/number form
 - Fluid intelligence: the ability to recognize patterns and solve problems, irrespective of any past experience of the context in which these patterns or problems arise
 - Tacit knowledge: pragmatic or practical and learned through experience rather than explicitly taught
 - Generativity: the ability to look beyond self-interest and motivate oneself to care for, and contribute to, the welfare of the next generation
 - Leader generativity: mentoring and passing on of skills and experience that older adults can provide at work to feel motivated
 - Plaster hypothesis: the belief that personality is set like plaster by around the age of thirty
 - Selection, optimization, compensation (SOC) theory: theory which argues that the declines experienced at this time are not simple or absolute losses. Or, rather, they need not be. Baltes argues that life is a series of adaptations and that the selection of fewer goals, optimizing our personal and social resources to attain them, and then compensating for any loss with the experience of a lifetime, should ameliorate those losses. They do not completely negate them but a positive attitude of engagement can, and does, lead to successful ageing
 - Socioemotional selectivity theory: theory associated with the developmentalist Laura Carestensen which posits a shift at this time in the life course, caused by a shift in time horizons. Time left in our lives is now shorter than time previously spent. Consciously, or sub-consciously, this influences a greater unwillingness to “suffer fools gladly” or endure unsatisfactory situations at work or elsewhere. Emotional regulation, and the satisfactions that affords, becomes more important, and demands fulfillment in the present
 - Stage-crisis view: theory associated with Levinson (and Erikson before) that each life stage is characterized by a fundamental conflict(s) which must be resolved before moving on to the next. Each stage has its challenges which are resolved, instigating a period of transition which sets the stage for the next
 - Stagnation: a feeling of a disconnect from wider society experience by those 40-65 who fail to develop the attitude of care associated with generativity
-

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Sources

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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.
- ‘Glossary’ turned into ‘key takeaways’.

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Figure Attributions

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Figure 9.4 (c) jan saudek. [A midlife crisis is a transition of identity and self-confidence that can occur in middle-aged individuals, typically 40 to 60 years old, this can affect men and women differently because their stressors differ. A cultural stereotype of a man going through a midlife crisis may include the purchase of a luxury item such as an exotic car](#). Public Domain Mark 1.0 Universal.

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Video 9.1. Sprouts. (2017, April 23). *8 Stages of Development by Erik Erikson*. [Video]. Youtube. <https://www.youtube.com/watch?v=aYCBdZLCDBQ>

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Video 9.3. SciShow Psych. (2018, March 08). *Does Everyone Have a 'Midlife Crisis'?*. [Video]. Youtube. <https://www.youtube.com/watch?v=Kis4Ziz0TPk>

Long Descriptions

Figure 9.1 (c) Tumisu. A comical cartoon of a human brain lifting a weighted bar. CC0 1.0 Universal. Alt Text: A cartoon brain lifting a barbell with sweat drops around it on a light peach background.

Figure 9.2 (c) Gülşah Aydoğan. Woman Hands Typing on Laptop. [Pexels License](#). Alt Text: Person typing on a laptop at a wooden table with a notebook, pen, and eyeglasses.

Figure 9.3 (c) The free high-resolution photo of people, bench, lawn, vacation, meeting, tranquility, brunette, spring, park, backyard, garden, leisure, blonde, conversation, stroll, trees, outdoors, women, discussion. Public Domain List. Alt Text: Two middle-aged women sitting on benches in a park, looking at each other and smiling pleasantly.

Figure 9.4 (c) jan saudek. A midlife crisis is a transition of identity and self-confidence that can occur in middle-aged individuals, typically 40 to 60 years old, this can affect men and women differently because their stressors differ. A cultural stereotype of a man going through a midlife crisis may include the purchase of a luxury item such as an exotic car. Public Domain Mark 1.0 Universal. Alt Text: A middle aged man in a blue suit stands with arms wide open next to a red sports car in front of a historic brick building. The figure depicts midlife crises and individuals' making bold choices.

Figure 9.5 (c) Kevin Dooly. Midlife crisis car. Attribution 2.0 Generic. Alt Text: A smiling couple stands beside a shiny black car in a parking lot. The man wears a striped shirt, the woman a colorful top, radiating joy and pride.

Chapter 10: Relationships in Middle Adulthood

10.1 Learning Objectives

- Describe the link between intimacy and subjective well-being
- Discuss issues related to family life in middle adulthood
- Discuss divorce and recoupling during middle adulthood

10.2 Introduction

The importance of establishing and maintaining relationships in middle adulthood is now well established in academic literature—there are now thousands of published articles purporting to demonstrate that social relationships are integral to any and all aspects of subjective well-being and physiological functioning, and these help to inform actual healthcare practices. Studies show an increased risk of dementia, cognitive decline, susceptibility to vascular disease, and increased mortality in those who feel isolated and alone. However, loneliness is not confined to people living a solitary existence. It can also refer to those who endure a perceived discrepancy in the socio-emotional benefits of interactions with others, either in number or nature. One may have an expansive social network and still feel a dearth of emotional satisfaction in one's own life.

Socioemotional selectivity theory (SST) predicts a quantitative decrease in the number of social interactions in favor of those bringing greater emotional fulfillment. Over the past thirty years, or more, there have been significant social changes which have in turn, had a large effect on human bonding. These have affected the way we manage our emotional interactions, and the manner in which society views, shapes and supports that emotional regulation. Government policy has also changed and has had a profound influence on how families are shaped, reshaped, and operate as social and economic agents.



Figure 10.1 Relationships in Middle Adulthood

10.3 Types of Relationships



Video 10.1: [6 Stages of a Relationship - Which One Are You?](#)

Intimate Relationships

It makes sense to consider the various types of relationships in our lives when trying to determine just how relationships impact our well-being. For example, would you expect a person to derive the same happiness from an ex-spouse as from a child or coworker? Among the most important relationships for most people is their long-time romantic partner. Most researchers begin their investigation of this topic by focusing on intimate relationships because they are the closest form of social bond. Intimacy is more than just physical in nature; it also entails psychological closeness. Research findings suggest that having a single confidante—a person with whom you can be authentic and trust not to exploit your secrets and vulnerabilities—is more important to happiness than having a large social network (Taylor, 2010).

Another important aspect of relationships is the distinction between formal and informal. Formal relationships are those that are bound by the rules of politeness. In most cultures, for instance, young people treat older people with formal respect, avoiding profanity and slang when interacting with them. Similarly, workplace relationships tend to be more formal, as do relationships with new acquaintances. Formal connections are generally less relaxed because they require a bit more work, demanding that we exert more self-control. Contrast these connections with informal relationships—friends, lovers, siblings, or others with whom you can relax. We can express our true feelings and opinions in

these informal relationships, using the language that comes most naturally to us, and generally be more authentic. Because of this, it makes sense that more intimate relationships—those that are more comfortable and in which you can be more vulnerable—might be the most likely to translate to happiness.

Marriage and Happiness

One of the most common ways that researchers often begin to investigate intimacy is by looking at marital status. The well-being of married people is compared to that of people who are single or have never been married. In other research, married people are compared to people who are divorced or widowed (Lucas & Dyrenforth, 2005). Researchers have found that the transition from singlehood to marriage brings about an increase in subjective well-being (Haring-Hidore, Stock, Okun, & Witter, 1985; Lucas, 2005; Williams, 2003). In fact, this finding is one of the strongest in social science research on personal relationships over the past quarter of a century.

As is usually the case, the situation is more complex than might initially appear. As a marriage progresses, there is some evidence for a regression to a hedonic set-point—that is, most individuals have a set happiness point or level, and that both good and bad life events – marriage, bereavement, unemployment, births and so on – have some effect for a period of time, but over many months, they will return to that set-point. One of the best studies in this area is that of Luhmann et al (2012), who report a gradual decline in subjective well-being after a few years, especially in the component of affective well-being. Adverse events obviously have an effect on subjective well-being and happiness, and these effects can be stronger than the positive effects of being married in some cases (Lucas, 2005).

Although research frequently points to marriage being associated with higher rates of happiness, this does not guarantee that getting married will make you happy! The quality of one's marriage matters greatly. When a person remains in a problematic marriage, it takes an emotional toll. Indeed, a large body of research shows that people's overall life satisfaction is affected by their satisfaction with their marriage (Carr, Freedman, Cornman, Schwarz, 2014; Dush, Taylor, & Kroeger, 2008; Karney, 2001; Luhmann, Hofmann, Eid, & Lucas, 2012; Proulx, Helms, & Buehler, 2007). The lower a person's self-reported level of marital quality, the more likely he or she is to report depression (Bookwala, 2012). In fact, longitudinal studies—those that follow the same people over a period of time—show that as marital quality declines, depressive symptoms increase (Fincham, Beach, Harold, & Osborne, 1997; Karney, 2001). Proulx and colleagues (2007) arrived at this same conclusion after a systematic review of 66 cross-sectional and 27 longitudinal studies.



Figure 10.2 Marriage and Happiness

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 typically become more traditional and there are more financial hardships and stress in living. Children bring new expectations to the marital relationship. Two people who are comfortable with their roles as partners may find the added parental duties and expectations more challenging to meet. Some couples elect not to have children in order to have more time and resources for the marriage. These child-free couples are happy keeping their time and attention on their partners, careers, and interests.

What is it about bad marriages, or bad relationships in general, that takes such a toll on well-being? Research has pointed to conflict between partners as a major factor leading to lower subjective well-being (Gere & Schimmack, 2011). This makes sense. Negative relationships are linked to ineffective social support (Reblin, Uchino, & Smith, 2010) and are a source of stress (Holt-Lunstad, Uchino, Smith, & Hicks, 2007). In more extreme cases, physical and psychological abuse can be detrimental to well-being (Follingstad, Rutledge, Berg, Hause, & Polek, 1990). Victims of abuse sometimes feel shame, lose

their sense of self, and become less happy and prone to depression and anxiety (Arias & Pape, 1999). However, the unhappiness and dissatisfaction that occur in abusive relationships tend to dissipate once the relationships end. (Arriaga, Capezza, Goodfriend, Rayl & Sands, 2013).

Marital Communication

Advice on how to improve one's marriage is centuries old. One of today's experts on marital communication is John Gottman. Gottman differs from many marriage counselors in his belief that having a good marriage does not depend on compatibility, rather, the way that partners communicate with one another is crucial. At the University of Washington in Seattle, Gottman has measured the physiological responses of thousands of couples as they discuss issues which have led to disagreements. Fidgeting in one's chair, leaning closer to or further away from the partner while speaking, and increases in respiration and heart rate are all recorded and analyzed, along with videotaped recordings of the partners' exchanges.

Gottman believes he can accurately predict whether or not a couple will stay together by analyzing their communication. In marriages destined to fail, partners engage in the "marriage killers" such as contempt, criticism, defensiveness, and stonewalling. Each of these undermines the politeness and respect that healthy marriages require. According to Gottman, stonewalling, or shutting someone out, is the strongest sign that a relationship is destined to fail. Perhaps the most interesting aspect of Gottman's work is the emphasis on the fact that marriage is about constant negotiation rather than conflict resolution.

What Gottman terms perpetual problems are responsible for 69% of conflicts within marriage. For example, if someone in a couple has said, "I am so sick of arguing over this," then that may be a sign of perpetual problems. While this may seem problematic, Gottman argues that couples can still be connected despite these perpetual problems if they can laugh about it, treat it as a "third thing" (not reducible to the perspective of either party), and recognize that these are part of relationships that need to be aired and dealt with as best you can. It is somewhat refreshing to hear that differences lie at the heart of marriage, rather than a rationale for its dissolution!

Parenting in Later Life

Just because children grow up does not mean their family stops being a family, rather the specific roles and expectations of its members change over time. One major change comes when a child reaches adulthood and moves away. When exactly children leave home varies greatly depending on societal norms and expectations, as well as on

economic conditions such as employment opportunities and affordable housing options. Some parents may experience sadness when their adult children leave the home—a situation called an empty nest.

Many parents are also finding that their grown children are struggling to launch into independence. It's an increasingly common story: a child goes off to college and, upon graduation, is unable to find steady employment. In such instances, a frequent outcome is for the child to return home, becoming a "boomerang kid." The boomerang generation, as the phenomenon has come to be known, refers to young adults, mostly between the ages of 25 and 34, who return home to live with their parents while they strive for stability in their lives—often in terms of finances, living arrangements, and sometimes romantic relationships. These boomerang kids can be both good and bad for families. Within American families, 48% of boomerang kids report having paid rent to their parents, and 89% say they help out with household expenses—a win for everyone (Parker, 2012). On the other hand, 24% of boomerang kids report that returning home hurts their relationship with their parents (Parker, 2012). For better or for worse, the number of children returning home has been increasing around the world. The Pew Research Center (2016) reported that the most common living arrangement for people aged 18-34 was living with their parents (32.1%).

Adult children typically maintain frequent contact with their parents, if for no other reason, money and advice. Attitudes toward one's parents may become more accepting and forgiving, as parents are seen in a more objective way, as people with good points and bad. As adults children can continue to be subjected to criticism, ridicule, and abuse at the hand of parents. How long are we "adult children"? For as long as our parents are living, we continue in the role of son or daughter. (I had a neighbor in her nineties who would tell me her "boys" were coming to see her this weekend. Her boys were in their 70s-but they were still her boys!) But after one's parents are gone, the adult is no longer a child; as one 40 year old man explained after the death of his father, "I'll never be a kid again."



Figure 10.3 Parenting in Later Life

Knowledge Check

10a. Research comparing marital status groups finds that the transition from singlehood to marriage is most consistently associated with which of the following outcomes?

- A) A permanent increase in happiness that does not change over time.
- B) A short-term drop in subjective well-being followed by recovery to baseline.
- C) An increase in subjective well-being, though levels may later regress toward a set-point.
- D) No reliable change in subjective well-being at the population level.

10b. Marital quality is a stronger predictor of depressive symptoms than simple marital status (married vs. unmarried).

- A) True
- B) False

10c. What term is used to describe adult children who return to live with their parents after a period of independence?

- A) Empty nesters
- B) Boomerang kids
- C) Generation Alpha
- D) Sandwich generation

10.4 Family Issues and Considerations

In addition to middle-aged parents spending more time, money, and energy taking care of their adult children, they are also increasingly taking care of their own aging and ailing parents. Middle-aged people in this set of circumstances are commonly referred to as the sandwich generation (Dukhovnov & Zagheni, 2015). Of course, cultural norms and practices again come into play. In some Asian and Hispanic cultures, the expectation is that adult children are supposed to take care of aging parents and parents-in-law. In other Western cultures—cultures that emphasize individuality and self-sustainability—the expectation has historically been that elders either age in place, modify their home and receive services to allow them to continue to live independently, or enter long-term care facilities. However, given financial constraints, many families find themselves taking in and caring for their aging parents, increasing the number of multigenerational homes around the world.

Being a midlife child often involves kinkeeping; organizing events and communication in order to maintain family ties. This role was first defined by Carolyn Rosenthal (1985). Kinkeepers are often midlife daughters (they are the person who tells you what food to bring to a gathering, or makes arrangements for a family reunion). They can often function as “managers” who maintain family ties and lines of communication. This is true for both large nuclear families, reconstituted, and multi-generational families. Rosenthal found that over half of the families she sampled were capable of identifying the individual who performed this role. Often adults at this stage of their lives are pressed into caregiving roles. Often referred to as the “sandwich generation”, they are still looking out for their own children while simultaneously caring for elderly parents. Given shifts in longevity and increasing costs for professional care of the elderly, this role will likely expand, placing ever greater pressure on careers.

Abuse in Family Life

Abuse can occur in multiple forms and across all family relationships. Breiding, Basile, Smith, Black, & Mahendra (2015) define the forms of abuse as:

- Physical abuse: the use of intentional physical force to cause harm. Scratching, pushing, shoving, throwing, grabbing, biting, choking, shaking, slapping, punching, and hitting are common forms of physical abuse
- Sexual abuse: the act of forcing someone to participate in a sex act against his or her will. Such abuse is often referred to as sexual assault or rape. A marital relationship does not grant anyone the right to demand sex or sexual activity from anyone, even a spouse
- Psychological abuse: aggressive behavior that is intended to control someone else. Such abuse can include threats of physical or sexual abuse, manipulation, bullying, and stalking.

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

The most common form of abuse between parents and children is that of neglect. Neglect refers to a family's failure to provide for a child's basic physical, emotional, medical, or educational needs (DePanfilis, 2006). Harry Potter's aunt and uncle, as well as Cinderella's stepmother, could all be prosecuted for neglect in the real world.

Abuse is a complex issue, especially within families. There are many reasons people become abusers: poverty, stress, and substance abuse are common characteristics shared by abusers, although abuse can happen in any family. There are also many reasons adults stay in abusive relationships: (a) learned helplessness (the abused person believing he or she has no control over the situation); (b) the belief that the abuser can/will change; (c) shame, guilt, self-blame, and/or fear; and (d) economic dependence. All of these factors can play a role.

Children who experience abuse may "act out" or otherwise respond in a variety of unhealthy ways. These include acts of self-destruction, withdrawal, and aggression, as well as struggles with depression, anxiety, and academic performance. Researchers have found that abused children's brains may produce higher levels of stress hormones. These hormones can lead to decreased brain development, lower stress thresholds, suppressed immune responses, and lifelong difficulties with learning and memory (Middlebrooks & Audage, 2008).

Knowledge Check

10d. What term describes middle-aged adults who are responsible for caring for both their children and their aging parents?

- A) Kinkeepers
- B) Care coordinators
- C) Sandwich generation
- D) Multigenerational caregivers

10e. Neglect is the most common form of abuse in the parent-child relationship.

- A) True
- B) False

Happy Healthy Families

Our families play a crucial role in our overall development and happiness. They can support and validate us, but they can also criticize and burden us. For better or worse, we all have a family. In closing, here are strategies you can use to increase the happiness of your family:

- 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, Gonzaga & Strachman, 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, Birnie-Lefcovitch & Ungar, 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, Worthington & Rachal, 1997).

10.5 Divorce and Remarriage

Divorce

Divorce refers to the legal dissolution of a marriage. Depending on societal factors, divorce may be more or less of an option for married couples. Despite popular belief, divorce rates in the United States actually declined for many years during the 1980s and

1990s, and only just recently started to climb back up—landing at just below 50% of marriages ending in divorce today (Marriage & Divorce, 2016); however, it should be noted that divorce rates increase for each subsequent marriage, and there is considerable debate about the exact divorce rate. Are there specific factors that can predict divorce? Are certain types of people or certain types of relationships more or less at risk for breaking up? Indeed, there are several factors that appear to be either risk factors or protective factors.

Pursuing education decreases the risk of divorce. So too does waiting until we are older to marry. Likewise, if our parents are still married we are less likely to divorce. Factors that increase our risk of divorce include having a child before marriage and living with multiple partners before marriage, known as serial cohabitation (cohabitation with one's expected marital partner does not appear to have the same effect). Of course, societal and religious attitudes must also be taken into account. In societies that are more accepting of divorce, divorce rates tend to be higher. Likewise, in religions that are less accepting of divorce, divorce rates tend to be lower. See Lyngstad & Jalovaara (2010) for a more thorough discussion of divorce risk.

Table 10.1 Protective and Risk Factors for Divorce

Protective Factors	Risk Factors
Higher levels of education	Children before marriage
Marrying at older age	Cohabitation
Parents remain married	Live in society accepting of divorce
Member of religious group less accepting of divorce	

If a couple does divorce, there are specific considerations they should take into account to help their children cope. Parents should reassure their children that both parents will continue to love them and that the divorce is in no way the children's fault. Parents should also encourage open communication with their children and be careful not to bias them against their "ex" or use them as a means of hurting their "ex" (Denham, 2013; Harvey & Fine, 2004; Pescosoido, 2013).

A “Gray Divorce Revolution”?

In 2013 Brown and Lin referred to a “gray divorce revolution”. The figures certainly seem to support their contention. The rate of divorce had doubled for those aged 50-64 in the twenty years between 1990 and 2010. One in 10 persons who divorced in 1990 were over age 50, by 2010 it was over 1 in 4, accounting for some 25% of all divorces in the USA. Various explanations have been offered for this phenomenon. The “baby boomers” had divorced in large numbers in early adulthood, and a large number of remarriages within this group also ended in divorce. Remarriages are about 2.5 times more likely to end in divorce than first marriages. People are living longer and are no longer satisfied with relationships deemed insufficient to meet their emotional needs. The shift to companionate marriage in the latter half of the 20th century had followed this segment of the population into midlife, with divorce rates diminishing or stabilizing for other segments of the population.



Figure 10.4 Gray Divorce

Socio-emotional selectivity theory would predict that the shift of perspective from time spent to time remaining would predict people valuing experiences and relationships in the present, rather than holding onto memories of the past, or an idealized vision of what might yet come to be. Nevertheless, Cohen (2018) predicts a substantial decline in divorce rates for those who are not part of the “baby boom” generation, and that marriage rates will stabilize once more in subsequent generational cohorts. There has been a marked decline in divorce rates for those under 45 and the link between college education

and marriage is now quite pronounced. People are now waiting until later in life to marry for the first time. The average age is now 27 for women and 29 for men, and it is even higher in urban centers like NYC. However, Reeves et al (2016) show that just over half of women with high school diplomas in their 40s are married, with the figures rising to 75% of those women with Bachelors degrees. Increasing economic insecurity may have played a part in ensuring that marriage may increasingly be correlated with educational attainment and socioeconomic status rather than cohorts based solely on age.

U.S. households are now increasingly single person households. The number is reckoned to be in excess of 28% of all households, and may become the most common form in the near future if trends in Europe are anything to go by. There, the number of one-person households in countries like Denmark and Germany exceed 40%, with other major European countries like France not far from reaching that proportion. The number of Americans who are unmarried continues to increase. About 45% of all Americans over the age of 18 are unmarried, in 1960 that number was 28% (US Census, 2017). Around 1 in 4 young adults in the USA today will never marry (Pew, 2014). The diversity of households will continue to increase. Currently, the number of one person households in Japan and Germany is double that of households with children under 18.



Video 10.2: [The Gray Divorce Revolution: Understanding The Rising Trend](#)

Knowledge Check

10f. Which of the following is a protective factor against divorce?

- A) Having a child before marriage.
- B) Serial cohabitation.
- C) Marrying at an older age.
- D) Living in a society that accepts divorce.

10g. What does the term “gray divorce” refer to?

- A) The rising trend of divorce among people aged 50 and older.
- B) Divorces that occur within the first year of marriage.
- C) Divorces between couples with children under age 10.
- D) Divorce rates among newlyweds in urban areas.

Remarriage and Repartnering

Middle adulthood seems to be the prime time for remarriage, as the Pew Research Center reported in 2014 that of those aged between 55-64 who had previously been divorced, 67% had remarried. In 1960, it was 55%. Every other age category reported declines in the number of remarriages. Notably, remarriage is more popular with men than women, a gender gap that not only persists, but grows substantially in middle and later adulthood. 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. Few couples engage in premarital counseling or other structured efforts to cover this ground before entering into marriage again.

The divorce rate for second marriages is reckoned to be in excess of 60%, and for third marriages even higher. There is little research in the area of repartnering and remarriage, and the choices and decisions made during the process. A notable exception is that of Brown et al (2019) who offer an overview of the little that there is, and their own conclusions. One important constraint which they note is that men prefer younger women, at least as far as remarriage is concerned. Indeed, the gap in age is often more pronounced in second marriages than in the first, according to Pew (2014). Allied to the fact that women live, on average, five years longer in the USA, then the pool of available partners shrinks for women. Brown et al (2019), also argue that this is further reinforced by the fact that women have a preference for retaining their autonomy and not playing the role of caregiver again. Perhaps the most interesting aspect of their research is the fact that those who repartner tend to do so quickly, and that longer term singles are more likely to remain so.

Reviews are mixed as to how happy remarriages are. Some say that they have found the right partner and have learned from mistakes. But the divorce rates for remarriages are higher than for first marriages. This is especially true in stepfamilies for reasons which we have already discussed. People who have remarried tend to divorce more quickly than those first marriages. This may be due to the fact that they have fewer constraints on staying married (are more financially or psychologically independent).

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 as noted above. 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). Education increases men's likelihood of remarrying but may reduce the likelihood for women. Part of this is due to the expectation (almost an unspoken rule) referred to as the "marriage gradient." This rule suggests among couples, the man is supposed to have more education than the woman. 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.

One key factor in understanding some of these issues is the level of continuing parental investment in adult children, and possibly their children. The number of grandparents raising children in the USA is reckoned to be in the vicinity of 2.7 million. In addition, there is the continued support of adult children themselves which can be substantial. The Pew Research document "Helping Adult Children" (2015) gives some indication of the nature and extent of this support, which tends to be even greater in Europe than the USA, with 60% of Italian parents reporting an adult child residing with them most of the year.

Blended Families

Most academic research on reconstituted or blended families focuses on younger adults and the kind of difficulties which ensue when trying to blend children raised by a different spouse/partner and one or more adults with perhaps different views or experience on how this might be accomplished. All sorts of issues can arise: conflicted loyalties, different attitudes to discipline, role-ambiguity, and the simple fact of a far-reaching change easily perceived as a disruption on the part of a child. Given the rise of the gray divorce, it is

increasingly the case that this age group will encounter later age, or adult children (sometimes called the “boomerang generation”), in the house of their new partners. Such encounters are even more likely given the rise of the so-called “silver surfer” utilizing online dating sites, and the fact that an increasing number of adult children continue to live at home given the increased cost of housing.

There has not been substantial research on recoupling and blended families in later life, but Papernow (2018) notes that all of the factors normally in play with younger children can be just as present, and even exacerbated, by the fact that previous relationships have had an even longer time to grow and solidify. In addition, stepfamilies formed in later life may have very difficult and complicated decisions to make about estate planning and elder care, as well as navigating daily life together, as an increasing number of young adults live at home (“grown but not gone”). Papernow lists five challenges for later-life stepfamilies:

- Stepparents are stuck as outsiders, while parents are the insiders in their relationships with their families.
- Stepchildren struggle with the change, even as adults, as they navigate new dynamics in family gatherings, status, and loyalty issues.
- 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.
- Stepfamilies must build a new family culture, even after there are already at least two established family cultures coming together.
- 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.

Knowledge Check

10h. What is one major reason women are less likely than men to remarry in later life?

- A) Women have fewer financial resources.
- B) Women prefer younger men.
- C) Women tend to initiate divorce more frequently.
- D) Women often have children living with them and desire autonomy.

10i. What is one of the key challenges later-life stepfamilies face, according to Papernow?

- A) Lack of shared religious values.
- B) Pressure to have more children.
- C) Stepparents are often outsiders while parents remain insiders.
- D) Difficulty managing young children's homework.

10j. According to socioemotional selectivity theory (SST), what motivates older adults to narrow their social networks?

- A) Increased health concerns
- B) A shift toward emotionally meaningful interactions as time horizons shrink.
- C) Decreased interest in social life.
- D) Financial limitations and retirement planning.

Key Takeaways

- Kinkeeping: “emotion work”, often undertaken by women, to foster and maintain family relationships
- Physical abuse: the use of intentional physical force to cause harm
- Psychological abuse: aggressive behavior that is intended to control someone else
- Sandwich generation: a cohort of people charged with the dual responsibility of looking after elderly parents while raising their own children
- Sexual abuse: the act of forcing someone to participate in a sex act against their will

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Sources

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- Made some changes to 'learning objectives'.
- Added the chapter 'introduction' section.
- Figures have also been changed from the original.
- Videos and original quiz questions have also been added to the text.
- 'Glossary' turned into 'key takeaways'.

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Figure Attributions

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Video 10.1. Psych2Go. (2019, April 05). 6 Stages of a Relationship - Which One Are You?. [Video]. Youtube. <https://www.youtube.com/watch?v=Umz9SgjRroY>

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Long Descriptions

Figure 10.1 (c) fauxels. [Photo Of People Holding Each Other's Hands. Pexels license](#). Alt Text: A picture of middle aged individuals giving a collective high five to each other, showing friendliness and bond with each other.

Figure 10.2 (c) [person wearing silver-colored band rings](#). Public Domain List. Alt Text: A picture of two fists of a heterogenous couple, both flaunting their wedding rings.

Figure 10.3 (c) [Optimizing Divorce Finances with CDFA for Successful Mediation](#). CC BY-NC 4.0. Alt Text: A heterogenous couple sitting with their child in a living room, helping the child do their homework.

Figure 10.4 (c) Mikhail Nilov. [Man in Blue Dress Shirt Sitting Beside Woman in Black Long Sleeve Shirt. Pexels License](#). Alt Text: A middle aged man and a woman sitting on a couch, discussing something important.

Unit 4: Older Adulthood

This unit contains the following chapters:

- 11. Older Adulthood: Demographics, and Theories of Older Adulthood
- 12. Physical and Sensory Changes and Health Issues
- 13. Brain Functioning and Sleep in Older Adulthood

Chapter 11: Older Adulthood

11.1 Learning Objectives

- Describe the increase in the number of individuals who are currently identified as late adults
- Describe the increase in late adulthood worldwide
Explain gender and ethnic differences in the number of individuals identified as late adults
- Explain the different ways developmental psychologists describe aging
- Explain the difference between lifespan and life expectancy
- Describe the impact of COVID-19 on life expectancy in the world and United States
- Describe how life expectancy differed based on ethnicity and gender
- Define the four age categories for late adulthood
- Explain what factors contribute to becoming a centenarian
- Describe different theories of aging

11.2 Introduction

Late adulthood spans the time when we reach our mid-sixties until death. This is the longest developmental stage across the lifespan. In this chapter, we will consider the growth in numbers for those in late adulthood, how that number is expected to change in the future, and the implications this will bring to both the United States and worldwide. 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. Further, ageism and many of the myths associated with those in late adulthood will be explored.

11.3 Late Adulthood in America

Late adulthood, which includes those aged 65 years and above, is the fastest growing age division of the United States population (Gatz et al., 2016). Currently, one in seven Americans is 65 years of age or older. The first of the baby boomers (born from 1946–1964) turned 65 in 2011, and approximately 10,000 baby boomers turn 65 every day. By the year 2050, almost one in four Americans will be over 65, and will be expected to live longer than previous generations. According to the U. S. Census Bureau (2014b) a person who turned 65 in 2015 can expect to live another 19 years, which is 5.5 years longer than someone who turned 65 in 1950. 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. Table 11.1 shows the 2012, 2020, and 2030 projected percentages of the U.S. population ages 65 and older.

Table 11.1 Percent of the United States Population 65 Years or Older.

Percent of United States Population	2012	2020	2030
Total 65 Years and Older	13.7%	16.8%	20.3%
65–69	4.5%	5.4%	5.6%
70–74	3.2%	4.4%	5.2%
75–79	2.4%	3.0%	4.1%
80–84	1.8%	1.9%	2.9%
85 Years and Older	1.9%	2.0%	2.5%

Compiled from data from An Aging Nation: The older population in the United States. United States Census Bureau. <http://www.census.gov/prod/2014pubs/p25-1140.pdf>.

The "Graying" of the World

Even though the United States is aging, it is still younger than most other developed countries (Ortman et al., 2014). Germany, Italy, and Japan all had at least 20% of their population aged 65 and over in 2012, and Japan had the highest percentage of elderly. Additionally, between 2012 and 2050, the proportion aged 65 and over is projected to increase in all developed countries. Japan is projected to continue to have the oldest population in 2030 and 2050. Table 11.2 shows the percentages of citizens aged 65 and older in select developed countries in 2012 and projected for 2030 and 2050.

Table 11.2 Percent of the World Population 65 Years or Older

Percent of world	2012	2020	2030
America	13.7%	20.3%	22%
Japan	24%	32.2%	40%
Germany	20%	27.9%	30%
Italy	20%	25.5%	31%
Canada	16.5%	25%	26.5%
Russia	13%	20%	26%

*Compiled from data from An Aging Nation: The older population in the United States.
United States Census Bureau.*

According to the National Institute on Aging (NIA, 2015b), there are 524 million people over 65 worldwide. This number is expected to increase from 8% to 16% of the global population by 2050. Between 2010 and 2050, the number of older people in less developed countries is projected to increase more than 250%, compared with only a 71% increase in developed countries. Declines in fertility and improvements in longevity account for the percentage increase for those 65 years and older. In more developed countries, fertility fell below the replacement rate of two live births per woman by the 1970s, down from nearly three children per woman around 1950. Fertility rates also fell in many less developed countries from an average of six children in 1950 to an average of two or three children in 2005. In 2006, fertility was at or below the two-child replacement level in 44 less developed countries (NIA, 2015d).

In total, 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). 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 older people 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.

Knowledge Check

11a. What term is used to describe the significant increase in the older population of the United States?

- A) Aging Boom
- B) The Silver Shift
- C) The Graying of America
- D) The Senior Surge

11b. Which of the following best distinguishes life expectancy from lifespan?

- A) Life expectancy refers to the longest anyone has ever lived; lifespan is the average age of death.
- B) Lifespan refers to average years lived; life expectancy refers to maximum biological potential.
- C) Lifespan is the biological limit of life; life expectancy is the average number of years people in a population are expected to live.
- D) Life expectancy only applies to people over age 65; lifespan applies to all humans.



Figure 11.1 Older Adulthood



Video 11.1: [How an aging population poses challenges for U.S. economy, workforce and social programs](#)

11.4 Life Expectancy

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. Pre-COVID-19, the World Health Organization (WHO) (2019) reported that the global life expectancy for those born in 2019 was 72.0 years, with females reaching 74.2 years and males reaching 69.8 years. Women lived longer than men around the world, and this gap has remained the same since 1990. Life expectancy ranged from 61.2 years in the WHO African Region to 77.5 years in the WHO European Region. Overall, global life expectancy increased by 5.5 years between 2000 and 2016. Improvements in child survival and access to antiretroviral medication for the treatment of HIV were considered factors for the increase. However, life expectancy in low-income countries (62.7 years) was 18.1 years lower than in high-income countries (80.8 years). In high-income countries, the majority of people who died were old, while in low-income countries almost one in three deaths were in children under 5 years of age.

COVID-19 and World Life Expectancy

According to a recent WHO report (2022) current estimates indicate that the COVID-19 pandemic is either slowing or reversing the rising trend for life expectancy in the world. The WHO report found that life expectancy in 2020 had fallen in all but three of 37 high income and upper middle income countries compared with 2019, with men experiencing

a greater decline in life expectancy. The study estimated that more than 28 million excess years of life were lost in 2020 in those 37 countries.

Woolf et al. (2022) looked specifically at comparing 2020 life expectancy in the U.S. with 21 peer countries. While the 2020 U.S. life expectancy decreased 1.8 years from 2019 to 2020, the average decrease in life expectancy among the comparison countries was only 0.58 years. No peer country experienced decreases as large as those seen in the U.S. The average life expectancy in the peer countries was 81.50 years, which was 4.5 years higher than the U.S. life expectancy. Outcomes in peer countries ranged from a decrease of 1.43 years in Spain to increases in life expectancies in New Zealand, South Korea, and Taiwan. In Denmark, Finland, and Norway, life expectancy did not change significantly. Given that COVID-19 mortality and excess deaths in the U.S. were among the highest in the world, it is not surprising that the decline in U.S. life expectancy exceeded the declines in other countries. Since 2010, U.S. life expectancy has remained stagnant, and even decreased for three consecutive years from 2014 to 2017. In contrast, life expectancy in other countries continued to increase resulting in a widening life expectancy gap with peer nations. This 2020 preliminary evidence proposes that the gap with other countries increased even further during the COVID-19 pandemic.

World Healthy Life Expectancy

A better way to appreciate the diversity of people in late adulthood is to go beyond chronological age and examine how well the person is aging. Many in late adulthood enjoy better health and social well-being than average and would be aging at an optimal level. In contrast, others experience poor health and dependence to a greater extent than would be considered normal. When looking at large populations, the WHO (2019) measured 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.

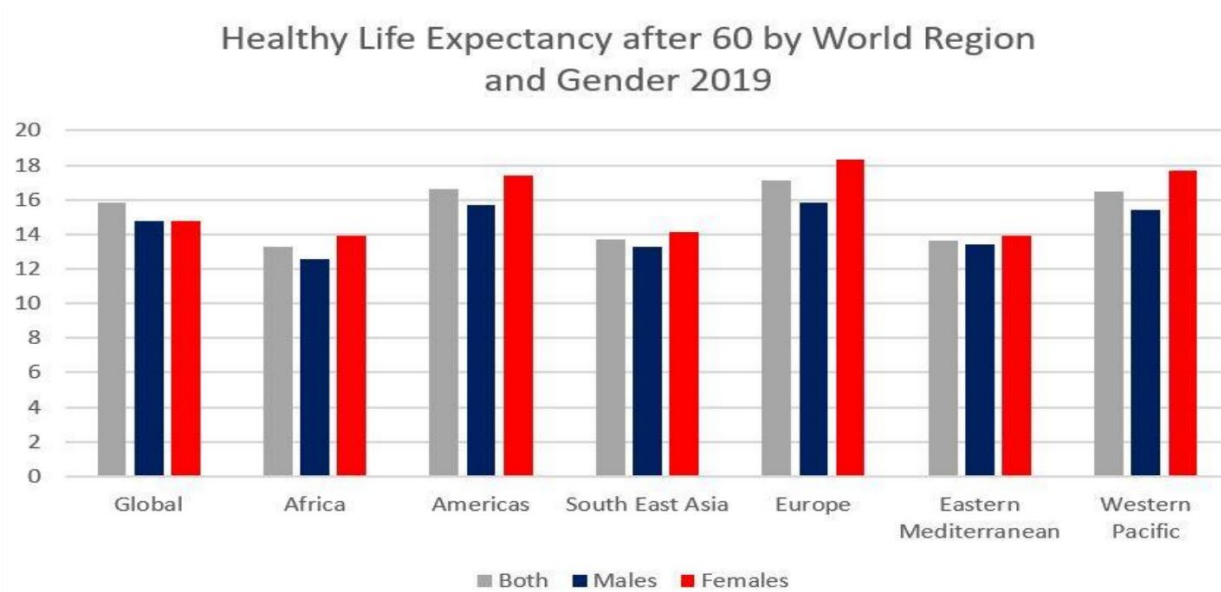
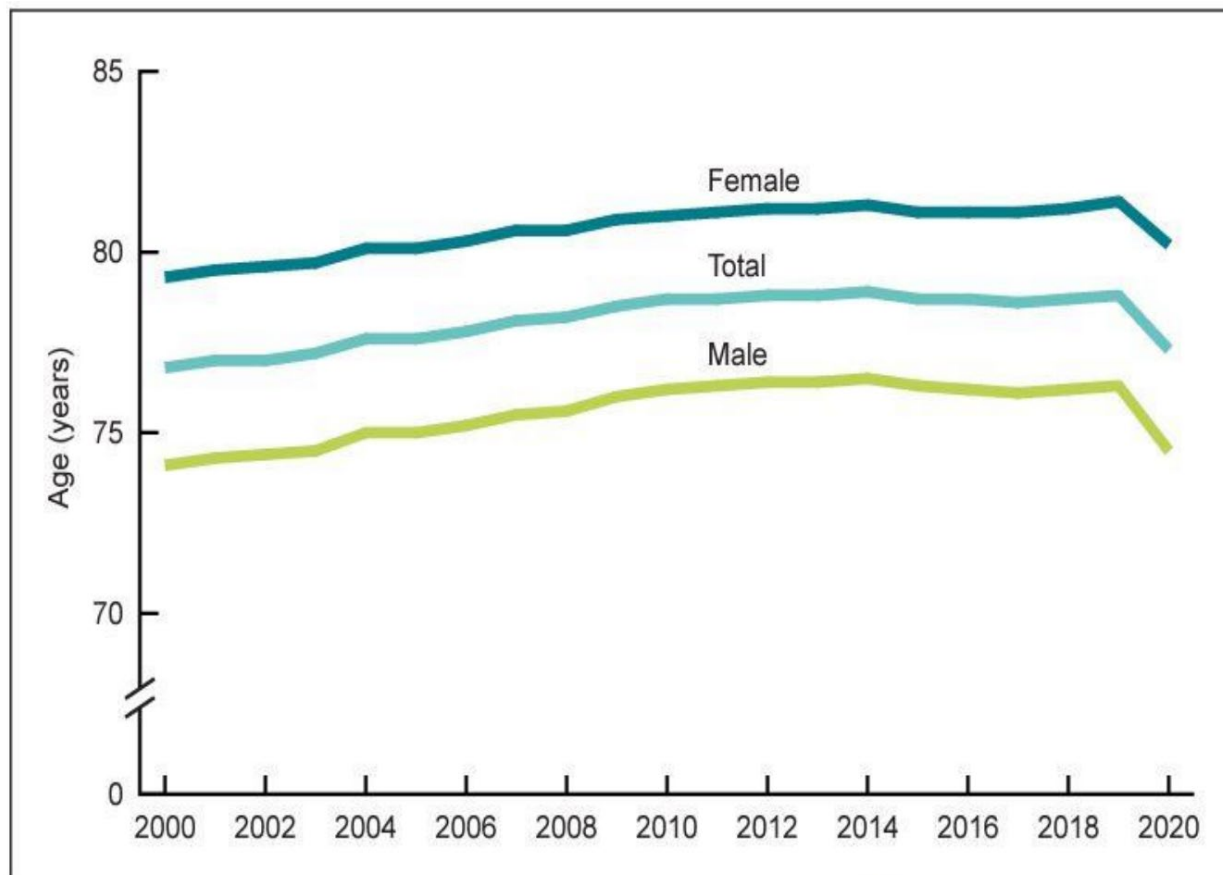


Figure 11.2 Healthy Life Expectancy after age 60 by WHO world region and gender, 2019.

In 2016, the global Healthy Life Expectancy was 63.3 years up from 58.5 years in 2000. The WHO African Region had the lowest Healthy Life Expectancy at 53.8 years, while the WHO Western Pacific Region had the highest at 68.9 years. Similar to overall life expectancy, current estimates from the WHO (2022) indicate that the COVID-19 pandemic is either slowing or reversing the rising trend for Healthy Life Expectancy. It is estimated that the Healthy Life Expectancy has fallen by up to one to two years in some countries and by smaller margins in several others.

COVID-19 and Life Expectancy in America

COVID-19 has had a significant impact on life expectancy in the U.S. The overall life expectancy for a baby born in 2020 in the United States was 77 years, decreasing from 78.8 years in 2019 (Murphy et al., 2021). The decrease from 2019 occurred for both males, changing from 76.3 years in 2019 to 74.2 years in 2020, and females, changing from 81.4 years in 2019 to 79.9 years in 2020. The difference in life expectancy between the genders was 5.7 years in 2020, increasing from 5.1 in 2019. Figure 11.3 shows the United States life expectancy changes between 2000 and 2020 by gender.



NOTES: Life expectancies for 2019 by Hispanic origin and race are not final estimates; see [Technical Notes](#). Estimates are based on provisional data for 2020. Provisional data are subject to change as additional data are received.
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality data.

Figure 11.3 Trends in U.S. life expectancy by gender between 2000 and 2020.

In 2020, life expectancy at age 65 for the total U.S. population was an additional 18.5 years, but this was a decrease of 1.1 years from 2019 (Murphy et al., 2021). For males, life expectancy at age 65 decreased 1.2 years from 18.2 in 2019 to 17.0 in 2020. For females, life expectancy at age 65 decreased 1.0 year from 20.8 in 2019 to 19.8 in 2020. The difference in life expectancy at age 65 between females and males increased 0.2 years, from 2.6 years in 2019 to 2.8 in 2020. Figure 11.3 documents the changes in life expectancy between 2000 and 2020 for both genders at birth and at age 65.

Ethnic Differences in Life Expectancy

Declines in U.S. life expectancy in 2020 varied greatly by race and ethnicity (Woolf et al., 2022). Life expectancy in the Hispanic population showed the largest decline as there was a decrease of 3.70 years from 81.86 years in 2019 to 78.16 years in 2020. The non-Hispanic Black population experienced a decrease of 3.22 years from 74.76 years in 2019

to 71.54 years in 2020. In contrast, life expectancy in the non-Hispanic White population decreased by 1.38 years. Using data from January 2020 through June 2020, Figure 11.4 shows the decreases in life expectancy based on the intersectionality of both gender and ethnicity.

Although all the U.S. data for 2021 have not been verified, the hope was that widespread distribution of effective vaccines would reduce racial/ethnic disparities in 2021. Andrasfay and Goldman (2022) used estimates based on provisional COVID-19 deaths for 2021, and found that racial/ethnic disparities continued to persist in 2021. The corresponding reductions in life expectancy estimated for Black and Latino populations are 1.3 -- 1.9 times that for Whites, suggesting smaller disparities than those in 2020, but still evident of overall racial/ethnic inequities in life expectancy.

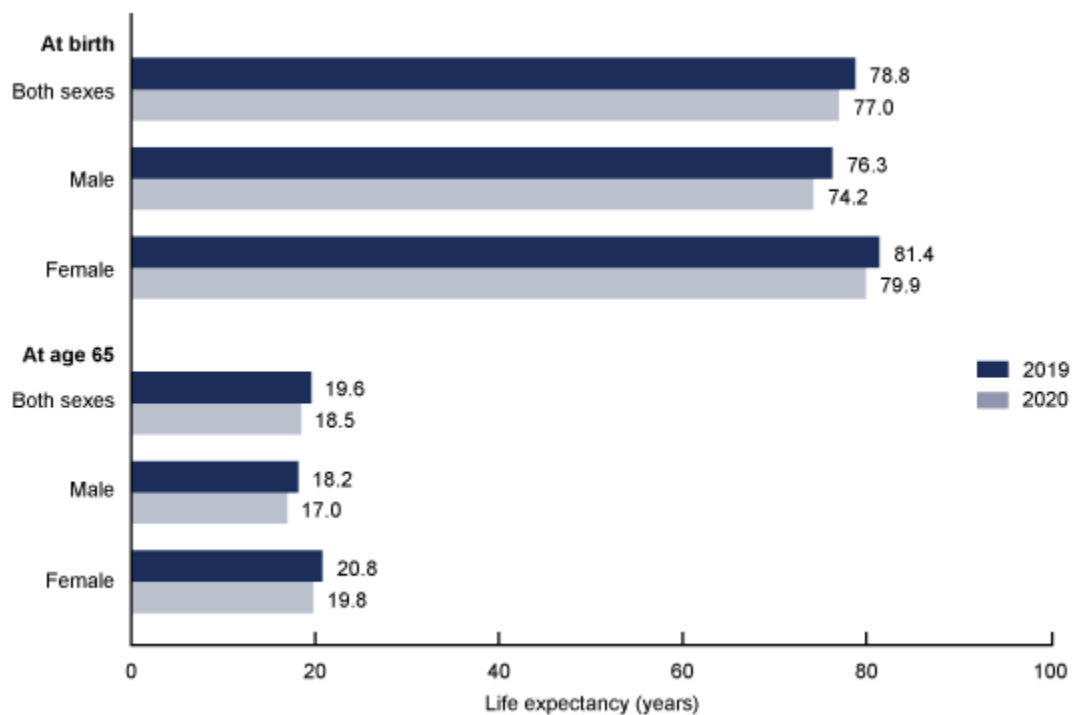


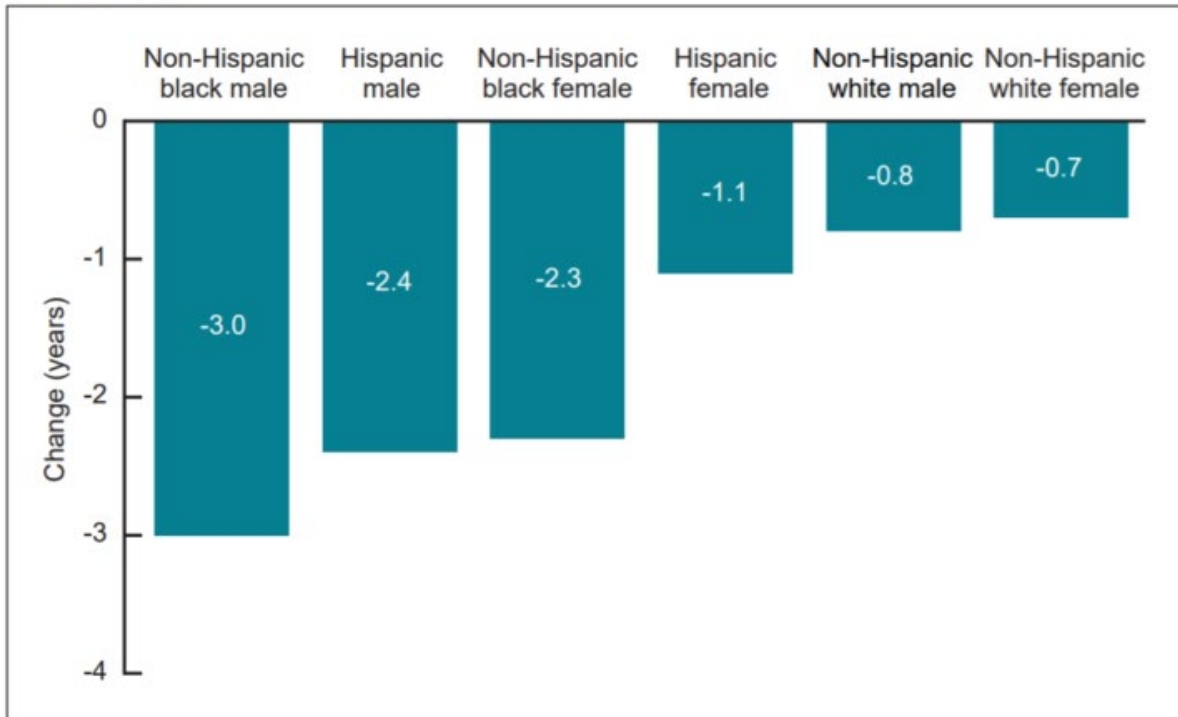
Figure 11.4 U.S. life expectancy at birth and age 65, by gender: 2019 and 2020.

Ethnic Disparity Causes

Data indicate that the percent of Hispanic/Latino, non-Hispanic Black, non-Hispanic American Indian, and Alaska Native people who died from COVID-19 in 2020 was higher than the percent of these racial and ethnic groups among the total U.S. population (CDC, 2021). Several factors have been identified for their higher COVID-19 death rates including that these groups were disproportionately represented among essential

workers, including working in health care, security, retail, farming, factories, warehouses, food processing, food service, construction, grocery stores, and transportation (Mahr, 2021). In contrast, people who were in jobs that enabled them to work remotely were less likely to become infected. Racial and ethnic minorities were also disproportionately represented in settings with higher COVID-19 outbreaks, including correctional facilities, homeless shelters, long-term care facilities, and living in multi-generational homes (CDC, 2021). Additionally, disparities in medical care and underlying health conditions such as diabetes, hypertension, and heart disease disproportionately affect minorities. Entrenched racial discrimination has been identified as a contributing factor to all the disparities. The COVID-19 pandemic demonstrates the need to promote the health and well-being of racial and ethnic minorities (Mayo Clinic, 2021).

Figure 4. Change in life expectancy at birth, by Hispanic origin and race and sex: United States, 2019 and 2020



NOTES: Life expectancies for 2019 by Hispanic origin and race are not final estimates; see Technical Notes. Estimates are based on provisional data from January 2020 through June 2020.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality data.

Figure 11.5 U.S. life expectancy decreases from January to June 2020.

Knowledge Check

11c. What was one major reason life expectancy decreased more significantly in the U.S. than in peer nations during the COVID-19 pandemic?

- A) Higher vaccine hesitancy among older adults.
- B) Greater availability of life support measures.
- C) U.S. had the highest rate of young adult infections.
- D) COVID-19 mortality and excess deaths were among the highest in the world in the U.S.

11d. Life expectancy in low-income countries is more than 15 years lower than in high-income countries.

- A) True
- B) False

11.5 Gender Differences in Life Expectancy

Biological Explanations

Biological differences in sex chromosomes and different patterns of gene expression is theorized as one reason why females live longer (Chmielewski, Boryslawski, & Strzelec, 2016). Males are heterogametic (XY), whereas females are homogametic (XX) with respect to the sex chromosomes. Males can only express their X chromosome genes that come from the mother, while females have an advantage by selecting the "better" X chromosome from their mother or father, while inactivating the "worse" X chromosome. This process of selection for "better" genes is impossible in males and results in the greater genetic and developmental stability of females.

In terms of developmental biology, women are the "default" sex, which means that the creation of a male individual requires a sequence of events at a molecular level. According to Chmielewski et al. (2016):

These events are initiated by the activity of the SRY gene located on the Y chromosome. This activity and change in the direction of development results in a greater number of disturbances and developmental disorders, because the normal course of development

requires many different factors and mechanisms, each of which must work properly and at a specific stage of development. (p. 134)

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).

Looking at the influence of hormones, estrogen levels in women appear to have a protective effect on their heart and circulatory systems (Viña et al., 2005). Estrogens also have antioxidant properties that protect against harmful effects of free radicals, which damage cell components, cause mutations, and are in part responsible for the aging process. Testosterone levels are higher in men than in women and are related to more frequent cardiovascular and immune disorders. The level of testosterone is also responsible, in part, for male behavioral patterns, including increased levels of aggression and violence (Martin et al., 2011; Boryśławski & Chmielewski, 2012). Another factor responsible for risky behavior is the frontal lobe of the brain. The frontal lobe, which controls judgment and consideration of an action's consequences, develops more slowly in boys and young men. This lack of judgment affects lifestyle choices, and consequently many more boys and men die by smoking, excessive drinking, accidents, drunk driving, and violence (Shmerling, 2016).

Lifestyle Factors

Certainly not all the reasons women live longer than men are biological. As previously mentioned, male behavioral patterns and lifestyle play a significant role in the shorter lifespans for males. One significant factor is that males work in more dangerous jobs, including police, fire fighters, and construction, and they are more exposed to violence. According to the Federal Bureau of Investigation (2014) there were 11,961 homicides in the U.S. in 2014 (last year for full data), and of those 77% were males. Males are also more than three times as likely to commit suicide (CDC, 2016a). Further, males serve in the military in much larger numbers than females. According to the Department of Defense (2015), in 2014 83% of all officers in the Services (Navy, Army, Marine Corps and Air Force) were male, while 85% of all enlisted service members were male.



Figure 11.6 Men have more dangerous jobs

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). As mentioned in the middle adulthood chapter, women are more religious than men, which is associated with healthier behaviors (Greenfield et al., 2009). 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). Overall, men's lower life expectancy appears to be due to both biological and lifestyle factors.

American Healthy Life Expectancy

To determine the current United States Healthy Life Expectancy (HLE), factors were evaluated in 2019 to determine how long an individual currently at age 60 will continue to experience good health (WHO, 2022). An additional 16.4 years was average, with males having an additional 15.6 years and females an additional 17.1 years. Looking at the years 2007–2009, the highest HLE was observed in Hawaii with 16.2 years of continued good health (CDC, 2013). Overall, the lowest was among southern 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.

Children born in America today may be the first generation to have a shorter life span than their parents. Much of this decline has been attributed to the increase in sedentary lifestyle and obesity. Since 1980, the obesity rate for children between 2 and 19 years old has tripled, as 20.5% of children were obese in 2014 compared with 5% in 1980 (American Medical Association, 2016). Obesity in children is associated with many health problems, including high blood pressure, type 2 diabetes, elevated blood cholesterol levels, and psychological concerns including low self-esteem, negative body image and depression. Excess weight is associated with an earlier risk of obesity-related diseases and death. In 2007, former Surgeon General Richard Carmona stated, "Because of the increasing rates of obesity, unhealthy eating habits and physical inactivity, we may see the first generation that will be less healthy and have a shorter life expectancy than their parents" (p. 1).



Video 11.2: [How Long Did People Use To Live?](#)

11.6 Age Categories in Late Adulthood

There have been many ways to categorize the ages of individuals in late adulthood. In this chapter, we will be dividing the stage into four categories: young-old (65–74), old-old (75–84), the oldest-old (85–99), and centenarians (100+) for comparison. 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.

Young-old

Generally, this age span includes many positive aspects and is considered the "golden years" of adulthood. When compared to those who are older, 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. This group is less likely to require long-term care or to be dependent or poor, and more likely to be married, working for pleasure rather than income, and living independently. 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). It is also an unusual age in that these people are considered both in old age and not in old age (Rubinstein, 2002).

Old-old

Adults in this age period are likely to be living independently, but often experience physical impairments as chronic diseases increase in frequency after age 75. For example, congestive heart failure is 10 times more common in people 75 and older, than in younger adults (National Library of Medicine, 2019). In fact, half of all cases of heart failure occur in people after age 75 (Strait & Lakatta, 2012). In addition, hypertension and cancer rates are also more common after 75, but because they are linked to lifestyle choices, they typically can be prevented, lessened, or managed (Barnes, 2011b).

Oldest-old

This age group often includes people who have more serious chronic ailments among the older adult population. In the U.S., the oldest-old represented 14% of the older adult population in 2015 (He et al., 2016). This age group is one of the fastest growing worldwide and is projected to increase more than 300% over its current levels (NIA, 2015b). The oldest-old are projected to be nearly 18 million by 2050, or about 4.5% of the U.S. population, compared with less than 2% of the population today. 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 accounts for only 2% of the U. S. population, it accounts for 9% of all hospitalizations (Levant et al., 2015). In a study of over 64,000 patients age 65 and

older who visited an emergency department, the admission rates increased with age. 35% of admissions after an emergency room visit were the young-old, almost 43% were the old-old, and nearly half were the oldest-old (Lee et al., 2018). The mortality rate was also higher with age. 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 (Levant et al., 2015).

Those 85 and older are more likely to require long-term care and to be in nursing homes than the youngest-old. Almost 50% of the oldest-old require some assistance with daily living activities (APA, 2016). However, most still live in the community rather than in a nursing home.



Figure 11.7 Older adulthood with Cognitively Stimulating Activities

Centenarians

A segment of the oldest-old are centenarians, that is, 100 and older, and some are also referred to as supercentenarians, those 110 and older (Wilcox et al., 2008). In 2015 there

were nearly half a million 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. Additionally, 25% reached 100 with no serious chronic illnesses, such as depression, osteoporosis, heart disease, respiratory illness, or dementia (Ash et al. 2015). Centenarians are more likely to experience a rapid terminal decline in later life, meaning that for most of their adulthood, and even older adult years, they are relatively healthy in comparison to many other older adults (Ash et al., 2015; Wilcox et al., 2008). According to Guinness World Records (2016), Jeanne Louise Calment has been documented to be the longest-living person at 122 years and 164 days old.

Knowledge Check

11e. Which of the following biological factors is theorized to contribute to women's longer life expectancy?

- A) Lower likelihood of developing autoimmune diseases.
- B) Having homogametic sex chromosomes (XX).
- C) Higher testosterone levels.
- D) Greater risk-taking behavior.

11f. Which of the following biological factors is theorized to contribute to women's longer life expectancy?

- A) Lower likelihood of developing autoimmune diseases.
- B) Having homogametic sex chromosomes (XX).
- C) Higher testosterone levels.
- D) Greater risk-taking behavior.

11g. Men are more likely than women to commit suicide and be exposed to violence due to occupational and behavioral factors.

- A) True
- B) False

11.7 Theories of Aging, and Physical Development Across Older Adulthood



Figure 11.8 Factors that contribute to aging

Why do we age? There are many theories that attempt to explain how we age; however, researchers still do not fully understand what factors contribute to the human lifespan (Jin, 2010). Research on aging is constantly evolving and includes a variety of studies involving genetics, biochemistry, animal models, and human longitudinal studies (NIA, 2011a). According to Jin (2010), modern biological theories of human aging involve two categories. The first is Programmed Theories that follow a biological timetable, possibly a continuation of childhood development. This timetable would depend on "changes in gene expression that affect the systems responsible for maintenance, repair, and defense responses" (p. 72). The second category includes Damage or Error Theories, which

emphasize environmental factors that cause cumulative damage in organisms. Examples from each of these categories will be discussed.

Genetics

One's genetic make-up certainly plays a role in longevity, but scientists are still attempting to identify which genes are responsible. Based on animal models, some genes promote longer life, while other genes limit longevity. Specifically, longevity may be due to genes that better equip someone to survive a disease. For others, some genes may accelerate the rate of aging, while others decrease the rate. To help determine which genes promote longevity and how they operate, researchers scan the entire genome and compare genetic variants in those who live longer with those who have an average or shorter lifespan. For example, a National Institutes of Health study identified genes possibly associated with blood fat levels and cholesterol, both risk factors for coronary disease and early death (NIA, 2011a). Researchers believe that it is most likely a combination of many genes that affect the rate of aging.

Evolutionary Theory

Evolutionary psychology emphasizes the importance of natural selection; that is, those genes that allow one to survive and reproduce will be more likely to be transmitted to offspring. Genes associated with aging, such as Alzheimer Disease, do not appear until after the individual has passed their main reproductive years. Consequently, natural selection has not eliminated these damaging disorders from the gene pool. If these detrimental disorders occurred earlier in the development cycle, they may have been eliminated already (Gems, 2014).

Cellular Clock Theory

This theory suggests that biological aging is due to the fact that normal cells cannot divide indefinitely. This is known as the Hayflick limit, and is evidenced in cells studied in test tubes, which divide about 40-60 times before they stop (Bartlett, 2014). But what is the mechanism behind this cellular senescence? 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; this sequence 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 is still under investigation. The answer may lead to some important clues about the aging process.

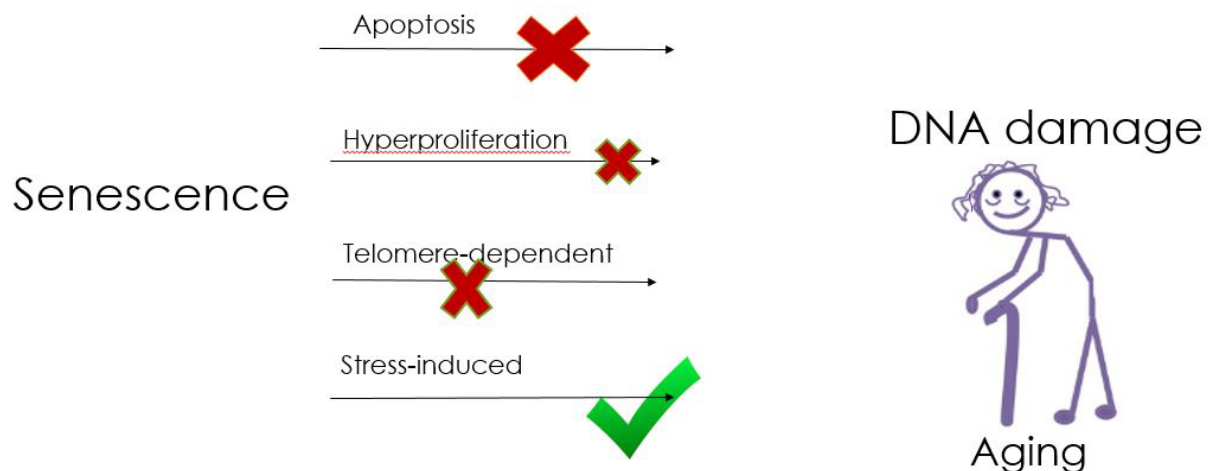


Figure 11.9 Cellular Senescence Causing Aging

DNA Damage

Over time DNA, which contains the genetic code for all organisms, accumulates damage. This is usually not a concern as our cells are capable of repairing damage throughout our life. Further, some damage is harmless. However, some damage cannot be repaired and remains in our DNA. Scientists believe that this damage, and the body's inability to fix itself, is an important part of aging (NIA, 2011a). As DNA damage accumulates with increasing age, it can cause cells to deteriorate and malfunction (Jin, 2010). Factors that can damage DNA include ultraviolet radiation, cigarette smoking, and exposure to hydrocarbons, such as auto exhaust and coal (Dollemore, 2006).

Mitochondrial Damage

Damage to mitochondrial DNA can lead to a decaying of the mitochondria, which is a cell organelle that uses oxygen to produce energy from food. The mitochondria convert oxygen to adenosine triphosphate (ATP) which provides the energy for the cell. When

damaged, mitochondria become less efficient and generate less energy for the cell and can lead to cellular death (NIA, 2011a).

Free Radicals

When the mitochondria use oxygen to produce energy, they also produce potentially harmful byproducts called oxygen free radicals (NIA, 2011a). The free radicals are missing an electron and create instability in surrounding molecules by taking electrons from them. There is a snowball effect (A takes from B and then B takes from C, etc.) that creates more free radicals which disrupt the cell and causes it to behave abnormally. Some free radicals are helpful as they can destroy bacteria and other harmful organisms, but for the most part they cause damage in our cells and tissue. Free radicals are identified with disorders seen in those of advanced age, including cancer, atherosclerosis, cataracts, and neurodegeneration. Some research has supported adding antioxidants to our diets to counter the effects of free radical damage because 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).

Immune and Hormonal Stress Theories

Ever notice how quickly U.S. presidents seem to age? Before and after photos reveal how stress can play a role in the aging process. When gerontologists study stress, they are not just considering major life events, such as unemployment, death of a loved one, or the birth of a child. They also include metabolic stress, the life-sustaining activities of the body, such as circulating the blood, eliminating waste, controlling body temperature, and neuronal firing in the brain. In other words, all the activities that keep the body alive also create biological stress.

To understand how this stress affects aging, researchers note that both problems with the innate and adaptive immune system play a key role. The innate immune system is made up of the skin, mucous membranes, cough reflex, stomach acid, and specialized cells that alert the body of an impending threat. With age these cells lose their ability to communicate as effectively, making it harder for the body to mobilize its defenses. The adaptive immune system includes the tonsils, spleen, bone marrow, thymus, circulatory system and the lymphatic system that work to produce and transport T-cells. 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. 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 (AFAR) 2011). This decline is linked to 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).



Video 11.3: [Rewinding the biological clock: How to reverse ageing](#)

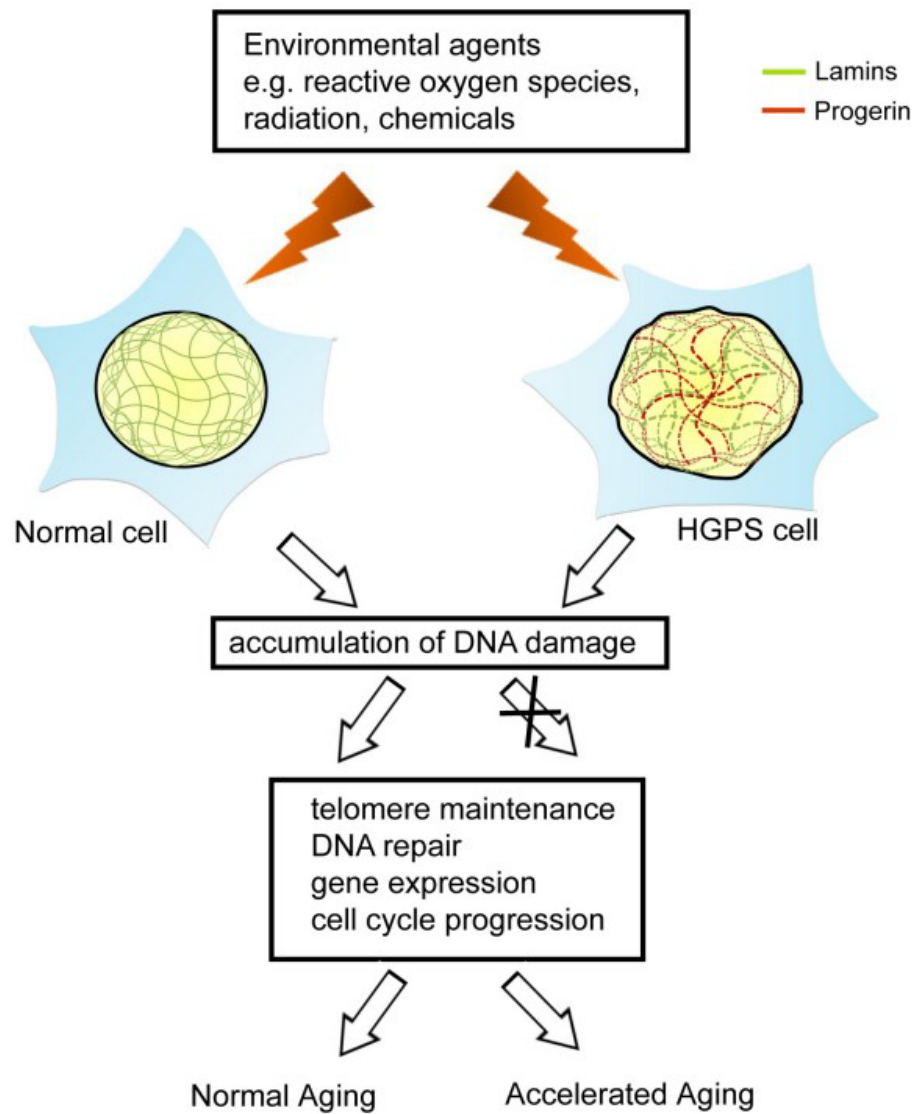


Figure 11.10 Genome stability in normal and HGPS cells causing premature aging

Knowledge Check

11h. Which of the following best describes the Cellular Clock Theory of aging?

- A) Aging results from damage caused by oxygen free radicals.
- B) Cells are biologically programmed to divide only a limited number of times.
- C) The body ages due to chronic metabolic stress.
- D) Hormones decline with age, leading to immune system failure.

11i. According to the Hormonal Stress Theory, cortisol levels decrease with age, helping to reduce stress and prevent aging.

- A) True
- B) False

11j. Which of the following is NOT a factor associated with free radical damage in aging?

- A) Antioxidants donating electrons.
- B) Disruption of cellular structures.
- C) Telomere shortening.
- D) Mutations and abnormal cell behavior.

Key Takeaways

- The late adulthood population (65+) is rapidly increasing, expected to comprise nearly one-fourth of the U.S. population by 2050.
- Globally, the population aged 65+ will increase significantly, driven by declining fertility rates and increased longevity.
- Japan has the highest proportion of older adults globally; China and India will have the largest elderly populations by total numbers.
- Lifespan refers to the maximum possible age humans can reach (120–125 years); life expectancy is the average expected lifespan in a population.
- COVID-19 led to significant reductions in global and U.S. life expectancy, disproportionately affecting men and racial/ethnic minorities.
- The U.S. experienced a larger decline in life expectancy during COVID-19 compared to peer countries.
- Hispanic and Black populations saw the greatest decreases in U.S. life expectancy due to COVID-19.
- Women generally outlive men, benefiting from biological advantages and safer lifestyle choices.
- Healthy Life Expectancy (HLE), years lived in good health, declined due to COVID-19.
- Late adulthood includes young-old (65–74), old-old (75–84), oldest-old (85–99), and centenarians (100+).
- Young-old adults typically enjoy better health, social engagement, and cognitive functioning than older age groups.

- Chronic illnesses and dependency increase significantly among the old-old and oldest-old groups.
 - Centenarians generally remain healthier and experience fewer chronic illnesses until advanced ages.
 - Aging theories include genetic, evolutionary, cellular clock (telomere shortening), DNA damage, mitochondrial damage, free radicals, immune system weakening, and hormonal stress.
 - Genetics, lifestyle choices, social support, healthcare access, and management of chronic diseases significantly influence longevity and healthy aging.
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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

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Figure 11.6 (c) Wayne S. Grazio. [Dangerous Jobs](#). CC BY-NC-ND 2.0

Figure 11.7 (c) [Bedford Assisted Living Facility | Autumn Trace](#). CC BY-NC 4.0

Figure 11.8 (c) Abbeyelder. [Factors that contribute to aging represented in a simple figure](#). CC BY-SA 4.0

Figure 11.9 (c) Jerel McCord. [Graphical Abstract for Cellular Senescence](#). CC BY-SA 4.0

Figure 11.10 (c) Ya-Hui Chi , Zi-Jie Chen and Kuan-Teh Jeang. [Nuclear integrity and genome stability in normal and HGPS cells](#). CC BY 2.0

Video Attributions

Video 11.1. PBS NewsHour. (2023, June 27). How an aging population poses challenges for U.S. economy, workforce and social programs. [Video]. Youtube. <https://www.youtube.com/watch?v=h9hoVMVn0FQ>

Video 11.2. MinuteEarth. (2021, June 24). How Long Did People Use To Live?. [Video]. Youtube. https://www.youtube.com/watch?v=c_ADG3Qc6rl

Video 11.3. nature video. (2020, December 02). Rewinding the biological clock: How to reverse ageing. [Video]. Youtube. <https://www.youtube.com/watch?v=ArlCnh2Q9EI>

Long Descriptions

Figure 11.1 (c) Andrea Piacquadio. [Joyful adult daughter greeting happy surprised senior mother in garden](#). [Pexels License](#). Alt Text: An older adult woman holding hands with a middle aged woman. Both women are talking, smiling, and looking at each other.

Figure 11.2 (c) [Healthy Life Expectancy after age 60 by WHO world region and gender, 2019](#). Alt Text: The image is a bar chart illustrating healthy life expectancy after age 60 in various world regions by gender in 2019. It includes three bars for each region, representing data for both genders combined, males, and females, indicated by grey, blue, and red colors respectively. Regions displayed are Global, Africa, Americas, South

East Asia, Europe, Eastern Mediterranean, and Western Pacific. The vertical axis denotes life expectancy in years, ranging from 0 to 20. Europe and the Western Pacific show the highest life expectancy, especially for females. Africa shows the lowest life expectancy across all categories.

Figure 11.3 (c) [Trends in U.S. life expectancy by gender between 2000 and 2020](#). Alt Text: The image is a line graph showing life expectancies in the United States from 2000 to 2020. The vertical axis represents age in years, ranging from 70 to 85. The horizontal axis spans the years from 2000 to 2020 in 2-year increments. There are three lines on the graph: a dark teal line labeled "Female" at the top, a lighter teal line labeled "Total" in the middle, and a green line labeled "Male" at the bottom. Each line depicts life expectancy trends over time for its respective category. The "Female" line consistently appears higher than the "Male" line, with both gradually increasing until a slight decline near 2020. The "Total" line is positioned between the two and follows a similar pattern.

Figure 11.4 (c) [U.S. life expectancy at birth and age 65, by gender: 2019 and 2020](#). Alt Text: The image is a horizontal bar chart comparing life expectancies at birth and at age 65 for both sexes, males, and females, across two years, 2019 and 2020. The bar chart is divided into two main sections. The upper section presents life expectancy data at birth, while the lower section shows life expectancy at age 65. Each category (both sexes, male, female) has two bars: a darker blue for 2019 and a lighter blue for 2020. The x-axis represents life expectancy in years, ranging from 0 to 100. For life expectancy at birth, both sexes show a decrease from 78.8 years in 2019 to 77.0 years in 2020. Males decreased from 76.3 to 74.2, and females decreased from 81.4 to 79.9. At age 65, life expectancy for both sexes decreased from 19.6 to 18.5, for males from 18.2 to 17.0, and for females from 20.8 to 19.8. The legend distinguishes the years 2019 and 2020 with corresponding colors.

Figure 11.5 (c) [U.S. life expectancy decreases from January to June 2020](#). Alt Text: The image is a bar chart showing Change in life expectancy at birth, by Hispanic origin and race and sex: United States, 2019 and 2020." It presents data on the change in life expectancy in years for different demographic groups. The horizontal axis lists demographic groups: Non-Hispanic black male, Hispanic male, Non-Hispanic black female, Hispanic female, Non-Hispanic white male, and Non-Hispanic white female. The vertical axis indicates the change in years, ranging from 0 to -4. Bars extend downward, varying in length, indicating a decrease in life expectancy. Non-Hispanic black males show the largest decrease at -3.0 years, followed by Hispanic males at -2.4 years, Non-Hispanic black females at -2.3 years, Hispanic females at -1.1 years, Non-Hispanic white males at -0.8 years, and Non-Hispanic white females at -0.7 years. Notes below mention that 2019 estimates are not final and are based on provisional data.

Figure 11.6 (c) Wayne S. Grazio. [Dangerous Jobs](#). CC BY-NC-ND 2.0. Alt Text: Two male individuals working over a submerged pipe in muddy water, showing men have such difficult jobs.

Figure 11.7 (c) [Bedford Assisted Living Facility | Autumn Trace](#). CC BY-NC 4.0. Alt Text: The image shows an elderly woman in focus, sitting at a table outdoors, engaged in painting. She wears a bright pink blouse and a white beaded necklace. Her short, gray hair is visible as she leans over a painting of a lighthouse and a seascape. Around her are painting supplies, including a glass of water and a glass with green paint. In the background, other people are engaged in similar activities, and finished paintings are displayed on small easels.

Figure 11.8 (c) Abbeyelder. [Factors that contribute to aging represented in a simple figure](#). CC BY-SA 4.0. Alt Text: Flow chart showing factors contributing to aging, including tissue damage, cellular function decline, cell number drop, oxidative damage, unhealthy lifestyle, and natural selection.

Figure 11.9 (c) Jerel McCord. [Graphical Abstract for Cellular Senescence](#). CC BY-SA 4.0. Alt Text: The image is a diagram titled "Senescence" on the left, illustrating different biological processes with corresponding arrows and symbols. There are four horizontal arrows on the left pointing right, each associated with a different concept. From top to bottom: "Apoptosis" with a red cross, "Hyperproliferation" with a red crossed-out symbol, "Telomere-dependent" with another red crossed-out symbol, and "Stress-induced" with a green check mark. To the right of these arrows, the words "DNA damage" and "Aging" appear beside a simplistic stick figure representation of an elderly person. This cartoon features a smiling face and a hunched posture.

Figure 11.10 (c) Ya-Hui Chi , Zi-Jie Chen and Kuan-Teh Jeang. [Nuclear integrity and genome stability in normal and HGPS cells](#). CC BY 2.0. Alt Text: The image is a diagram illustrating the effects of environmental agents on normal and HGPS (Hutchinson-Gilford Progeria Syndrome) cells, leading to DNA damage. At the top, two cells are depicted: a normal cell on the left and an HGPS cell on the right, both encased in a translucent blue outline. The normal cell contains a green network labeled "Lamins," while the HGPS cell shows a similar network marked with green and red lines labeled "Progerin." Orange lightning bolts point towards both cells, representing environmental agents. Below the cells, arrows lead to a box labeled "accumulation of DNA damage." Further arrows point from this box to another box containing "telomere maintenance, DNA repair, gene expression, cell cycle progression." From here, arrows point to "Normal Aging" and "Accelerated Aging" below.

Chapter 12: Physical and Sensory Changes in Older Adulthood

12.1 Learning Objectives

- Describe the changes in physical appearance in late adulthood
- Describe the sensory changes in late adulthood
- Describe chronic health conditions during late adulthood
- Explain how COVID-19 has affected those in late adulthood
- Describe the importance of nutrition and exercise in late adulthood
- Describe the functional changes in the brain during late adulthood
- Explain what happens in Parkinson's disease
- Explain how sleep patterns change in late adulthood
- Explain how sexuality changes in late adulthood

12.2 Introduction

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 thicken with age
- Arteries become less flexible
- Lung capacity diminishes
- Kidneys become less efficient in removing waste from the blood
- 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. Other changes in late adulthood include:

12.3 Body Changes

Everyone's body shape changes naturally as they age. According to the National Library of Medicine (2014) after age 30 people tend to lose lean tissue, and some of the cells of the muscles, liver, kidney, and other organs are lost. Tissue loss reduces the amount of water in your body and bones may lose some of their minerals and become less dense (a condition called osteopenia in the early stages and osteoporosis in the later stages).

The amount of body fat goes up steadily after age 30, and older individuals may have almost one third more fat compared to when they were younger. Fat tissue builds up toward the center of the body, including around the internal organs.

Skin, Hair and Nails

With age skin becomes thinner, less elastic, loses fat, and no longer looks plump and smooth. Veins and bones can be seen easier, and scratches, cuts, and bumps can take longer to heal. Years exposed to the sun may lead to wrinkles, dryness, age spots, and cancer. Older people may bruise more easily, and it can take longer for these bruises to heal. Some medicines or illnesses may also cause bruising. Gravity can cause skin to sag and wrinkle, and smoking can wrinkle the skin. 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).

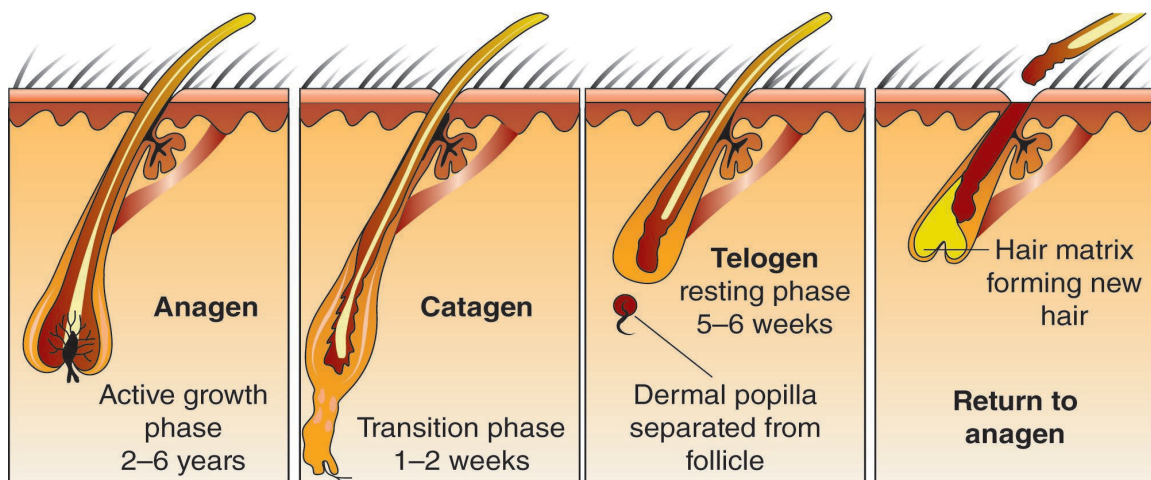


Figure 12.1 Phases of hair growth

Nearly everyone has hair loss as they age, and the rate of hair growth slows down as many hair follicles stop producing new hairs (U.S. National Library of Medicine, 2019). The loss of pigment and subsequent graying begun in middle adulthood continues in late adulthood. The body and face also lose hair. Facial hair may grow coarser. For women this often occurs around the chin and above the upper lip. For men the hair of the eyebrows, ears, and nose may grow longer. Nails, particularly toenails, may become hard and thick. Lengthwise ridges may develop in the fingernails and toenails. However, pits, lines, changes in shape or color should be checked by a healthcare provider as they can be related to nutritional deficiencies or kidney disease (U.S. National Library of Medicine).



Figure 12.2 Hair loss with aging

Height and Weight

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. 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. Changes in body weight vary for men and women. Men often gain weight until about age 55, and then begin to lose weight later in life, possibly related to a drop in the male sex hormone testosterone. Women usually gain weight until age 65, then begin to lose weight. Weight loss later in life occurs partly because fat replaces lean muscle tissue, and fat weighs less than muscle. Diet and exercise are important factors in weight changes in late adulthood (National Library of Medicine, 2014).

Sarcopenia is the loss of muscle tissue as a natural part of aging. Sarcopenia is most noticeable in men, and physically inactive people can lose as much as 3% to 5% of their muscle mass each decade after age 30, but even when active muscle loss still occurs (Webmd, 2016). Symptoms include a loss of stamina and weakness, which can decrease physical activity and subsequently further shrink muscles. Sarcopenia typically happens faster around age 75, but it may also speed up as early as 65 or as late as 80. Factors involved in sarcopenia include a reduction in nerve cells responsible for sending signals to the muscles from the brain to begin moving, a decrease in the ability to turn protein into energy, and not receiving enough calories or protein to sustain adequate muscle mass. 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.



Video 12.1: [Understanding the Normal Aging Process](#)

Knowledge Check

12a. Which of the following is true about changes in body composition during late adulthood?

- A) Older adults tend to gain lean muscle tissue and lose body fat.
- B) Bone density typically increases with age, especially in women.
- C) Fat tissue increases and is redistributed more around internal organs.
- D) Most older adults maintain the same body shape throughout life.

12b. What physical change contributes to older adults becoming shorter as they age?

- A) Reduced calorie intake
- B) Bone, muscle, and joint changes
- C) Muscle gain in the upper body
- D) Increased fat tissue around the organs

12.4 Sensory Changes in Late Adulthood

Vision

In late adulthood, all the senses show signs of decline, especially among the oldest-old. In the last chapter, you read about the visual changes that were beginning in middle adulthood, such as presbyopia, dry eyes, and problems seeing in dimmer light. By later adulthood these changes are much more common. Three serious eye diseases are more common in older adults: Cataracts, macular degeneration, and glaucoma. Only the first can be effectively cured in most people.

Cataracts are a clouding of the lens of the eye. The lens of the eye is made up of mostly water and protein. The protein is precisely arranged to keep the lens clear, but with age some of the protein starts to clump. As more of the protein clumps together, the clarity of the lens is reduced. While some adults in middle adulthood may show signs of cloudiness in the lens, the area affected is usually small enough to not interfere with vision. More people have problems with cataracts after age 60 (NIH, 2014b) and 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.

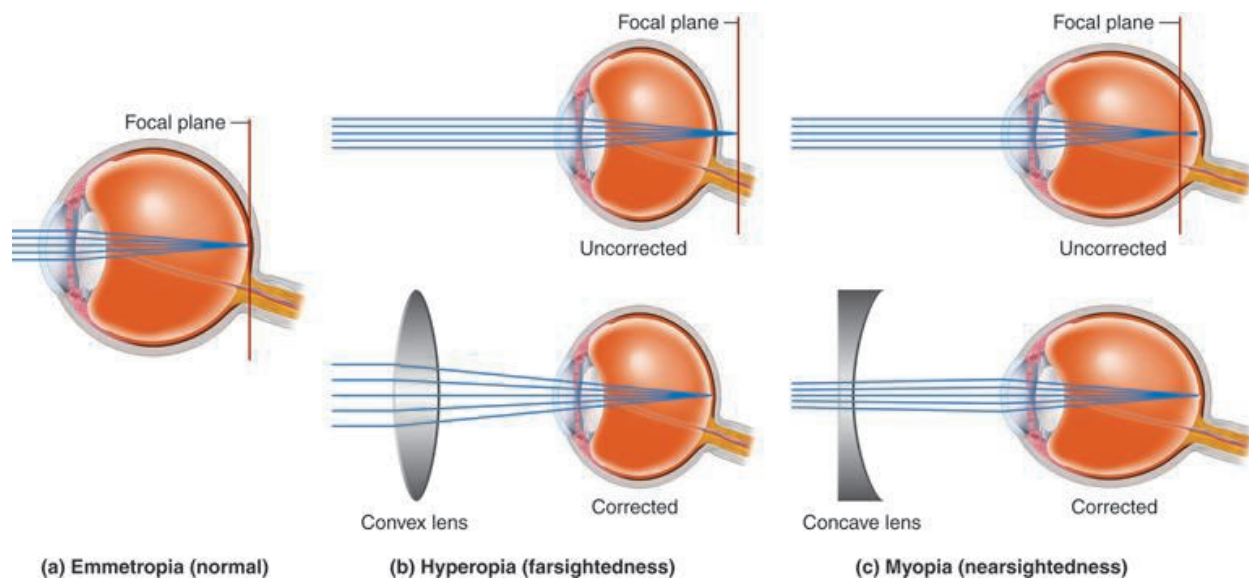


Figure 12.3 Vision Changes with Age

Risk factors besides age include certain health problems such as diabetes, high blood pressure, and obesity, behavioral factors such as smoking, other environmental factors such as prolonged exposure to ultraviolet sunlight, previous trauma to the eye, long-term use of steroid medication, and a family history of cataracts (NEI, 2016a; Boyd, 2014). Cataracts are treated by removing and replacing the lens of the eye with a synthetic lens. In developed countries, such as the United States, cataracts can be easily treated with surgery. However, in developing countries, access to such operations are limited, making cataracts the leading cause of blindness in late adulthood in the least developed countries (Resnikoff et al., 2004). Areas of the world with limited medical treatment for cataracts often result in people living more years with a serious disability. For example, of those living in the darkest red color on the map, more than 990 out of 100,00 people have a shortened lifespan due to the disability caused by cataracts.

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. There are two types of macular degeneration: dry and wet. The dry type is the most common form and occurs when tiny pieces of a fatty protein called drusen form beneath the retina. Eventually the macula becomes thinner and stops working properly (Boyd, 2016). About 10% of people with macular degeneration have the wet type, which causes more damage to their central field of vision than the dry form. This form is caused by an abnormal development of blood vessels beneath the retina. These vessels may leak fluid or blood causing more rapid loss of vision than the dry form.

The risk factors for macular degeneration include smoking, which doubles your risk (NIH, 2015a); race, as it is more common among Caucasians than African-Americans or Hispanics/Latinos; high cholesterol; and a family history of macular degeneration (Boyd, 2016). At least 20 different genes have been related to this eye disease, but there is no simple genetic test to determine your risk, despite claims by some genetic testing companies (NIH, 2015a). At present, there is no effective treatment for the dry type of macular degeneration. Some research suggests that certain patients may benefit from a cocktail of certain antioxidant vitamins and minerals, but the results are mixed at best. They are not a cure for the disease nor will they restore the vision that has been lost. This "cocktail" can slow the progression of visual loss in some people (Boyd, 2016; NIH, 2015a). For the wet type medications that slow the growth of abnormal blood vessels, and surgery, such as laser treatment to destroy the abnormal blood vessels may be used. Only 25% of those with the wet version may see improvement with these procedures (Boyd, 2016).

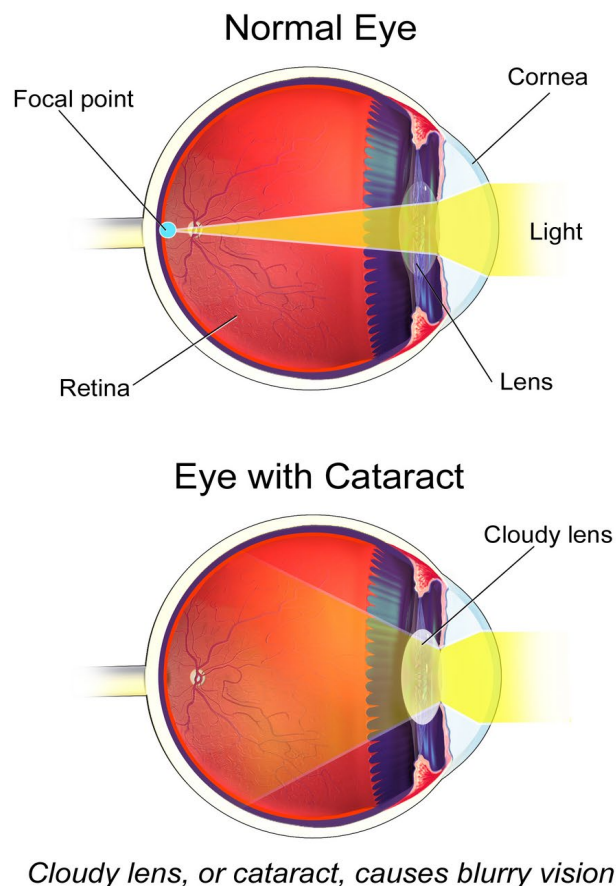


Figure 12.4 Normal Vision Vs. Cataracts

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).

Glaucoma is the most common cause of blindness in the U.S. (NEI, 2016b). African Americans over age 40 and everyone else over age 60 has a higher risk for glaucoma. Those with diabetes, or with a family history of glaucoma also have a higher risk (Owsley et al., 2015). 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 slows its progression in those who already have it.

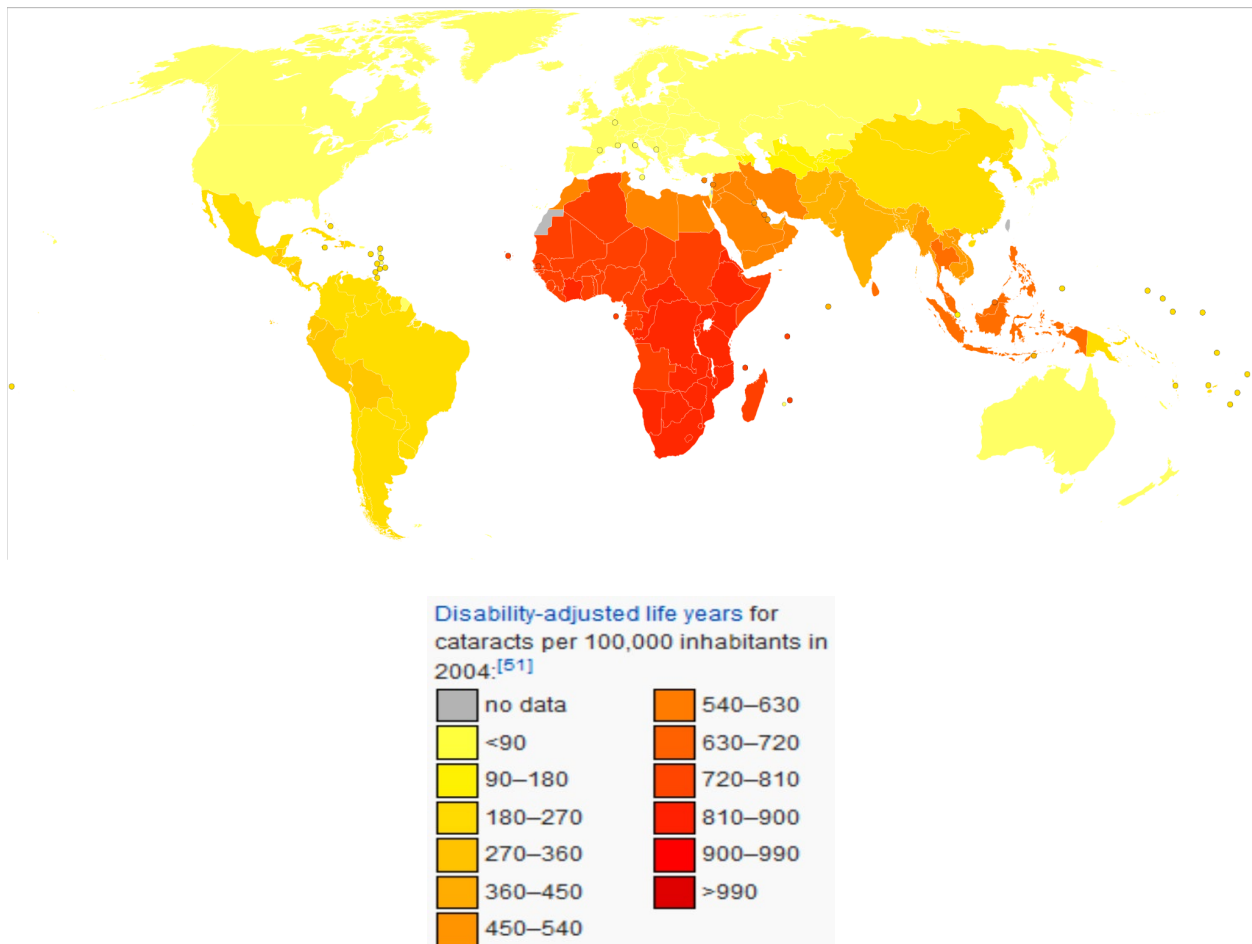


Figure 12.5 Disability-adjusted life years for cataracts per 100,000 inhabitants in 2004

Hearing

Our hearing declines both in terms of the frequencies of sound we can detect, and the intensity of sound needed to hear as we age. These changes continue in late adulthood. Almost 1 in 4 adults aged 65 to 74 and 1 in 2 aged 75 and older have disabling hearing loss (NIH, 2016). Some common signs of hearing loss are:

- Have trouble hearing over the telephone
- Find it hard to follow conversations when two or more people are talking
- Often ask people to repeat what they are saying
- Need to turn up the TV volume so loud that others complain
- Have a problem hearing because of background noise
- Think that others seem to mumble
- Cannot understand when women and children are speaking

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, Edmondson-Jones, Somerset, & Hall, 2016).

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).

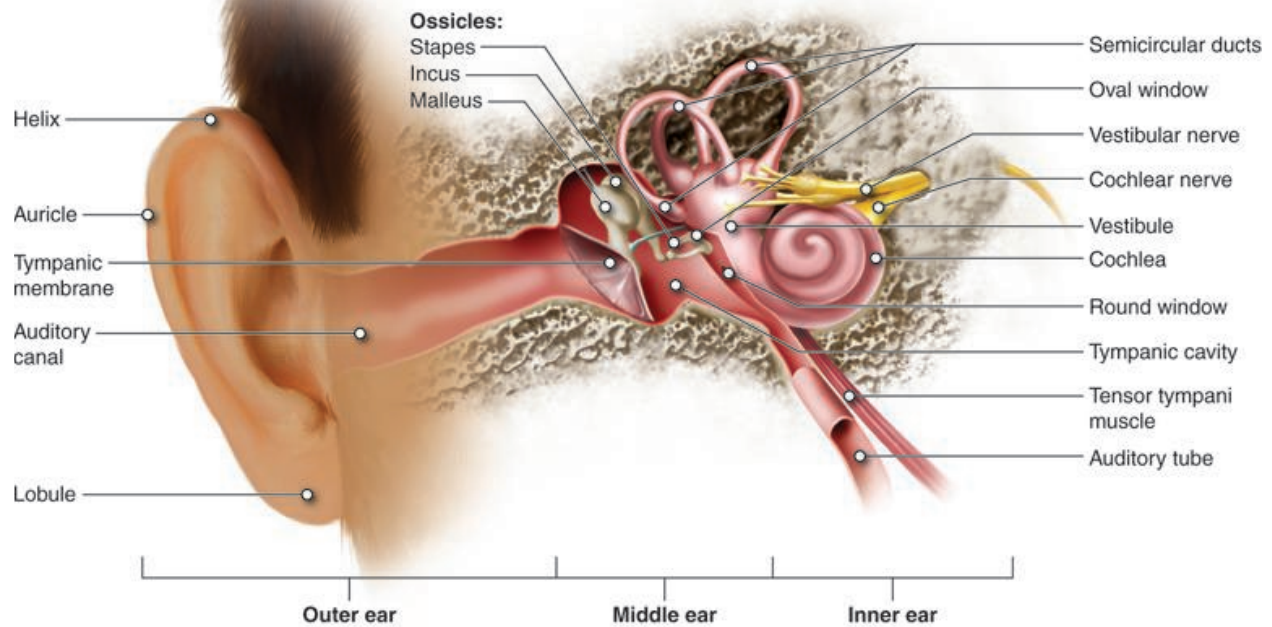


Figure 12.6 Structure of Ear

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 one's sixties (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.

Table 11.3 Types of Smell Disorders

Term	Description
Presbyosmia	Smell loss due to aging
Hyposmia	Loss of only certain odors
Anosmia	Total loss of smell
Dysosmia	Change in the perception of odors. Familiar odors are distorted.
Phantosmia	Smell odors that are not present

Our sense of smell, or olfaction, decreases more with age, and problems with the sense of smell are more common in men than in women. Almost 1 in 4 males in their 60s have a disorder with the sense of smell, while only 1 in 10 women do (NIH: Senior Health, 2016b). This loss of smell due to aging is called presbyosmia. Olfactory cells are located in a small area high in the nasal cavity. These cells are stimulated by two pathways; when we inhale through the nose, or via the connection between the nose and the throat when we chew and digest food. It is a problem with this second pathway that explains why some foods such as chocolate or coffee seem tasteless when we have a head cold. There are several types of loss of smell. Total loss of smell, or anosmia, is extremely rare.

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 sixth decade and diminishing further with advanced age (Bowden & McNelty, 2013). Yet there is considerable variability, with almost 40% showing sensitivity that is comparable to younger adults (Thornbury & Mistretta, 1981). However, the ability to detect the roughness/smoothness

or hardness/softness of an object shows no appreciable change with age (Bowden & McNulty, 2013). Those who show increasing insensitivity to pressure, temperature, or pain are at risk for injury (Martin, 2014).

Pain

According to Molton and Terrill (2014), approximately 60% to 75% of people over the age of 65 report at least some chronic pain, and this rate is even higher for those individuals living in nursing homes. Although the presence of pain increases with age, older adults are less sensitive to pain than younger adults (Harkins et al., 1986). Farrell (2012) looked at research studies that included neuroimaging techniques involving older people who were healthy and those who experienced a painful disorder. Results indicated that there were age-related decreases in brain volume in those structures involved in pain. Especially noteworthy were changes in the prefrontal cortex, brainstem, and hippocampus. Women are more likely to identify feeling pain than men (Tsang et al., 2008). Women have fewer opioid receptors in the brain, and women also receive less relief from opiate drugs (Garrett, 2015). Because pain serves as an important indicator that there is something wrong, a decreased sensitivity to pain in older adults is a concern because it can conceal illnesses or injuries requiring medical attention.

Chronic health problems, including arthritis, cancer, diabetes, joint pain, sciatica, and shingles are responsible for most of the pain felt by older adults (Molton & Terrill, 2014). Cancer is a special concern, especially "breakthrough pain" which is a severe pain that comes on quickly while a patient is already medicated with a long-acting painkiller. It can be very upsetting, and after one attack many people worry it will happen again. Some older individuals worry about developing an addiction to pain medication, but if medicine is taken exactly as prescribed, addiction should not be a concern (NIH, 2015b). Lastly, side effects from pain medicine including constipation, dry mouth, and drowsiness may occur that can adversely affect the elder's life.



Figure 12.7 Arthritic hands in pain

Some older individuals put off going to the doctor because they think pain is just part of aging and nothing can help. Of course, this is not true. Managing pain is crucial to ensure feelings of well-being for the older adult. When chronic pain is not managed, the individual will restrict their movements for fear of feeling pain or injuring themselves further. This lack of activity will result in more restriction, further decreased participation, and greater disability (Jensen et al., 2011). A decline in physical activity because of pain is also associated with weight gain and obesity in adults (Strine et al., 2005). Additionally, sleep and mood disorders, such as depression, can also occur (Moton & Terrill, 2014). Learning to cope effectively with pain is an important consideration in late adulthood and working with one's primary physician or a pain specialist is recommended (NIH, 2015b). For those 65 and older, 35% have a disability of some type.

Knowledge Check

12c. Which of the following eye conditions affects the peripheral vision and may lead to blindness if untreated?

- A) Glaucoma
- B) Cataracts
- C) Macular degeneration
- D) Presbyopia

12d. What is presbycusis?

- A) A condition that causes tunnel vision in older adults.
- B) A gradual loss of hearing often affecting both ears.
- C) A temporary hearing loss caused by medication.
- D) A ringing or buzzing sound in the ears.

12e. Why is reduced sensitivity to pain in late adulthood potentially dangerous?

- A) It causes hallucinations.
- B) It leads to increased risk of addiction.
- C) It can conceal injuries or illnesses that require treatment.
- D) It results in excessive use of painkillers.

Nutrition

A healthy diet is necessary for older adults to increase mental acuteness, resistance to illness and disease, boost energy levels, improve immune system strength, recuperation speed, and have greater effectiveness in the management of chronic health problems (Mayer, 2016). The new MyPlate for Older Adults, a website from Tufts University, suggests that older adults should strive for 50% of their diet being fruits and vegetables; 25% grains, many of which should be whole grains; and 25% protein-rich foods, such as nuts, beans, fish, lean meat, poultry, and fat-free and low-fat dairy products such as milk, cheeses, and yogurts. Unfortunately, changes in sensory functions, such as smell and taste, along with loss of teeth, can derail an older adult's ability to eat right. Older adults are likely to use salt and sugar to flavor foods that no longer taste the way they once did. Several government websites provide older adults with alternatives to the salt shaker to make foods more palatable.

12.5 Chronic Conditions

Chronic illnesses are illnesses that are ongoing, generally incurable conditions that require continuing 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, 90% aged 75 and up do (Cohen, 2011). Almost 80% have at least one chronic disease, and 77% have at least two (National Council on Aging, 2019). Older women are more likely to have a chronic condition than are older men (83% vs. 88%) (CDC, 2009). Table 12.1 lists the percentage of older adults who have certain chronic illnesses based on the National Health Survey conducted in 2014. Other studies place the figure of diabetes in older adults at 26% (CDC, 2014).

Table 12.1 Percentage of Older Adults with Chronic Conditions

Condition	Percentage
High cholesterol	58.2%
Hypertension	56.7%
Arthritis	48.7%
Cancer	23.1%
Diabetes	20.5%
Heart disease	17.9%
Ulcers	11.3%
Stroke	7.2%
Asthma	6.9%
Kidney disease	5.1%
Chronic bronchitis	5.0%
Emphysema	4.0%

Cancer and Major Cardiovascular Diseases

As discussed in Chapter 8, cancer and cardiovascular disease are the overall leading causes of death, and they are especially high reasons for death in middle and late adults. Table 12.2 identifies the percentages of deaths due to cancer and cardiovascular disease for selected age groups in 2016, the most recent year for data (Heron, 2018).

Table 12.2 Death Percentages for Cancer and Heart Disease (Age Groups)

2016 Causes of Death	45-64	65+	85+
Cancer	29.2	21.1	12.1
Heart Disease	20.9	25.3	25.3

Cancer

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. Other conditions that affect the elderly can occur with cancer, including anemia, coronary artery diseases, congestive heart failure, chronic obstructive pulmonary diseases, renal insufficiency, cerebrovascular diseases, neurovascular complications of diabetes mellitus, and arthritis that restricts mobility (Balducci & Extermann, 2000). Comorbidity will complicate treatment.

Balducci and Extermann (2000) examined several concerns of cancer treatment in the elderly. With aging, there is a decline in multiple organ systems that can adversely affect the ability of medications to treat cancer. Chemotherapy has been found to compromise the cognitive function of those being treated for cancer, and it may further exacerbate dementia and elderly cognitive declines. Frail individuals, defined as having limited life expectancy and near-to-exhausted functional reserves, are also not considered candidates for more toxic forms of chemotherapy. With cancer, the prevalence and risk of malnutrition are higher, and diminished visual and hearing function make elderly cancer patients more susceptible to environmental injury. Screening for depression is also recommended because depression is associated with weight loss, failure to thrive, and may reduce the motivation to receive treatment. Consequently, depression has been associated with decreased survival rates in the elderly. Due to the projected increase in the total number of older patients with cancer, it is recommended that physicians and caretakers have expertise in both oncology and geriatrics (Berger et al., 2006).

Heart Diseases

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). As previously stated,

heart disease is the leading cause of death for those in late adulthood (CDC, 2016b). There are different types of heart disease, and as already discussed in Chapter 8, the most common is atherosclerosis, 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. However, 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.

Other Diseases

Arthritis

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). 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). Common risk factors for osteoarthritis include genetics, obesity, age, previous injury, and other medical conditions.

Osteoporosis and Kyphosis

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 a 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).

Osteoporosis

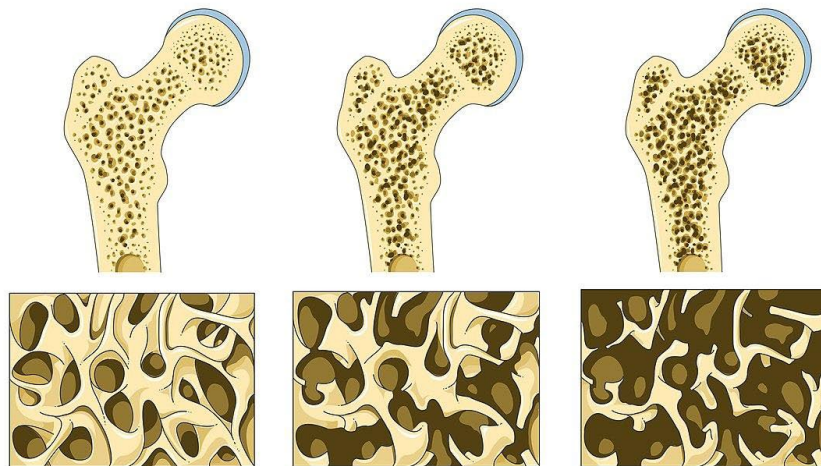


Figure 12.8 Changes to bone structure in osteoporosis

Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is a progressive lung disease in which the airways become damaged making it difficult to breathe. COPD includes problems such as emphysema and chronic bronchitis (NIH Senior Health, 2013). COPD kills more than 120,000 people every year, making it one of the leading causes of death. COPD was once considered a "man's disease". However, since 2000, 58% of those with COPD are women and they comprise 8% of all women (American Lung Association, 2019). Research has indicated that women may be more susceptible to the effects of cigarette smoke due to having smaller lungs and estrogen worsening the effects. As COPD develops slowly, people may not notice the early signs, and may attribute the shortness of breath to age or lack of physical exercise. Most people are not diagnosed until midlife or late adulthood. There is no cure as the damage cannot be reversed. Treatments aim at slowing further damage. Cigarette smoking is the leading cause of COPD, but other types of tobacco smoking, such as a pipe or cigar, can cause COPD, especially if the smoke is inhaled. Heavy or long-term exposure to second hand smoke can also lead to

COPD (NIH Senior Health, 2013). COPD can also occur in people who have long term exposure to other environments and workplace.

Healthy airways and air sacs in the lungs are elastic—they try to bounce back to their original shape after being stretched or filled with air. In people with COPD, the air sacs no longer bounce back to their original shape. The airways can also become swollen or thicker than normal, and mucus production might increase.

About 1 in every 1,600 to 5,000 people have a risk for COPD because of a recessive genetic condition known as alpha-1 antitrypsin (AAT) deficiency (NIH, 2011). AAT is a protein made in the liver that protects organs, especially the lungs, from the effects of other harmful proteins. In those with the genetic defect, the AAT protein created is the wrong shape and cannot leave the liver. This can lead to a heightened risk for lung disease, and even liver disease, as the excess of the AAT protein can lead to cirrhosis, which is a disease in which the liver becomes scarred and does not function properly. While some people with AAT deficiency are not affected and live a normal life, COPD is more likely to occur in such individuals if their lungs are exposed to environmental irritants.

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. A brief paralysis of the face, hearing loss, and very rarely, swelling of the brain (encephalitis) can also occur. There is a shingles vaccine that is recommended for those aged 50 and older. Shingles is not contagious if you do not touch the affected surface, but one can catch chickenpox from someone with shingles.

COVID-19

The most common symptoms of COVID-19 are fever, cough, and fatigue. In addition, patients might experience loss of smell/taste, headaches, nausea, diarrhea, joint pain, and chills (Nada et al., 2020). COVID-19 in older adults often manifests atypically with a sore throat, mental confusion and emotional disruption (delirium), drop in oxygen to tissues (hypoxia), rapid heartbeat (tachycardia) and rapid breathing (tachypnea). In addition, as body temperature declines with age, so too does the temperature of a fever. Many older patients with COVID-19 who experienced a fever had temperatures near 99 and 100.

Why Older Adults are Disproportionately Affected

Even before COVID-19, older adults were more likely to be affected by human coronaviruses (Geller et al., 2012). With the present coronavirus, prior conditions such as hypertension, heart disease, respiratory diseases, diabetes, and obesity, all of which occur more frequently among older age groups, are strongly associated with more severe reactions and fatalities to COVID-19 infection (Mueller et al., 2020). However, these comorbidities are only part of the story. As noted earlier in the chapter, there are several explanations for why humans age.

It has been suggested that the aging of the immune system is a likely factor in why older adults may be particularly prone to this virus (NIA, 2011a). Our immune system has four major functions: to recognize a problem, to alert the body, to destroy, and to clear the pathogen from the body. With age each of these functions becomes increasingly dysfunctional, a problem called immunosenescence (Franceschi et al., 2017). The innate immune system, described earlier in the chapter, is our first line of defense against COVID-19. With age there is a decline in sentinel cells that alert the body to a virus, which would accelerate the spread of the infection in the body (Mueller et al., 2020). The adaptive immune system, discussed earlier in the chapter, is our next line of defense and helps the body to destroy and clear a pathogen. A key producer of T-cells, the thymus, is about 40% of its original size by age 65 (Palmer, 2013) and this contributes to the reduction of naive T-cells older adults experience (Mueller et al., 2020). As more of the body's cells are infected, it creates elevated levels of inflammatory cytokine, creating a

"cytokine storm." This leads to the wide-spread tissue damage and multi-organ failure seen in the more severe and fatal cases of COVID-19 (Mueller et al., 2020).

Beliefs About Health

Despite the fact that the majority of older adults have at least one chronic illness, most rate their overall health positively (Graham, 2019). Based on results of the CDC's 2017 National Health Interview Survey, 82% of those aged 65–74 and 73% of those 75 and older rated their health as excellent, very good or good. Because older adults focus more on emotional well-being, positive social relationships, remaining active, and overall life satisfaction, poor physical functioning is not considered as important. Older adults often look to those who are worse off than themselves, including those having died or are in a nursing home, and consequently feel more positive about themselves. This perspective is in contrast to those younger who believe that there should not be anything wrong with them, and consequently experience negative feelings when they have an illness. Older adults expect there will be some deterioration in their health and are able to adapt to it. Similarly, most older adults identify positive mental health in conjunction with their physical health.

12.6 Brain Functioning

Research has demonstrated that the brain loses 5% to 10% of its weight between 20 and 90 years of age (Fjell & Walhovd, 2010). This decrease in brain volume appears to be due to the shrinkage of neurons, lower number of synapses, and shorter length of axons. According to Garrett (2015), the normal decline in cognitive ability throughout the lifespan has been associated with brain changes, including reduced activity of genes involved in memory storage, synaptic pruning, plasticity, and glutamate and GABA (neurotransmitters) receptors. There is also a loss in white matter connections between brain areas. Without myelin, neurons demonstrate slower conduction and impede each other's actions. A loss of synapses occurs in specific brain areas, including the hippocampus (involved in memory) and the basal forebrain region. Older individuals also activate larger regions of their attentional and executive networks, located in the parietal and prefrontal cortex, when they perform complex tasks. This increased activation correlates with a reduced performance on both executive tasks and tests of working memory when compared to those younger (Kolb & Whishaw, 2011).

Continued Neurogenesis

Researchers at the University of Chicago found that new neurons continued to form into old age. Tobin et al. (2019) examined post-mortem brain tissue of individuals between the ages of 79 and 99 (average age 90.6) and found evidence of neurogenesis in the

hippocampus. Approximately 2000 neural progenitor cells and 150,000 developing neurons were found per brain, although the number of developing neurons was lower in people with cognitive impairments or Alzheimer's disease. Tobin et al. hypothesized that the lower levels of neurogenesis in the hippocampus were associated with symptoms of cognitive decline and reduced synaptic plasticity.

The brain in late adulthood also exhibits considerable plasticity, and through practice and training, the brain can be modified to compensate for any age-related changes (Erber & Szuchman, 2015). Park and Reuter-Lorenz (2009) proposed the Scaffolding Theory of Aging and Cognition, which states that the brain adapts to neural atrophy (dying of brain cells) by building alternative connections, referred to as scaffolding. This scaffolding allows older brains to retain high levels of performance. Brain compensation is especially noted in the additional neural effort demonstrated by those individuals who are aging well. For example, older adults who performed just as well as younger adults on a memory task used both prefrontal areas, while only the right prefrontal cortex was used in younger participants (Cabeza, Anderson, Locantore, & McIntosh, 2002). Consequently, this decrease in brain lateralization appears to assist older adults with their cognitive skills.

Knowledge Check

12f. According to the "MyPlate for Older Adults" guidelines, what portion of an older adult's diet should be made up of fruits and vegetables?

- A) 25%
- B) 50%
- C) 60%
- D) 75%

12g. What does the Scaffolding Theory of Aging and Cognition suggest?

- A) Brain function stops declining if you exercise.
- B) Older adults lose all ability to form new neurons.
- C) The aging brain builds alternative connections to maintain performance.
- D) The left hemisphere of the brain becomes inactive with age.

12h. Older adults are unable to form new neurons in the brain during late adulthood.

- A) True
- B) False

Healthy Brain Functioning

Cheng (2016) found that physical activity and stimulating cognitive activity resulted in significant reductions in the risk of neurocognitive disorders in longitudinal studies. Physical activity, especially aerobic exercise, is associated with less age-related gray and white matter loss, as well as diminished neurotoxins in the brain. Overall, physical activity preserves the integrity of neurons and brain volume. Cognitive training improves the efficiency of the prefrontal cortex and executive functions, such as working memory, and strengthens the plasticity of neural circuits. Both activities support cognitive reserve, or "the structural and dynamic capacities of the brain that buffer against atrophies and lesions" (p. 85). Although it is optimal to begin physical and cognitive activities earlier in life, it is not too late to start these programs in late adulthood to improve one's cognitive health.

Can we improve brain functioning?

Many training programs have been created to improve brain functioning. ACTIVE (Advanced Cognitive Training for Independent and Vital Elderly), a study conducted between 1999 and 2001 which studied 2,802 individuals age 65 to 94, suggests that the answer is "yes". These racially diverse participants received 10 group training sessions and 4 follow up sessions to work on tasks of memory, reasoning, and speed of processing. These mental workouts improved cognitive functioning even 5 years later. Many of the participants believed that this improvement could be seen in everyday tasks as well (Tennstedt et al., 2006). However, programs for the elderly on memory, reading, and processing speed training demonstrate that there is improvement on the specific tasks trained, but there is no generalization to other abilities (Jarrett, 2015). Further, these programs have not been shown to delay or slow the progression of Alzheimer's disease. Although these programs are not harmful, "physical exercise, learning new skills, and socializing remain the most effective ways to train your brain" (p. 207). These activities appear to build a reserve to minimize the effects of primary aging of the brain.



Figure 12.9 Exercise is important for aging brain health

Parkinson's Disease

Parkinson's disease is characterized by motor tremors, loss of balance, poor coordination, rigidity, and difficulty moving (Garrett, 2015). Parkinson's affects approximately 1% of those over the age of 60, and it appears more frequently in family members in a little less than 10% of cases. Twenty-eight chromosomal areas have been implicated in Parkinson's disease, but environmental factors have also been identified and include brain injury. Being knocked unconscious once increases the risk by 32% and being knocked out several times increases the risk by 174% (Garrett, 2015). Other environmental influences include toxins, industrial chemicals, carbon monoxide, herbicides and pesticides (Olanow & Tatton, 1999). The symptoms are due to the deterioration of the substantia nigra, an area in the midbrain whose neurons send dopamine-releasing axons to the basal ganglia which affects motor activity. Treatment typically includes the medication levodopa (L-dopa), which crosses the blood-brain barrier and is converted into dopamine in the brain. Deep brain stimulation, which involves inserting an electrode into the brain that provides electrical stimulation, has resulted in improved motor functioning (Garrett, 2015).

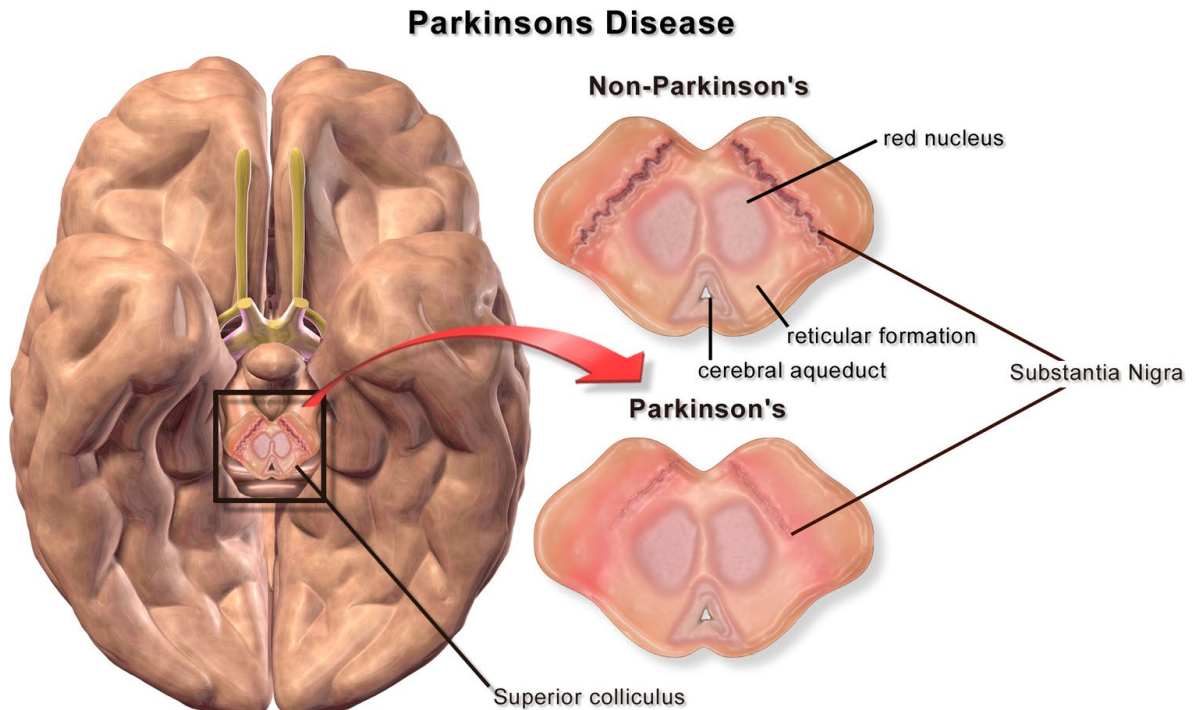


Figure 12.10 Parkinson Disease

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.

Also common in older adults are sleep disorders, including sleep apnea, restless legs syndrome, periodic limb movement disorder, and rapid eye movement sleep behavior disorder (NIA, 2016). Sleep apnea refers to repeated short pauses in breathing, while an individual sleeps that can lead to reduced oxygen in the blood. Snoring is a common symptom of sleep apnea and it often worsens with age. Untreated sleep apnea can lead to impaired daytime functioning, high blood pressure, headaches, stroke, and memory loss. Restless legs syndrome feels like there is tingling, crawling, or pins and needles in

one or both legs, and this feeling is worse at night. Periodic limb movement disorder causes people to jerk and kick their legs every 20 to 40 seconds during sleep. Rapid eye movement sleep behavior disorder occurs when one's muscles can move during REM sleep and sleep is disrupted.

According to the National Sleep Foundation (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 major 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

According to Kane (2008), older men and women are often viewed as genderless and asexual. There is a stereotype that elderly individuals no longer engage in sexual activity and when they do, they are perceived to have committed some kind of offense. These ageist myths can become internalized, and older people have a more difficult time accepting their sexuality (Gosney, 2011). Additionally, some older women indicate that they no longer worry about sexual concerns anymore once they are past the child bearing years.

In reality, many older couples find greater satisfaction in their sex life than they did when they were younger. They have fewer distractions, more time and privacy, no worries about getting pregnant, and greater intimacy with a lifelong partner (NIA, 2013). 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). Additionally, the National Survey of Sexual Health data indicated that 20% to 30% of

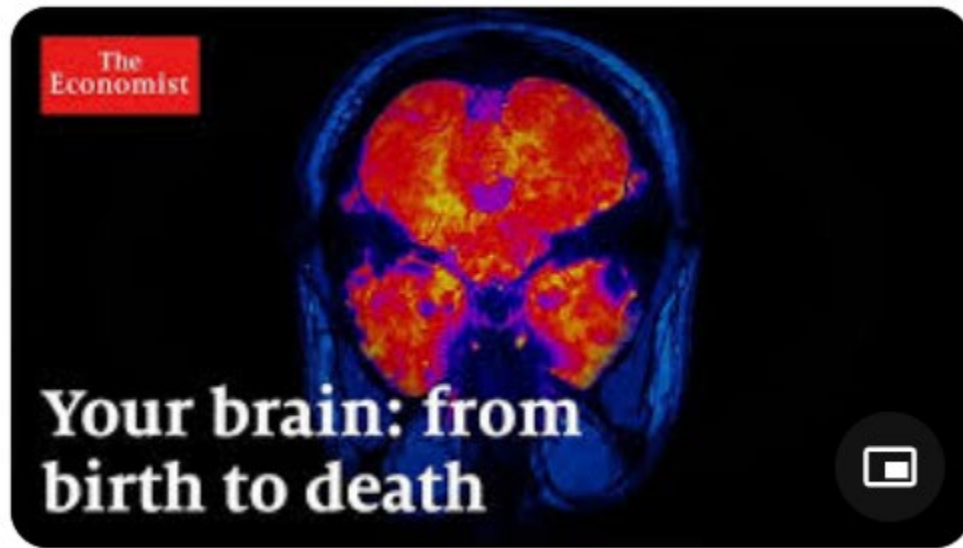
individuals remain sexually active well into their eighties (Schick et al., 2010). However, there are issues that occur in older adults that can adversely affect their enjoyment of healthy sexual relationships.

Causes of Sexual Problems

According to the National Institute on Aging (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, but it does result in a decline for similarly aged women (Karraker et al., 2011).

Key players in improving the quality of life among older adults will be those adults themselves. By exercising, reducing stress, stopping smoking, limiting 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.



Video 12.2: [What happens to your brain as you age](#)

Knowledge Check

12i. Which of the following brain changes is commonly associated with aging?

- A) Increase in the number of synapses.
- B) Thickening of the myelin sheath.
- C) Shrinkage of neurons and reduced brain volume.
- D) Enlargement of the hippocampus.

12j. Which of the following best defines cognitive reserve in late adulthood?

- A) The amount of sleep the brain needs to function.
- B) The brain's ability to regenerate neurons after damage.
- C) The brain's capacity to adapt and buffer against aging-related decline.
- D) The number of brain cells lost during normal aging.

Key Takeaways

- Late adulthood involves physical changes including loss of muscle mass, reduced height, increased fat distribution, thinner skin, and changes in hair and nails.
- Sensory changes such as declining vision (cataracts, macular degeneration, glaucoma), hearing loss (presbycusis, tinnitus), and reduced sense of taste and smell commonly occur with age.

- Chronic illnesses such as hypertension, arthritis, diabetes, heart disease, cancer, osteoporosis, and COPD significantly affect older adults, impacting daily functioning and quality of life.
 - COVID-19 disproportionately impacted older adults due to weakened immune systems, existing chronic conditions, and reduced physiological resilience.
 - Proper nutrition and regular physical exercise are critical for maintaining health, strength, mobility, and cognitive functioning in late adulthood.
 - Aging brains experience structural changes, including reduced volume, slower neural activity, and fewer synapses, though new neurons can continue to form into late adulthood.
 - Cognitive training and physical exercise help maintain brain plasticity and can improve cognitive function in older adults.
 - Parkinson's disease, characterized by tremors, rigidity, and coordination issues, is linked to the loss of dopamine-producing neurons in the brain.
 - Sleep patterns change with age, often leading to earlier sleep and wake times and increased prevalence of insomnia and sleep disorders.
 - Older adults maintain interest and satisfaction in sexual activity, although chronic health conditions, hormonal changes, and societal stereotypes can impact their sexual lives.
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Sources

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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

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Figure Attributions

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Video Attributions

Video 12.1. Care Channel. (2019, August 29). Understanding the Normal Aging Process. [Video]. Youtube. <https://www.youtube.com/watch?v=aLY4NTfAfcg>

Video 12.2 The Economist. (2023, November 02). What happens to your brain as you age. [Video]. Youtube. <https://www.youtube.com/watch?v=cMim0uU1yzA>

Long Descriptions

Figure 12.1 (c) [Phases of hair growth](#). CC BY 3.0 US. Alt Text: The image illustrates the hair growth cycle in four stages, each depicted in separate panels from left to right: Anagen, Catagen, Telogen, and Return to Anagen. Each panel shows a cross-section of the skin with a hair follicle extending from it, highlighting changes in hair growth.

Figure 12.2 (c) Beyond My Ken. [Back of man's head plus 6 plus back](#). CC BY-SA 3.0. Alt Text: A photo from the back of an older adult man wearing a blue t-shirt and has graying of hair, with a bald spot in between the head. This shows the hair loss that comes with age.

Figure 12.3 (c) [Correcting abnormalities in light refraction in the eye](#). CC BY 3.0 US. Alt Text: The image illustrates the differences in how light focuses in the eye under different vision conditions: emmetropia, hyperopia, and myopia.

Figure 12.4 (c) BruceBlaus. [Cataracts](#). CC BY-SA 4.0. Alt Text: The image is a side-by-side comparison of a normal eye and an eye with a cataract. The upper part depicts a normal eye, illustrating clear pathways of light entering through the cornea, passing through the lens, and focusing on the retina, with labels pointing to the cornea, lens, focal point, and retina. The lower part shows an eye with a cataract, where the lens is labeled as cloudy, indicating a diffused and blurred light pathway. The background is white, enhancing the contrast and clarity of the diagram.

Figure 12.5 (c) Lokal_Profil. [Disability-adjusted life years for cataracts per 100,000 inhabitants in 2004](#). CC BY-SA 2.5. Alt Text: World map showing red regions that show the prevalence of cataracts especially in African regions. The more yellow regions have the least prevalence for cataracts.

Figure 12.6 (c) [The Auditory System Structures](#). CC BY 3.0 US. Alt Text: Anatomical diagram of the human ear, labeling the outer, middle, and inner ear structures, including ossicles and auditory components.

Figure 12.7 (c) Ian Furst. [Arthritic hands in pain](#). CC BY-SA 4.0. Alt Text: Hands of an older adult with joint pain

Figure 12.8 (c) [Osteoporosis -- Smart-Servier](#). CC BY-SA 3.0. Alt Text: Illustration of osteoporosis showing three stages of bone deterioration with magnified views of porous bone structure below each stage.

Figure 12.9 (c) Yan Krukau. [Women in Sports Bra and Leggings Doing Yoga](#). [Pexels license](#). Alt Text: A group of middle aged and older adults exercising together.

Figure 12.10 (c) BruceBlaus. [Blausen 0704 Parkinsons Disease](#). CC BY 3.0. Alt Text: Diagram of brain showing changes in substantia nigra in Parkinson's disease. It features a detailed drawing of the human brain from a top-down perspective, focusing on the midbrain area. Two cross-sectional diagrams highlight changes between normal and Parkinson's conditions. The left side of the image shows a large brain model with highlighted areas leading into two smaller cross-sections on the right. These sections demonstrate differences in the substantia nigra—the upper section titled "Non-Parkinson's" shows a richer color intensity, whereas the lower "Parkinson's" section displays a lighter color, indicating a decrease in the substantia nigra.

Chapter 13: Brain Functioning and Sleep in Older Adulthood

13.1 Learning Objectives

- Describe how memory changes for those in late adulthood
- Describe the theories for why memory changes occur
- Describe how cognitive losses in late adulthood are exaggerated
- Explain the pragmatics and mechanics of intelligence
- Define what is a neurocognitive disorder
- Explain Alzheimer's disease and other neurocognitive disorders
- Describe work and retirement in late adulthood
- Describe how those in late adulthood spend their leisure time

13.2 Introduction

Late adulthood involves significant changes in cognitive functioning, memory, intelligence, and problem-solving capabilities. While some cognitive declines are common, older adults also demonstrate resilience and compensatory strategies that preserve many cognitive abilities. This chapter explores the complexities of cognitive aging, examines memory changes and cognitive disorders, and discusses how older adults engage with work, retirement, and leisure activities to maintain a fulfilling and productive life.

How Does Aging Affect Information Processing?

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.

13.3 Memory

Changes in Working Memory

As discussed in Chapter 4, working memory is the more active, effortful part of our memory system. Working memory is composed of three major systems: The phonological

loop that maintains information about auditory stimuli, the visuospatial sketchpad, that maintains information about visual stimuli, and the central executive, that oversees working memory, allocating resources where needed and monitoring whether cognitive strategies are being effective (Schwartz, 2011). Schwartz reports that it is the central executive that is most negatively impacted by age. In tasks that require allocation of attention between different stimuli, older adults fare worse than younger adults. 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. In contrast, in working memory tasks that do not require much input from the central executive, such as the digit span test, which uses predominantly the phonological loop, we find that older adults perform on par with young adults (Dixon & Cohen, 2003).

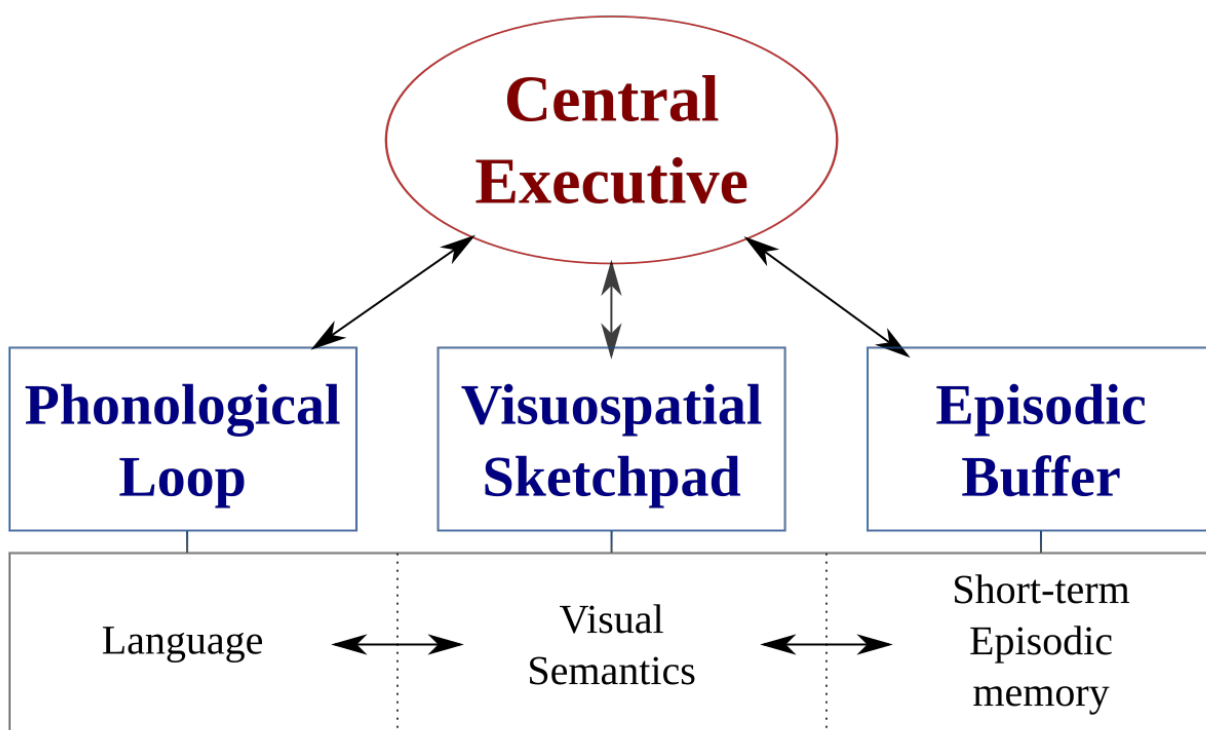


Figure 13.1 Baddeley's model of working memory

Changes in Long-term Memory

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. Semantic and episodic memory are 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. In contrast, 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.

Studies which test general knowledge (semantic memory), such as politics and history (Dixon et al., 2007), or vocabulary/lexical memory (Dahlgren, 1998) often find that older adults outperform younger adults. However, older adults do find that they experience more "blocks" at retrieving information that they know. In other words, they experience more tip-of-the-tongue (TOT) events than younger adults (Schwartz, 2011).

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. Many studies assessing implicit memory measure the effects of priming. Priming refers to changes in behavior as a result of frequent or recent experiences. If you were shown pictures of food and asked to rate their appearance and then later were asked to complete words such as s _ _ p, you may be more likely to write soup than soap, or ship. The images of food "primed" your memory for words connected to food. Does this type of memory and learning change with age? The answer is typically "no" for most older adults (Schacter, Church, & Osowiecki, 1994).

Prospective memory refers to remembering things we need to do in the future, such as remembering a doctor's appointment next week, or to take medication before bedtime. It has been described as "the flip-side of episodic memory" (Schwartz, 2011, p. 119).

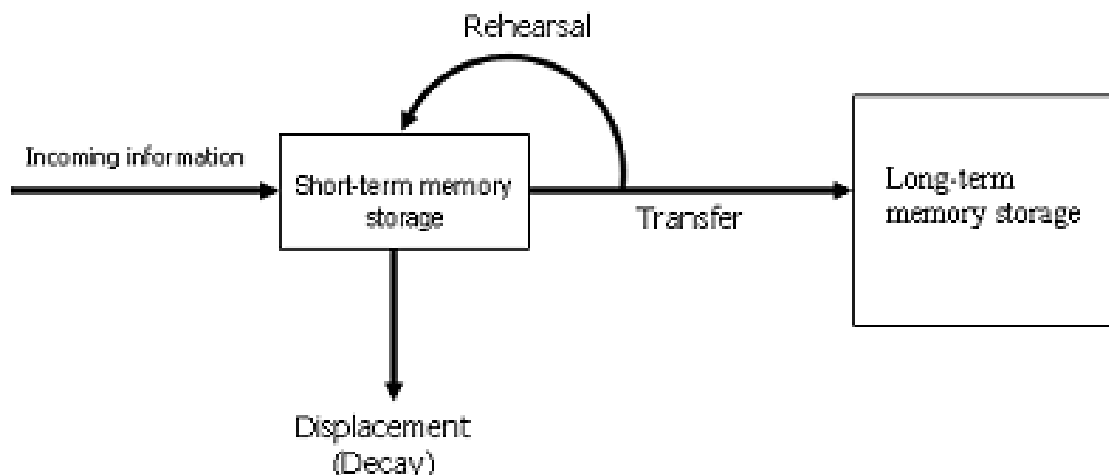


Figure 13.2 Atkinson-Shiffrin long term memory model

Episodic memories are the recall of events in our past, while the focus of prospective memories is of events in our future. In general, humans are fairly good at prospective memory if they have little else to do in the meantime. 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, 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 space-bar on a computer every time the word "tiger" is displayed.



Video 13.1: [What happens when we sleep?](#)

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).

The Age Advantage

Fewer age differences are observed when memory cues are available, such as for recognition memory tasks, or when individuals can draw upon acquired knowledge or experience. For example, older adults often perform as well if not better than young adults on tests of word knowledge or vocabulary. With age often comes expertise, and research has pointed to areas where aging experts perform quite well. 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 focus on a smaller set of possible moves, leading to greater cognitive efficiency (Charness, 1981). Accrued knowledge of everyday tasks, such as grocery prices, can help older adults to make better decisions than young adults (Tentori et al., 2001).



Video 13.2: [What Happens To Your Body And Brain If You Don't Get Sleep | The Human Body](#)

Knowledge Check

13a. Which component of working memory is most negatively affected by aging?

- A) Episodic Buffer
- B) Phonological Loop
- C) Central Executive
- D) Visuospatial Sketchpad

13b. Older adults tend to perform worse than younger adults on both recall and recognition memory tasks.

- A) True
- B) False

13c. Which type of memory shows the greatest decline in late adulthood?

- A) Semantic memory
- B) Episodic memory
- C) Implicit memory
- D) Lexical memory

13.4 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 more poorly 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.

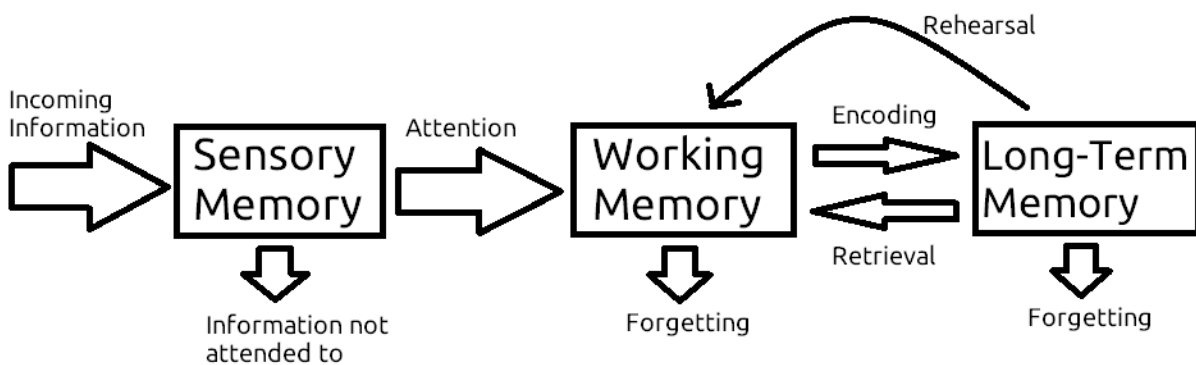


Figure 13.3 Understanding of memory systems

Problem Solving

Problem solving tasks that require processing non-meaningful information quickly (a kind of task that might be part of a laboratory experiment on mental processes) declines with

age. However, many real-life challenges facing older adults do not rely on speed of processing or making choices on one's own. Older adults resolve everyday problems by relying on input from others, such as family and friends. They are also less likely than younger adults to delay making decisions on important matters, such as medical care (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 on many different cognitive tasks. For instance, as we age, working memory becomes less efficient (Craig & Bialystok, 2006). Older adults also need longer time to complete mental tasks or make decisions. Yet, when given sufficient time older adults perform as competently as 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, Van der Linden, & Parmentier, 2004).

Cognitive losses exaggerated

While there are information processing losses in late adulthood, overall loss has been exaggerated (Garrett, 2015). One explanation is that the type of tasks that people are tested on tend to be meaningless. For example, older individuals are not motivated to remember a random list of words in a study, but they are motivated for more meaningful material related to their life, and consequently perform better on those tests. Another reason is that the research is often cross-sectional. When age comparisons occur longitudinally, however, the amount of loss diminishes (Schaie, 1994). A third reason is that the loss may be due to a lack of opportunity in using various skills. When older adults practiced skills, they performed as well as they had previously. Although diminished performance speed is especially noteworthy in the elderly, Schaie (1994) found that statistically removing the effects of speed diminished the individual's performance

declines significantly. In fact, Salthouse and Babcock (1991) demonstrated that processing speed accounted for all but 1% of age-related differences in working memory when testing individuals from 18 to 82. Finally, it is well established that our hearing and vision decline as we age. Longitudinal research has proposed that deficits in sensory functioning explain age differences in a variety of cognitive abilities (Baltes & Lindenberger, 1997). Not surprisingly, more years of education and subsequently higher income are associated with higher cognitive level and slower cognitive decline (Zahodne et al., 2015).

13.5 Intelligence and Wisdom

When looking at scores on traditional intelligence tests, tasks measuring verbal skills show minimal or no age-related declines, while scores on performance tests, which measure solving problems quickly, decline with age (Botwinick, 1984). This profile mirrors crystallized and fluid intelligence. As you recall from the last chapter, crystallized intelligence encompasses abilities that draw upon experience and knowledge. Measures of crystallized intelligence include vocabulary tests, solving number problems, and understanding texts. Fluid intelligence refers to information processing abilities, such as logical reasoning, remembering lists, spatial ability, and reaction time. Baltes (1993) introduced two additional types of intelligence to reflect cognitive changes in aging. Pragmatics of intelligence are cultural exposure to facts and procedures that are maintained as one ages and are similar to crystallized intelligence. Mechanics of intelligence are dependent on brain functioning and decline with age, similar to fluid intelligence. Baltes indicated that pragmatics of intelligence show little decline and typically increase with age. Additionally, pragmatics of intelligence may compensate for the declines that occur with mechanics of intelligence. In summary, global cognitive declines are not typical as one ages, and individuals compensate for some cognitive declines, especially processing speed.

Wisdom is the ability to use the accumulated knowledge about practical matters that allows for sound judgment and decision making. A wise person is insightful and has knowledge that can be used to overcome obstacles in living. Does aging bring wisdom? While living longer brings experience, it does not always bring wisdom. Paul Baltes and his colleagues (Baltes & Kunzmann, 2004; Baltes & Staudinger, 2000) 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). This would suggest that factors other than age are stronger determinants of wisdom. Occupations and experiences that emphasize others rather than self, along with personality characteristics, such as openness to experience and

generativity, are more likely to provide the building blocks of wisdom (Baltes & Kunzmann, 2004). Age combined with a certain types of experience and/or personality brings wisdom.

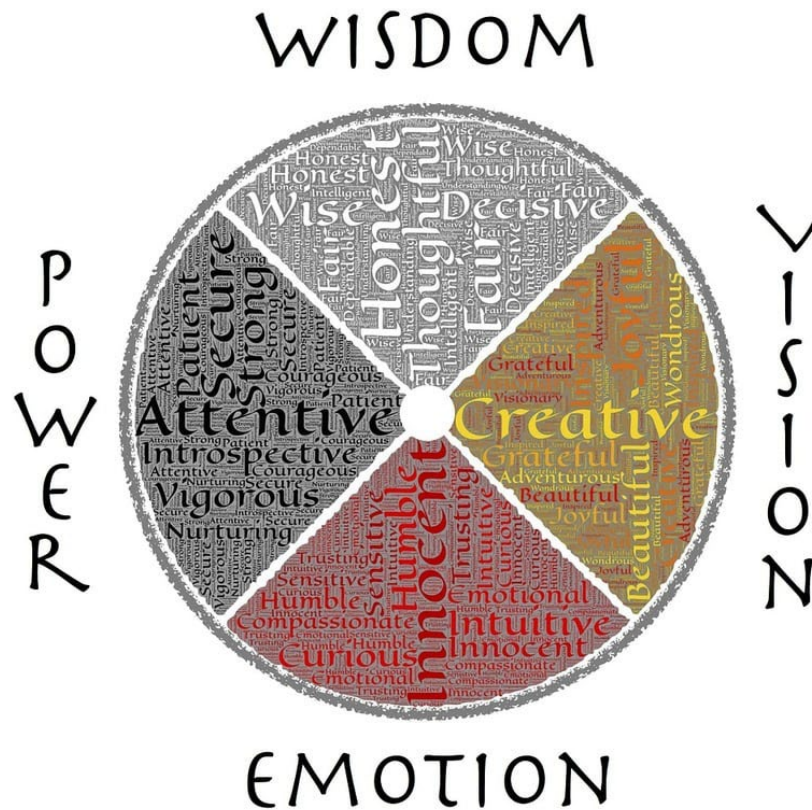


Figure 13.4 Wisdom, Intelligence, and Emotions

Knowledge Check

13d. Which of the following best explains why older adults may perform poorly on tasks requiring divided attention?

- A) Decreased crystallized intelligence.
- B) Lack of social motivation.
- C) Reduced central executive efficiency in working memory.
- D) Improved recall abilities with age.

13e. According to Baltes, pragmatics of intelligence decline sharply with age.

- A) True
- B) False

13f. Which factor is LEAST likely to influence the development of wisdom in late adulthood?

- A) Occupations involving care for others.
- B) Openness to new experiences.
- C) Advancing age alone.
- D) High processing speed.

13.6 Neurocognitive Disorders

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 DSM-5-TR (American Psychiatric Association, 2022) 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 of 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 medical history, physical exam, laboratory tests, and changes noted in behavior. Alzheimer's disease, vascular neurocognitive disorder and neurocognitive disorder with Lewy bodies will be discussed below.

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 disease is the 6th leading cause of death in the United States, but the 5th leading cause for those 65 and older. Among the top 10 causes of death in America, Alzheimer's disease is the only one that cannot be prevented, cured, or even slowed. Current estimates indicate that Alzheimer

disease affects approximately 50% of those identified with a neurocognitive disorder (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 & Szuchman, 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. When Alzheimer's disease is caused by deterministic genes, it is called familial Alzheimer's disease (Alzheimer's Association, 2016). Traumatic brain injury is also a risk factor, as well as obesity, hypertension, high cholesterol, and diabetes (Carlson, 2011).

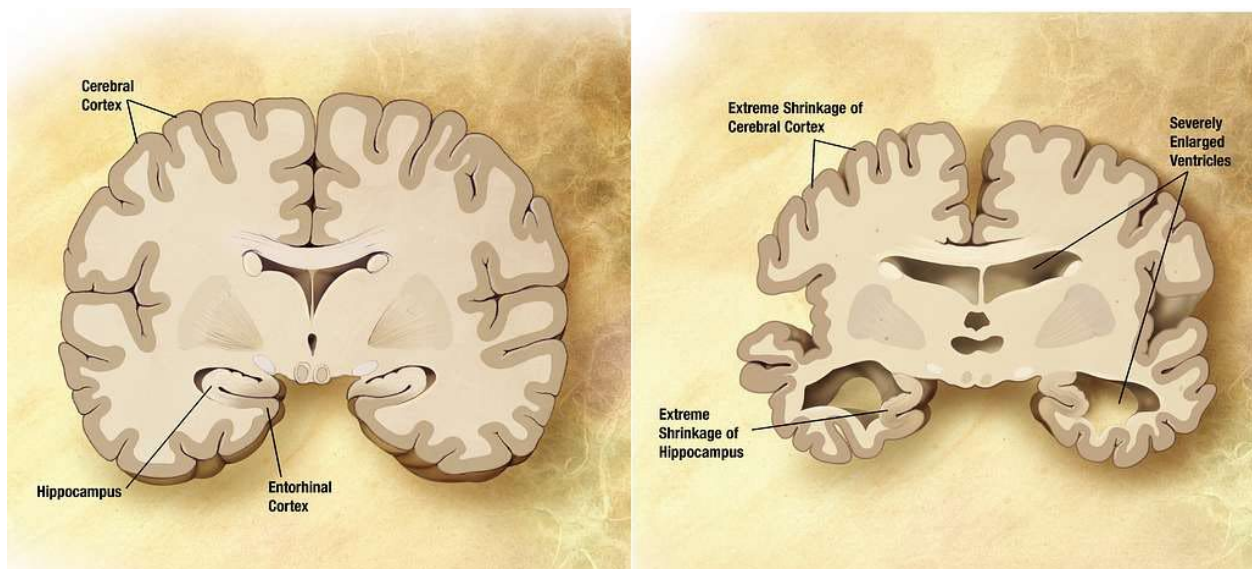


Figure 13.5 Normal vs. Alzheimer's diseased brain

Beta Amyloid and Tau

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.

Tau is an important protein that helps maintain the brain's transport system. When tau malfunctions, it changes into twisted strands called tangles that disrupt the transport system. Consequently, nutrients and other supplies cannot move through the cells and they eventually die. The death of neurons leads to the brain shrinking and affecting all aspects of brain functioning. For example, the hippocampus is involved in learning and memory, and the brain cells in this region are often the first to be damaged. This is why memory loss is often one of the earliest symptoms of Alzheimer's disease.

Washington University School of Medicine (2019) reported that researchers associated with the School of Medicine discovered that failing immune cells, known as microglia, appear to be the link between amyloid and tau, which are the two damaging proteins of Alzheimer's disease. Amyloid plaques, which appear first, do not cause Alzheimer's, but the presence of amyloid leads to the formation of tau tangles, which are responsible for the memory loss and cognitive deficits seen in those with Alzheimer's disease. It appears that weakening microglia cause the amyloid plaques to injure nearby neurons, thus creating a toxic environment that increases the formation and spread of tau tangles. These findings could lead to a new approach for developing therapies for Alzheimer's.

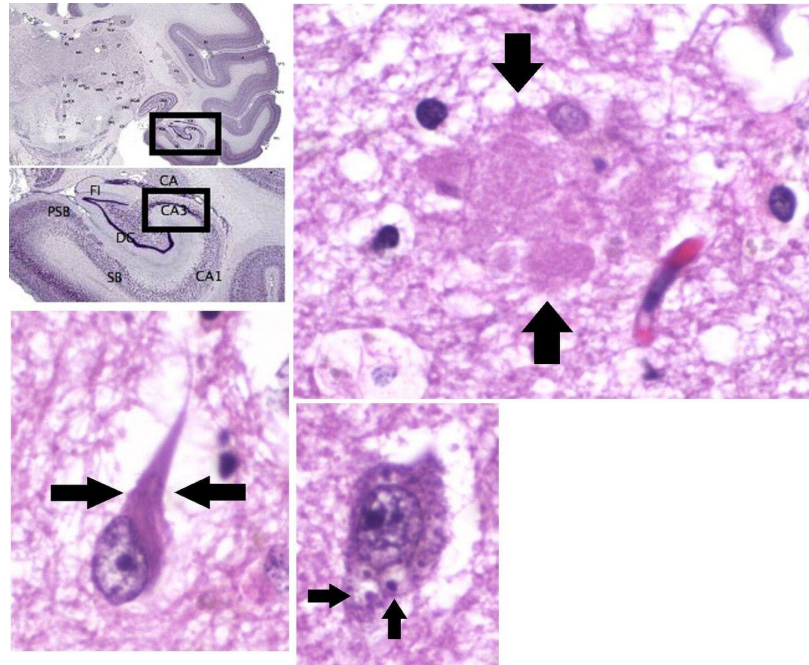


Figure 13.6 Histopathology of Alzheimer's disease

Sleep Deprivation and Alzheimer's

Studies suggest that sleep plays a role in clearing both beta-amyloid and tau out of the brain. Shokri-Kojori et al. (2018) scanned participants' brains after getting a full night's rest and after 31 hours without sleep. Beta-amyloid increased about 5% in the participants' brains after losing a night of sleep. These changes occurred in brain regions that included the thalamus and hippocampus, which are associated with the early stages of Alzheimer's disease. Shokri-Kojori et al. also found that participants with the largest increases in beta-amyloid reported the worst mood after sleep deprivation. These findings support other studies that have found that the hippocampus and thalamus are involved in mood disorders.

Additionally, Holth et al. (2019) found that healthy adults who remained awake all day and night had tau levels that were elevated by about 50 percent. Once tau begins to accumulate in brain tissue, the protein can spread from one brain area to the next along neural connections. Holth et al. also found that older people who had more tau tangles in their brains by PET scanning had less slow-wave, deep sleep. Holth et al. concluded that good sleep habits and/or treatments designed to encourage plenty of high-quality sleep might play an important role in slowing Alzheimer's disease. In contrast, poor sleep might worsen the condition and serve as an early warning sign of Alzheimer's disease.

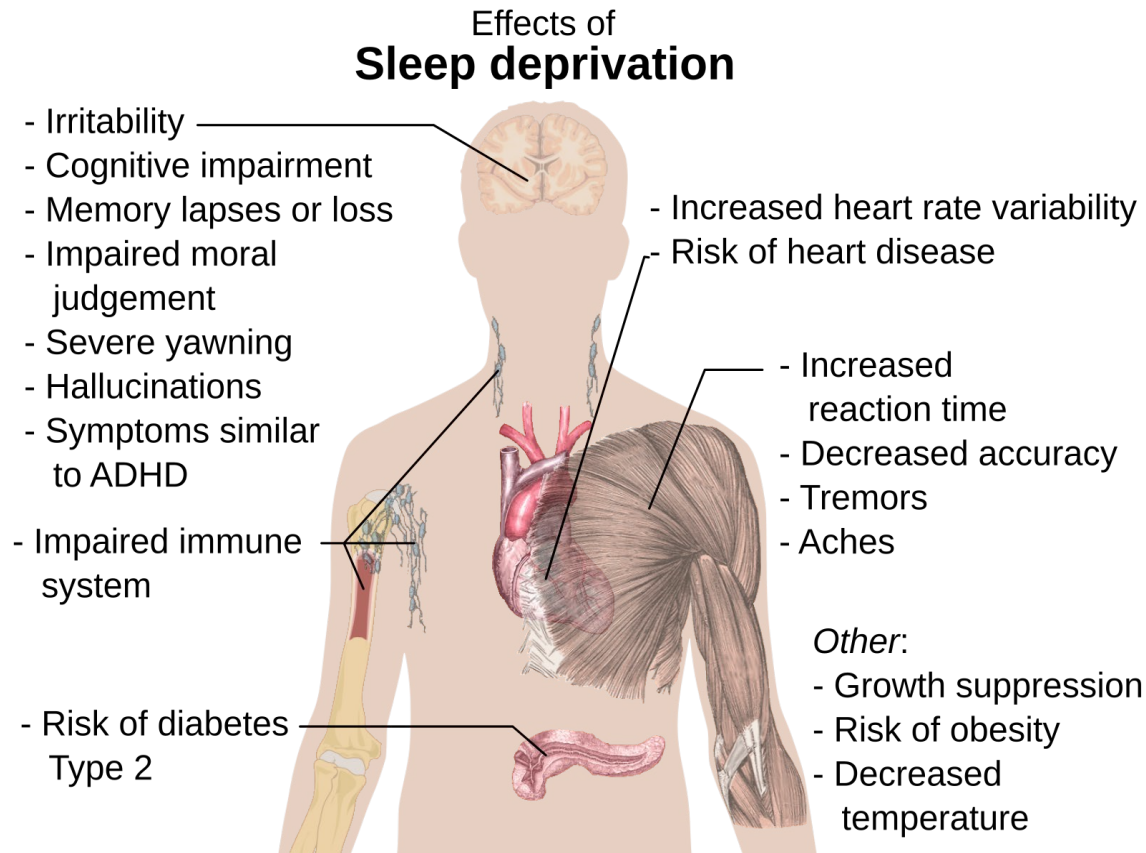


Figure 13.7 Main health effects of sleep deprivation

Healthy Lifestyle Combats Alzheimer's

Dhana and colleagues with the Rush University Medical Center in Chicago examined how a healthy lifestyle mitigates the risk of Alzheimer's disease (Natanson, 2019). The researchers followed a diverse group of 2765 participants for 9 years and focused on five low-risk lifestyle factors: healthy diet, at least 150 minutes/week of moderate to vigorous physical activity, not smoking, light to moderate alcohol intake, and engaging in cognitively stimulating activities. Results indicated that those who adopted four or five low-risk lifestyle factors had a 60% lower risk of Alzheimer's disease when compared with participants who did not follow any or only one of the low-risk factors. The authors concluded that incorporating these lifestyle changes can have a positive effect on one's brain functioning and lower the risk for Alzheimer's disease.

Vascular Neurocognitive Disorder

Vascular Neurocognitive Disorder is the second most common neurocognitive disorder, affecting 0.2% in the 65–70 years age group and 16% of individuals 80 years and older (American Psychiatric Association, 2022). Vascular neurocognitive disorder is associated

with a blockage of cerebral blood vessels that affects one part of the brain rather than a general loss of brain cells seen with Alzheimer's disease. Personality is not as affected in vascular neurocognitive disorder, and more males are diagnosed than females (Erber & Szuchman, 2015). It also comes on more abruptly than Alzheimer's disease and has a shorter course before death. Risk factors include smoking, diabetes, heart disease, hypertension, or a history of strokes.

Neurocognitive Disorder with Lewy Bodies

According to the National Institute on Aging (2015a), Lewy bodies are microscopic protein deposits found in neurons seen postmortem. They affect chemicals in the brain that can lead to difficulties in thinking, movement, behavior and mood. Neurocognitive Disorder with Lewy bodies is the third most common form and affects more than 1 million Americans. It typically begins at age 50 or older and appears to affect slightly more men than women. The disease lasts approximately 5 to 7 years from the time of diagnosis to death, but can range from 2 to 20 years depending on the individual's age, health, and severity of symptoms. Lewy bodies can occur in both the cortex and brain stem, which results in cognitive as well as motor symptoms (Erber & Szuchman, 2015). The movement symptoms are similar to those with Parkinson's disease and include tremors and muscle rigidity. However, the motor disturbances occur at the same time as the cognitive symptoms, unlike with Parkinson's disease when the cognitive symptoms occur well after the motor symptoms. Individuals diagnosed with Neurocognitive Disorder with Lewy bodies also experience sleep disturbances, recurrent visual hallucinations, and are at risk for falling.

Knowledge Check

13g. Which of the following statements best distinguishes Alzheimer's disease from vascular neurocognitive disorder?

- A) Alzheimer's affects motor skills earlier than cognitive functions.
- B) Vascular neurocognitive disorder progresses more gradually than Alzheimer's.
- C) Alzheimer's disease typically begins with gradual memory loss and personality changes, while vascular neurocognitive disorder often has a sudden onset due to blood flow issues.
- D) Vascular neurocognitive disorder is more common than Alzheimer's in those over 65.

13h. Good sleep habits may help reduce the buildup of beta-amyloid and tau proteins associated with Alzheimer's disease.

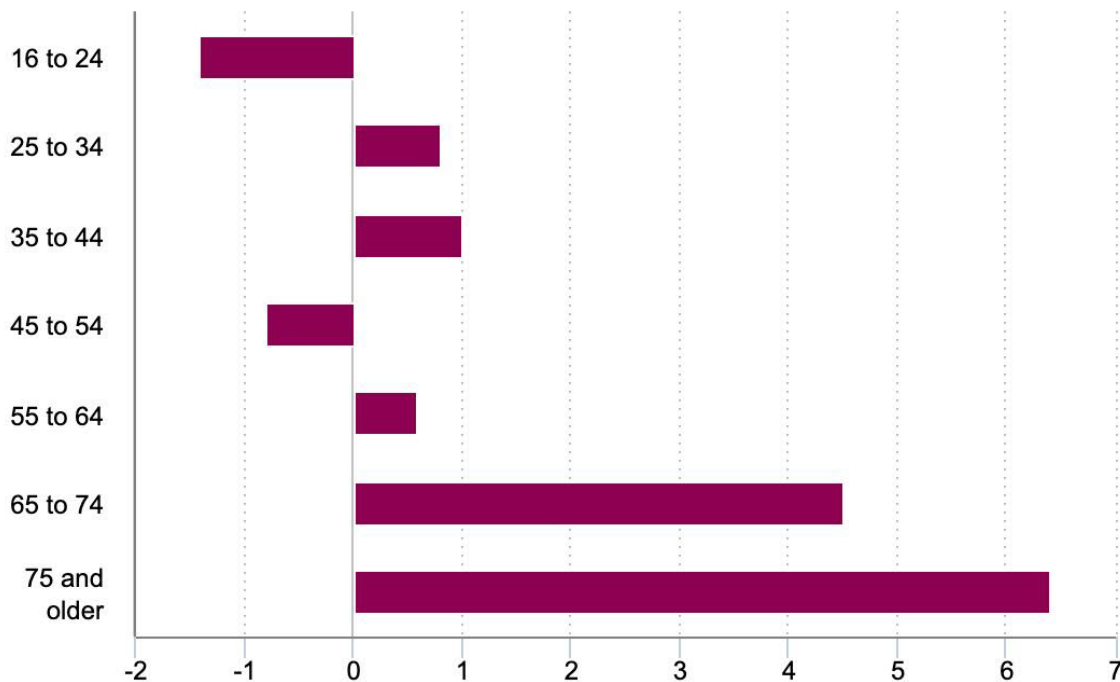
- A) True
- B) False

13.7 Work, Retirement, and Leisure

Work

According to the United States Census Bureau, in 1994, approximately 12% of those employed were 65 and over, and by 2016, the percentage had increased to 18% of those employed (McEntarfer, 2019). Looking more closely at the age ranges, more than 40% of Americans in their 60s are still working, while 14% of people in their 70s and just 4% of those 80 and older are currently employed (Livingston, 2019). Even though they make up a smaller number of workers overall, those 65- to 74-year-old and 75-and-older age groups are projected to have the fastest rates of growth in the next decade.

Chart 2. Annual growth rate in labor force by age, projected 2014–24 (percent)



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.



Figure 13.8 Projected annual 2014–2024 percentage labor growth by age group

Livingston (2019) reported that, similar to other age groups, those with higher levels of education are more likely to be employed. Approximately 37% of adults 60 and older and have a bachelor's degree or more are working. In contrast, 31% with some college experience and 21% with a high school diploma or less are still working at age 60 and beyond. Additionally, men 60 and older are more likely to be working than women (33% vs. 24%). Not only are older persons working more, but they are also earning more than previously, and their growth in earnings is greater compared to workers of other ages (McEntarfer, 2019). Older adults are proving just as capable as younger adults at the workplace. In fact, 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.

Transitioning into Retirement

For most Americans, retirement is a process and not a one-time event (Quinn & Cahill, 2016). Sixty percent 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. Some of these jobs may be in encore careers, or work in a different field from the one in which they retired. Approximately 10% of workers begin phasing into retirement by reducing their hours. However, not all employers will allow this due to pension regulations.

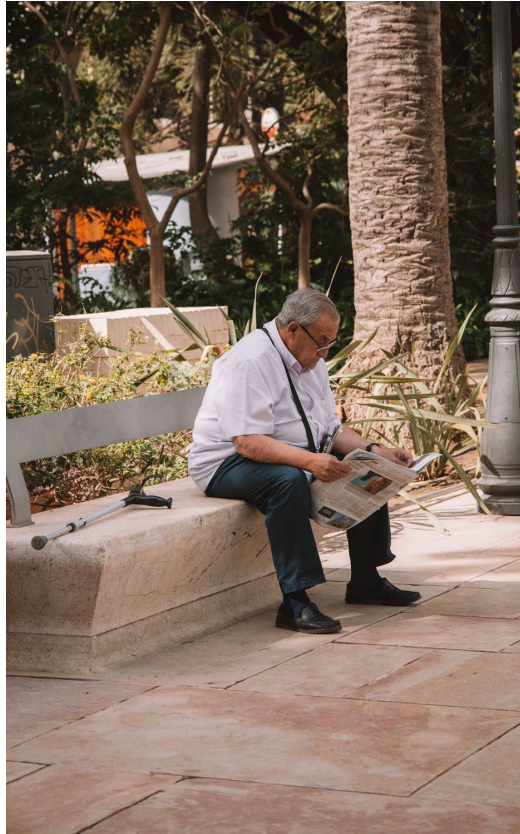


Figure 13.9 A retired person enjoying leisure time

Retirement Age Changes

Looking at retirement data, the average age of retirement declined from more than 70 in 1910 to age 63 in the early 1980s. However, this trend has reversed and the current average age is now 65. Additionally, 18.5% of those over the age of 65 continue to work (U.S. Department of Health and Human Services, 2012) compared with only 12% in 1990 (U.S. Government Accountability Office, 2011). With individuals living longer, once retired the average amount of time a retired worker collects social security is approximately 17–18 years (James et al., 2016).

When to retire

Laws often influence when someone decides to retire. In 1986 the Age Discrimination in Employment Act (ADEA) was amended, and mandatory retirement was eliminated for most workers (Erber & Szuchman, 2015) although pilots, air traffic controllers, federal law enforcement, national park rangers, and firefighters continue to have enforced retirement ages. Consequently, most workers can continue to work if they choose and are able. Social security benefits also play a role. For those born before 1938, they can receive full social security benefits at age 65. For those born between 1943 and 1954, they must wait

until age 66 for full benefits, and for those born after 1959 they must wait until age 67 (Social Security Administration, 2016). Extra months are added to those born in years between. For example, if born in 1957, the person must wait until 66 years and 6 months. The longer one waits to receive social security, the more money will be paid out. Those retiring at age 62 will only receive 75% of their monthly benefits. Medicare health insurance is another entitlement that is not available until one is aged 65.

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 have 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, the oldest-old, 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).

Retirement Stages

Atchley (1994) identified several phases that individuals go through when they retire:

- **Remote pre-retirement phase** includes fantasizing about what one wants to do in retirement
- **Immediate pre-retirement phase** when concrete plans are established
- Actual retirement
- **Honeymoon phase** when retirees travel and participate in activities they could not do while working
- **Disenchantment phase** when retirees experience an emotional let-down
- **Reorientation phase** when the retirees attempt to adjust to retirement by making less hectic plans and getting into a regular routine

Not everyone goes through every stage, but this model demonstrates that retirement is a process.

Post-retirement

Those who look most forward to retirement and have plans are those who anticipate adequate income (Erber & Szuchman, 2015). This is especially true for males who have worked consistently and have a pension and/or adequate savings. Once retired, staying active and socially engaged is important. Volunteering, caregiving and informal helping can keep seniors engaged. Kaskie et al. (2008) found that 70% of retirees who are not involved in productive activities spent most of their time watching TV, which is correlated with negative affect. In contrast, being productive improves well-being.

Elder Education

Attending college is not just for the young, as discussed in the previous chapter. There are many reasons why someone in late adulthood chooses to attend college. PNC Financial Services surveyed retirees aged 70 and over and found that 58% indicated that they had retired before they had planned (Holland, 2014). Many of these individuals chose to pursue additional training to improve skills to return to work in a second career. Others may be looking to take their career in a new direction. For some older students who no longer are focused on financial reasons, returning to school is intended to enable them to pursue work that is personally fulfilling. Attending college in late adulthood is also a great way for seniors to stay young and keep their minds sharp.

Even if an elder chooses not to attend college for a degree, there are many continuing education programs on topics of interest available. In 1975, a nonprofit educational travel organization called Elderhostel began in New Hampshire with five programs for several hundred retired participants (DiGiacomo, 2015). This program combined college classroom time with travel tours and experiential learning experiences. In 2010 the organization changed its name to Road Scholar, and it now serves 100,000 people per year in the U.S. and in 150 countries. 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. However, offering more educational experiences to a diverse group of older adults, including those who are institutionalized in nursing homes, can bring enhancement to their quality of life.



Figure 13.10 Older Adults after retirement

Leisure

During the past 10 years, leisure time for Americans 60 and older has remained at about 7 hours a day. However, the amount of time spent on TVs, computers, tablets or other electronic devices has risen almost 30 minutes per day over the past decade (Livingston, 2019). Those 60 and older now spend more than half of their daily leisure time (4 hours and 16 minutes) in front of screens. Screen time has increased for those in their 60s, 70s, 80s and beyond, and across genders and education levels. This rise in screen time coincides with significant growth in the use of digital technology by older Americans. In 2000, 14% of those aged 65 and older used the Internet, and now 73% are users and 53% own smartphones. Alternatively, the time spent on other recreational activities, such as reading or socializing, has gone down slightly. People with less education spend more of their leisure time on screens and less time reading compared with those with more education. Less educated adults also spend less time exercising: 12 minutes a day for those with a high school diploma or less, compared with 26 minutes for college graduates.

Knowledge Check

13i. Which of the following is a reason older adults may choose to delay retirement?

- A) Mandatory retirement laws require most to work until age 70.
- B) They receive full Social Security benefits at age 62.
- C) They may lack sufficient pension or savings to support full retirement.
- D) Employers often require older workers to stay in their roles permanently.

13j. The concept of _____ refers to part-time or transitional employment that many older adults take on between their primary career and full retirement.

Key Takeaways

- Working memory, particularly the central executive, declines with age, while simpler memory tasks remain stable.
- Episodic memory (events) declines more noticeably than semantic memory (facts), but implicit memory (skills, habits) remains largely intact.
- Recognition tasks show fewer age-related deficits than recall tasks, due to the availability of memory cues.
- Age-related cognitive declines are often exaggerated by meaningless lab tasks, cross-sectional studies, and reduced sensory functioning.
- Older adults compensate for slower processing speed through expertise, accumulated knowledge, and strategic approaches to everyday tasks.
- Intelligence in late adulthood shows stability in crystallized abilities (pragmatics), but declines in fluid abilities (mechanics).
- Wisdom is rare and depends more on personality traits, openness, and specific experiences rather than age alone.
- Alzheimer's disease is the most common neurocognitive disorder, characterized by memory loss, confusion, and eventual decline in physical abilities due to neuron death, plaques, and tau tangles.
- Healthy lifestyle habits, including regular exercise, good sleep, proper diet, cognitive stimulation, and social interaction, significantly reduce the risk of Alzheimer's disease.
- Other significant neurocognitive disorders include vascular neurocognitive disorder, caused by reduced blood flow to the brain, and neurocognitive disorder with Lewy bodies, associated with cognitive and motor impairments.
- Retirement is increasingly becoming a gradual process, often involving part-time or bridge jobs; financial considerations significantly influence retirement decisions.
- Older adults increasingly continue working due to financial needs, health benefits, social interaction, or personal fulfillment.

Engaging in leisure activities, continuing education, volunteering, and social connections supports cognitive and emotional health in late adulthood.

- Increased screen time among older adults reflects broader technology adoption, influencing leisure habits and social engagement patterns.



Video 13.3: [How memories form and how we lose them - Catharine Young](#)

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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.
- Excluded sections from 9.15 to 9.22.

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Video 13.3. Tech-Ed. (2015, September 24). *How memories form and how we lose them - Catharine Young*. [Video]. Youtube. <https://www.youtube.com/watch?v=yOgAbKJGrTA>

Long Descriptions

Figure 13.1 (c) Mirek2. [Working-memory-en](#). CC0 1.0. Alt Text: The image depicts a diagram of the working memory model. At the top, an oval labeled "Central Executive" in red represents the central part of the model. Below this, there are three rectangles connected to the central executive with blue outlines. The rectangles are labeled from left to right: "Phonological Loop," "Visuospatial Sketchpad," and "Episodic Buffer." Directly beneath these, three more rectangles in black are connected, labeled "Language," "Visual Semantics," and "Short-term Episodic Memory."

Figure 13.2 (c) Ryan Tracey. [The original Atkinson-Shiffrin memory model](#). CC BY-SA 2.0. Alt Text: Diagram showing the process of memory storage. Incoming information enters short-term memory storage. From there, information can either be displaced or decay, or it can be rehearsed to stay longer in short-term memory. Through transfer, information moves into long-term memory storage.

Figure 13.3 (c) Erich parker. [A diagram representing a common understanding of memory systems](#). CC BY-SA 4.0. Alt Text: Flowchart showing memory process: Sensory to Working to Long-Term Memory with labels for attention, rehearsal, encoding, retrieval, and forgetting.

Figure 13.4 (c) [A circle with words written in different languages. Medicine wheel wisdom power, emotions](#). CC0 1.0. Alt Text: Circular design with four quadrants labeled Wisdom, Power, Emotion, and Vision, each containing related words.

Figure 13.5 (c) [Alzheimer's disease brain comparison](#). Public Domain. Alt Text: The image shows two illustrations of the human brain. The left illustration depicts a healthy brain cross-section with smooth, tight folds in the cerebral cortex and normal-sized ventricles. The hippocampus and entorhinal cortex are labeled, illustrating their location and size. The right illustration shows a brain affected by severe shrinkage with widened sulci in the cerebral cortex and dramatically enlarged ventricles. The labels highlight "Extreme Shrinkage of the Cerebral Cortex," "Severely Enlarged Ventricles," and "Extreme Shrinkage of the Hippocampus."

Figure 13.6 (c) Mikael Häggström and brainmaps.org. [Histopathology of Alzheimer's disease](#). CC BY 3.0. Alt Text: The image comprises multiple panels showing histopathological sections of an Alzheimer's brain stained to highlight key features. The upper left panel displays a cross-section of the brain with distinct regions marked, including the CA3 area in the hippocampus. A black rectangle highlights the section of interest. The lower panels are close-up micrographs showcasing cellular structures. The top-right close-up shows a densely packed pink structure surrounded by lighter pink areas, with black arrows indicating specific dark, circular formations. The bottom-left close-up features a spindle-shaped structure pointed out by arrows. The bottom-right close-up shows a circular, dense feature, again highlighted by black arrows. The background of these close-up images is a textured pink shade, typical of stained brain tissue.

Figure 13.7 (c) Mikael Häggström. [Main health effects of sleep deprivation](#). CC0 1.0. Alt Text: The image is a diagram illustrating human body parts affected by sleep deprivation, shown from a frontal perspective. The body is depicted in a light brown color and is partially transparent to reveal internal organs. Labels point to specific areas with associated health effects from sleep deprivation. The brain is displayed at the top, depicting damage. The diagram includes the heart and major muscles in the chest area, highlighting cardiovascular issues, with the pancreas labeled near the abdomen. The forearm and elbow are drawn to emphasize the impact on bones. The background is plain white, making the labeled parts and connecting lines clearly visible.

Figure 13.8 (c) Mitra Toossi and Elka Torpey. [Projected annual 2014–2024 percentage labor growth by age group](#). U.S. Bureau of Labor Statistics. Alt Text: The image is a horizontal bar chart titled "Chart 2. Annual growth rate in the labor force by age, projected 2014–24 (percent)." The chart displays growth rates in the labor force for different age groups. Each age group is represented by a horizontal bar with a deep purple color. The age groups displayed on the vertical axis starting from the top are 16 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 to 74, and 75 and older. The horizontal axis shows the percentage scale ranging from -2 to 7. The bars show varying growth rates: 16 to 24 has a small negative growth; 25 to 34, 35 to 44, and 45 to 54 have small positive growth rates; 55 to 64 shows minimal growth; 65 to 74 has a substantial growth rate, and 75 and older has the highest growth rate, exceeding 6 percent. The bottom of the image contains the text "Hover over chart to view data. Source: U.S. Bureau of Labor Statistics."

Figure 13.9 (c) Joaquin Carfagna. [Pensioner Reading Newspaper](#). Pexels license. Alt Text: An older adult sitting on a bench reading a newspaper

Figure 13.10 (c) [old man and woman on wooden bench](#). Public Domain List. Alt Text: An older adult couple sitting on a bench in chic outfits. A man wearing a hat with a woman in a floral dress reading a magazine. Both have their canes rested with their side, sitting on a bench under the tree.

Unit 5: End of Life Issues

This unit contains the following chapters:

- 14. Understanding Death and Dying
- 15. Grief, Bereavement, and End-of-Life Care

Chapter 14: End-of-Life Decision Making and Care

14.1 Learning Objectives

- Understand key decisions involved in end-of-life care
- Identify types and purposes of advance directives
- Recognize cultural differences in end-of-life practices
- Define and distinguish forms of euthanasia
- Describe how perceptions of death change with age
- Know where people prefer to die vs. where they do
- Distinguish curative, palliative, and hospice care
- Recognize the role and challenges of family caregivers

14.2 Introduction

At the end of life, individuals and families face a complex set of decisions that go beyond medical care to include emotional, cultural, and ethical considerations. Planning ahead of end-of-life through advance directives, medical orders, and conversations about personal wishes, can help ensure care aligns with a person's values and needs. End-of-life experiences are shaped by where people die, the care they receive, and cultural attitudes toward death and dying. Understanding the roles of palliative care, hospice, family caregivers, and broader societal perspectives prepares us to navigate these deeply human challenges with compassion and informed choices.

14.3 Advance Directives

Advanced care planning is one of the important documents of such planning, which refers to all documents that pertain to end-of-life care. These include advance directives and medical orders. **Advance directives** include documents that mention a health care agent and living wills. These are initiated by the patient. Living wills are written or video statements that outline the health care initiatives the person wishes under certain circumstances. **Durable power of attorney** for health care names the person who should make healthcare decisions in the event that the patient is incapacitated. In contrast, **medical orders** are crafted by a medical professional on behalf of a seriously ill patient. Unlike advanced directives, as these are doctor's orders, they must be followed by other medical personnel. Medical orders include Physician Orders for Life-sustaining Treatment (POLST), do-not-resuscitate, do-not-incubate, or do-not-hospitalize. In some instances, medical orders may be limited to the facility in which they were written. Several states have endorsed POLST so that they are applicable across health care settings (IOM, 2015).

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).

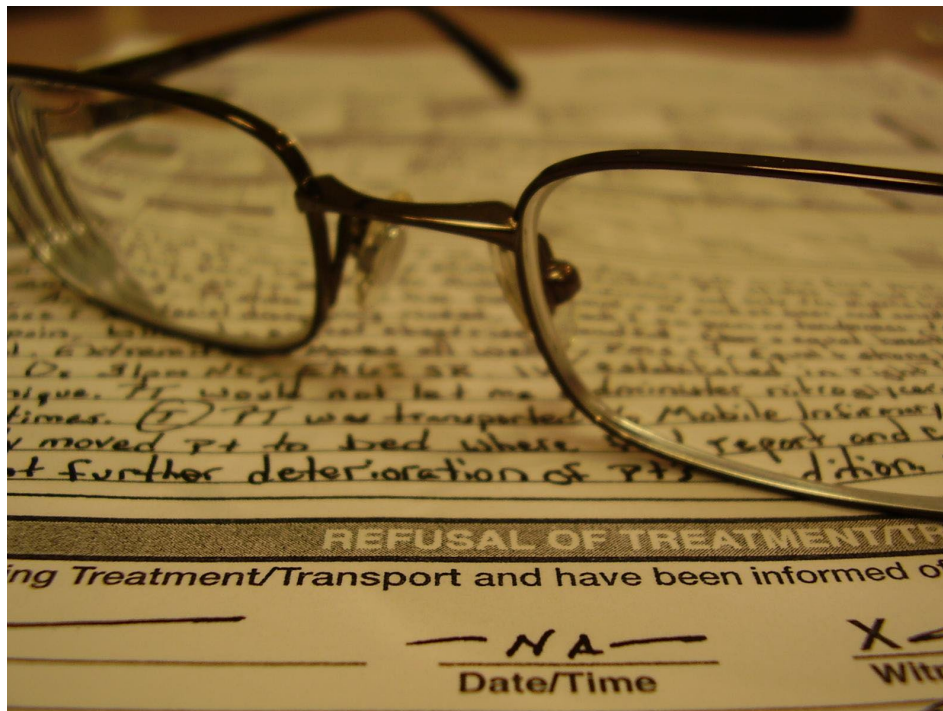


Figure 14.1 Refusal of treatment form

Cultural Differences in End-of-Life Decisions

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 (Ganz, 2019; Searight & Gafford, 2005a). In Western medicine, doctors take the approach that patients should be told the truth about their health. Blank (2011) reports that 75% of the world's population do not conduct medicine by the same standards. Thus, outside Western nations, and even among certain racial and ethnic groups within those nations, 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. Chattopadhyay and Simon (2008) reported that in India doctors routinely abide by the family's wishes and withhold information from the patient, while in Germany doctors are legally required to inform the patient. In addition, 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

(Holland et al., 1987). Family members also actively protect terminally ill patients from knowing about their illness in many Hispanic, Chinese, and Pakistani cultures (Kaufert & Putsch, 1997; Herndon & Joyce, 2004).

In western medicine, we view the patient as autonomous in health care decisions (Chattopadhyay & Simon, 2008; Searight & Gafford, 2005a). However, 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 (Blank, 2011; Candib, 2002; Chattopadhyay & Simon, 2008). 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).

The notion of advanced directives holds little or no relevance in many cultures outside of western society (Blank, 2011). For instance, in India advanced directives are virtually nonexistent, while in Germany they are regarded as a major part of health care (Chattopadhyay & Simon, 2008). Moreover, end-of-life decisions involve how much medical aid should be used. In the United States, Canada, and most European countries artificial feeding is more commonly used once a patient has stopped eating, while in many other nations a lack of eating is seen as a sign, rather than a cause, of dying and using a feeding tube is not considered (Blank, 2011).

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 advanced directives among non-whites may reflect a distrust of the U.S. health care system as a result of the health care disparities non-whites have experienced. Among Hispanics, patients may also be reluctant to select a single family member to be responsible for end-of-life decisions out of a concern of isolating the person named and of offending other family members, as this is commonly seen as a "family responsibility" (Morrison et al., 1998).



Video 14.1: [The 4 Types of Advance Directives](#)

14.4 Euthanasia

Euthanasia is defined as intentionally ending one's life when suffering from a terminal illness or severe disability (Youdin, 2016). Euthanasia is further separated into **active euthanasia**, which is intentionally causing death, usually through a lethal dose of medication, and passive euthanasia occurs when life-sustaining support is withdrawn. This can occur through the removal of a respirator, feeding tube, or heart-lung machine.

Physician-assisted dying is a form of active euthanasia whereby a physician prescribes the means by which a person can die. The United States federal government does not legislate physician-assisted dying, as laws are handled at the state level (ProCon.org, 2018). Ten states and the District of Columbia (D.C.) currently allow physician-assisted dying. The person seeking physician-assisted dying must be: (1) at least 18 years of age, (2) have six or less months until expected death, and (3) obtain two oral (at least 15 days apart) and one written request from a physician (ProCon.org, 2016). Table 14.1 lists the states that allow physician-assisted dying and the date the relevant law was passed.

Table 14.1 Ten States and D.C. Allow Legal Physician-Assisted Dying.

State	Date Passed
Oregon	Passed November 8, 1994, but enacted October 27, 1997
Washington	November 4, 2008
Montana	December 31, 2009
Vermont	May 20, 2013
California	September 11, 2015
D.C.	October 5, 2016
Colorado	November 8, 2016
Hawaii	April 5, 2018
New Jersey	March 25, 2019
Maine	June 12, 2019
New Mexico	April 8, 2021

Since 1997 in Oregon, 2,216 people had lethal prescriptions written and 1459 patients (65.8%) died from the medication as of January 2019 (Death with Dignity, 2019)

Canada and several European countries, including Switzerland, Belgium, Luxembourg, and the Netherlands also allow physician-assisted dying. As of 2014, Belgium is the only country that allows the right to die to those under the age of 18. Stricter conditions were put in place for children, including parental consent and the requirements that 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).

The practice of physician-assisted dying is certainly controversial, with religious, legal, ethical, and medical experts weighing in with opinions. The main areas where there is disagreement between those who support physician-assisted dying 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. According to a 2013 Pew Research Center survey, 47% of Americans approve and 49% disapprove of laws that would allow a physician to prescribe lethal doses of drugs that a terminally ill patient could use to commit suicide (Pew Research Center, 2013). Attitudes on physician-assisted dying were roughly the same in 2005, when 46% approved and 45% disapproved.



Video 14.2: [What Is The Difference Between Euthanasia And Assisted Suicide?](#)

Knowledge Check

14a. According to the Uniform Determination of Death Act (UDDA), which of the following is considered a clinical definition of death?

- A) Complete loss of speech and movement
- B) Irreversible cessation of circulatory and respiratory functions
- C) Total unconsciousness for over 24 hours
- D) Absence of reflexes and eye movement

14b. Which of the following are the three most common noncommunicable causes of death worldwide?

- A) Diabetes, malaria, and stroke
- B) Tuberculosis, cancer, and heart disease
- C) Heart disease, stroke, and COPD
- D) Cancer, pneumonia, and Alzheimer's disease

14c. Social death can begin before physical death and involves a withdrawal of emotional and interpersonal engagement from the terminally ill.

- A) True
- B) False

14.5 Developmental Perceptions of Death and Death Anxiety

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, sleep less, 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 the death through their actions, such as misbehavior, words, and feelings.

Middle Childhood

Although children in middle childhood begin to understand the finality of death, up until the age of 9 they may still participate in magical thinking and believe that through their thoughts they can bring someone back to life. They also may think that they could have

prevented the death in some way and consequently feel guilty and responsible for the death.

Late Childhood

At this stage, children understand the finality of death and know that everyone will die, including themselves. However, they may also think people die because of some wrong doing on the part of the deceased. They may develop fears of their parents dying and continue to feel guilty if a loved one dies.

Adolescence

Adolescents understand death as well as adults. With formal operational thinking, adolescents can now think abstractly about death, philosophize about it, and ponder their own lack of existence. Some adolescents become fascinated with death and reflect on their own funeral by fantasizing on how others will feel and react. Despite a preoccupation with thoughts of death, the personal fable of adolescence causes them to feel immune to the death. Consequently, they often engage in risky behaviors, such as substance use, unsafe sexual behavior, and reckless driving, thinking they are invincible.

Early Adulthood

In adulthood, there are differences in the level of fear and anxiety concerning death experienced by those in different age groups. For those in early adulthood, their overall lower rate of death is a significant factor in their lower rates of death anxiety. Individuals in early adulthood typically expect a long life ahead of them, and consequently do not think about, nor worry about death.

Middle Adulthood

Those in middle adulthood report more fear of death than those in either early and late adulthood. The caretaking responsibilities for those in middle adulthood is a significant factor in their fears. As mentioned previously, middle adults often provide assistance for both their children and parents, and they feel anxiety about leaving them to care for themselves.

Late Adulthood

Contrary to the belief that because they are so close to death, they must fear death, those in late adulthood have lower fears of death than other adults. Why would this occur? First, older adults have fewer caregiving responsibilities and are not worried about leaving family members on their own. They also have had more time to complete activities they

had planned in their lives, and they realize that the future will not provide as many opportunities for them. Additionally, they have less anxiety because they have already experienced the death of loved ones and have become accustomed to the likelihood of death. It is not death itself that concerns those in late adulthood; rather, it is having control over how they die.

14.6 Where do People Prefer to Die?

Gathering statistics on the location of death is not a simple matter. Those with terminal illnesses may be going through the process of dying at home or in a nursing home, only to be transported to a hospital in the final hours of their life. According to the Stanford Medical School (2019), most Americans (80%) would prefer to die at home, however:

- 60% of Americans die in acute care hospitals
- 20% in nursing homes
- 20% at home.

While dying at home is not favored in certain cultures, and some patients may prefer to die in a hospital, the results indicate that less people are dying at home than want to.

Internationally, 54% of deaths in over 45 nations occurred in hospitals, with the most frequent occurring in Japan (78%) and the least frequent occurring in China (20%), according to a study by Broad et al. (2013). They also found that for older adults, 18% of deaths occurred in some form of residential care, such as nursing homes, and that for each decade after age 65, the rate of dying in such settings increased 10%. In addition, the number of women dying in residential care was considerably higher than for males.

Knowledge Check

14d. Which of the following factors is most commonly associated with higher male suicide rates compared to females?

- A) Lower rates of substance use
- B) Higher rates of mental health treatment
- C) Use of more lethal means and less help-seeking behavior
- D) Higher levels of social support

5.1e Deaths of despair include fatalities from suicide, drug overdoses, and are often linked to declines in economic and social well-being.

- A) True
- B) False

5.1f Which group is generally found to have the lowest levels of death anxiety?

- A) Early adults, due to their belief in a long future ahead
- B) Middle-aged adults, due to their caregiving responsibilities
- C) Adolescents, due to lack of exposure to death
- D) Older adults, due to greater acceptance and fewer caregiving responsibilities

14.7 Curative, Palliative, and Hospice Care

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

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

Palliative Care focuses on providing comfort and relief from physical and emotional pain to patients throughout their illness, even while being treated (NIH, 2007). In the past, palliative care was confined to offering comfort for the dying. Now it is offered whenever patients suffer from chronic illnesses, such as cancer or heart disease (IOM, 2015). Palliative care is also part of hospice programs.

Hospice emerged in the United Kingdom in the mid-20th century as a result of the work of Cicely Saunders. This approach became popularized in the U.S. by the work of Elizabeth Kübler-Ross (IOM, 2015), and by 2012 there were 5,500 hospice programs in the U.S. (National Hospice and Palliative Care Organization (NHPCO), 2013).

Hospice care

Whether at home, in a hospital, nursing home, or hospice facility, involves a team of professionals and volunteers who provide terminally ill patients with medical, psychological, and spiritual support, along with support for their families (Shannon, 2006).

The aim of hospice is to help the dying be as free from pain as possible, and to comfort both the patients and their families during a difficult time.

In order to enter hospice, a patient must be diagnosed as terminally ill with an anticipated death within 6 months (IOM, 2015). The patient is allowed to go through the dying process without invasive treatments. 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.

According to the National Hospice and Palliative Care Organization (2019), there are four types of hospice care in America:

- Routine hospice care, where the patient has chosen to receive hospice care at home, is the most common form of hospice.
- Continuous home care is predominantly nursing care, with caregiver and hospice aides supplementing this care, to manage pain and acute symptom crises for 8 to 24 hours in the home.
- Inpatient respite care is provided by a hospital, hospice, or long-term care facility to provide temporary relief for family caregivers.
- General inpatient care is provided by a hospital, hospice, or long-term care facility when pain and acute symptom management cannot be handled in other settings.

In 2017, an estimated 1.5 million people residing in America received hospice care (NHPCO, 2019). The majority of patients on hospice were patients suffering from dementia, heart disease, or cancer, and typically did not enter hospice until the last few weeks prior to death. Almost one out of three patients were on hospice for less than a week. 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

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. In addition, a recent report by the Office of the Inspector General at U.S. Department of Health and Human Services (2018) highlighted some of the vulnerabilities of the hospice system in the U.S. Among

the concerns raised were that hospices did not always provide the care that was needed and sometimes the quality of that care was poor, even at Medicare certified facilities.

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 (Coolen, 2012).

Family Caregivers

According to the Institute of Medicine (2015), it is estimated that 66 million Americans, or 29% of the adult population, are caregivers for someone who is dying or chronically ill. Two-thirds of these caregivers are women. This care takes its toll physically, emotionally, and financially. Family caregivers may face the physical challenges of lifting, dressing, feeding, bathing, and transporting a dying or ill family member. They may worry about whether they are performing all tasks safely and properly, as they receive little training or guidance. Such caregiving tasks may also interfere with their ability to take care of themselves and meet other family and workplace obligations. Financially, families may face high out of pocket expenses (IOM, 2015).

As can be seen in Table 14.2, most family caregivers are providing care by themselves with little professional intervention, are employed, and have provided care for more than 3 years. The annual loss of productivity in the U.S. was \$25 billion in 2013 as a result of work absenteeism due to providing this care. 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, Feinberg, & Houser, 2013).

Table 14.2 Characteristics of Family Caregivers in the United States.

Characteristic	Percentage
No home visits by health care professionals	69%
Caregivers are also employed	72%
Duration of employed workers who have been caregiving for 3+ years	55%
Caregivers for the elderly	67%

Adapted from IOM, 2015



Video 14.3: [Dying for Beginners | Dr Kathryn Mannix](#)

Knowledge Check

14g. Which of the following best explains why adolescents may engage in risky behavior despite understanding the concept of death?

- A) They feel personally invincible due to the personal fable.
- B) They believe death is reversible.
- C) They do not understand the finality of death.
- D) They are unaware of death-related consequences.

14h. Which of the following best defines palliative care?

- A) A type of care focused solely on curing disease regardless of pain.
- B) A care approach that provides relief from symptoms and emotional distress during illness.
- C) End-of-life care limited to the last few days before death.
- D) A legal requirement for all terminally ill patients in the U.S.

14i. Which of the following is NOT one of the basic elements of hospice care?

- A) Access to 24-hour care.
- B) Curative treatments like chemotherapy.
- C) Bereavement counseling for the family.
- D) Pain and symptom management.

14j. Which of the following statements about family caregivers is accurate according to the Institute of Medicine (2015)?

- A) Most caregivers receive frequent professional medical assistance at home.
- B) Only a small fraction of caregivers are employed during the caregiving period.
- C) Nearly 70% of family caregivers receive no home visits by healthcare professionals.
- D) The majority of caregivers provide care for less than one year.

Key Takeaways

- End-of-life decisions involve more than medical treatment, they include cultural values, family roles, and personal beliefs.
- Advance directives and medical orders help ensure that care reflects a person's preferences when they can no longer decide.
- Cultural norms influence whether truth about illness is shared and who makes decisions, often prioritizing family over individual autonomy.
- Euthanasia remains a debated issue with varying laws and ethical views worldwide; physician-assisted dying is legal in several U.S. states.
- Children's and adults' perceptions of death differ based on cognitive development and life responsibilities.
- Most people prefer to die at home, but many still die in hospitals or care facilities.
- Curative care aims to heal; palliative care provides comfort; hospice supports patients and families through the dying process.
- Hospice care emphasizes dignity, pain relief, and emotional support, but access and quality vary.

- Family caregivers bear a major burden of care, often with little training or support, impacting their health, finances, and employment.
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Sources

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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

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Figure Attributions

Figure 14.1 (c) Jacob Windham. [Refusal of treatment form](#). CC BY 2.0

Video Attributions

Video 14.1: eForms. (2021, April 28). The 4 Types of Advance Directives. [Video]. Youtube. <https://www.youtube.com/watch?v=U7CTeyF5h-8>

Video 14.2: thatwhytv. (2020, February 01). What Is The Difference Between Euthanasia And Assisted Suicide?. [Video]. Youtube. <https://www.youtube.com/watch?v=T13N38zyGos>

Video 14.3: Theos Think Tank. (2023, October 25). Dying for Beginners | Dr Kathryn Mannix. [Video]. Youtube. <https://www.youtube.com/watch?v=ayMhA1pRLeY>

Long Descriptions

Figure 14.1 (c) Jacob Windham. [Refusal of treatment form](#). CC BY 2.0. Alt Text: A photo of refusal of treatment form, with glasses put on it.

Chapter 15: Death, Mourning, and Bereavement

15.1 Learning Objectives

- Define medical and social death.
- Describe physical signs during the dying process.
- Identify top causes of death globally and in the U.S.
- Summarize COVID-19's impact on mortality.
- Understand suicide trends and deaths of despair.
- Describe cultural and religious death practices.
- Distinguish grief, mourning, and bereavement.
- Recognize common and complicated grief responses and models.
- Outline Worden's tasks of mourning and the role of support groups.

15.2 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. Children and young adults in their prime of life may perceive death differently from adults dealing with chronic illness or the increasing frequency of the death of family and friends. If asked, most people envision their death as quick and peaceful. However, 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). 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.

15.3 Death Defined

One way to understand death and dying is to look more closely at what defines physical death and social death. According to the Uniform Determination of Death Act (UDDA) (Uniform Law Commissioners, 1980), death is defined clinically as the following:

An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards.

The UDDA was approved for the United States in 1980 by a committee of national commissioners, the American Medical Association, the American Bar Association, and the President's Commission on Medical Ethics. This act has since been adopted by most states and provides a comprehensive and medically factual basis for determining death in all situations.

Death Process

For those individuals who are terminal, and death is expected, a series of physical changes occur. Bell (2010) identifies some of the major changes that occur in the weeks, days, and hours leading up to death:

- Weeks Before Passing
 - Minimal appetite; prefer easily digested foods
 - Increase in the need for sleep
 - Increased weakness
 - Incontinence of bladder and/or bowel
 - Restlessness or disorientation
 - Increased need for assistance with care
- Days Before Passing
 - Decreased level of consciousness
 - Pauses in breathing
 - Decreased blood pressure
 - Decreased urine volume and urine color darkens
 - Murmuring to people others cannot see
 - Reaching in air or picking at covers
 - Need for assistance with all care
- Days to Hours Before Passing
 - Decreased level of consciousness or comatose-like state
 - Inability to swallow
 - Pauses in breathing become longer
 - Shallow breaths
 - Weak or absent pulse
 - Knees, feet, and/or hands becoming cool or cold
 - Knees, feet, and/or hand discoloring to purplish hue
 - Noisy breathing due to relaxed throat muscles, often called a "death rattle"
 - Skin coloring becoming pale, waxy (pp. 5, 176–177)



Video 15.1: [What Dying Feels Like: It's way different than you think](#)

Social death

Social death begins much earlier than physical death (Pattison, 1977). Social death occurs when others begin to dehumanize and withdraw from someone who is terminally ill or has been diagnosed with a terminal illness (Glaser & Strauss, 1966). Dehumanization includes ignoring them, talking about them if they were not present, making decisions without consulting them first, and forcing unwanted procedures. Sweeting and Gilhooly (1997) further identified older people in general, and people with a loss of personhood, as having the characteristics necessary to be treated as socially dead. More recently, the concept has been used to describe the exclusion of people with HIV/AIDS, younger people living with terminal illness, and those with the preference to die at home (Brannelly, 2011).

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 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. People in nursing homes may live as socially dead for years with no one visiting or calling. Social support is important for quality of life, and those who experience social death are deprived from the benefits that come from loving interaction with others (Bell, 2010).

Why would younger or healthier people dehumanize those who are incapacitated, older, or unwell? One explanation is that dehumanization is the result of the healthier person placing a protective distance between themselves and the incapacitated, older, or unwell person (Brannelly, 2011). This keeps the well person from thinking of themselves as becoming ill or in need of assistance. Another explanation is the repeated experience of loss that paid caregivers experience when working with terminally ill and older people requires a distance which protects against continual grief and sadness, and possibly even burnout.

15.4 Most Common Causes of Death

The most recent statistics analyzed by the World Health Organization were in 2019 (WHO, 2020). The top 10 causes of death accounted for 55% of the 55.4 million deaths worldwide, and non-communicable diseases; that is, those not passed from person-to-person, were responsible for the majority of deaths (see Fig 5.2). The three most common noncommunicable diseases were heart disease, stroke, and COPD. Tobacco use is attributed as one of the top killers and is often the hidden cause behind many of the diseases that result in death, such as heart disease and chronic lung diseases. Neonatal conditions, which include birth asphyxia and birth trauma, neonatal sepsis and infections, and preterm birth complications are the fifth highest cause.

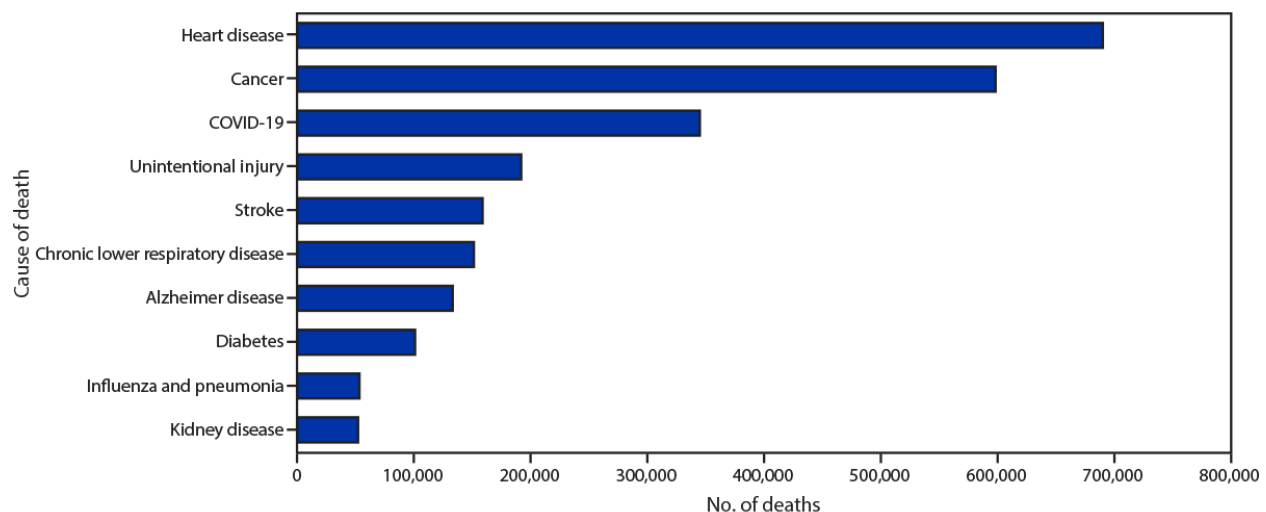


Figure 15.1 Top ten causes of death in America in 2020

These statistics hide the differences in the causes of death among high versus low income nations. In high-income countries, defined as having a per capita annual income of \$12,696 or more, 70% of deaths are among people aged 70 and older. Only 1% of deaths occur in children under 15 years of age. People predominantly die of chronic diseases, such as cardiovascular disease, cancers, dementia, or diabetes. Lower respiratory infections remain the only leading infectious cause of death in such nations. In contrast, in low-income countries, defined as having a per capita annual income of \$1045 or less, almost 40% of deaths are among children under age 15, and only 20% of deaths are among people aged 70 years and older. People predominantly die of infectious diseases such as lower respiratory infections, HIV/AIDS, diarrheal diseases, malaria and tuberculosis. These account for almost one third of all deaths in these countries. Complications of childbirth due to prematurity, birth asphyxia, and birth trauma are among the leading causes of death for newborns and infants in the poorest of nations (WHO, 2018; WHO, 2020).

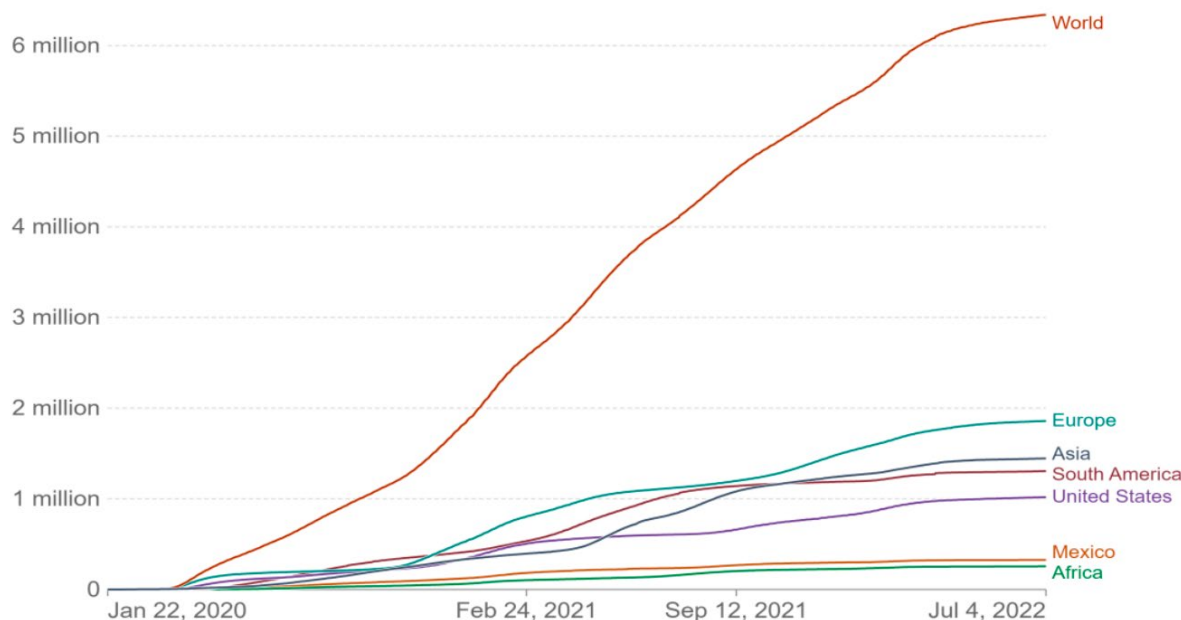
In 1900, the most common causes of death were infectious diseases, which brought death quickly. Today, the most common causes of death are chronic diseases in which a slow and steady decline in health ultimately results in death. However, COVID-19, an infectious disease, was the third most common reason for death in 2021 in addition to heart disease and cancer (see Fig 5.2).

15.5 COVID-19: Impact on Death and Dying

As of July 4, 2022, 6.34 million people in the world died from the COVID-19 virus (John Hopkins University, 2022). Figure 15.2 presents the number of deaths for the world, United States, and select regions from January 22, 2020 through July 4, 2022.

Cumulative confirmed COVID-19 deaths

Due to varying protocols and challenges in the attribution of the cause of death, the number of confirmed deaths may not accurately represent the true number of deaths caused by COVID-19.



Source: Johns Hopkins University CSSE COVID-19 Data

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Figure 15.2 Worldwide COVID-19 deaths as of July 4, 2022

Areas with high numbers of deaths include Europe (1.86 million), Asia (1.45 million), South America (1.31 million) and the United States (1.02 million), while fewer deaths were registered in Mexico (325,790 deaths) and Africa (255,120 deaths).

Worldwide Excess Mortality

Estimates from the World Health Organization (2022) indicate that the full death toll associated directly or indirectly with the COVID-19 pandemic, described as excess mortality, between 1 January 2020 and 31 December 2021 was approximately 14.91 million (range 13.3 million to 16.6 million).

Excess mortality is calculated as the difference between the number of deaths that have occurred and the number that would be expected in the absence of the pandemic based on data from earlier years. Excess mortality includes deaths associated with COVID-19 directly (due to the disease) or indirectly, due to the pandemic's impact on health systems and society. For example, these include deaths attributable to other health conditions for which people were unable to access prevention and/or treatment because health systems were dealing primarily with the pandemic. The excess mortality represented 9.49 million more deaths than those globally reported as directly attributable to COVID-19. Twenty

countries (including the United States), which represent approximately 50% of the global population, accounted for over 80% of the estimated global excess mortality during the 24-month period.

As indicated above, as of July 4, 2022, the official COVID-19 deaths in the United States stood at 1.02 million. The U.S. officially reached one million deaths from COVID-19 on May 17, 2022. However, due to flaws in the data tracking and reporting systems, the number of fatalities on that date was likely much higher, according to the Johns Hopkins Center for Health Security (Donovan, 2022). Approximately 350,000 COVID-19 deaths occurred in 2020, 475,000 deaths in 2021, and 175,000 during the beginning of 2022. Of those who died, 75% were 65 and older, and more men than women died. Citizens who were Black, Hispanic, Pacific Islander and Native American suffered disproportionately compared to other groups. The nation's three largest states, that is, California, Texas, and Florida, recorded the most number of deaths. However, based on a per-capita basis, Mississippi, Arizona, and Oklahoma experienced the most deaths per 100,000 residents, while Hawaii and Vermont reported the lowest number per capita.

In 2020, the first deaths from COVID-19 occurred, and these additional 350,000 deaths resulted in approximately 3.4 million total American deaths, which was a record number (Stobbe, 2021). The high numbers of deaths in 2020 was also due to COVID-19 being a contributing cause of death for an estimated 377,883 deaths (Ahmad et al., 2021). In 2020, COVID-19 became the third leading cause of death behind heart disease and cancer (see Figure 15.3).

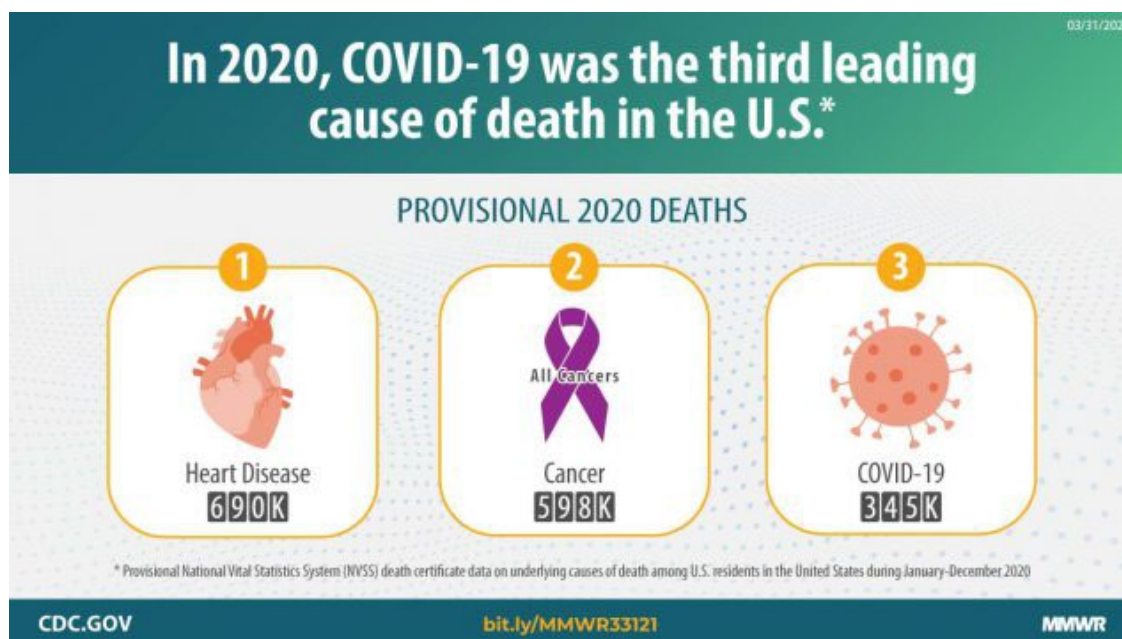


Figure 15.3 The three leading causes of death in the U.S. in 2020

As previously indicated, other causes of death also increased during 2020 (Stobbe, 2021). These included diabetes, Alzheimer's disease, Parkinson's disease, chronic liver disease, stroke, high blood pressure, kidney disease, influenza/pneumonia and unintentional injuries. Cancer rates declined in 2020, but researchers believe that those with cancer actually died due to COVID-19. Table 15.1 lists the main causes of death in 2020 and compares them to those of previous years.

Table 15.1 Number of Deaths for Leading Causes of Death, U.S., 2015–2020.

Causes of death	2015	2016	2017	2018	2019	2020
Total deaths	2,712,630	2,744,248	2,813,503	2,839,205	2,854,838	3,358,814
Heart disease	633,842	635,260	647,457	655,381	659,041	690,882
Cancer	595,930	598,038	599,108	599,274	599,601	598,932
COVID-19b						345,323
Unintentional injuries	146,571	161,374	169,936	167,127	173,040	192,176
Stroke	140,323	142,142	146,383	147,810	150,005	159,050
Chronic lower respiratory diseases	155,041	154,596	160,201	159,486	156,979	151,637
Alzheimer's disease	110,561	116,103	121,404	122,019	121,499	133,382
Diabetes	79,535	80,058	83,564	84,946	87,647	101,106
Influenza and pneumonia	57,062	51,537	55,672	59,120	49,783	53,495
Kidney disease	49,959	50,046	50,633	51,386	51,565	52,260
Suicide	44,193	44,965	47,173	48,344	47,511	44,834

Note: Leading causes are classified according to underlying cause and presented according to the number of deaths among US residents. For more information, see the article by Heron. Source: National Center for Health Statistics. National Vital Statistics System: mortality statistics (<http://www.cdc.gov/nchs/deaths.htm>). Data for 2015–2019 are final; data for 2020 are provisional. Note: Deaths with confirmed or presumed COVID-19, coded to International Statistical Classification of Diseases and Related Health Problems, Tenth Revision code U07.1 as the underlying cause of death.

Although the increased rate of deaths in 2020 was not all directly attributed to COVID-19, researchers believe that the excess mortality can be explained by ill patients not seeking treatment for their conditions because they feared becoming infected with the virus (Stobbe, 2021). As the hospitalization rates for COVID-19 increased, patients going to emergency rooms with symptoms of heart attacks and strokes decreased. Other factors associated with the virus and stay-at-home measures contributed to the higher death rates. These included patients not caring for themselves by not exercising, not taking prescribed medication, not managing stress, gaining weight, losing jobs, and losing health insurance. Overall, 25 states experienced more deaths than births in 2021, while historically the majority of states have more births than deaths.

Mortality Risk Based on Age

According to a meta-analysis of representative samples from the U.S. and other nations, the COVID-19 virus poses a mortality risk for middle-age and elderly adults (Levin et al., 2020). The mortality risk for those infected with COVID-19 by age include:

- 0.002% at age
- 0.01% at age 25
- 0.4% at age 55
- 1.4% at age 65
- 4.6% at age 75
- 15% at age 85
- exceeds 25% at ages 90+

Nursing Home Residents

As can be seen in the above percentages, those in late adulthood suffer the greatest deaths from COVID-19, especially those older than 85 (CDC, 2021). Older adults are more likely to have underlying health conditions that make them more susceptible to illness, and they are more likely to reside in nursing homes that were especially vulnerable to the pandemic. As of April 2021, more than 131,000 nursing home residents in the United States died from COVID-19, making up nearly a quarter of all U.S. deaths from the pandemic (Chen et al., 2021). As of January 30, 2022, more than 201,000 long-term care facility residents and staff had died since the beginning of the pandemic (Chidambaram, 2022). These elevated rates can be attributed to the highly transmissible

nature of the Omicron variant, the large number of people intermingling in long-term care settings, and the high-risk status of those who reside in nursing homes.

Enforcement of pandemic protocols in the long-term care industry was deemed too lax by many watchdog groups, even though federal regulators issued fines to 3,400 nursing homes for COVID-19 violations. Fines were given for the incorrect use of masks, gowns and other personal protective equipment, lack of following quarantine or isolation protocols, not enforcing social distancing, and not separating those residents testing positive for the virus. The increased susceptibility for older adults and the above violations contributed to the higher death rates for those in nursing homes (Chen et al., 2021).

15.6 Pre-COVID Deaths

Before COVID-19, the causes of death varied by age (see Figure 15.4). Prior to age 1, SIDS, congenital problems, and other birth complications are the largest contributors to infant mortality. Accidents, known as unintentional injury, become the leading cause of death throughout childhood and into middle adulthood. In later middle adulthood and late adulthood heart disease, cancer and other medical conditions become the leading killers.

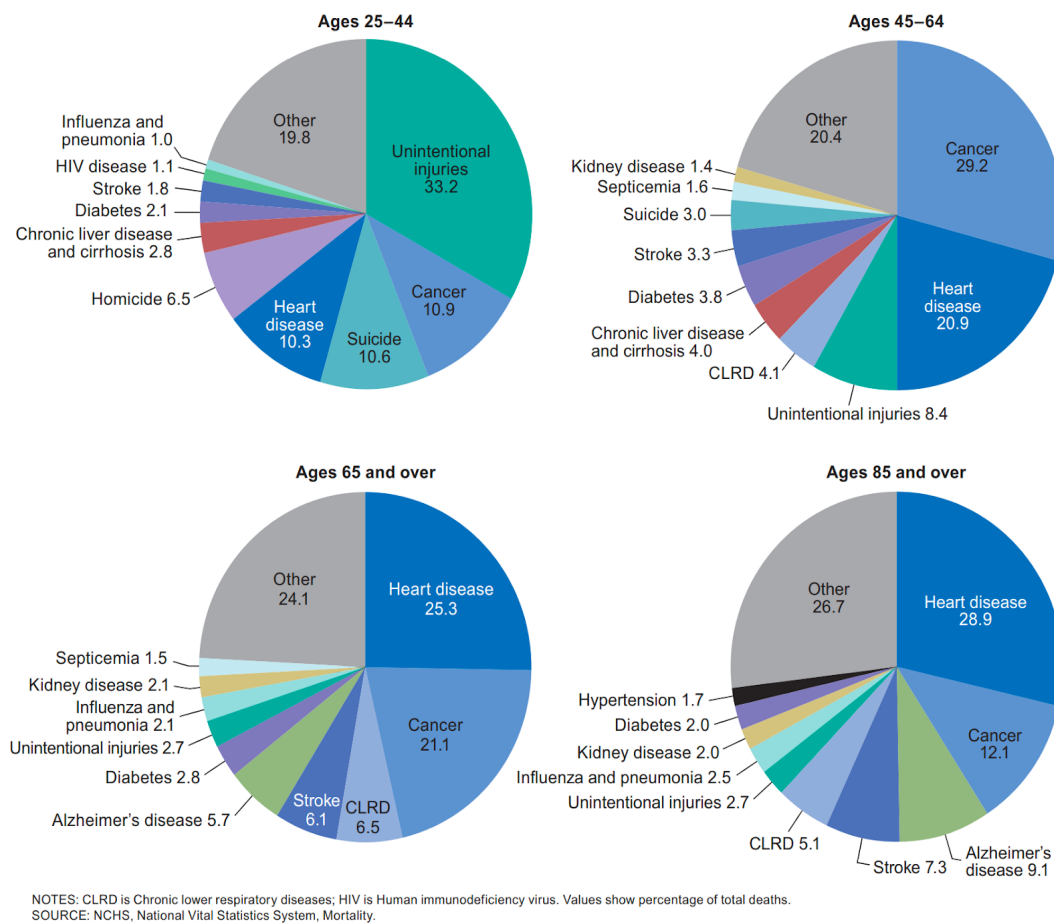


Figure 15.4 Major causes of death in the U.S. in 2016, ages 25 to 85+

Knowledge Check

15a. Which of the following accurately describes a key difference between advance directives and medical orders?

- A) Advance directives are always created by physicians.
- B) Medical orders do not need to be followed by healthcare personnel.
- C) Advance directives are initiated by patients, while medical orders are created by medical professionals.
- D) Medical orders include living wills and health care agents.

15b. According to cultural perspectives discussed in the text, which of the following statements is true?

- A) All cultures prioritize patient autonomy in end-of-life decisions.
- B) In some cultures, doctors and families may conceal a terminal diagnosis to protect the patient.
- C) Feeding tubes are universally accepted once a patient stops eating.
- D) Advanced directives are equally common across all nations and cultures.

15c. The dual-process model of grieving involves alternating between focusing on loss and adapting to life changes following a bereavement.

- A) True
- B) False

15.7 Suicide

According to the latest research from the CDC (Garnett et al., 2022), the suicide rate increased 30% between 2000 and 2020. However, there was a 5% decline from the peak of 14.2 per 100,000 in 2018 to 13.5 per 100,000 in 2020. In the United States, suicide is the 12th leading cause of death overall, but it ranks as the 2nd leading cause of death for those aged 10–34 and the 5th leading cause for those aged 35–54. In total, 45,855 people died by suicide in 2020, which was 3% lower than 2019 when 47,511 people died by suicide (Curtin & Hedegaard, 2021). Suicide rates for females in all race and Hispanic-origin groups declined between 2019 and 2020, while rates declined for non-Hispanic white and non-Hispanic Asian males, but increased for non-Hispanic black, non-Hispanic American Indian or Alaska Native, and Hispanic males. Males have consistently demonstrated higher rates of suicide as they typically experience higher rates of substance use disorders, do not seek out mental health treatment, and use more lethal means. However, females also respond to the stress in their lives through self-harm, substance abuse, and risk taking behaviors (Healy, 2019).

Suicide Rates and Gender

For males, the rate increased from 17.7 per 100,000 males in 2000 to 22.8 per 100,000 in 2018, but then declined to 22.0 per 100,000 in 2020. For females, the rate increased from 4.0 per 100,000 females in 2000 to 6.2 per 100,000 in 2018, but then dropped to 5.5 per 100,000 in 2020. By ages, suicide rates for males aged 75 and older were the highest. From 2018 to 2020, suicide rates decreased in males aged 45–74, while rates increased for males aged 15–44. Female suicide rates declined for all groups over age 25, but

increased for those aged 10–24. The highest female suicide rates were for those aged 45–64 (Garnett et al., 2022).

Deaths of Despair

Globally, suicide rates have fallen when the living conditions have improved (Weir, 2019). Not surprisingly, the opposite trend occurs under the opposite condition, and thus a decrease in economic and social well-being, referred to as deaths of despair, have been linked to suicides in America. The loss of farming and manufacturing jobs are believed to have contributed to deaths of despair, especially in rural communities where there is less access to mental health treatment. According to the CDC (2018), other factors that contributed to suicide among those with, and without, mental health conditions included relationship problems, substance use disorders, financial or legal problems, and health concerns.

Globally, limiting access to lethal means has contributed to a decrease in suicide rates (Weir, 2019). For example, switching from less-toxic gas for heating decreased carbon monoxide deaths. Making it more difficult to access toxic pesticides decreased poisoning deaths. Installing bridge barriers decreased jumping. And, limiting access to firearms lowered deaths by guns. Equally important are prevention programs and improving access to mental health treatment, especially in the workplace. Many occupations have seen increases in suicide rates, and consequently specific programs are being designed to address the stressors associated with these jobs. Knowing the warning signs of suicide and encouraging someone to get treatment are things that everyone can do to address the increase in the suicide rate.

CDC's 12 Warning Signs of Suicide

- Feeling like a burden
- Being isolated
- Increased anxiety
- Feeling trapped or in unbearable pain
- Increased substance use
- Looking for a way to access lethal means
- Increased anger or rage
- Extreme mood swings
- Expressing hopelessness
- Sleeping too little or too much
- Talking or posting about wanting to die
- Making plans for suicide

Fatal Drug Overdose

Another factor linked to the deaths of despair has been fatal drug overdoses. In 2020, 91,799 drug overdose deaths occurred in the United States for a rate of 28.3 people per 100,000 (Hedegaard et al., 2021). The rate in 2020 was 31% higher than the rate in 2019 (21.6 people per 100,000), and the rate of drug overdose deaths increased for all race and Hispanic-origin groups. Additionally, the rate for males increased from 29.6 to 39.5 and the rate for females increased from 13.7 to 17.1. For each year from 1999 through 2020, the rate for males was higher than for females. Unlike suicide rates, deaths from overdoses occur equally among those living in urban and rural areas.

The rate of drug overdose deaths involving synthetic opioids other than methadone (drugs such as fentanyl, fentanyl analogs, and tramadol) increased 56%, from 11.4 in 2019 to 17.8 in 2020 (NIH, 2022). Fentanyl is an especially powerful opioid that can easily lead to a fatal overdose. Because it is synthetic, it is cheap to make and easier to conceal than heroin. Deaths from opioids have increased significantly since 1999.

15.8 Religious and Cultural Practices After Death

Funeral rites are expressions of loss that reflect personal and cultural beliefs about the meaning of death and the afterlife. Ceremonies provide survivors a sense of closure after a loss. These rites and ceremonies send the message that the death is real and allow friends and loved ones to express their love and duty to those who die. Under circumstances in which a person has been lost and presumed dead or when family members were unable to attend a funeral, there can continue to be a lack of closure that makes it difficult to grieve and to learn to live with loss. Although many people are still in shock when they attend funerals, the ceremony still provides a marker of the beginning of a new period of one's life as a survivor. The following are some of the religious practices regarding death; however, individual religious interpretations and practices may occur (Dresser & Wasserman, 2010; Schechter, 2009).

Hindu

The Hindu belief in reincarnation accelerates the funeral ritual, and deceased Hindus are cremated as soon as possible. After being washed, the body is anointed, dressed, and then placed on a stand decorated with flowers ready for cremation. Once the body has been cremated, the ashes are collected and, if possible, dispersed in one of India's holy rivers.

Judaism

Among the Orthodox, the deceased is first washed and then wrapped in a simple white shroud. Males are also wrapped in their prayer shawls. Once shrouded the body is placed into a plain wooden coffin. The burial must occur as soon as possible after death, and a simple service consisting of prayers and a eulogy is given. After burial the family members typically gather in one home, often that of the deceased, and receive visitors. This is referred to as "sitting shiva".

Muslim

In Islam the deceased are buried as soon as possible, and it is a requirement that the community be involved in the ritual. The individual is first washed and then wrapped in a plain white shroud called a kafan. Next, funeral prayers are said followed by the burial. The shrouded dead are placed directly in the earth without a casket and deep enough not to be disturbed. They are also positioned in the earth, on their right side, facing Mecca, Saudi Arabia.

Roman Catholic

Before death, an ill Catholic individual is anointed by a priest. This is commonly referred to as the Anointing of the Sick. The priest recites a prayer and applies consecrated oil to the forehead and hands of the ill person. The individual also takes a final communion consisting of consecrated bread and wine. The funeral rites consist of three parts. First is the wake, which usually occurs in a funeral parlor. The body is present, and prayers and eulogies are offered by family and friends. The funeral mass is next which includes an opening prayer, bible readings, liturgy, communion, and a concluding rite. The funeral then moves to the cemetery where a blessing of the grave, scripture reading, and prayers conclude the funeral ritual.

Green Burial

In 2017, the median cost of an adult funeral with viewing and burial was \$8,775. The median cost for viewing and cremation was \$6,260 (National Funeral Directors Association (NFDA), 2019). The same NFDA survey found that nearly half of all respondents had attended a funeral in a nontraditional setting, such as an outdoor setting that was meaningful to the deceased, and over half of the respondents said they would be interested in exploring green funeral options (NFDA, 2017).

According to the Green Burial Council (2019), Americans bury over 64 thousand tons of steel, 17 thousand tons of copper and bronze, 1.6 million tons of concrete, 20 million feet

of wood, and over 4 million gallons of embalming fluid every year. As a result, there has been a growing interest in green or natural burials. Green burials attempt to reduce the impact on the environment at every stage of the funeral. This can include using recycled paper, biodegradable caskets, cotton shrouds in the place of any casket, or formaldehyde-free or no embalming, and trying to maintain the natural environment around the burial site (GBC, 2019). According to the NFDA (2017), many cemeteries have reported that consumers are requesting green burial options, and since many of the additions of a traditional burial, such as a concrete vault, embalming, and casket, are not required, the cost can be substantially less.

Some intriguing burial options identified by the Green Burial Council (2022) include the use of cremated ashes to create an artificial "reef ball" that is added to a living coral reef to help restore the oceans' reefs. This has been done in over 70 nations, and more than 700,000 reef balls have been added to coral reefs around the world. Other options include using cremated ashes to foster plant growth. However, as human cremated ashes often contain levels of pH and sodium that are far too high, a team of scientists have created supplemental enzymes that can be added that allow the ashes to be used to nourish plant life. Some other possible burial options on the horizon include Capsula Mundi, where a decomposing body placed in an organic container feeds a tree planted above it. At present the originators do not have a full-body container, but cremated ashes in a biodegradable urn can be used.

Knowledge Check

15d. Which of the following is an example of disenfranchised grief?

- A) Grieving the loss of a terminally ill parent in hospice.
- B) Mourning after a long-expected death of a spouse.
- C) Experiencing grief after a perinatal death that is not socially recognized.
- D) Bereaving a loved one following a natural disaster.

15e. Which of the following is a key goal of green burial practices?

- A) To reduce the environmental impact associated with traditional burials.
- B) To preserve the religious sanctity of funeral rites.
- C) To follow ancient embalming rituals from multiple cultures.
- D) To mandate cremation for all deceased individuals.

15.9 Grief, Bereavement, and Mourning

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 occurs. 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).

Grief Reactions

Typical grief reactions involve mental, physical, social and/or emotional responses. These reactions can include feelings of numbness, anger, guilt, anxiety, sadness and despair. The individual can experience difficulty concentrating, sleep and eating problems, loss of interest in pleasurable activities, physical problems, and even illness. Research has demonstrated that the immune systems of individuals grieving are suppressed and their healthy cells behave more sluggishly, resulting in greater susceptibility to illnesses (Parkes & Prigerson, 2010). However, the intensity and duration of typical grief symptoms do not match those usually seen in severe grief reactions, and symptoms typically diminish within 6 to 10 weeks (Youdin, 2016).

Complicated Grief

After the loss of a loved one, however, some individuals experience complicated grief, which includes atypical grief reactions (Newson et al., 2011). Symptoms of complicated grief include feelings of disbelief, a preoccupation with the dead loved one, distressful memories, feeling unable to move on with one's life, and a yearning for the deceased. Additionally, these symptoms may last six months or longer and mirror those seen in major depressive disorder (Youdin, 2016).

According to the DSM-5-TR (American Psychiatric Association, 2022), distinguishing between major depressive disorder and complicated grief requires clinical judgment. The psychologist needs to evaluate the client's individual history and determine whether the symptoms are focused entirely on the loss of the loved one and represent the individual's cultural norms for grieving, which would be acceptable. Those who seek assistance for complicated grief usually have experienced traumatic forms of bereavement, such as unexpected, multiple and violent deaths, or those due to murders or suicides (Parkes & Prigerson, 2010).

Disenfranchised Grief

Grief that is not socially recognized is referred to as disenfranchised grief (Doka, 1989). Examples of disenfranchised grief include death due to AIDS, the suicide of a loved one, perinatal deaths, abortions, the death of a pet, lover, or ex-spouse, and psychological losses, such as a partner developing Alzheimer's disease. Due to the type of loss, there are no formal mourning practices or recognition by others that would comfort the grieving individual. Consequently, individuals experiencing disenfranchised grief may suffer intensified symptoms due to the lack of social support (Parkes & Prigerson, 2010).

Anticipatory Grief

Grief that occurs when a death is expected, and survivors have time to prepare to some extent before the loss, is referred to as anticipatory grief. This expectation can make adjustment after a loss somewhat easier (Kübler-Ross & Kessler, 2005). A death after a long-term, painful illness may bring family members a sense of relief that the suffering is over, and the exhausting process of caring for someone who is ill is also completed.

Models of Grief

There are several theoretical models of grief; however, none is all-encompassing (Youdin, 2016). These models are merely guidelines for what an individual may experience while grieving. However, if individuals do not fit a model, it does not mean there is something "wrong" with the way they experience grief. It is important to remember that there is no one way to grieve, and people move through a variety of stages of grief in various ways.

Five Stages of Grief

Kübler-Ross (1969, 1975) describes five stages of loss experienced by someone who faces the news of their impending death. These "stages" are not really stages that a person goes through in order or only once; nor are they stages that occur with the same intensity. Indeed, the process of death is influenced by a person's life experiences, the timing of their death in relation to life events, the predictability of their death based on health or illness, their belief system, and their assessment of the quality of their own life. Nevertheless, these stages 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, 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. 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 oneself to a cause, or 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** or 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.

According to Kübler-Ross (1969), behind these five stages focused on the identified emotions, there is a sense of hope. Kübler-Ross noted that in all the 200-plus patients she and her students interviewed, a little bit of hope that they might not die was always in the back of their minds.

Criticisms of Kübler-Ross's Five Stages of Grief

Some researchers have been skeptical of the validity of there being stages to grief among the dying (Friedman & James, 2008). As Kübler-Ross notes in her own work, it is difficult to empirically test the experiences of the dying. "How do you do research on dying,...? When you cannot verify your data and cannot set up experiments?" (Kübler-Ross, 1969, p. 19). She and four students from the Chicago Theology Seminary in 1965 decided to listen to the experiences of dying patients, but her ideas about death and dying are based

on the interviewers' collective "feelings" about what the dying were experiencing and needed (Kübler-Ross, 1969). While she goes on to say in support of her approach that she and her students read nothing about the prior literature on death and dying, so as to have no preconceived ideas, a later work revealed that her own experiences of grief from childhood undoubtedly colored her perceptions of the grieving process (Kübler-Ross & Kessler, 2005). Kübler-Ross is adamant in her theory that the one stage that all those who are dying go through is anger. It is clear from her 2005 book that anger played a central role in "her" grief and did so for many years (Friedman & James, 2008).

There have been challenges to the notion that denial and acceptance are beneficial to the grieving process (Telford et al., 2006). Denial can become a barrier between the patient and health care specialists and reduce the ability to educate and treat the patient. Similarly, acceptance of a terminal diagnosis may also lead patients to give up and forgo treatments to alleviate their symptoms. In fact, some research suggests that optimism about one's prognosis may help in one's adjustment and increase longevity (Taylor, Kemeny, Reed, Bower & Gruenewald, 2000).

A third criticism is not so much of Kübler-Ross's work, but how others have assumed that these stages apply to anyone who is grieving. Her research focused only on those who were terminally ill. This does not mean that others who are grieving the loss of someone would necessarily experience grief in the same way. Friedman and 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.

Lastly, the Yale Bereavement Study, completed between January 2000 and January 2003, did not find support for Kübler-Ross's five stage theory of grief (Maciejewski et al., 2007). Results indicated that acceptance was the most commonly reported reaction from the start, and yearning was the most common negative feature for the first two years. The other variables, such as disbelief, depression, and anger, were typically absent or minimal.

Although there is criticism of the Five Stages of Grief Model, Kübler-Ross made people more aware of the needs and concerns of the dying, especially those who were terminally ill. As she notes,

...when a patient is severely ill, he is often treated like a person with no right to an opinion. It is often someone else who makes the decision if and when and where a patient should be hospitalized. It would take so little to remember that the sick person has feelings, has wishes and opinions, and has—most important of all—the right to be heard. (1969, p. 7-8).

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, Schut, & Stroebe, 2005). 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 reestablishing 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.

Knowledge Check

15f. Which of the following statements is true regarding the loss of a child?

- A) Grief severity tends to decrease steadily as the child gets older.
- B) Parents often recover quickly from the loss of a child.
- C) Parents may experience higher grief scores and physical/mental health risks.
- D) The intensity of grief is unrelated to the age of the child.

15g. Which group is most likely to have difficulty adjusting after the death of a parent?

- A) Unmarried adult individuals living with their mothers.
- B) Adult children in happy marriages.
- C) Teenagers living independently.
- D) Married women over 50.

15.10 Grief: Loss of Children and Parents**Loss of a Child**

According to Parkes and Prigerson (2010), the loss of a child at any age is considered "the most distressing and long-lasting of all griefs" (p. 142). Bereaved parents suffer an increased risk to both physical and mental health and exhibit an increased mortality rate. Additionally, they earn higher scores on inventories of grief compared to other types of bereavement. Of those recently diagnosed with depression, a high percentage had experienced the death of child within the preceding six months, and 8 percent of women whose child had died attempted or committed suicide. Archer (1999) found that the intensity of grief increased with the child's age until the age of 17, when it declined. Archer

explained that women have a greater chance of having another child when younger, and thus with added age comes greater grief as fertility declines. Certainly, the older the child the more the mother has bonded with the child and will experience greater grief.

Even when children are adults, parents may experience intense grief, especially when the death is sudden. Adult children dying in traffic accidents was associated with parents experiencing more intense grief and depression, greater symptoms on a health check list, and more guilt than those parents whose adult children died from cancer (Parkes & Prigerson, 2010). Additionally, the deaths of unmarried adult children still residing at home and those who experienced alcohol and relationship problems were especially difficult for parents. Overall, in societies in which childhood deaths are statistically infrequent, parents are often unprepared for the loss of their daughter or son and suffer high levels of grief.

Loss of Parents in Adulthood

In contrast to the loss of a child, the loss of parents in adult life is much more common and results in less suffering. In their literature review, Moss and Moss (1995) found that the loss of a parent in adult life is "rarely pathological." Those adult children who appear to have the most difficulty dealing with the loss of a parent are adult men who remain unmarried and continue to live with their mothers. In contrast, those who are in satisfying marriages are less likely to require grief assistance (Parkes & Prigerson, 2010). To determine the effects of gender on parental death, Marks, Jun and Song (2007) analyzed longitudinal data from the National Survey of Families and Households that assessed multiple dimensions of psychological well-being in adulthood including depression, happiness, self-esteem, mastery, psychological wellness, alcohol abuse, and physical health. Findings indicated that a father's death led to more negative effects for sons than daughters, and a mother's death led to more negative effects for daughters.

Loss of Parents in Childhood

Parental deaths in childhood have been associated with adjustment problems that may last into adulthood. Ellis et al. (2013) identified several negative outcomes associated with childhood grief, including increased chance of substance abuse, greater susceptibility to depression, higher chance of criminal behavior, school underachievement, and lower employment rates. Typically, professional help is not required in helping children and teens who are dealing with the death of a loved one.

However, Worden (2002) identified ten "red flags" displayed by grieving children that may indicate the need for professional assistance:

- Persistent difficulty in talking about the deceased person
- Persistent or destructive aggressive behavior
- Persisting anxiety, clinging, or fears
- Somatic complaints (stomachaches, headaches)
- Sleeping difficulties
- Eating disturbance
- Marked social withdrawal
- School difficulties or serious academic reversal
- Persistent self-blame or guilt
- Self-destructive behavior

As parents may also be dealing with funeral arrangements and other end of life matters, they may not always have the time to address questions and concerns that children may have. When explaining death to children it is important to use real words, such as died and death (Dresser & Wasserman, 2010). Children do not understand the meanings of such phrases as "passed away", "left us", or "lost", and they can become confused as to what happened. Saying a loved one died of a disease called cancer is preferable to saying he was "very sick". The child may become worried when others become sick that they too will die. Consequently, it is important that children have someone who will listen to and accurately address their concerns.

Prolonged Grief Disorder

Most people are able to move on from the loss of those close to them. Unfortunately, some individuals demonstrate an inability to overcome the death of a loved one after more than a year of grieving. Further, their grief interferes with their daily functioning and is disabling in a way that normal grieving is not. Consequently, the most recent edition of the DSM-5-TR (American Psychiatric Association, 2022) added prolonged grief disorder to the list of mental health disorders. Prolonged grief disorder is characterized by the following diagnostic criteria:

- Death, at least 12 months ago, of a person who was close to the bereaved individual
- Since the death, the development of a persistent grief response characterized by one or both of the following symptoms, which have been present most days to a clinically significant degree. In addition, the symptom(s) has occurred nearly every day for at least the last month
 - Intense yearning/longing for the deceased person

- Preoccupation with thoughts or memories of the deceased person
- Since the death, at least three of the following symptoms have been present most days to a clinically significant degree. In addition, the symptoms have occurred nearly every day for at least the last month:
 - Identity disruption (e.g., feeling as though part of oneself has died) since the death
 - Marked sense of disbelief about the death
 - Avoidance of reminders that the person is dead
 - Intense emotional pain related to the death
 - Difficulty reintegrating into one's relationships and activities after the death
 - Emotional numbness as a result of the death
 - Feeling that life is meaningless as a result of the death
 - Intense loneliness as a result of the death

According to the DSM-5-TR (APA, 2022), risks for prolonged grief disorder symptoms include increased dependency on the deceased prior to the death, the death of a child, violent or unexpected deaths, and economic stressors. A higher prevalence is noted following the death of a spouse/partner or child compared with other family relationships. This diagnosis would not be for individuals who periodically feel grief after a year, but for those who have intense grief that affects their functioning. Additionally, the duration and severity of the person's bereavement exceeds expected social, cultural, or religious norms.

15.11 Mourning

As a society, are we given the tools and time to adequately mourn? Not all researchers agree that we do. The "death-denying, grief-dismissing world" is the modern world (Kübler-Ross & Kessler, 2005, p. 205). We often grieve privately, quickly, and medicate our suffering with substances or activities. Employers may grant 3 to 5 days for bereavement, if the loss is that of an immediate family member. Yet grief takes much longer and the bereaved are seldom ready to perform well on the job after just a few days. Obviously, life does have to continue, but we need to acknowledge and make more caring accommodations for those who are in grief.

Four Tasks of Mourning

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

Support Groups

Support groups are helpful for grieving individuals of all ages, including those who are sick, terminal, caregiving, or mourning the loss of a loved one. Support groups reduce isolation, connect individuals with others who have similar experiences, and offer those grieving a place to share their pain and learn new ways of coping (Lynn & Harrold, 2011). Support groups are available through religious organizations, hospitals, hospice, nursing homes, mental health facilities, and schools for children.



Video 15.2: [How Grief Affects Your Brain And What To Do About It | Better | NBC News](#)

Knowledge Check

15h. Which of the following factors increases the risk for developing Prolonged Grief Disorder, according to the DSM-5-TR?

- A) The death of a distant relative after a long illness.
- B) Mild sadness one year after a spouse's death.
- C) Violent or unexpected deaths.
- D) Grieving for less than one month.

15i. Which of the following is NOT one of Worden's four tasks of mourning?

- A) Accepting that the loss has occurred.
- B) Avoiding reminders of the deceased.
- C) Working through the pain of grief.
- D) Adjusting to life without the deceased.

15j. What is one key benefit of grief support groups?

- A) They offer professional therapy for long-term psychiatric treatment.
- B) They reduce isolation by connecting individuals with shared experiences.
- C) They are only effective for individuals over age 50.
- D) They discourage talking about emotional pain to prevent re-traumatization.

Key Takeaways

- Death is both a biological event and a social experience shaped by culture and context.
- The UDDA defines death as the irreversible loss of brain or respiratory functions.
- Dying often involves physical changes that unfold gradually over time.
- Social death can occur when others withdraw from the terminally ill.
- Leading causes of death vary by income level, with chronic diseases more common in high-income countries.
- COVID-19 significantly increased global and U.S. mortality, especially among older adults.
- Suicide and drug overdose deaths reflect deeper economic and social distress.
- Funeral practices provide closure and reflect cultural and religious beliefs.
- Grief, mourning, and bereavement are distinct but interconnected processes.
- Most people grieve in their own way, and no single model fits all.
- The loss of a child causes especially intense and long-lasting grief.
- Children need clear, honest communication and support when facing loss.
- Support groups can ease isolation and help people adjust after a death.

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Sources

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- Made some changes to ‘learning objectives’.
- Added the chapter ‘introduction’ section.
- Figures have also been changed from the original.
- Added ‘key takeaways’.
- Videos and original quiz questions have also been added to the text.

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Figure Attributions

Figure 15.1 [Top ten causes of death in America in 2020](#). Centers for Disease Control. Public Domain.

Figure 15.2 [Worldwide COVID-19 deaths as of July 4, 2022](#). Our World in Data. CC BY 4.0.

Figure 15.3 [Percent distribution of the 10 leading causes of death, by age group: United States, 2016](#). Centers for Disease Control. Public Domain.

Video Attributions

Video 15.1. AsapSCIENCE. (2024, April 11). [What Dying Feels Like] It's way different than you think. [Video]. Youtube. <https://www.youtube.com/watch?v=5sxxqxqVSN0>

Video 15.2. NBC News. (2018, June 14). How Grief Affects Your Brain And What To Do About It | Better | NBC News}. [Video]. Youtube. <https://www.youtube.com/watch?v=eEcaUhxAH2g>

Long Descriptions

Figure 15.1 [Top ten causes of death in America in 2020](#). Alt Text: The image is a horizontal bar chart showing the number of deaths by various causes. The chart has blue bars representing the death count for each cause listed on the vertical axis, with increments of 100,000 up to 800,000 on the horizontal axis for the number of deaths. The leading causes of death from top to bottom include Heart Disease, Cancer, COVID-19, Unintentional Injury, Stroke, Chronic Lower Respiratory Disease, Alzheimer Disease, Diabetes, Influenza and Pneumonia, and Kidney Disease. Heart disease has the longest bar, followed by cancer and COVID-19.

Figure 15.2 [Worldwide COVID-19 deaths as of July 4, 2022](#). Alt Text: The image is a line graph titled "Cumulative confirmed COVID-19 deaths." It presents data from January 22, 2020, to July 4, 2022, with the vertical axis representing the number of deaths ranging from 0 to 6 million. The horizontal axis marks three significant dates: Jan 22, 2020, Feb 24, 2021, and Sep 12, 2021. The graph contains multiple colored lines representing different regions: the World (orange), Europe (blue), Asia (green), South America (red), United States (purple), Mexico (brown), and Africa (dark green). The World line reaches the highest point, nearing 6 million deaths, while other regions show significantly lower counts, with Europe being the second highest. The graph is accompanied by a disclaimer that varying protocols may affect these figures. A small "Our World in Data" logo is located in the upper right corner.

Figure 15.3 [Percent distribution of the 10 leading causes of death, by age group: United States, 2016](#). CDC. Alt Text: The image is an infographic with a teal gradient background at the top, presenting data about the leading causes of death in the United States during 2020. The title at the top reads, "In 2020, COVID-19 was the third leading cause of death in the U.S.*" Below the title, a white section is labeled "PROVISIONAL

2020 DEATHS." It features three sections with icons and numbers, ranked one through three.

Figure 15.4 Major causes of death in the U.S. in 2016, ages 25 to 85+. Alt Text: The image consists of four pie charts showing the leading causes of death within different age groups. Each chart is titled based on the age group it represents and consists of various colored segments indicating different causes of death, each with a label and percentage.