9: MIDDLE ADULTHOOD

LibreTexts™

CHAPTER OVERVIEW

9: Middle Adulthood

9.1: Middle Adulthood - What Will You Learn?

After reading "Middle Adulthood" you should be able to:

1. List developmental tasks of midlife.
2. Describe cognitive development in midlife.
3. Compare midlife students with younger students and their approach to learning.
4. Contrast the expert and the novice.
5. Explore the notion of the midlife crisis.
6. Describe Erikson’s stage of generativity vs. stagnation.
7. Compare types of singles.
8. Contrast intrinsic and utilitarian marriages.
9. Describe personality theories and changes in midlife.
10. Discuss developmental tasks in middle adulthood.

9.2: Psychosocial Development in Middle Adulthood

Childhood, adolescence, even the "twilight years" have been studied extensively, but the wide terrain known as midlife – one of the longest stages – remains largely uncharted. How well are Americans functioning at midlife? Why do some experience better health and greater well-being than others?

Middle adulthood, or midlife, refers to the period of the lifespan between early adulthood and late adulthood. Although ages and tasks are culturally defined, the most common age definition is from 40-45 to 60-65. This may be the least studied time of the lifespan currently, and research on this developmental period is relatively new as many aspects of midlife are still being explored. We do know that this stage reflects both developmental gains and losses and that there are considerable individual differences, but there is still much to learn about this period in the lifespan. Note that this stage could be viewed as lasting 25 years (40-65) - and consider how many stages we have already considered. As average life expectancy at birth in the United States as of 2018 is about 80 (78.7, per CDC), we can expect late adulthood to last at least 15 years (65-80). And given that as of 2020 the maximum human life span has been documented to be 122, late adulthood is our longest life stage - lasting close to 60 years for some.

Figure 9.2.1: The adult in middle-age may be the insides of a sandwich, caring for their children and a parent (the sandwich bread). (Pexels license; **Lovefood Art** via **Pexels**)

Developmental Tasks of Middle Adulthood

Midlife brings an increase in coping strategies. Margie Lachman, Ph.D, is a leader in the field of middle adulthood and aging and provides a comprehensive overview of the rewards and challenges those in middle adulthood may experience. These include:

1. Launching children into their own lives.
2. Adjusting to home-life without children (often referred to as the empty nest).
3. Dealing with adult children who return to live at home (known as boomerang children in the United States).
4. Losing parents/caregivers and experiencing associates grief.
5. Becoming grandparents.
6. Preparing for late adulthood.
7. Acting as caregivers for aging parents/caregivers or spouses.

Midlife Relationships

The Sandwich Generation

The **sandwich generation** refers to adults who have at least one parent/caregiver age 65 or older and are either raising their own children or providing support for their grown children. According to a 2013 Pew Research survey, 47% of middle-aged adults are part of this sandwich generation (Parker & Patten, 2013). In addition, 15% of middle-aged adults are providing financial support to an older parent while raising or supporting their own children. According to the same survey, almost half (48%) of middle-aged adults, have supported their adult children in the past year, and 27% are the primary source of support for their grown children.

The Pew survey found that almost 1 in 3 of the sandwich-generation adults were more likely to say they always feel rushed, while only 23% of other adults said this. However, the survey suggests that those who were supporting both parents and children reported being just as happy as those middle-aged adults who did not find themselves in the sandwich generation (Parker & Patten, 2013). Adults who are supporting both parents/caregivers and children did report greater financial strain. Only 28% reported that they were living comfortably versus 41% of those who were not also supporting their parents/caregivers. Almost 1/3 were just making ends meet, compared with 17% of those who did not have the additional financial burden of aging parents.

Kinkeeping

At midlife adults may find themselves as a **kinkeeper**. In all families there is a *person or persons who keep the family connected and who promote solidarity and continuity in the family* (Brown & DeRycke, 2010). Who in your own family do you count on to organize family gatherings? Who knows the history of your family? Who do people turn to in your family for advice and support? Who works to strengthen the bonds between members of your family? These are your family's kinkeepers, and they are usually women (Leach & Braithwaite, 1996; Brown & DeRycke, 2010). Leach and Braithwaite found that 86% of their respondents named a woman as their family's kinkeeper, and Brown and DeRycke found that mothers, maternal grandmothers, and paternal grandmothers were more likely to be a family's kinkeeper than were fathers, young adult children, and grandfathers combined. Brown and DeRycke also found that among young adults, women were more likely to be a kinkeeper than were young adult men.

Kinkeeping can be a source of distress when it interferes with other obligations (Gerstel & Gallagher, 1993). Gerstel and Gallagher found that on average, kinkeepers provide almost a full week of work each month to kinkeeping (almost 34 hours). They also found that the more activities the kinkeeper took on, and the more kin they helped the more stress and higher the levels of depression a kinkeeper experienced. However, unlike other studies on kinkeeping, Gerstel and Gallagher also included a number of activities that would be considered more "caregiving," such as providing transportation, making repairs, providing meals, etc. in addition to the usual activities of kinkeeping.

The Empty Nest

The **empty nest**, or post-parental period (Dennerstein, Dudley & Guthrie, 2002), *refers to the time period when children are grown up and have left home.* For most parents this occurs during midlife. This time is recognized as a "normative event" as parents are aware that their children will become adults and eventually leave home (Mitchell & Lovegreen, 2009). The empty nest creates complex emotions, both positive and negative, for many parents. Some theorists suggest this is a time of role loss for parents, others suggest it is one of role strain relief (Bouchard, 2013).

The role loss hypothesis predicts that when people lose an important role in their life they experience a decrease in emotional well-being. It is from this perspective that the concept of the **empty nest syndrome** emerged, which *refers to great emotional distress experienced by parents, typically mothers, after children have left home*. The empty nest syndrome is linked to the absence of alternative roles for the parent in which they could establish their identity (Borland, 1982). In Bouchard's (2013) review of the research, she found that few parents reported loneliness or a big sense of loss once all their children had left home.

In contrast, the role stress relief hypothesis suggests that the empty nest period should lead to more positive changes for parents, as the responsibility of raising children has been lifted. The role strain relief hypothesis was supported by many studies in Bouchard's (2013) review. A consistent finding throughout the research literature is that raising children has a negative impact on the quality of martial relationships (Ahlborg, Misvaer, & Möller, 2009; Bouchard, 2013). Several studies have reported that martial satisfaction often increases during the launching phase of the empty nest period, and that this satisfaction endures long after the last child has left home (Gorchoff, John, & Helson, 2008).

However, most of the research on the post-parental period has been with American parents. A number of studies in China suggest that empty-nesters, especially in more rural areas of China, report greater loneliness and depression than their counterparts with children still at home (Wu et al., 2010). Family support for the elderly by their children is a cherished Chinese tradition (Wong & Leung, 2012). With children moving from the rural communities to the larger cities for education and employment this may explain the more pessimistic reaction of Chinese parents than in American samples. The loss of an adult child in a rural region may mean a loss of family income for aging parents. Empty-nesters in urban regions of China did not report the same degree of distress (Su et al., 2012), suggesting that it not so much the event of children leaving, but the additional hardships this may place on aging parents.

Boomerang Kids

Today, young adults are living with their parents for a longer duration and in greater numbers than previous generations. In addition to those in early adulthood who are not leaving the home of their parents, there are also *young adults who are returning after having lived independently outside the home*, and these are called **boomerang kids**. Many of the same financial reasons that are influencing young people's decisions to delay exit from the home of their parents are underlying their decisions to return home. In addition, to financial reasons, some boomerang kids are returning because of emotional distress, such as mental health issues (Sandberg-Thoma, Snyder, & Jang, 2015).

What is the effect on parents when their adult children return home? Certainly there is considerable research that shows that the stress of raising children can have a negative impact on parents' well-being, and that when children leave home many couples

experience less stress and greater life satisfaction (see the section on the empty nest). Early research in the 1980s and 1990s supported the notion that boomerang children, along with those who were failing to exit the home, placed greater financial hardship on the parents, and the parents reported more negative perceptions of this living arrangement (Aquilino, 1991). Recent surveys suggest that today's parents are more tolerant of this, perhaps because this is becoming a more normative experience than in the past. Moreover, children who return are more likely to have had good relationships with their parents growing up, so there may be less stress between parents and their adult children who return (Sandberg-Thoma et al., 2015). Parents of young adults who have moved back home because of economic reasons report that they are just as satisfied with their life as are parents whose adult children are still living independently (Parker, 2012). Parker found that adult children age 25 and older are more likely to contribute financially to the family or complete chores and other household duties. Parker also found that living in a multigenerational household may be acting as an economic safety net for young adults. In comparison to young adults who were living outside of the home, those living with their parents were less likely to be living in poverty (17% versus 10%).

In 2020, we see an even great rate of young adults living at home. As reported by the Pew Research Center:

> The coronavirus outbreak has pushed millions of Americans, especially young adults, to move in with family members. The share of 18- to 29-year-olds living with their parents has become a majority since U.S. coronavirus cases began spreading early this year, surpassing the previous peak during the Great Depression era. In July, 52% of young adults resided with one or both of their parents, up from 47% in February, according to a new Pew Research Center analysis of monthly Census Bureau data. The number living with parents grew to 26.6 million, an increase of 2.6 million from February. The number and share of young adults living with their parents grew across the board for all major racial and ethnic groups, men and women, and metropolitan and rural residents, as well as in all four main census regions. Growth was sharpest for the youngest adults (ages 18 to 24) and for White young adults.

So far we have considered the impact that adult children who have returned home or have yet to leave the nest have on the lives of middle-aged parents. What about the effect on parents who have adult children dealing with personal problems, such as alcoholism, chronic health concerns, mental health issues, trouble with the law, poor social relationships, or academic or job related problems, even if they are not living at home? The life course perspective proposes the idea of **linked lives** (Greenfield & Marks, 2006). *The notion that people in important relationships, such as children and parents, mutually influence each other's developmental pathways*. In previous chapters you have read about the effects that parents have on their children's development, but this relationship is bidirectional. The problems faced by children, even when those children are adults, influence the lives of their parents. Greenfield and Marks found in their study of middle-aged parents and their adult children, those parents whose children were dealing with personal problems reported more negative affect, lower self-acceptance, poorer parent-child interactions, and more family relationship stress. The more problems the adult children were facing, the worse the lives and emotional health of their parents, with single parents faring the worst.

Erikson: Generativity vs Stagnation

According to Erikson, midlife adults face the crisis of **generativity vs. stagnation**. This involves looking at one's life while asking the question, "Am I doing anything worthwhile? Is anyone going to know that I was here? What am I contributing to others?" If not, a feeling of being stuck or stagnated may result. This discomfort can motivate a person to redirect energies into more meaningful activities. It is important to make revisions here so that in later life, one may feel a sense of pride and accomplishment and feel at peace with their life and the choices that have been made.

Figure 9.2.2: Middle-aged does not have to mean "old". (Unsplash license; Josiah Lewis via Unsplash)

Generativity encompasses mentoring, productivity, and creativity. By generativity, Erikson meant that we do best at this stage if we can focus energies on generating something we deem worthwhile that benefits someone else, society or even the world. Generativity is about creating something that lives on after we are gone. Having established a stable identity and relationships in previous stages, by middle adulthood we are more involved in larger matters as parents/caregivers, mentors, leaders and creators. Additionally, one of the implications here might be that if we regret something we didn't do or become when we were younger, there may be a way to recast those early dreams into something feasible and meaningful in the present (Adams, K. B., 2012). Erikson believed that the stage of generativity, during which one often established a family or a group of close friends and also a career or passion, was the longest of all the stages. Individuals at midlife are primarily concerned with leaving a positive legacy of some sort. Erikson understood that work and family relationships (or close friends) may be in conflict due to the obligations and responsibilities of each, but he believed it was overall a positive developmental time. In addition to being parents/caregivers and working, Erikson also described individuals being involved in the community during this stage. Conversely, a sense of stagnation may occur when one feels stuck, dissatisfied with their overall life or isolated with no intention of moving through it, psychologically or tangibly, as their own body/mind permits. Those in stagnation may carry unresolved regrets they can't seem to find peace with or some resolution of choices made. They are not active in generative matters. However, stagnation can also motive a person to redirect energies into more meaningful activities. Do you know anyone stuck in stagnation? What are some ways they may be able to move toward generativity?

Kotre (1984) described 4 types of generativity, each motivated by the desire to outlive the self.

- Biological - achieved by having children
- Parental - achieved by raising your own children - or the children of others - and passing down family traditions
- Technical (work) - the teaching of skills

- Cultural - passing on the traditions of one's culture

Generativity Traits

Highly Generative Adults tend to have these qualities:

- Lower in anxiety, depression.
- High in autonomy, self-acceptance, life satisfaction.
- They appear especially well-adjusted.
- They are more open to differing viewpoints; possess leadership qualities; desire more from work than financial rewards; and care greatly about the welfare of their family, close friends and the wider society

References

Fry, R., Passel, J. S. P., & Cohn, D. (2020, September 4). *A majority of young adults in the U.S. live with their parents for the first time since the Great Depression*. Pew Research Center. https://pewrsr.ch/351SVs1

Manheimer, R. J. (1995). Redeeming the aging self: John Kotre, George Drury, and cultural generativity. *Journal of Aging Studies*, *9*(1), 13–20. https://doi.org/10.1016/0890-4065(95)90022-5

Rubinstein, R. L., Girling, L. M., de Medeiros, K., Brazda, M., & Hannum, S. (2015). Extending the Framework of Generativity Theory Through Research: A Qualitative Study. *The Gerontologist*, *55*(4), 548–559. https://doi.org/10.1093/geront/gnu009

Wilhelm P. Jeanne Calment: Validation of the Duration of Her Life. Validation of Exceptional Longevity. Odense University Press. ISBN 87-7838-466-4

9.3: Crisis, Personality, and Intimacy

Midlife Crisis?

Research suggests that most people in the United States today do not experience a midlife crisis and that, in fact, many women find midlife a freeing, satisfying period. While people in their early 20s may emphasize how old they are (to gain respect, to be viewed as experienced), by the time people reach their 40s, they tend to emphasize how young they are.

Results of a 10 year study conducted by the MacArthur Foundation Research Network on Successful Midlife Development, based on interviews with over 3,000 midlife adults suggest that the years between 40 and 60 are ones marked by a sense of well-being. Only 23 percent of their participants reported experiencing a midlife crisis. The crisis tended to also be triggered by a major life event rather than out of a fear of aging (Research Network on Successful Midlife Development, accessed 2007). Nevertheless, sales of products designed to make one feel younger than their age (as though aging is a bad thing!) and “over the hill” birthday parties with black balloons and banners abound.

Figure 9.3.1: The idea of a "midlife crisis" is largely a myth - with many finding satisfaction with this stage of life. (Pexels license; **Andrea Piacquadio** via **Pexels**)

Personality in Midlife

Does the personality change in midlife? Think about your parents/caregivers or other adults you've known for some time. Did their personalities change when they reached midlife? Or were they pretty much the same? Some theorists maintain that personality becomes more stable as we reach middle adulthood. Other suggest that with age comes the addition of new personality traits - perhaps traits we may not have felt comfortable showing when we were younger. When we observe people around us, one of the first things that strikes us is how different people are from one another. Some people are very talkative while others are very quiet. Some are active whereas others are couch potatoes. Some worry a lot, others almost never seem anxious. Each time we use words like “talkative,” “quiet,” “active,” or “anxious,” to describe those around us, we are talking about a person’s personality—the characteristic ways that people differ from one another. Personality psychologists try to describe and understand these differences. “Are you an introvert”? In popular culture it’s common to talk about people being introverts or extroverts as if these were precise descriptions that meant the same thing for everyone. But research shows that these traits and others are quite variable within individuals at any age. 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 qualities. Jung believed that each of us possess a "shadow side". For example, those who are typically introverted (inward looking, quiet) also have an extroverted (sociable, people-loving) side that rarely finds expression unless we are relaxed and uninhibited. Each of us has a spectrum of masculine to feminine sides but in younger years, so many 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 (male identified individuals) tend to become more interested in intimacy and family ties. Women (female identified individuals) tend to 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 people are less stereotypic and this allows for change as well.

The most widely accepted system to emerge from the trait approach to studying personality was “The Big Five Personality Assessment” or “The Five-Factor Model” often referred to as just "The Big Five." (Goldberg, 1990; McCrae & John, 1992; McCrae & Costa, 1987). The Big Five personality traits are openness, conscientiousness, extraversion, agreeableness, and neuroticism. These five factors are assumed to represent the basic structure behind all personality traits. They were defined and described by several different researchers during multiple periods of research. A way to remember these five is with the acronym OCEAN (O is for Openness; C is for Conscientiousness; E is for Extraversion; A is for Agreeableness; N is for Neuroticism). As mentioned, midlife is viewed as a time of increased stability in many areas, especially if compared with early adulthood or

adolescence. There are some notable changes in this area associated with middle adulthood though; Midlife adults tend to become more agreeable, but also decline in openness and neuroticism. Therefore, midlife is also viewed as a time of change.

The Five Traits

The traits are:

1. Openness – Openness to experience describes a person's degree of intellectual curiosity, creativity, and preference for novelty and variety. Some disagreement remains about how to interpret this factor, which is sometimes called intellect.
2. Conscientiousness – Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement. Conscientiousness also refers to planning, organization, and dependability.
3. Extraversion – Extraversion describes energy, positive emotions, assertiveness, sociability, talkativeness, and the tendency to seek stimulation in the company of others.
4. Agreeableness – Agreeableness is the tendency to be compassionate and cooperative towards others rather than suspicious and antagonistic.
5. Neuroticism – Neuroticism describes regular vulnerability to strong, unpleasant emotions like anger, anxiety, or depression. Neuroticism also refers to an individual's level of emotional stability (or lack of) and impulse control and is sometimes referred to as emotional stability.

Big 5 Traits and Examples for LOW Scorers and HIGH scorers (these are just examples of how these traits might manifest in people. There are, obviously, variabilities within expressions)

This table describes some example behaviors for low and high score on the Big Five

Big 5 Trait	Example Behavior for LOW Scorers	
Openness	Prefers not to be exposed to other moral systems other than own; narrow interests; not analytical; also viewed as down-to-earth	Enjoys seeing people with new types of clothes, hairstyles, body piercings, etc.; curious; imaginative; nontraditional
Conscientiousness	Prefers spur-of-the-moment action to planning; can be unreliable; may be viewed as careless; lax	Never late for a date with friends; organized; hardworking; neat; persevering; punctual; self-disciplined
Extraversion	Preferring a quiet evening reading to a loud party; sober; aloof; may appear unenthusiastic to others	Being the life of the party; active; optimistic; fun-loving; affectionate
Agreeableness	Quickly and confidently asserts own rights; irritable; uncooperative; may be viewed as rude by others	Agrees with others easily; forgiving; gullible; good-natured
Neuroticism	Not getting irritated by small annoyances; calm; resilient; secure; self-satisfied	Constantly worrying about little things; insecure; hypochondriacal; feeling inadequate

Scores on the Big Five traits are mostly independent. That means that a person's standing on one trait tells very little about their standing on the other traits of the Big Five. For example, a person can be extremely high in Extraversion and be either high or low on Neuroticism. Similarly, a person can be low in Agreeableness and be either high or low in Conscientiousness. Thus, in the Five-Factor Model, you need five scores to describe most of an individual's personality.

An important feature of personality traits is that they reflect continuous distributions rather than distinct personality types. This means that when personality psychologists talk about Introverts and Extraverts, they are not really talking about two distinct types of people who are completely and qualitatively different from one another. Instead, they are talking about people who score relatively low or relatively high along a continuous distribution. In fact, when personality psychologists measure traits like Extraversion, they typically find that most people score somewhere in the middle, with smaller numbers showing more extreme levels. Most people report being moderately, but not extremely, extraverted, with fewer people reporting very high or very low scores.

There are three criteria that are characterize personality traits: (1) consistency, (2) stability, and (3) individual differences.

1. To have a personality trait, individuals must be somewhat consistent across situations in their behaviors related to the trait. For example, if they are talkative at home, they tend also to be talkative at work.

2. Individuals with a trait are also somewhat stable over time in behaviors related to the trait. If they are talkative, for example, at age 30, they will also tend to be talkative at age 40.
3. People differ from one another on behaviors related to the trait. Using speech is not a personality trait and neither is walking on two feet—virtually all individuals do these activities, and there are almost no individual differences. But people differ on how frequently they talk and how active they are, and thus personality traits such as Talkativeness and Activity Level do exist.

Traits are important and interesting to examine (especially in middle-adulthood) because they describe stable patterns of behavior that persist for long periods of time (Caspi, Roberts, & Shiner, 2005). Importantly, these stable patterns can have broad-ranging consequences for many areas of our life (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). For instance, think about the factors that determine success in college. If you were asked to guess what factors predict good grades in college, you might guess something like intelligence. This guess would be correct, but we know much more about who is likely to do well. Specifically, personality researchers have also found the personality traits like Conscientiousness play an important role in college and beyond, probably because highly conscientious individuals study hard, get their work done on time, and are less distracted by nonessential activities that take time away from school work. In addition, highly conscientious people are often healthier than people low in conscientiousness \because they are more likely to maintain healthy diets, to exercise, and to follow basic safety procedures like wearing seat belts or bicycle helmets. Over the long term, this consistent pattern of behaviors can add up to meaningful differences in health and longevity and this becomes even more evident in middle adulthood.

Intimate Relationships

Middle adulthood is the perfect stage to discuss relationships. While relationships certainly become central much earlier than middle adulthood, it is in this stage that individuals have gained some life experience in this area and can reflect more deeply on where they have evolved (or not) and where they see themselves going...adding into the mix their own range of "generativity vs. stagnation" from Erickson's Model.

Single or Spouse-free? The number of adults who remain single has increased dramatically in the last 30 years. We have more people who never marry, more widows and more divorcees driving up the number of singles. According to the United Census Bureau, as of 2016, there were 109 million adults in the United States, 18 and older, who are divorced, widowed, or have always been single. That's 45 percent of the adult population. Whether or not a single person is happy depends on the circumstances of their remaining single. Singlehood has become a more acceptable lifestyle than it was in the past and many singles are very happy with their status.

9.4: Marital Status and Divorce in Middle Age

Stein's Typology of Singles

Many of the research findings about singles reveal that they are not all alike. Happiness with one's status depends on whether the person is single by choice and whether the situation is permanent. Let's look at Stein's four categories of singles for a better understanding of this.

Stein's Four Categories of Singles

Voluntary temporary singles

These are people who have never been married or divorced people who are postponing potential remarriage. They may be more involved in careers or getting an education or prefer not to make a commitment to an intimate relationship for many reasons. These people tend to report being very happy with their single status. They are single by choice (voluntary), but not committed to another - or committed to staying single (temporary).

Voluntary permanent singles

These individuals do not want to marry and aren't intending to marry. This term could be a bit of a misnomer since it might also include cohabiting individuals who don't want to marry or others who are not considering marriage. These singles choose (voluntary) to be single - and plan to stay that way (permanent).

Involuntary temporary

These are people who are actively seeking partners. They hope to have a long term commitment (often though marriage) and may be involved in going on blind dates, seeking a partner on the internet or asking friends if they know someone who might be a good match. Not surprisingly, the involuntary temporary singles tend to be more anxious about their status.

Involuntary permanent

These are older divorced, widowed, or never-married people who wanted to marry but have not found a mate and are coming to accept singlehood as a probable permanent situation. Some are bitter about not having married or partnered while others are more accepting of how their life has developed.

Figure 9.4.1 (Unsplash license; Katherine Hanlon via Unsplash)

Marriage

It has been said that marriage can be the greatest source of happiness or pain in one's life, depending on the relationship. All marriages are not alike and the same marriage between two people may change through the years. Below we will look at how satisfaction with marriage is affected by the life cycle and two ways to characterizing marriages.

Marital Satisfaction and the Life Cycle

Marital satisfaction has peaks and valleys during the course of the life cycle. Rates of happiness tend to be highest in the years prior to the birth or adoption of a first child. It hits a low point with the coming of children (recall Attachment Theory and that effective care-giving requires a lot of focus on the children). Then, it begins to improve as children grow and again when they leave home. Children bring new expectations to the marital relationship. Two people, who are comfortable with their roles as partners, may find

the added parental/caregiver 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.

One way marriages vary is with regard to the reason the partners are married. Some marriages have **intrinsic** value: the partners are together because they enjoy, love and value one another. Marriage is not thought of as a means to another end-is an end in itself. These partners look for someone they are drawn to and with whom they feel a close and intense relationship. These partners find the relationship personally rewarding. Other marriages called **utilitarian marriages** are unions entered primarily for practical reasons. The partners see one another as a means to an end. The marriage may bring financial security, children, social approval, housekeeping, political favor, a good car, a great house, and so on. These partners do not focus on intimacy. These marriages may be chosen more out of default. ("This person was there when it was time to get married so here we are.") Marriages entered for practical reasons are more common throughout history and throughout the world. Intrinsic marriages are a relatively recent phenomenon arising out of the 20th century focus on romantic love as a basis for marriage and increased independence of the partners. Marriage today is viewed as less necessary for economic survival. In general, utilitarian marriages tend to be more stable than intrinsic ones. In an intrinsic marriage, if the love or passion cools, there is nothing else to keep the partners together. In utilitarian marriages, there may be numerous ties to one another (children, property, and status). However, intrinsic marriages may be more romantically satisfying. Are most marriages intrinsic or utilitarian? In reality, marriages fall somewhere in between these two extremes.

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 (1999) differs from many marriage counselors in his belief that having a strong 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 of disagreement. Fidgeting in one's chair, leaning closer to or further away from the partner while speaking, increases in respiration and heart rate are all recorded and analyzed along with videotaped recordings of the partners' exchanges. Gottman believes he can accurately predict whether or not a couple will stay together by analyzing their communication. In marriages destined to fail, partners engage in the "marriage killers": contempt, criticism, defensiveness, and stonewalling. Each of these undermines the politeness and respect that healthy marriages require. And stonewalling, or shutting someone out, is the strongest sign that a relationship is destined to fail.

Figure 9.4.2 (Unsplash license; Eric Ward via Unsplash)

Divorce

One way to understand divorce is to look at the types of divorces people experience when a relationship ends. Dissolution of marriage can be emotionally charged and complex because at least six processes happen all at the same time with varying intensities. These processes can be painful and confusing. The six overlapping "stations" are:

The **emotional divorce**. This involves a lot of mini-divorces in which partners make alienating remarks to one another. Partners become disengaged from one another and emotionally withdrawn. Some couples divorce emotionally, but not legally.

The **legal divorce** involves court proceedings and negotiations that legally dissolve the partners' marital ties to one another. This is when society views a couple as divorced and may be a process that is somewhat anticlimactic. The actual time spent in the courtroom may be brief and the final culmination of much of what has occurred in the other stations of divorce.

The **economic divorce** involves the division of property and debt, determining whether alimony will be paid, and determining if a spouse who provided support while their partner was in school or other lengthy training that increased their earning potential will be entitled to future earnings. Sometimes custody battles are motivated by economic concerns.

The **co-parental divorce** is experienced by those couples who have children together. Determining custody and visitation are part of this station of divorce. This can be the most difficult station of divorce.

The **community divorce** is perhaps given the least attention when thinking of divorce. This involves severing ties with neighbors, coworkers, friends, and relatives following divorce. When family and friends choose sides in a break-up, relationships are lost. Divorced adults may find that they are no longer included in events and ties are no longer maintained. A person begins to get used to their single status. This may initially involve a sense of anxiety about the future.

The **psychic divorce** takes the longest to complete. This involves grieving, becoming more objective about one's role in the break up, and feeling whole again as a single person. This transition may take 5 years or more. Many people never complete this because they remarry before getting to this point.

Middle Adults Returning to Education

Midlife adults in the United States often find themselves in college classrooms. In fact, the rate of enrollment for older Americans entering college, often part-time or in the evenings, is rising faster than traditionally aged students. Students over age 35 are expected to comprise 19% of of all college and graduate students by 2020 (Holland, 2014). In some cases, older students are developing skills and expertise in order to launch a second career, or to take their career in a new direction. Whether they enroll in school to sharpen particular skills, to retool and reenter the workplace, or to pursue interests that have previously been neglected, older students tend to approach the learning process differently than younger college students (Knowles, Holton, & Swanson, 1998).

The mechanics of cognition, such as working memory and speed of processing, gradually decline with age. However, they can be easily compensated for through the use of higher order cognitive skills, such as forming strategies to enhance memory or summarizing and comparing ideas rather than relying on rote memorization (Lachman, 2004).

Figure 9.4.2: "Use it or lose is" applies to mind and body. (Pexels license; **Andrea Piacquadio** via **Pexels**)

Although older students may take a bit longer to learn material, they are less likely to forget it quickly. Adult learners tend to look for relevance and meaning when learning information. Older adults have the hardest time learning material that is meaningless or unfamiliar. They are more likely to ask themselves, "Why is this important?" when being introduced to information or when trying to memorize concepts or facts. Older adults are more task-oriented learners and want to organize their activity around problem-solving. However, these differences may decline as new generations, equipped with higher levels of education, begin to enter midlife.

To address the educational needs of those over 50, The American Association of Community Colleges (2016) developed the **Plus 50 Initiative** that assists community colleges in creating or expanding programs that focus on workforce training and new careers for the plus-50 population. Since 2008 the program has provided grants for programs to 138 community colleges affecting over 37, 000 students. The participating colleges offer workforce training programs that prepare 50 plus adults for careers in such fields as early childhood educators, certified nursing assistants, substance abuse counselors, adult basic education instructors, and human

resources specialists. These training programs are especially beneficial as 80% of people over the age of 50 say they will retire later in life than their parents/caregivers or continue to work in retirement, including in a new field.

Contributors and Attributions

Adams, K. B.(2012) https://www.psychologytoday.com/us/b...id-life-regret

Psyc 200 Lifespan Psychology. Authored by: Laura Overstreet. Located at: http://opencourselibrary.org/econ-201/. License: CC BY: Attribution

https://www.prnewswire.com/news-releases/update----us-census-bureau-facts-for-features-unmarried-and-single-americans-week-sept-18-24-2016-300318929.html

---

9.5: Cognitive Development in Middle Adulthood

Having, hopefully, achieved and even moved beyond formal operational thinking before reaching midlife, is there anything left to be gained during middle age? Or are we merely striving to maintain normal function as age starts to impact us? Is middle age a time of unique psychosocial challenges and cognitive losses? Or do the years empower us with wisdom and new abilities?

Formal Operational and Postformal Intelligence

As discussed previously, adults tend to think in more practical terms than do adolescents. Although they may be able to use abstract reasoning when they approach a situation and consider possibilities, they are more likely to think practically about what is likely to occur.

Midlife adults in the United States often find themselves in classrooms. Whether they enroll in school to sharpen particular skills, to retool and reenter the workplace, or to pursue interests that have previously been neglected, these students tend to approach learning differently than do younger college students (Knowles, Horton, & Swanson, 1998).

An 18-year-old college student may focus more on rote memorization in studying for tests. They may be able to memorize information more quickly than an older student, but not have as thorough a grasp on the meaning of that information. Older students may take a bit longer to learn material, but are less likely to forget it quickly. Adult learners tend to look for relevance and meaning when learning information. Older adults have the hardest time learning material that is meaningless or unfamiliar. They are more likely to ask themselves, "What does this mean?" or "Why is this important?" when being introduced to information. Older adults are more task-oriented learners and want to organize their activity around problem-solving. They see the instructor as a resource person rather than the "expert" and appreciate having their life experience recognized and incorporated into the material being covered.

Brain Functioning

The brain, at midlife, has been shown to not only maintain many of the abilities of young adults, but also gain new ones. Some individuals in middle age actually have improved cognitive functioning (Phillips, 2011). The brain continues to demonstrate plasticity and rewires itself in middle age based on experiences. Research has demonstrated that older adults use more of their brains than younger adults. In fact, older adults who perform the best on tasks are more likely to demonstrate bilateralization than those who perform worst. Additionally, the amount of white matter in the brain, which is responsible for forming connections among neurons, increases into the 50s before it declines.

Emotionally and psychologically, the middle-aged brain is calmer, less neurotic, more capable of  managing emotions, and better able to negotiate social situations (Phillips, 2011). Older adults tend to focus more on positive information and less on negative information than those younger. In fact, they also remember positive images better than those younger. Additionally, the older adult's amygdala responds less to negative stimuli. Lastly, adults in middle adulthood tend to make better financial decisions, which seems to peak at age 53, and show better economic understanding. Although greater cognitive variability occurs among middle adults when compared to those both younger and older, those in midlife with cognitive improvements tend to be more physically, cognitively, and socially active.

Plasticity of Intelligence

There are many new ideas about intelligence in adulthood. One is that it has **plasticity**; it can be shaped by experience. In fact, there is new evidence that mental exercise or training can have lasting benefits (National Institutes of Health, 2007). Another is that intelligence both increases and decreases throughout adulthood (it is multidirectional) and that individuals vary greatly in their intellectual abilities depending on their experiences. Much of the research on cognition and aging has been focused on comparing young and old adults and assuming that midlife adults fall somewhere in between. But some abilities improve during midlife. This new information is very important because it can help us break out of stereotypic thinking that aging brings a decline in mental ability. The fact is, most significant declines do not exist unless comparisons are being made between 20 year-olds and 80 year-olds.

Gaining Expertise: The Novice and the Expert

Quote: "The person who views the world at fifty the same as they did at twenty has wasted thirty years of their life." -Muhammad Ali

Middle-aged adults, with their store of knowledge and experience, are likely to find that when faced with a problem, they have likely faced something similar before. This allows them to ignore the irrelevant and focus on the important aspects of the issue. Expertise is one reason why many people often reach the top of their career in middle adulthood. **Expertise** refers to specialized skills and knowledge that pertain to a particular topic or activity. In contrast, a **novice** is someone who has limited experiences with a particular task. Everyone develops some level of "selective" expertise in things that are personally meaningful to them, such as gardening, Salsa dancing, computer gaming, or diagnosing illness. Expert thought is often characterized as intuitive, automatic, strategic, and flexible.

- **Intuitive:** Novices follow particular steps and rules when problem solving, whereas experts can call upon a vast amount of knowledge and past As a result, their actions appear more intuitive than formulaic. A novice cook may slavishly follow the recipe step by step, while a chef may glance at recipes for ideas and then follow their own procedure.
- **Automatic:** Complex thoughts and actions become more routine and reactions appear instinctive over time. This is because expertise allows us to process information faster and more effectively (Crawford & Channon, 2002).

Expertise takes time. It is a long-process resulting from experience and practice (Ericsson, Feltovich, & Prietula, 2006). However, expertise cannot fully make-up for some of the losses in general cognitive functioning as we age. The superior performance of older adults in comparison to younger novices appears to be task specific (Charness & Krampe, 2006). As we age, we also need to be more deliberate in our practice of skills in order to maintain them. Charness and Krampe (2006) in their review of the literature on aging and expertise, also note that the rate of return for our effort diminishes as we age. In other words, increasing practice does not recoup the same advances in older adults as similar efforts do at younger ages.

Crystalized versus Fluid Intelligence

Intelligence is influenced by heredity, culture, social contexts, personal choices, and certainly age. One distinction in specific intelligences noted in adulthood, is between **fluid intelligence**, *which refers to the capacity to learn new ways of solving problems and performing activities quickly and abstractly*, and **crystallized intelligence**, *which refers to the accumulated knowledge of the world we have acquired throughout our lives* (Salthouse, 2004). These intelligences are distinct, and crystallized intelligence increases with age, while fluid intelligence tends to decrease with age (Horn, Donaldson, & Engstrom, 1981; Salthouse, 2004).

Research demonstrates that older adults have more crystallized intelligence as reflected in semantic knowledge, vocabulary, and language. As a result, middle-aged adults generally outperform younger people on measures of history, geography, and even on crossword puzzles, where this information is useful (Salthouse, 2004). It is this superior knowledge, combined with a slower and more complete processing style, along with a more sophisticated understanding of the workings of the world around them, that gives older adults the advantage of "wisdom" over the advantages of fluid intelligence which favor the young (Baltes, Staudinger, & Lindenberger, 1999; Scheibe, Kunzmann, & Baltes, 2009).

The differential changes in crystallized versus fluid intelligence help explain why older adults do not necessarily show poorer performance on tasks that also require experience (i.e., crystallized intelligence), although they show poorer memory overall. A young chess player may think more quickly, for instance, but a more experienced chess player has more knowledge to draw on.

Seattle Longitudinal Study: The Seattle Longitudinal Study has tracked the cognitive abilities of adults since 1956. Every seven years the current participants are evaluated and new individuals are also added. Approximately 6,000 people have participated thus far. Current results demonstrate that middle-aged adults perform better on four out of six cognitive tasks than those same

individuals did when they were young adults.Verbal memory, spatial skills, inductive reasoning (generalizing from particular examples), and vocabulary increase with age until one's 70s (Schaie, 2005; Willis & Shaie, 1999).

Cognitive skills in the aging brain have been studied extensively in pilots, and similar to the Seattle Longitudinal Study results, older pilots show declines in processing speed and memory capacity, but their overall performance seems to remain intact. According to Phillips (2011) researchers tested pilots age 40 to 69 as they performed on flight simulators. Older pilots took longer to learn to use the simulators, but performed better than younger pilots at avoiding collisions.

9.6: Physical Development in Middle Adulthood

There are few biologically based physical changes in midlife other than changes in vision, more joint pain, and weight gain (Lachman, 2004). While we gain weight, we lose height. And aging changes our body shape. As summarized in a MedlinePlus article:

> Your body shape changes naturally as you age. You cannot avoid some of these changes, but your lifestyle choices may slow or speed the process.
>
> The human body is made up of fat, lean tissue (muscles and organs), bones, and water. After age 30, people tend to lose lean tissue. Your muscles, liver, kidney, and other organs may lose some of their cells. This process of muscle loss is called atrophy. 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). Tissue loss reduces the amount of water in your body.
>
> The amount of body fat goes up steadily after age 30. Older people 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. However, the layer of fat under the skin gets smaller.
>
> The tendency to become shorter 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 (about 1 centimeter) every 10 years after age 40. Height loss is even more rapid after age 70. You may lose a total of 1 to 3 inches (2.5 to 7.5 centimeters) in height as you age. You can help prevent height loss by following a healthy diet, staying physically active, and preventing and treating bone loss.

Vision is affected by age. As we age, the lens of the eye gets larger but the eye loses some of the flexibility required to adjust to visual stimuli. Middle aged adults often have trouble seeing up close as a result. Night vision is also affected as the pupil loses some of its ability to open and close to accommodate drastic changes in light. Autoimmune disease such as rheumatoid arthritis often starts in the 50s. 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 during midlife by about one-third (Berger, 2005). Consequently, midlife adults have to increase their level of exercise, eat less, and watch their nutrition to maintain their earlier physique.

Hearing loss is experienced by about 14 percent of midlife adults (Gratton & Vasquez in Berk, 2007) as a result of being exposed to high levels of noise. Men may experience some hearing loss by 30 and women by 50. High frequency (high pitched) sounds are the first affected by such hearing loss. This loss accumulates after years of being exposed to intense noise levels. Men are more likely to work in noisy occupations. Hearing loss is also exacerbated by cigarette smoking, high blood pressure, and stroke. Most hearing loss could be prevented by guarding against being exposed to extremely noisy environments. (There is new concern over hearing loss in early adulthood with the widespread use of headphones for IPods and other similar devices.)

Most of the changes that occur in midlife can be easily compensated for (by buying glasses, exercising, and watching what one eats, for example.) And most midlife adults experience general good health. However, the percentage of adults who have a

disability increases through midlife; while 7 percent of people in their early 40s have a disability, the rate jumps to 30 percent by the early 60s. This increase is highest among those of lower socioeconomic status (Bumpass 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 (Lachman, 2004).

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 for women: 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 women 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 menopausal (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. And 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. Numerous international students enrolled in my class have expressed their disbelief when we discuss menopause. For example, after listing the symptoms of menopause, a woman from Kenya or Nigeria might respond, "We do not have this in my country or if we do, it is not a big deal" to which some U. S. students reply, "I want to go there!" Indeed, there are cultural variations in the experience of menopausal symptoms. Hot flashes are experienced by 75 percent of women in Western cultures, but by less than 20 percent of women in Japan (Obermeyer in Berk, 2007).

Women in the United States respond differently to menopause depending upon the expectations they have for themselves and their lives. White, career-oriented women, African-American, and Mexican-American women overall tend to think of menopause as a liberating experience. Nevertheless, there has been a popular tendency to erroneously attribute frustrations and irritations expressed by women of menopausal age to menopause and thereby not take her concerns seriously. Fortunately, many practitioners in the United States today are normalizing rather than pathologizing menopause.

Concerns about the effects of hormone replacement has changed the frequency with which estrogen replacement and hormone replacement therapies have been prescribed for menopausal women. Estrogen replacement therapy was once commonly used to treat menopausal symptoms. 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. But if so, they can be treated with lower doses of estrogen and monitored with more frequent breast and pelvic exams. There are also some other ways to reduce symptoms. These include avoiding caffeine and alcohol, eating soy, remaining sexually active, practicing relaxation techniques, and using water-based lubricants during intercourse.

Andropause for men: Do males experience a climacteric? They do not lose their ability to reproduce as they age, although they do tend to produce lower levels of testosterone and fewer sperm. However, men are capable of reproduction throughout life. It is natural for sex drive to diminish slightly as men age, but a lack of sex drive may be a result of extremely low levels of testosterone. About 5 million men experience low levels of testosterone that results in symptoms such as: a loss of interest in sex, loss of body hair, difficulty achieving or maintaining erection, loss of muscle mass, and breast enlargement. Low testosterone levels may be due

to glandular disease such as testicular cancer. Testosterone levels can be tested and if they are low, men can be treated with testosterone replacement therapy. This can increase sex drive, muscle mass, and beard growth. However, long term HRT for men can increase the risk of prostate cancer (The Patient Education Institute, 2005).

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. As discussed in the previous paragraph, men who experience consistent problems are likely to have medical conditions (such as diabetes or heart disease) that impact sexual functioning (National Institute on Aging, 2005).

Couples continue to enjoy physical intimacy and may engage in more foreplay, oral sex, and other forms of sexual expression rather than focusing as much on sexual intercourse. Risk of pregnancy continues until a woman has been without menstruation for at least 12 months, however, and couples should continue to use contraception. People continue to be at risk of contracting sexually transmitted infections such as genital herpes, chlamydia, and genital warts. And 10 percent of new cases of AIDS in the United States are of people 50 and older. Practicing safe sex is important at any age. Hopefully, when partners understand how aging affects sexual expression, they will be less likely to misinterpret these changes as a lack of sexual interest or displeasure in the partner and more able to continue to have satisfying and safe sexual relationships.

Exercise, Nutrition, and Health

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. Weight lifting and stretching exercises at home can also be part of an effective program. Exercise is particularly helpful in reducing stress in midlife. Walking, jogging, cycling, or swimming can release the tension caused by stressors. And learning relaxation techniques can have healthful benefits. Exercise can be thought of as preventative health care; promoting exercise for the 78 million "baby boomers" may be one of the best ways to reduce health care costs and improve quality of life (Shure & Cahan, 1998).

Nutritional concerns: Aging brings about a reduction in the number of calories a person requires. Many Americans respond to weight gain by dieting. However, eating less does not typically mean eating right and people often suffer vitamin and mineral deficiencies as a result. Very often, physicians will recommend vitamin supplements to their middle aged patients.

The new food pyramid: The ideal diet is one low in fat, sugar, high in fiber, low in sodium, and cholesterol. In 2005, the Food Pyramid, a set of nutritional guidelines established by the U. S. Government was updated to accommodate new information on nutrition and to provide people with guidelines based on age, sex, and activity levels.

The ideal diet is also one low in sodium (less than 2300 mg per day). Sodium causes fluid retention which may in turn exacerbate high blood pressure. The ideal diet is also low in cholesterol (less than 300 mg per day). The ideal diet is also one high in fiber. Fiber is thought to reduce the risk of certain cancers and heart disease. Finally, an ideal diet is low in sugar. Sugar is not only a problem for diabetics; it is also a problem for most people. Sugar satisfies the appetite but provides no protein, vitamins or minerals. It provides empty calories. High starch diets are also a problem because starch is converted to sugar in the body. A 1-2 ounce serving of red wine (or grape juice) can have beneficial effects as well. Red wine can increase "good cholesterol" or HDLs (high density lipoproteins) in the blood and provides antioxidants important to combating aging.

9.7: Health Concerns

Heart Disease: According to the most recent National Vital Statistics Reports (Heron, 2019) heart disease continues to be the number one cause of death for Americans as it claimed 23% of those who died in 2017. It is also the number one cause of death worldwide (World Health Organization, 2013). Heart disease develops slowly over time and typically appears in midlife (Hooker & Pressman, 2016).

Heart disease can include heart defects and heart rhythm problems, as well as narrowed, blocked, or stiffened blood vessels referred to as cardiovascular disease. The blocked blood vessels prevent the body and heart from receiving adequate blood. **Atherosclerosis,** *or a buildup of fatty plaque in the arteries*, is the most common cause of cardiovascular disease. The plaque buildup thickens the artery walls and restricts the blood flow to organs and tissues. Cardiovascular disease can lead to a heart attack, chest pain (angina), or stroke (Mayo Clinic, 2014a). Figure 8.5 illustrates atherosclerosis.

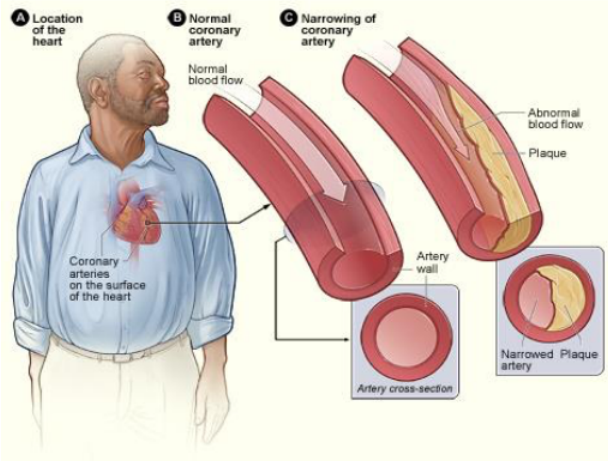


Figure 9.7.1: Atherosclerosis. Source.

Symptoms of cardiovascular disease differ for men and women. Males are more likely to suffer chest pain, while women are more likely to demonstrate shortness of breath, nausea, and extreme fatigue. Symptoms can also include pain in the arms, legs, neck, jaw, throat, abdomen or back (Mayo Clinic, 2014a).

According to the Mayo Clinic (2014a) there are many risk factors for developing heart disease, including medical conditions, such as high blood pressure, high cholesterol, diabetes, and obesity. Other risk factors include:

- **Advanced Age**-increased risk for narrowed arteries and weakened or thickened heart muscle.
- **Sex**-males are at greater risk, but a female's risk increases after menopause.
- **Family History**-increased risk, especially if male parent or brother developed heart disease before age 55 or female parent or sister developed heart disease before age 65.
- **Smoking**-nicotine constricts blood vessels and carbon monoxide damages the inner lining.
- **Poor Diet**-a diet high in fat, salt, sugar, and cholesterol.
- **Stress**-unrelieved stress can damage arteries and worsen other risk factors.
- **Poor Hygiene**-establishing good hygiene habits can prevent viral or bacterial infections that can affect the heart. Poor dental care can also contribute to heart disease.

Complications of heart disease can include heart failure, when the heart cannot pump enough blood to the meet the body's needs, and a heart attack, when a blood clot blocks the blood flow to the heart. This blockage can damage or destroy a part of the heart muscle, and atherosclerosis is a factor in a heart attack. Treatment for heart disease includes medication, surgery, and lifestyle changes including exercise, healthy diet, and refraining from smoking.

Sudden cardiac arrest is the unexpected loss of heart functioning, breathing, and consciousness, often caused by an arrhythmia or abnormal heartbeat. The heart beat may be too quick, too slow, or irregular. With a healthy heart, it is unlikely for a fatal arrhythmia to develop without an outside factor, such as an electric shock or illegal drugs. If not treated immediately, sudden cardiac arrest can be fatal and result in sudden cardiac death.

Hypertension, or *high blood pressure, is a serious health problem that occurs when the blood flows with a greater force than normal*. One in three American adults (70 million people) have hypertension and only half have it under control (Nwankwo, Yoon, Burt, & Gu, 2013). It can strain the heart, increase the risk of heart attack and stroke, or damage the kidneys (CDC, 2014a). Uncontrolled high blood pressure in early and middle adulthood can also damage the brain's white matter (axons), and may be linked to cognitive problems later in life (Maillard et al., 2012). Normal blood pressure is under 120/80 (Table 8.1). The first number is the **systolic pressure**, *which is the pressure in the blood vessels when the heart beats*. The second number is the **diastolic pressure**, *which is the pressure in the blood vessels when the heart is at rest*. High blood pressure is sometimes referred to as the *silent killer*, as most people with hypertension experience no symptoms.

Table 9.7.1 Blood Pressure Levels

	Systolic Pressure	Diastolic Pressure
Normal	Under 120	Under 80
Prehypertension (at risk)	20-139	80-89
Hypertension	140 or high	90 or higher

Source: adapted from CDC (2014c).

Risk factors for high blood pressure include:

- Family history of hypertension
- Diet that is too high in sodium, often found in processed foods, and too low in potassium
- Sedentary lifestyle
- Obesity
- Too much alcohol consumption
- Tobacco use, as nicotine raises blood pressure (CDC, 2014b).

Making lifestyle changes can often reduce blood pressure in many people.

Cancer: After heart disease, cancer was the second leading cause of death for Americans in 2017 as it accounted for 21.3% of all deaths (Heron, 2019). According to the National Institutes of Health (2015), **cancer** *is the name given to a collection of related diseases in which the body's cells begin to divide without stopping and spread into surrounding tissues.* These extra cells can divide and form growths called tumors, which are typically masses of tissue. Cancerous tumors are malignant, which means they can invade nearby tissues. When removed malignant tumors may grow back. Unlike malignant tumors, benign tumors do not invade nearby tissues. Benign tumors can sometimes be quite large, and when removed usually do not grow back. Although benign tumors in the body are not cancerous, benign brain tumors can be life threatening.

Cancer cells can prompt nearby normal cells to form blood vessels that supply the tumors with oxygen and nutrients, which allows them to grow. These blood vessels also remove waste products from the tumors. Cancer cells can also hide from the immune system, a network of organs, tissues, and specialized cells that protects the body from infections and other conditions. Lastly, cancer cells can metastasize, which means they can break from where they first formed, called the primary cancer, and travel through the lymph system or blood to form new tumors in other parts of the body. This new metastatic tumor is the same type as the primary tumor (National Institutes of Health, 2015). Figure 9.7.2 illustrates how cancers can metastasize.

Cancer can start almost anywhere in the human body. While normal cells mature into very distinct cell types with specific functions, cancer cells do not and continue to divide without stopping. Further, cancer cells are able to ignore the signals that normally tell cells to stop dividing or to begin a process known as programmed cell death which the body uses to get rid of unneeded cells. With the growth of cancer cells, normal cells are crowded out and the body is unable to work the way it is supposed to. For example, the cancer cells in lung cancer form tumors which interfere with the functioning of the lungs and how oxygen is transported to the rest of the body.

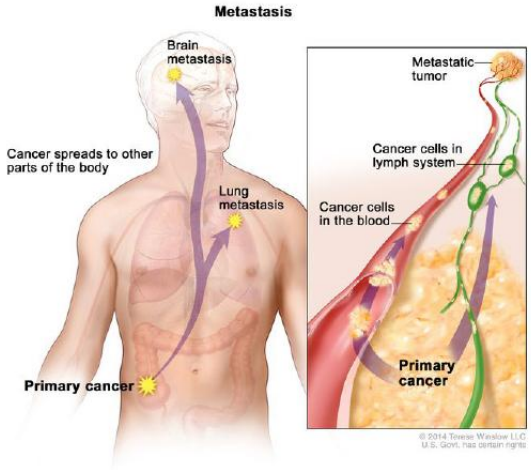


Figure 9.7.2 Source.

There are more than 100 types of cancer. The American Cancer Society assemblies a list of the most common types of cancers in the United States. To qualify for the 2016 list, the estimated annual incidence had to be 40, 000 cases or more. The most common type of cancer on the list is breast cancer, with more than 249,000 new cases expected in 2016. The next most common cancers are lung cancer and prostate cancer. Table 8.2 lists the estimated number of new cases and deaths for each common cancer type (American Cancer Society, 2016).

Table 9.7.2 2016 Estimates of Cancer Types

Cancer Type	Estimated New Cases	Estimated Deaths
Bladder	76,960	16,390
Breast (Female - Male)	246,660 - 2,600	40,450 - 440
Colon and rectal (combined)	134,490	49,190
Endometrial	60,050	10,470
Kidney (renal cell and renal pelvis) cancer	62,700	14,420
Leukemia (all types)	60,140	24,400
Lung (including bronchus)	224,390	158,080
Melanoma	76,380	10,130
Non-Hodgkin Lymphoma	72,580	20,150
Pancreatic	53,070	41,780
Prostate	180,890	26,120
Thyroid	64,300	1,980

Source.

Cholesterol *is a waxy fatty substance carried by lipoprotein molecules in the blood.* It is created by the body to create hormones and digest fatty foods, and is also found in many foods. Your body needs cholesterol, but too much can cause heart disease and

stroke. Two important kinds of cholesterol are **low-density lipoprotein (LDL)** and **high-density lipoprotein (HDL)**. A third type of fat is called **triglycerides**. Your total cholesterol score is based on all three types of lipids (Table 8.3). Total cholesterol is calculated by adding HDL plus LDL plus 20% of the Triglycerides.

Table 9.7.3: Normal Levels of Cholesterol

	Normal
Total Cholesterol	Less than 200 mg/dl*
LDL	Less than 100 mg/dl
HDL	40 mg/dl or higher
Triglycerides	Less than 150 mg/dl

*Cholesterol levels are measured in miligrams (mg) of cholesterol per deciliter (dL) in blood

Source: Adapted from CDC (2015).

LDL cholesterol makes up the majority of the body's cholesterol, however, it is often referred to as "bad" cholesterol because at high levels it can form plaque in the arteries leading to heart attack and stroke. HDL cholesterol, often referred to as "good" cholesterol, absorbs cholesterol and carries it back to the liver, where it is then flushed from the body. Higher levels of HDL can reduce the risk of heart attack and stroke. Triglycerides are a type of fat in the blood used for energy. High levels of triglycerides can also increase your risk for heart disease and stroke when coupled with high LDL and low HDL. All adults 20 or older should have their cholesterol checked. In early adulthood, doctors may check every few years if the numbers have previously been normal, and there are no other signs of heart disease. In middle adulthood, this may become part of the annual check-up (CDC, 2015).

Risk factors for high cholesterol include: A family history for high cholesterol, diabetes, a diet high in saturated fats, trans fat, and cholesterol, physical inactivity, and obesity. Almost 32% of American adults have high LDL cholesterol levels, and the majority do not have it under control, nor have they made lifestyle changes (CDC, 2015).

Diabetes (Diabetes Mellitus) *is a disease in which the body does not control the amount of glucose in the blood.* This disease occurs when the body does not make enough insulin or does not use it the way it should (NIH, 2016a). Insulin is a type of hormone that helps glucose in the blood enter cells to give them energy. In adults, 90% to 95% of all diagnosed cases of diabetes are type 2 (American Diabetes Association (ADA), 2016). Type 2 diabetes usually begins with insulin resistance, *a disorder in which the cells in the muscles, liver, and fat tissue do not use insulin properly* (CDC, 2014d). As the need for insulin increases, cells in the pancreas gradually lose the ability to produce enough insulin. In some Type 2 diabetics, pancreatic beta cells will cease functioning, and the need for insulin injections will become necessary. Some people with diabetes experience insulin resistance with only minor dysfunction of the beta cell secretion of insulin. Other diabetics experience only slight insulin resistance, with the primary cause being a lack of insulin secretion (CDC, 2014d).

Figure 9.7.3 Source (CDC, 2014d).

One in three adults are estimated to have prediabetes, and 9 in 10 of them do not know. According to the CDC (2014d) without intervention, 15% to 30% of those with prediabetes will develop diabetes within 5 years. In 2012, 29 million people (over 9% of the population) were living with diabetes in America, mostly adults age 20 and up.

Table 9.7.4: Estimated Number and Percentage of Adults age 20 and over Living with Diabetes in 2012

	Number with Diabetes (millions)	Percentage with Diabetes (unadjusted)

	Number with Diabetes (millions)	Percentage with Diabetes (unadjusted)
Total		
20 years or older	28.9	12.3
By age		
20-44	4.3	4.1
45-64	13.4	16.2
65 years or older	11.2	25.9
By sex		
Men	15.5	13.6
Women	13.4	11.2

Source: 2009-2012 National Health and Nutrition Examination Survey estimates applied to 2012 U.S. Census data.

Table 9.7.4 shows the numbers in millions and percentage of adults, by age and gender, living with diabetes. The median age of diagnosis is 54 (CDC, 2014d). During middle adulthood, the number of people with diabetes dramatically increases; with 4.3 million living with diabetes prior to age 45, to over 13 million between the ages of 45 to 64; a four-fold increase. Men are slightly more likely to experience diabetes than are women.

Diabetes also affects ethnic and racial groups differently. Non-Hispanic Whites (7.6%) are less likely to be diagnosed with diabetes than are Asian Americans (9%), Hispanics (12.8%), non- Hispanic Blacks (13.2%), and American Indians/Alaskan Natives (15.9%). However, these general figures hide the variations within these groups. For instance the rate of diabetes was less for Central, South, and Cuban Americans than for Mexican Americans and Puerto Ricans, and four times less for Alaskan Natives than the American Indians of southern Arizona (CDC, 2014d).

The risk factors for diabetes include:

- Those over age 45
- Obesity
- Family history of diabetes
- History of gestational diabetes (Chapter 2)
- Race and ethnicity
- Physical inactivity
- Diet

Diabetes has been linked to numerous health complications. Adults with diabetes are 1.7 times more likely to have cardiovascular disease, 1.8 times more likely to experience a heart attack, and 1.5 times more likely to experience stroke than adults without diabetes. Diabetes can cause blindness and other eye problems. In diabetics age 40 or older, 28.5% showed signs of diabetic retinopathy, *damage to the small blood vessels in the retina that may lead to loss of vision*. More than 4% showed advanced diabetic retinopathy. Diabetes is linked as the primary cause of almost half (44%) of new cases of kidney failure each year. About 60% of non-traumatic limb amputations occur in people with diabetes. Diabetes has been linked to hearing loss, tinnitus (ringing in the ears), gum disease, and neuropathy (nerve disease) (CDC, 2014d).

Typical tests for diabetes include a fasting glucose test and the A1C (Table 8.5). Fasting glucose levels should be under 100mg/dl (ADA, 2016). The A1C provides information about the average levels of blood glucose over the last 3 months (NIH, 2014a). The A1C should be under 5.7, where a 5.0 = 97mg/dl and a 6.0 = 126 mg/dl (ADA, 2016).

Rheumatoid arthritis (RA) *is an inflammatory disease that causes pain, swelling, stiffness, and loss of function in the joints* (NIH, 2016b). RA occurs when the immune system attacks the membrane lining the joints (Figure 8.8).**Metabolic Syndrome** *is a cluster of several cardiometabolic risk factors, including large waist circumference, high blood pressure, and elevated triglycerides, LDL, and blood glucose levels, which can lead to diabetes and heart disease* (Crist et al., 2012). The prevalence of metabolic syndrome in the U.S. is approximately 34% and is especially high among Hispanics and African Americans (Ford, Li, & Zhao, 2010). Prevalence increases with age, peaking in one's 60s (Ford et al., 2010). Metabolic syndrome increases morbidity from cardiovascular disease and diabetes (Hu et al., 2004; Malik, 2004). Hu and colleagues found that even having one or two of the risk factors for metabolic syndrome increased the risk of mortality. Crist et al. (2012) found that increasing aerobic activity and reducing weight led to a drop in many of the risk factors of metabolic syndrome, including a reduction in waist circumference and blood pressure, and an increase in HDL cholesterol.

RA is the second most common form of arthritis after osteoarthritis, which is the normal wear and tear on the joints discussed in chapter 9. Unlike osteoarthritis, RA is symmetric in its attack of the body, thus, if one shoulder is affected so is the other. In addition, those with RA may experience fatigue and fever. Below are the common features of RA (NIH, 2016b).

Features of Rheumatoid Arthritis

- Tender, warm, swollen joints
- Symmetrical pattern of affected joints
- Joint inflammation *often* affecting the wrist and finger joints closest to the hand
- Joint inflammation *sometimes* affecting other joints, including the neck, shoulders, elbows, hips, knees, ankles, and feet
- Fatigue, occasional fevers, a loss of energy
- Pain and stiffness lasting for more than 30 minutes in the morning or after a long rest
- Symptoms that last for many years
- Variability of symptoms among people with the disease.

About 1.5 million people (approximately 0.6%) of Americans experience rheumatoid arthritis. It occurs across all races and age groups, although the disease often begins in middle adulthood and occurs with increased frequency in older people. Like some other forms of arthritis, rheumatoid arthritis occurs much more frequently in women than in men. About two to three times as many women as men have the disease (NIH, 2016b). The lifetime risk for RA for women is 3.6% and 1.7% for men (Crowson, et al., 2011).

Genes play a role in the development of RA. However, individual genes by themselves confer only a small risk of developing the disease, as some people who have these particular genes never develop RA. Scientists think that something must occur to trigger the disease process in people whose genetic makeup makes them susceptible to rheumatoid arthritis. For instance, some scientists also think hormonal factors may be involved. In women who experience RA, the symptoms may improve during pregnancy and flare after pregnancy. Women who use oral contraceptives may increase their likelihood of developing RA. This suggests hormones, or possibly deficiencies or changes in certain hormones, may increase the risk of developing RA in a genetically susceptible person (NIH, 2016b).

Rheumatoid arthritis can affect virtually every area of a person's life, and it can interfere with the joys and responsibilities of work and family life. Fortunately, current treatment strategies allow most people with RA to lead active and productive lives. Pain-relieving drugs and medications can slow joint damage, and establishing a balance between rest and exercise can also lessen the symptoms of RA (NIH, 2016b).

Digestive Issues

Heartburn, also called acid indigestion or pyrosis, is a common digestive problem in adults and is the result of stomach acid backing up into the esphagus. Prolonged contact with the digestive juices injures the lining of the esophagus and causes discomfort. Heartburn that occurs more frequently may be due to gastroesophageal reflux disease, GERD. Normally the lower sphincter muscle in the esophagus keeps the acid in the stomach from entering the esophagus. In GERD this muscle relaxes too frequently and the stomach acid flows into the esophagus. In the U.S. 60 million people experience heartburn at least once a month, and 15 million experience it every day. Prolonged problems with heartburn can lead to more serious complications, including esophageal cancer, one of the most lethal forms of cancer in the U.S. Problems with heartburn can be linked to eating fatty or spicy foods, caffeine, smoking, and eating before bedtime (American College of Gastroenterology, 2016a).

Gallstones *are hard particles, including fatty materials, bile pigments, and calcium deposits, that can develop in the gallbladder*. Ranging in size from a grain of sand to a golf ball, they typically take years to develop, but in some people have developed over the course of a few months. About 75% of gallstones do not create any symptoms, but those that do may cause sporadic upper abdominal pain when stones block bile or pancreatic ducts. If stones become lodged in the ducts, it may necessitate surgery or other medical intervention as it could become life-threatening if left untreated (American College of Gastroenterology, 2016b).

Gallstones are present in about 20% of women and 10% of men over the age of 55 (American College of Gastroenterology, 2016b). Risk factors include a family history of gallstones, diets high in calories and refined carbohydrates (such as, white bread and rice), diabetes, metabolic syndrome, Crohn's disease, and obesity, which increases the cholesterol in the bile and thus increases the risk of developing gallstones (NIH, 2013).

LIBRARY

SUCCESSFUL AGING

Introduction

We are living in unprecedented times. The United States is an aging nation. For over a century, the U.S. has experienced exponential demographic growth in the number and proportion of persons aged 65 and older. The previous decade between 2010 to 2020 represented the fastest growth period ever in the number of Americans who turned 65 and reached late adulthood. In fact, the older adult population increased at five times the rate of the total population. Nearly 56 million or roughly 17 percent of the U.S. population is currently comprised of person over 65 years of age. This amounts to 1 in every 6 Americans alive today who are older adults. Most of this growth can be attributed to the aging of the Baby Boomers (persons born between 1946-1964) who began turning 64 in 2011. By the end of 2029, all remaining and surviving members in this large birth cohort will be 65 and older.

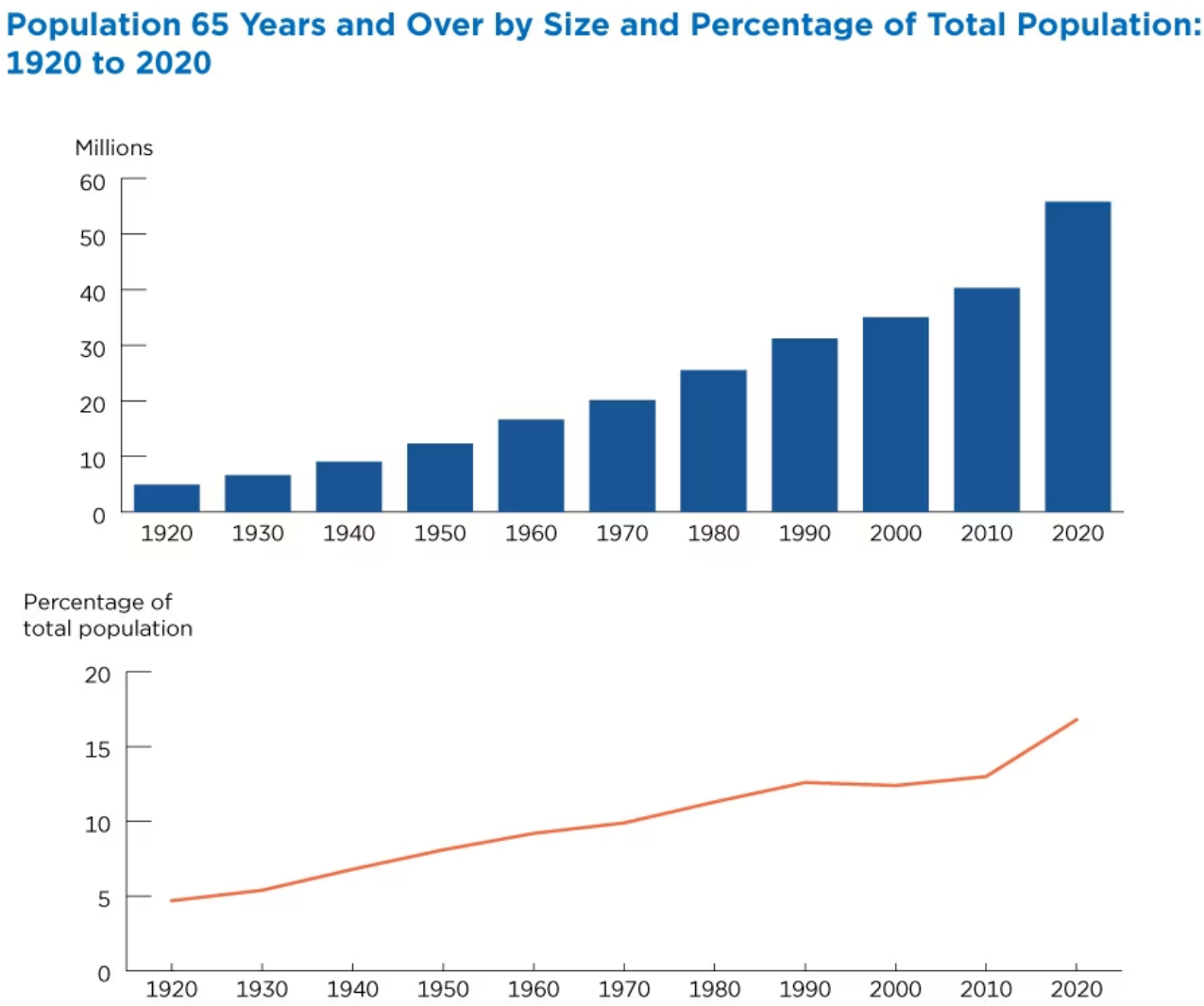


Figure 1 Population 65 Years and Over by Size and Percentage of Total Population: 1920-2020 by U.S. Census Bureau is licensed Public Domain.

It is projected that persons in this cohort will continue to live healthier and longer lives with a sizeable proportion living well past 75+ years. A greater number are also expected to reach their 100th birthday in the coming decades. This is evident based on comparative census tract data from 2000, 2010, and 2020. Persons 90 or older have come to account for a greater proportion (39.6%) of total population of persons over the age of 85, this is particularly true among very old women where 57.6% are currently in their 80's, whereas the remaining 42.4% are 90 years or older. (See **Figure 2**)

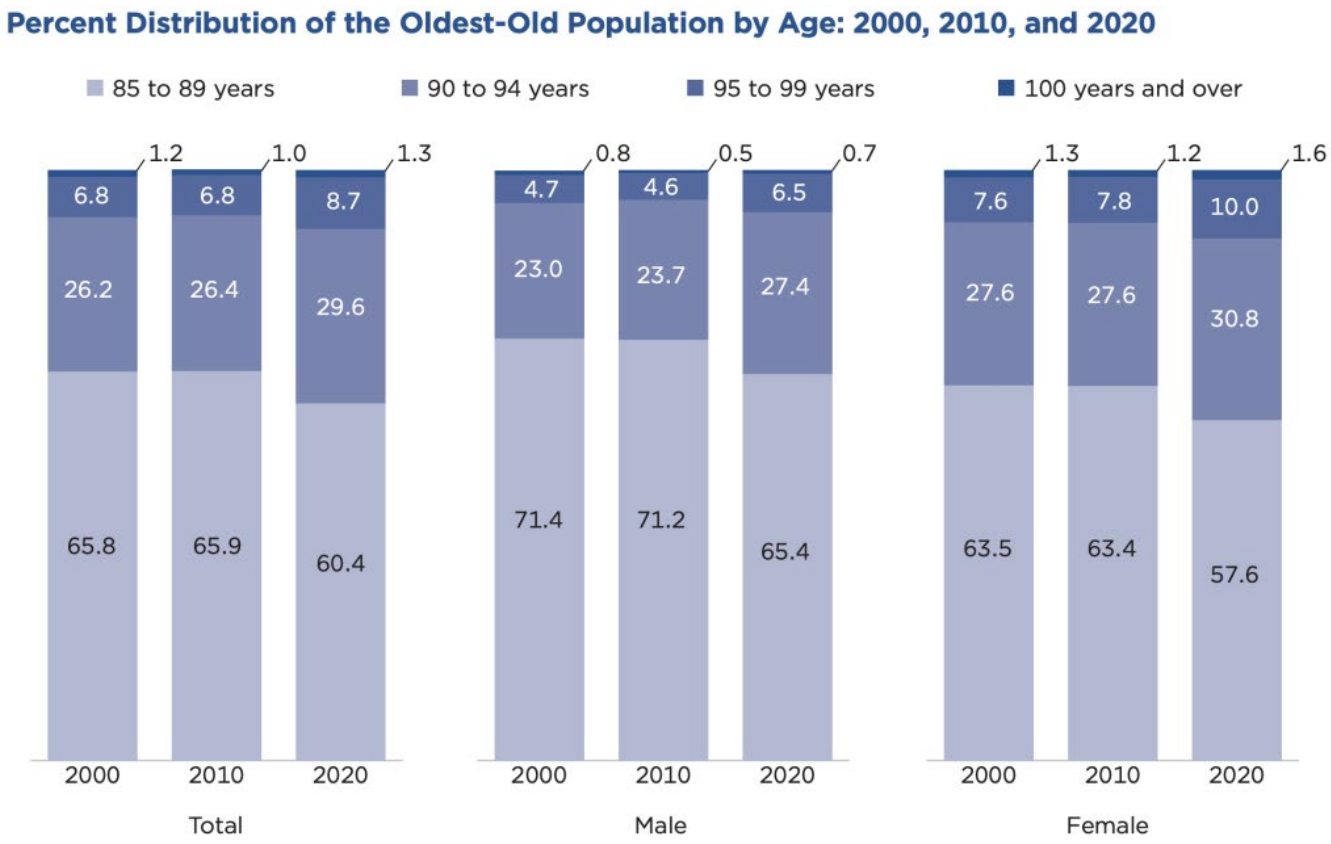


Figure 2 Percent Distribution of the Oldest-Old Population by Age: 2000, 2010, and 2020 by U.S. Census Bureau is licensed Public Domain.

Aging is a also global issue reality. While the United States continues to experience historic growth in the older adult population, many countries around the world are considered to be older. Nations such as Japan and Italy are often deemed as "old" nations on the basis that older adults account for nearly a quarter or more of their population. Older adults make up 28.5% of Japanese residents; whereas around 23% of all residents in Italy are aged 65 or older. (See **Figure 3**)

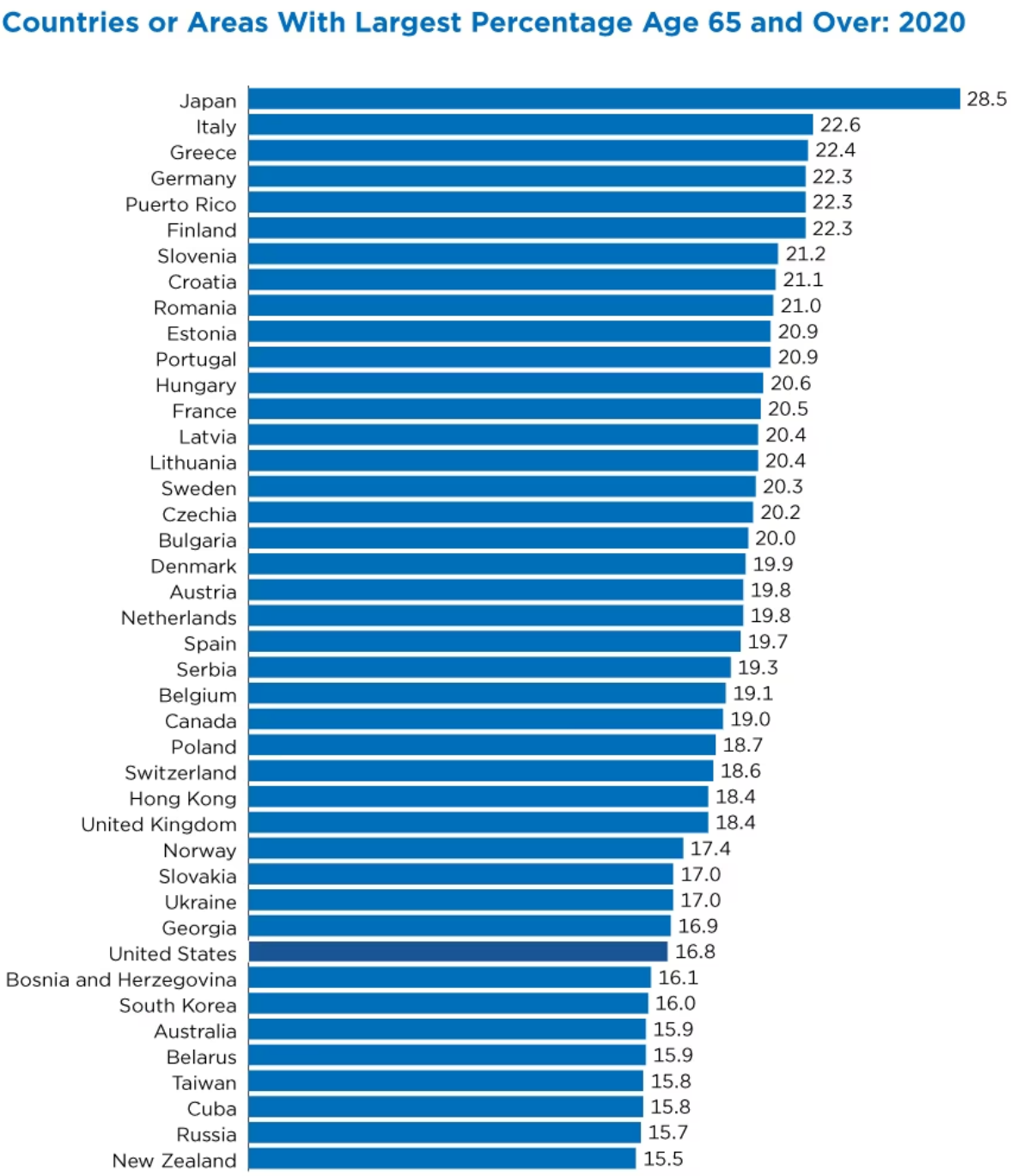


Figure 3 Countries or Areas with Largest Percentage Age 65 and Over: 2020 by U.S. Census Bureau is licensed Public Domain.

We live in an aging society and world. Yet, the reality of human aging is commonly disregarded. Old age is something perceived as well off into the future rather than immediate. It is often considered as something that can happen; rather than a phenomenon that will happen. You probably do use the topic of aging to start to introduce yourself to a stranger or strike a conversation with a friend. In addition, aging is probably not a focal point of discussion around most family dinner table. It is more likely that an occasional comment is made regarding the physical appearance of a wrinkle or gray hair, or complaint about an ache or pain or difficulty remembering the of a person and place; or general acknowledgement

regarding how to finance one's future retirement, housing, and long-term care. Nonetheless, aging is a process we commonly observe in others but put off when it comes to "self."

According to the American Psychological Association (2017), there is fine balance between what persons come to believe about aging and what is actually real about it. There are several prevailing myths and realities which most persons must come to realize:

1. **Myth: All older adults are alike. Reality: Older adults represent a diverse population.** The demographic composition of older adult population in the United States has undergone a dramatic transformation over the last two decades. For example, nearly 25% of persons, aged 65 and older, are members of racial or ethnic minority populations. Persons of Hispanic origin now represent approximately 10% of the older adult population. Furthermore, the population of older immigrants in the U.S. has increased by over 70% since 2000. Finally, the estimated number of older adults who identify as lesbian, gay, bisexual, or transgender is expected to double in the next two decades.

2. **Myth: Most older adults live in nursing homes. Reality: Only 5% of adults live in a nursing home at any one give time.** The percentage of older adults who reside in a nursing home increases with age ranging from around 4% among persons 65-84 years of age to under 14% among persons aged 85 and older. Otherwise, the vast majority of older adults reside in the community. It is likely you may even know several older adults who live in your own apartment complex, neighborhood, or community.

3. **Myth: Older adults are socially disengaged and are lonely. Reality: Many older adults continue to work or volunteer after turning 65.** According to the American Association of Retired Persons (AARP), around 20% of older adults continue to work past their retirement age. Furthermore, the U. S. Bureau of Labor Statistics has projected that persons over 65 years of age will account for faster annual rates of labor force growth than any other age group in the coming years. In addition, Baby Boomers have the highest participation rate (59%) of unpaid informal volunteer work compared to other cohort groups, including Gen X, Millennials, and Gen Z. Multiple research investigations over the past several years continue to indicate that young adults spend twice as many days feeling lonely, disconnected, and isolated from others than those who are older in age (Child, 2019; Hawkley, 2022)

4. **Myth: Older adults have little to no interest in romantic intimacy. Reality: Many older adults continue to enjoy a physical and emotionally active love life.** Nearly 14% of single older adults, aged 65 and older, are in a romantic or dating relationship. Over 25% of adults over the age of 50 actively use an online dating platform, site, or app (Pew, 2023). Most interesting, a University of Michigan national poll on healthy aging reported an estimated 40% all persons between age 65 to 80 are currently sexually active and interested in regular physical intimacy.

5. **Myth: You cannot teach an old dog new tricks. Reality: Older adults can learn new skills and ways of doing things.** Despite normative changes in cognition and intellectual processing, older adults can still do many of the same things they have enjoyed their entire lives. Plasticity of the brain allows older adults to learn new skills, form new memories, and improve vocabulary and language skills. Older adults show significant cognitive improvements from the lifelong learning of new skills and can often learn and perform the skill as efficiently as a young adult. This is particularly true when older adults are given a little extra time to learn, practice, and acquire an unfamiliar skill.

6. **Myth: All older adults eventually have dementia or Alzheimer's Disease. Reality: Risk of dementia is largely a combination of genetics, environmental exposure, and lifestyle behaviors.** Although it is true that risk of being clinically diagnosed with dementia of the Alzheimer's types increases with age, most persons will likely be impacted by normative age-related changes in memory functioning. According to the Alzheimer's Association, approximately 73% of all persons diagnosed with Alzheimer's Disease are 75 years of age or older. Older Black American are twice as likely to be diagnosed with Alzheimer's or other dementias than their older White counterparts. Only 1 in every 9 persons aged 65 and older or 10.7% are ever-diagnosed with Alzheimer's Disease in their lifetime. Persons who engage in a sedentary lifestyle, smoke, and eat an unhealthy diet across the adult years put themselves at a greater risk for dementia or Alzheimer's Disease at an older age. Otherwise, most persons will not be severely if ever impacted by dementia to the point of requiring clinically intervention or treatment.

Many persons struggle to overcome the myths of aging. When we reach a point where we can no longer deny the signs, symptoms, or realities of being "old" and the inevitability of mortality, aging becomes personal. For many, the realities of aging become most obvious by the time we reach our 40's, 50's, or 60's and remain with us to the end of life. We start to seek new ways to better manage our physical health and care for our bodies. We desire new approaches to sustain a cognitivel and intellectual edge. We desire to retain a sense of identity, inclusion, and belonging within family and to community. There is great variability among persons who are successful in achieving physical, cognitive, and social vitality in old and very older age. Some will succeed, and others will slide. Most of us are destined to experience some level of challenge or setback in our own aging process that will require resilience. It may be said that we must first fail before we can succeed. Nonetheless, most humans have what may be called "grit," or the ability to remain courageous amid the unfamiliar or unknown, to persevere despite adversity and loss, and to regain a passion for living in the second developmental half of life. This textbook is designed to provide insights by which all persons can increase their awareness, knowledge, and understanding of the biological, psychological, and social change and stability that comes with aging and being human.

References

Brown, S. L. & Shinohara, S. K. (2013). Dating relationships in older adulthood: A national portrait. *Journal of Marriage and Family, 75(5)*, 1194-1202. https://doi.org/10.1111%2Fjomf.12065

Child, S. T., & Lawton, L. (2019). Loneliness and social isolation among young and middle-aged adults: Associations of personal networks and social participation. *Aging & Mental Health, 23(2),* 196-204. https://doi.org/10.1080%2F13607863.2017.1399345

Hawkley, L. C., Buecker, S., Kaiser, T., & Luhmann, M. (2022). Loneliness from young adulthood to old age: Explaining age differences in loneliness. *International Journal of Behavioral Development, 46(1),* 39-49. https://doi.org/10.1177%2F0165025420971048

SUCCESSFUL AGING

Chapter 1: Introduction

Learning Objectives

After reading through Chapter 1: Introduction, students should know, learn, or be able to do the following:

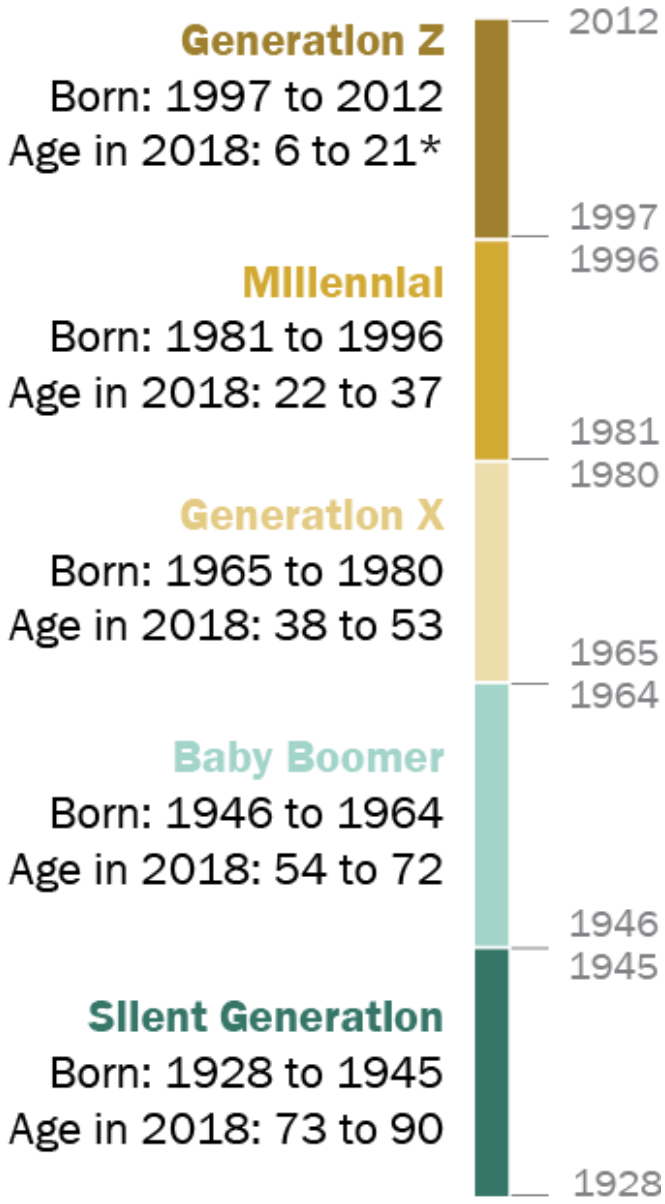
- **Explore How Age Perceptions Impact Well-being:** Investigate and discuss how subjective views of age can affect individual aging and human development, considering factors that influence these perceptions and their potential consequences.
- **Introduce the concept of successful aging:** Break down the three key aspects of Rowe and Khan's Model of Successful Aging, explaining how these elements contribute to a positive aging experience and analyzing their relevance in contemporary society.
- **Examine Real-Life Challenges in Aging:** Examine real-world challenges that older adults face, both personally and in society, and critically assess potential strategies to address these issues and improve the aging experience.
- **Compare Lifespan and Life Expectancy Concepts:** Compare the concepts of lifespan and life expectancy, explaining what they mean and discussing their implications for individuals' development, lifestyle pursuits, and societal and policy planning.
- **Visualize Aging Population Changes:** Analyze visual representations, graphs, and charts to help understand and present how the demographics of aging populations are changing over time, and consider how these changes might impact aging in society.

Chapter Outline

Aging is universal. It impacts all persons regardless of biological sex, gender identity, race, ethnicity, religious membership, geographical location, or political affiliation. It is an undeniable fact that all human beings must age, and all must eventually die. Despite efforts by some who have claimed to have pinpointed the symptoms, discovered an effective intervention and treatment, or found a "cure," the aging process remains the ultimate mystery of life from conception to death. Yet, most persons show little interest in the topic of aging when they are younger. Why would they? Our society tends to endorse youth, fitness, and vigor which creates a reductionistic and authentic view of developmental maturation, or the process by which humans change, grow, and development across the life-span, as confined to the first few decades of life. This can create a misconception that aging and human development as confined to the first 18 years of life. However, this is not realistic. Humans age and develop from the moment of conception until the moment of final death. Aging is a continuum of short- and long-term developmental change and stability on an intra-individual level or development within or unique to the individual, as well as an inter-individual level of development between persons or unique to populations of people. Such processes coincide and are best demonstrated across three life-span influences including:

- **Normative age-graded influences**: An age-grade is a specific age group, such as: toddler, adolescent, adult, or older adult. 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 in the same year or around the same period of years in a particular society. These people travel through life often experiencing similar social and historical events and circumstances.
- **Non-normative life influences**: Despite sharing an age and history with our peers, each of us also has unique individual 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 that particular age group.

The generations defined



*No chronological endpoint has been set for this group. For analytical purposes, Generation Z is defined as those ages 6 to 21 in 2018.

PEW RESEARCH CENTER

Table 1.1 The generations defined,

from Millennial life: How young adulthood today compares with prior generations. Pew Research Center, Washington D.C. (2019). Used with permission.

Definitions of Age

Ironically, many persons spend the first 18 years of life longing to be chronologically older or more mature than they are. When you were younger, you probably did not give aging much thought other than the fact that age was only a number. However, there are a variety of ways in which age is defined. For starters, chronological age reflects the amount of time that has passed since a person's birth expressed in terms of years, months, weeks, or even days. Parents often encourage their newborn infants and toddlers to crawl, walk, speak, or even throw a ball before they may be developmentally ready to do so. Chronological age is a better reflection of maturation relative to the amount of time that has passed since birth than an explanation of true developmental maturation or change.

Chronological age is simply a number and way to demarcate the timing of development across the human lifespan. It is often considered with some level of credibility when we are younger. In the mind of a child, a larger number connotes something bigger, better and of greater meaning or significance. Many young children verbally and behaviorally express what they want to be when they grow-up as demonstrated through pretend play, peer interactions, and behavioral mimicking of adult and parental social roles on the playground. Some young children even express a desire to be "double-digits." A double-digit birthday carries more value and is indicative of becoming older and more like and the adult one may admire. As children enter adolescence, they may begin to daydream about turning 16 and driving a car. Adolescence is also a developmental period during which children might express an interest in turning 18 years old and legally becoming an adult who vote in public elections, express their identity, and make life choices and decisions independent of parental control, monitoring, or consent. This developmental milestone emerges into an adulting period by which one begins to pursue the rites of adult passage from age 18-25 years. Developmental activities during this period include but not are limited to a variety of life experiences such as turning 21 and becoming legally responsible to drink alcohol, seeking advanced skills and education to build a career, romantically seeking a potential mate for marriage, starting and raising a family, and becoming a socially responsible and contributing member of society.

We spend the first-half of our life wanting to age before our time. Yet, this inner desire for maturation subsides by the time persons reach mid-life. The expression of subjective age or the perception of how individuals view or experience themselves as feeling or being younger or older than their actual age becomes prominent. . This is one of the most rudimentary conceptualizations humans use to gauge how well they are aging. Depending on the day of the week, month, or year, it is possible that you may "feel" older than your chronological age, especially if you are experiencing illness, fatigue, stress, or anxiety. It is also possible to "feel" younger, if you are fully rested, mentally alert, relaxed, and experiencing a feeling of stamina and energy.

Middle aged adults judgements of subjective age is influenced by three other forms of aging:

1. **Biological age** or perceived ability to control one's rate at which our body ages beyond family heredity and genetic factors relative to the maintenance of a healthy diet and weight, engagement in regular exercise, coping with environmental stressors, or adoption healthy lifestyle behaviors and routines (e.g., avoidance of smoking, limited alcohol intake, sleep habits) that might

otherwise help offset or delay the onset and experience of acute symptoms, chronic disablement, or terminal diseases which contribute to the wear and tear of our bodies leading to senesce or death.

2. **Psychological age** or perception of maturity, whether younger or older, in terms of how one feelings emotionally and behaviorally through their decisions, actions, and expression of identity and personality. For instance, an individual experiencing cognitive impairment may be 50 years of age, yet has the mental and behavioral functional capacity of a 10-year-old. However, another 50- year old person might be travelling to new countries, taking courses at college, or starting a new business. Compared to others within our age group, we may be more or less psychologically adaptive to meet or cope with new challenges.
3. **Social age** or the perception of one's interpersonal interactions, sense of connectedness and belonging, and continuity and discontinuity of life-time contributions relative to meeting socio-cultural expectations within the place(s) and time(s) in which one lives. The socio-cultural environment often reminds mid-life adults whether they have been "on target" or "off target" relative to reaching certain social milestones across the life-span, such as launching children from their home of origin, getting a work promotion, or meeting financial goals for eventual retirement. There are some arguments that social age is becoming less relevant in the 21st century (Neugarten, 1979; 1996). If you notice fellow students in your courses at college or co-workers at your place of work, you might start to notice more and more people who are older than the traditional or anticipated able-bodied adult who is between 18-25 years of age. 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.

The Middle Age Shift

The developmental processes by which we are influenced help us derive a perception of the aging experience as individuals, as well as collective members within a shared group. This is vital to our intention and motivation to continuing fighting the good fight and aging well into mid-life and beyond. "Life begins at 40" is a common cliché used to describe the mid-life experience. A developmental shift occurs approximately between 40 to 60 years of age during which many persons begin to encounter changes in the biological, psychological, and social well-being. The mid-life period represents the first time many individuals will directly and personally encounter the signs and symptoms of being old. Examples of these experiences include an occasional failure to remember someone's name, difficulty reading words in a book or on computer screen without reading glasses, scheduling routine physical examinations, blood draws, and preventive health screenings, or having to take time off from work to care for an aging parent. Many middle-aged adults beginning to ask themselves, "Have I done enough?" While some persons may negatively consider mid-life as the gradual "beginning of the end" of life as they know it; others more optimistically view it as "second chance or opportunity in life," to redeem and more realistically align one's life ambitions of the past, present, and future. This is often connected to the hope that what we do starting in middle age and into old age will build a legacy for living that others, particularly our closest family members and friends, will remember tomorrow and well into the future.

Middle age brings a heightened level of urgency and new set of concerns relative to how to planning and use one's remaining time left in life in a timely and effective manner. It is a developmental period in which one must negotiate the realization that there is no turning back the clock to relive and change past life experiences, yet there may still be enough time remaining to redirect, rectify, or redeem one's life in

a way that will bring about an improved sense of personal fulfillment, achievement, acceptance, or contentment without shame, guilt, or regret. Most importantly, mid-life is a developmental period during which many persons start to become increasingly cognizant of their own aging process and eventual mortality in lieu of on-going daily hassles and life stressors. In turn, middle aged adults are often referred to as the Sandwich Generation due to the fact that most are engaging in dual-processes and social roles of being caught in the middle of multiple family generations or cohorts, such as raising and launching children from the family household, while simultaneously serving as the primary caregiver to an aging parent; or even remaining a productive member of society who goes to work and live life day-in and day-out, while continuing to surviving the social loss and deaths of those within the broader community with whom one may feel socially networked or emotionally connected.

The Quest to Age Successfully

Some might consider middle age as "the make or break" developmental period of life, yet as the saying goes "when the going gets tough; the tough get going." While some middle-aged adults will find it easy to attribute blame for recent and on-going deficits in biological, psychological, or social functioning and thus do little to improve their well-being, many others will turn to the clinical experts, practitioners, and even family members for assistance with one question in mind: "How can I age successfully?" The good news is that it is never too late to start aging well. Success is within the eye as well as the reach of the beholder. Like most matters in life, we should not expect success, let alone the aging process, to come easy. Those exiting the middle adult years and entering late adulthood are destined to experience both failure and triumph. We may not have taken proper care of our bodies, challenged ourselves mentally, or gravitated toward or maintained positive social relationships or meaningful social roles earlier in life. However, our failures earlier in life are vital to navigating our way toward success during middle adulthood, through late adulthood, and event into advanced or exceptional old age. Aging successfully demands that humans continually appraise, adapt, and reutilize their biological, psychological, or social strengths and weaknesses in resourceful yet sustainable ways. According to Rowe & Kahn (1997) there are three main criteria necessary for "successful aging"

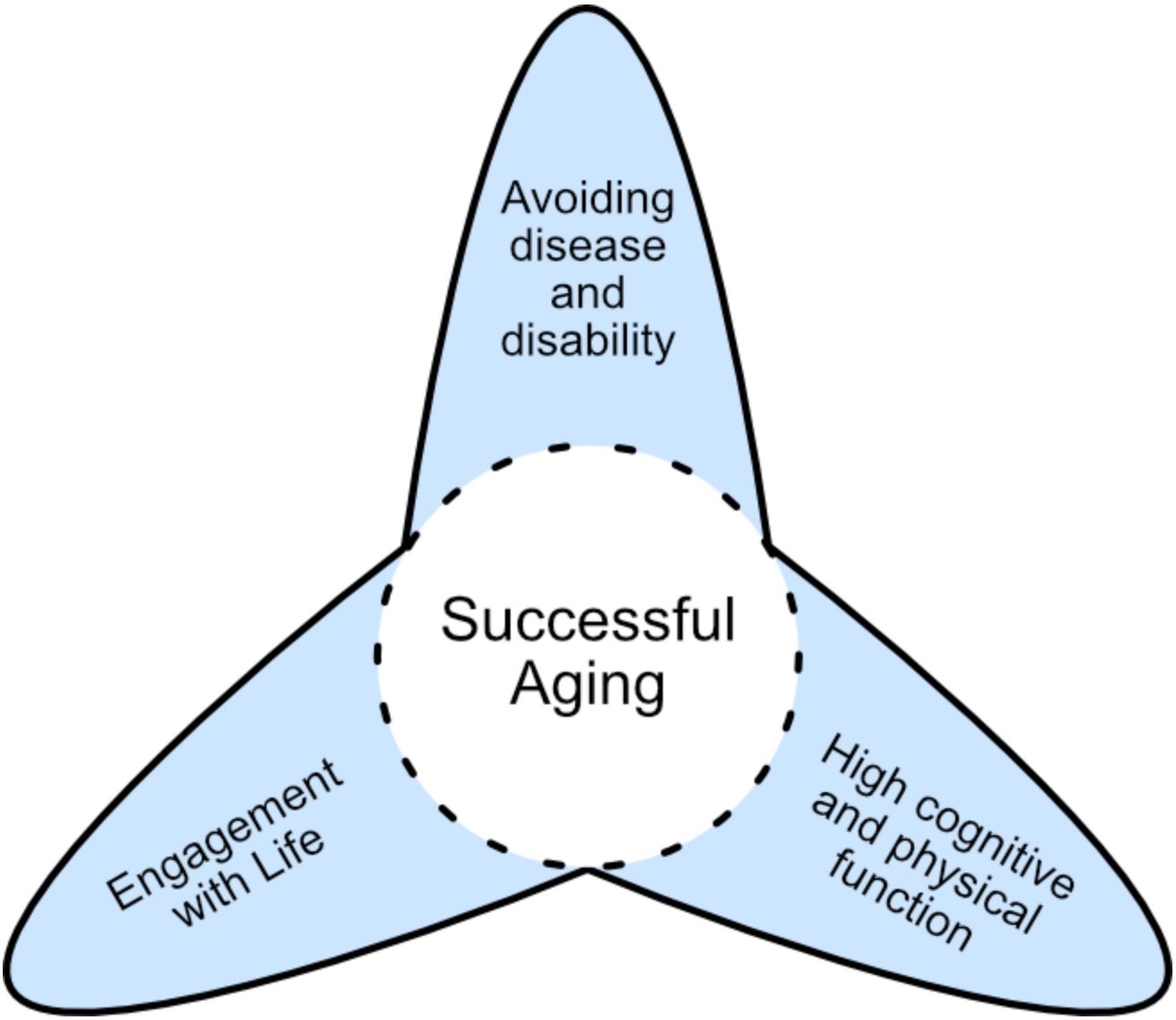


Figure 1.1 Rowe and Khan's Model of Successful Aging by Simon Ringsmuth is licensed CC BY-NC-SA 4.0

These criteria include:

1. Minimize risk behaviors that might otherwise contribute to the onset, progression, and costly chronic or long-term care management of disease, disablement, and end-of-life circumstances;
2. Maintain high levels of physical and cognitive (e.g., mind-body) functioning
3. Remain socially engaged and actively involved in productive and meaningful activities, hobbies, and leisure pursuits

Biopsychosocial Ways of Aging

Rowe and Kahn's (1997) Model of Successful Aging was ultimately a biopsychosocial recommendation or intervening prescription for aging well. It is also a representation of the interconnection and interplay between biological, psychological, and social aging. Together, these processes provide a dynamic framework by which to study and understand the aging and human development. This is often referred to as the biopsychosocial perspective, a view of human development as a dynamic and interactive process involving biological, psychological, and social functioning. Aging is not a simple progression across time. Our bodies undergo biological and physiological changes largely dictated by our genes which may be influence by the environments to which we are exposed. The changes we encounter physically within our bodies influences the extent to which we experience neurocognitive changes involving the way we react to, process, and remember information, as well as express ourselves and regulate emotions and behave around others. All of this occurs within social time and space. People age uniquely depending on where, when, and with whom they live, opportunity for social activity, engagement, and leisure, and accessibility to family and community resources and other social provisions.

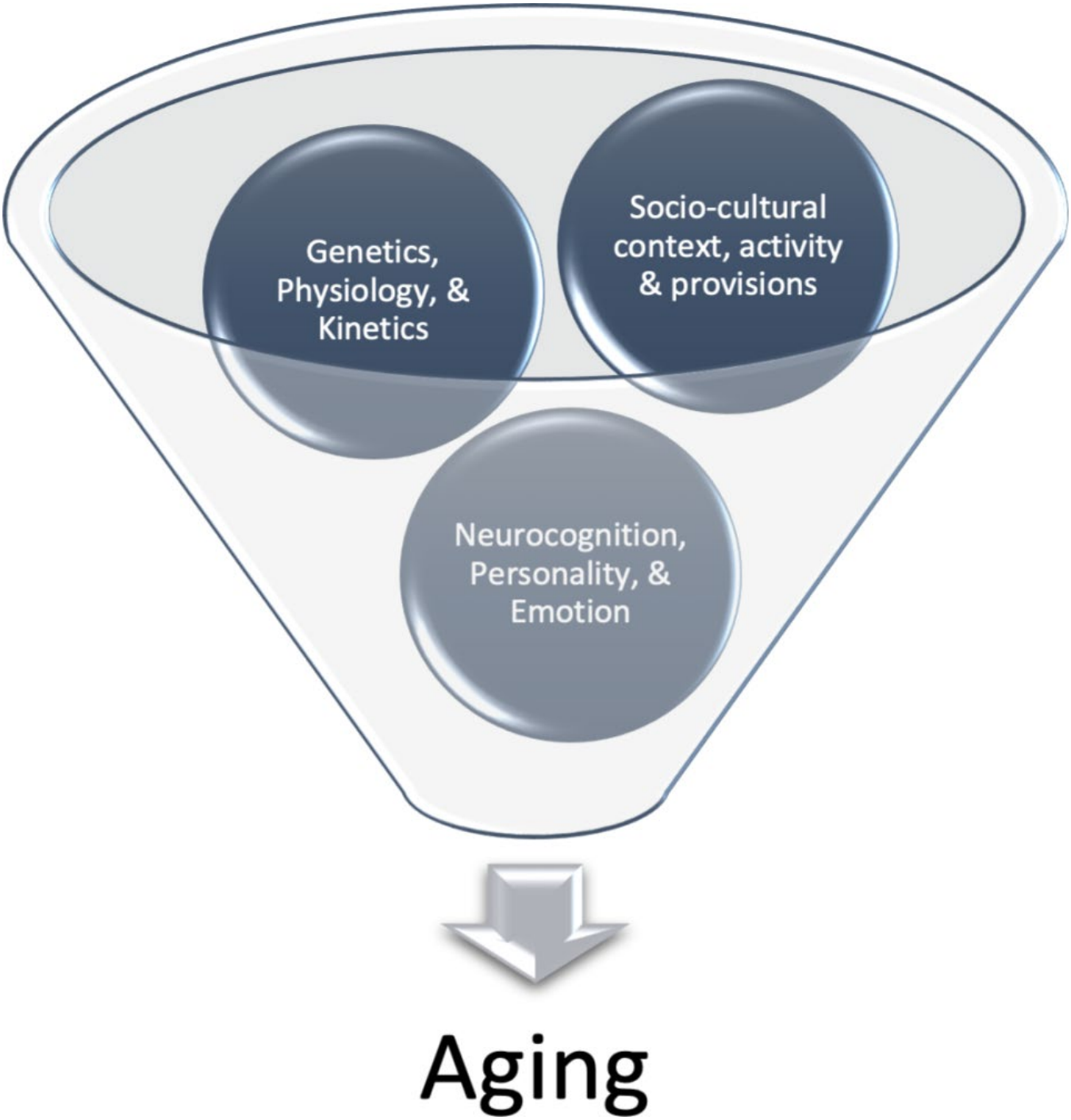


Figure 1.2 Biopsychosocial Perspective Model, by Dr. Alex Bishop is licensed CC BY-NC-SA 4.0

There are four ways humans are believed to age biologically, psychologically, and socially across the life-span. First, some persons age optimally. Optimal aging involves the capacity to function across many domains physically, mentally, and socially with limited to no interference from age-associated changes. Other persons encounter normative aging, or the ability to function despite the presence of anticipated or expected age-related change of slowing in one's biological, mental, or social functioning. Yet, humans may also experience secondary aging, or the capacity to adapt to encountering persistent or life-long pathologies impacting physical, mental, or social functioning. Finally, there are many persons

who encounter tertiary aging, or a sudden decrease or cessation of physical, mental, or social functioning near the end-of-life.

Lifespan versus Life-Expectancy

By now, you might be asking yourself what is the average or even maximum length of time a human beings could potentially survive under the most optimal or successful aging conditions? Research involving centenarians, persons who live 100-109 years of age, as well as super-centenarians, persons living 110+ years of age, have provided important clues into what types of variables, factors, and other conditions in the lifetime of the human species contribute to life-expectancy and the upper limits of life-span. However, it is important to distinguish between the terms life-span, maximum life-span, and life-expectancy. Life-span is best defined as the total number of years a member of a population or species normatively lives. Maximum life-span is the absolute total or longest number of years any member within a given population or species has ever lived. For instance, the grey wolf can live up to 17 years in captivity, the bald eagle up to 50 years, and the Aldabra tortoise over 150 years. Jonathan, the world's oldest tortoise, recently celebrated his 190th birthday. To date, the maximum recorded lifespan of a human was set by Jean Calment who died in 1994 at the age of 122 years, 5 months, and 14 days. No other human has lived this exceptionally long. Thus, documented and verified record shows that the limit of human life-span is around 122 years. This upper limit is considered to validate the Zugzwang Hypothesis (Rizvi, 2021). Zugzwang is a German word meaning "compulsion to move," and is used to describe a situation in the game of chess when a player is disadvantaged because all available moves are poor and will weaken any advantage the player may have against an opponent. Relative to maximum human life-span, the Zungzwan Hypothesis posits that any artificial attempt to manipulate or intervene to achieve a longer lifespan may disadvantage the human species and make further life-extension difficult or impossible. It is assumed that all possible mechanisms of natural selection and life extension has already been exhausted within the human species.

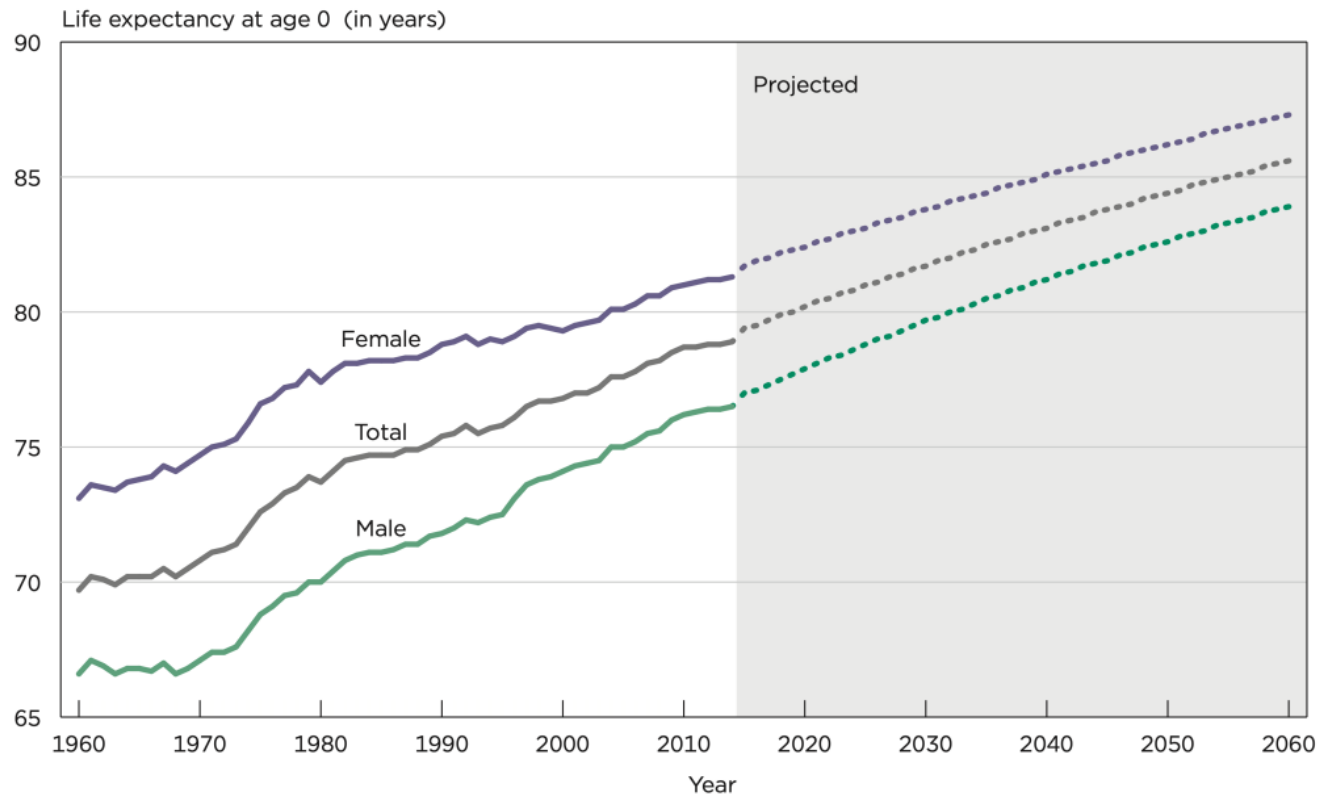
Meanwhile, life-expectancy is a statistical average based on the year of birth that a member in a population or species can expect to live. Given that life-expectancy is a statistical calculation adjusted for current as well as evolving lethal health and behavioral risks, it is important to note that half of all members of a population or species will reach their expected life-expectancy; whereas the other half will die before surviving to their calculated life-expectancy. For instance, life-expectancy at birth in 2021 in the United States was 76.4 years. Life-expectancy reflects a gender-gap in which life expectancy at birth in 2021 is greater among females (79.3 years) than males (73.5 years). It is important to note that COVID-19, among other conditions, negatively impacted and contributed to a decline in life-expectancy rates among persons born between 2020 and 2021. When it comes to race and ethnicity, non-Hispanic Asian females had the greatest life-expectancy at birth in 2020 (85.9 years); where as non-Hispanic American Indian or Alaskan Native males had the lowest life-expectancy rates (63.8 years). Regionally, life-expectancy rates at birth in 2020 were lowest in southern states. For instance, Mississippi is ranked as the lowest overall life-expectancy rate at birth in the United State at 71.9 years. Life-expectancy tends to be greatest in the Western United States. In fact, Hawaii has the highest life-expectancy rate at birth (80.7 years). How life-expectancy will continue to pan out across time during the post-COVID era has yet to be determined, but the impact is likely to continue in the immediate future.

Use Thomas Perl's Life Expectancy Calculator to see an estimate of your own life expectancy. (Note: This Calculator does require you to enter some personal data. The Calculator is optional and not required for successful understanding of the concepts covered in this chapter.)

Contemporary Worldviews on Life-Expectancy and Human Life-Span

The U.S. is an aging nation and will soon be considered "old." From 1900 to 2013, life-expectancy at birth rose more 30 years, while the overall death rate fell at a constant rate of around one percent per year.

Historical and Projected Life Expectancy for the Total U.S. Population at Birth: 1960–2060



Sources: U.S. Census Bureau, 2017 National Population Projections, 2015–2060, and National Center for Health Statistics Life Tables, 1960–2014, <www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_07-508.pdf>.

This monumental accomplishment was achieved through various advanced in public sanitation practices, medical advances and breakthroughs leading to immunization for lethal communicable, debilitating, and deadly diseases such as malaria, measles, polio, creation and implementation of dietary and exercise recommendations and programming, and public health legislation and policies. Despite, set-backs in life-expectancy during the COVID-19 pandemic, the U.S. Census Bureau recently announced anticipation of increased life expectancies among children born in the coming decades. In fact, the U.S. Census Bureau has projected that life-expectancy of babies born in 2060 will have increased by roughly six year from 79.7 years before the COVID-19 pandemic to 85.6 years in 2060. It is predicted that gains in life expectancy will be greatest among men than women. Yet, women will still continue to outlive men. Furthermore, projected life expectancy gains will also increase across all racial and ethnic groups with the greatest gains to be experienced among native-born men who are non-Hispanic Black alone and

non-Hispanic American Indian or Alaskan Native alone. (Living Longer: Historical and Projected Life Expectancy in the United States, 1960 to 2060)

Total Life Expectancy at Birth by Sex

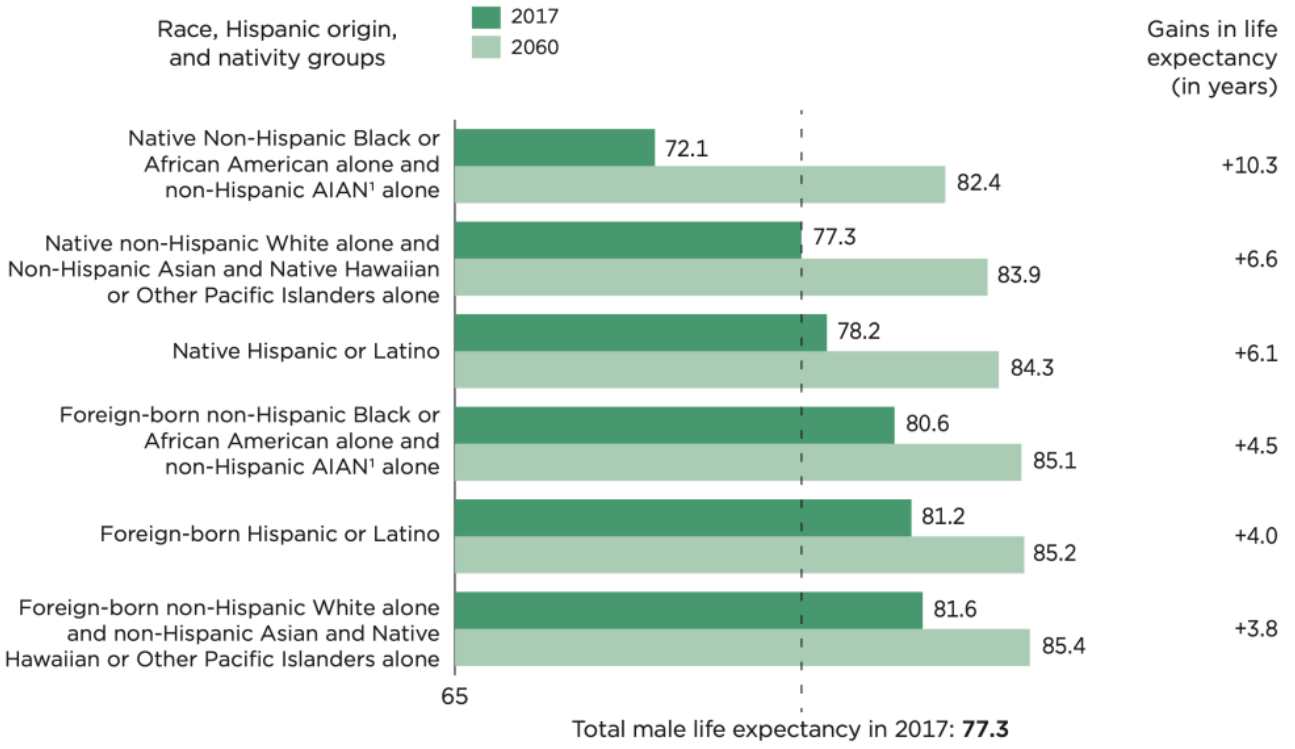
Sex	2017	2030	2060	Change in life expectancy, 2017 to 2060
Total	**79.7**	**81.7**	**85.6**	**5.9**
Males	77.3	79.7	83.9	6.6
Females	82.0	83.8	87.3	5.3

Source: U.S. Census Bureau, 2017 National Population Projections.

Total Life Expectancy at Birth by Sex by the U.S. Census Bureau is licensed Public Domain.

Male Life Expectancy at Birth: 2017 and 2060

(In years)



¹ American Indian and Alaska Native (AIAN).
Note: Native-born, non-Hispanic Black alone males and native-born, non-Hispanic American Indian or Alaska Native males have the lowest life expectancies at birth but are projected to have the largest gains in life expectancy between 2017 and 2060.
Source: U.S. Census Bureau, 2017 National Population Projections.

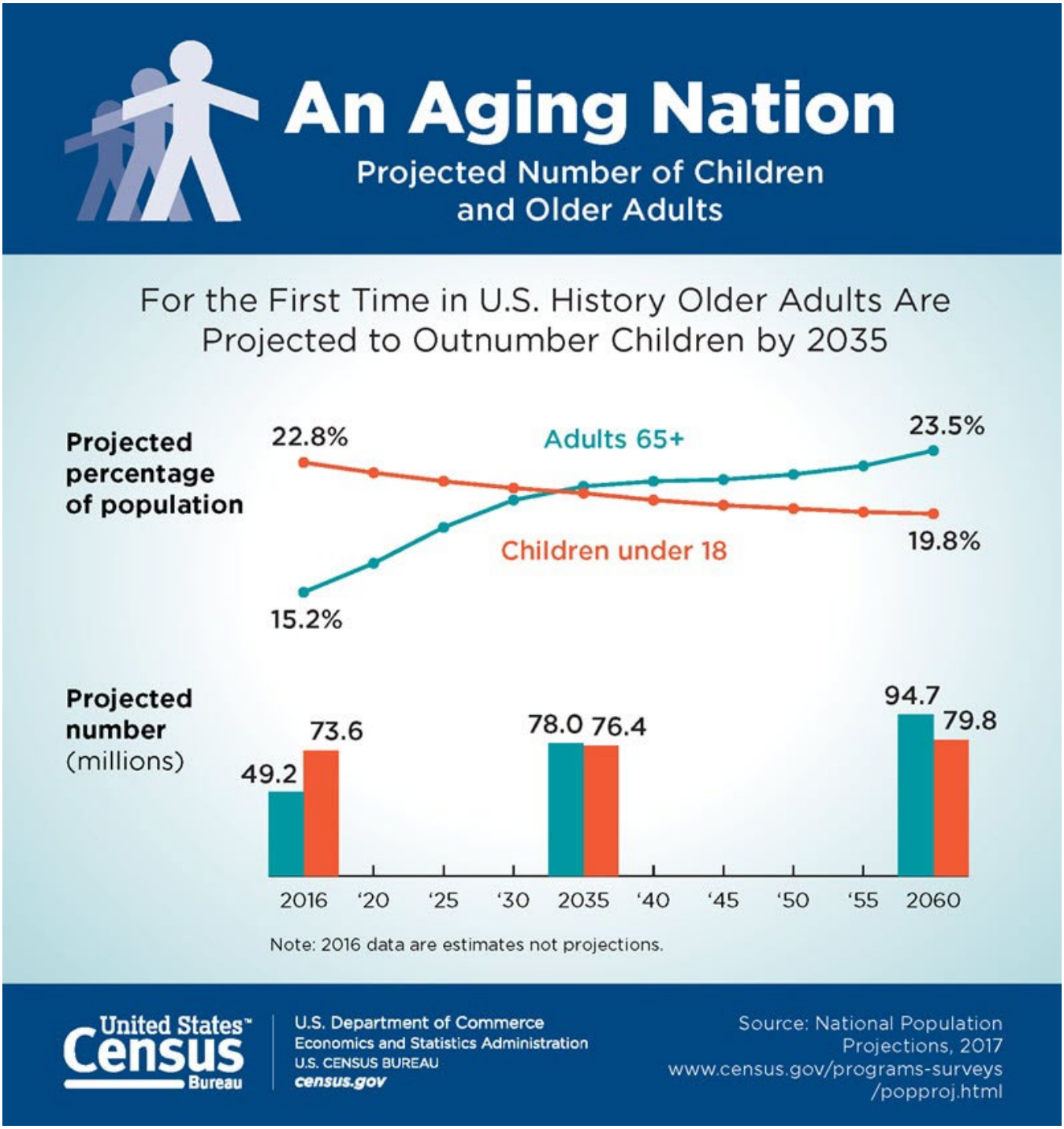
Male Life Expectancy at Birth: 2017 and 2060 by the U.S. Census Bureau is licensed Public Domain.

Historical and contemporary increases in life-expectancy have contribute to an evolution of three contemporary worldviews regarding human aging and life-expectancy. First, there are many who are "futurists." Such experts tend to believe that human aging is something that can be cured and eradicated. The futurist perspective acknowledges that science is on the cusp of a major medical or technological discovery and breakthrough involving cellular, molecular, and metabolic processes that control the rate of aging. Such biological controls mean that humans may one day be able to eat, drink, and do to their bodies what they desire; primarily due to the fact that advanced biomedical interventions will be used repair and rejuvenate what once was considered irreparable age-associated deterioration and damage to bodily organs and tissues.

Futurists, such as Aubrey de Grey (2008) and David Sinclair (2019) have boldly predicted and claimed that history will soon witness the first human beings to live 500-1,000 years within this century. A second worldview of aging is the optimist perspective. Optimists propose that the human life-span is not fixed but rather a function of life-expectancy and population size. Optimists, such as James Vaupel and Bernard Jeune (1999), have suggested that a proportional majority of all humans living within industrialized societies today are benefiting from accessibility to biopsychosocial resources and interventions; a necessary condition that helps delay or offset mortality risks and makes survival to 90 to 100 years with or without disease highly probable. A third contemporary view on human aging is the realist perspective. Realists agree that humans have the underlying potential to live beyond the normative limits of life-expectancy, yet the inability to find a real cure and eradicate leading causes of death including heart disease, cancer, or Alzheimer's represents a limitation. Therefore, realists like Jay Olshansky and Bruce Carnes (2009) have claimed that the status quo of aging and longevity means that human life-expectancy now and into the future will not exceed 85 years. Realists advocate for producing a longevity dividend which involves greater investment in evidence-based research and education, as well as cost-effective initiatives, preventions, and policies that help off-set and delay onset and progression of age-associated disease and disablement while extending the human health-span or the number of quality-of-life-days persons can expect to live until probable time of death absent of chronic, disabling, or lethal conditions. When it comes to human aging what are you: a futurist, optimist, or realist? Perhaps, only time will tell.

Socio-demographic Realities of Aging

In the early 1990s, Ken Dychtwald and Joe Flower published one of the most provocative and comprehensive overviews on demographic aging in the United States. The title of this book was, Age Wave: The Challenges and Opportunities of an Aging America. Borrowing from Paul Revere's famous midnight ride during the revolutionary war, the author's prospective message was quit simple: "The Boomers are coming." At the time, the Baby Boom Generation or persons born between 1946 to 1964, were roughly 26 to 24 years of age and numbered and estimated 80 million. Nearly three decades later, the Baby Boomers are still here, but this time they are demographically and significantly contributing to the aging of the United States' populace. Over the next decade, the United States will reach a major milestone in human aging. For the first time in U. S. history, older adults will outnumber children. In fact, the U.S. Census has predicted that persons aged 65 and older are expected to number approximately 77 million, whereas children under age 18 are projected to number 76.7 million.



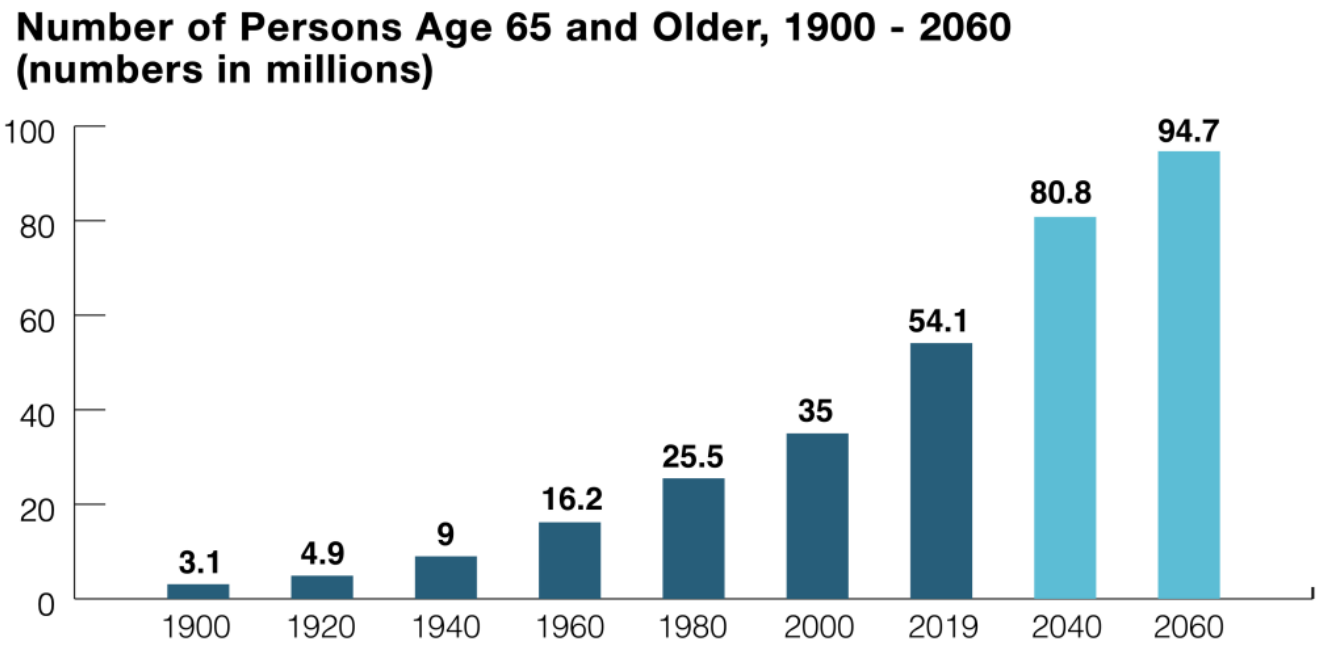
An Aging Nation: Projected number of children and older adults by U.S. Census Bureau. Public Domain.

Age Demographics

There are several factors contributing to this forthcoming demographic shift. However, three primary reasons for this demographic shift include that fact that:

1. First and foremost, all members of the Baby Boom Generation (persons born between 1946-1964) will have officially reached age 65 before 2030.
2. Fertility and birth rates have continued to decline since 2016, including a significant one-year drop in births during the height of the COVID-19 pandemic in 2021.
3. Notable decrease in life-expectancy rates birth cohorts beginning in 2015 largely due to increased population mortality due unintentional injuries, drug overdoses, homicides, and suicides. It is important to note that that aftermath of the COVID-19 pandemic will likely have no impact on this shifting future age demographics in the United States. The Centers of Disease Control (CDC, 2022) has reported that 81% of all reported COVID-19 deaths at the height of the pandemic in 2020 occurred among persons aged 65 and older, this death rate was 2.8 times great for older adults aged 85 and older and well-over half or 67.8% all COVID-19 deaths among those aged 65 and older occurred within nursing homes or long-term care facilities. Thus, COVID-19 demographically impacted the very old and medically frail in society more pervasively than the young and old alike, who were more abled-bodied and physically robust enough to overcome the threat of illness.

Social demographers and gerontologists commonly classify and divide older adults into three age groups: young-old (persons aged 65-74); old (persons aged 75-84); and the old-old (persons aged 85+). In the United States, an estimated 55.7 million persons are aged 65+ and account for 17% of the population. This proportion is expected to increase to 22% by 2040. Since 1900, the older adult population itself has become increasingly older across all age categories in the United States: 65-74 (32.5 million; 14 times more than 1900); 75-84 (16.5 million; 21 times more than 1900) and; 85+ (6.7 million; 54 times more than in 1900). The 85+ population represents one of the fastest growing age demographics in the United States and is expected to double from 6.7 million persons in 2020 to 14.4 million. This represents a 117% increase. Just under 105,000 of these persons are designated as centenarians, or persons age 100 or older, a number which has tripled since 1980 and is expected to also increase in the coming years. The dramatic increase in the number of older adults living in the due in large part to the aging of baby boomers. Over half of the baby boom generation is now 65 and older. From 2010 to 2020, the number of older adults increased from 40.5 million to 55.7 million – a 38% increase. By 2040, it is projected that there will be 80.8 million older adults, aged 65 and older. This is more than twice the number of person 65 years of age and older who were alive at the turn of the century in 2000. Approximately 1 in 10 people over aged 65 live in poverty.



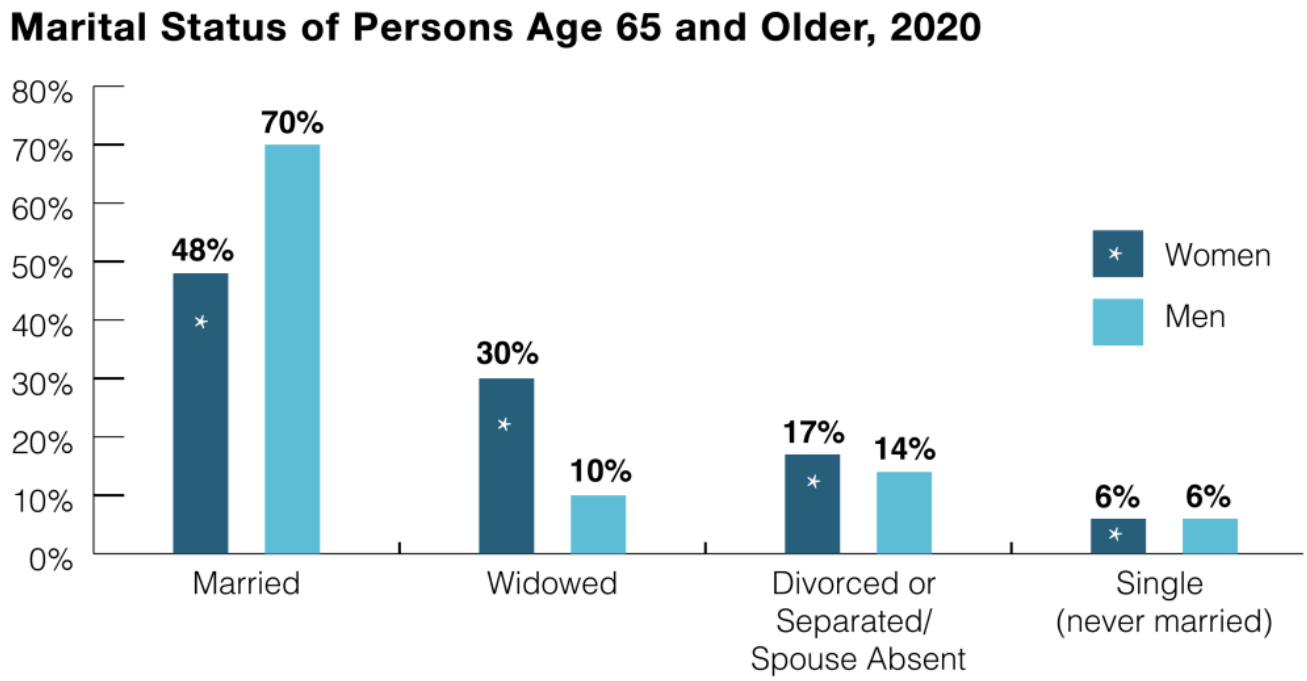
Note: Increments in years are uneven. Lighter bars (2040 and 2060) indicate projections.

Source: U.S. Census Bureau, Population Estimates and Projections

Number of persons age 65 and older, 1900-2060, by the Administration for Community Living is licensed Public Domain.

Sex/Gender Demographics

Older women, age 65 and older, significantly outnumber older men. In 2020, there were 30.8 million older women compared to 24.8 million men over the age of 65. This translates into 124 women for every 100 men. Among persons 85 years of age and older, this ratio increases from 176 women for every 100 men. However, a much larger proportion of older men (69%) are married compared to women (47%). Approximately one-third of all older women over age 65 are widowed and age alone. There are nearly three times the number of widows compared to widowers. Relative to economic disparity, older women maintain a higher poverty rate (10.1%) compared to older men (7.6%). Less than 1% of older Americans identify themselves as LBGTQ. However, this proportion is expected to rise in the future.

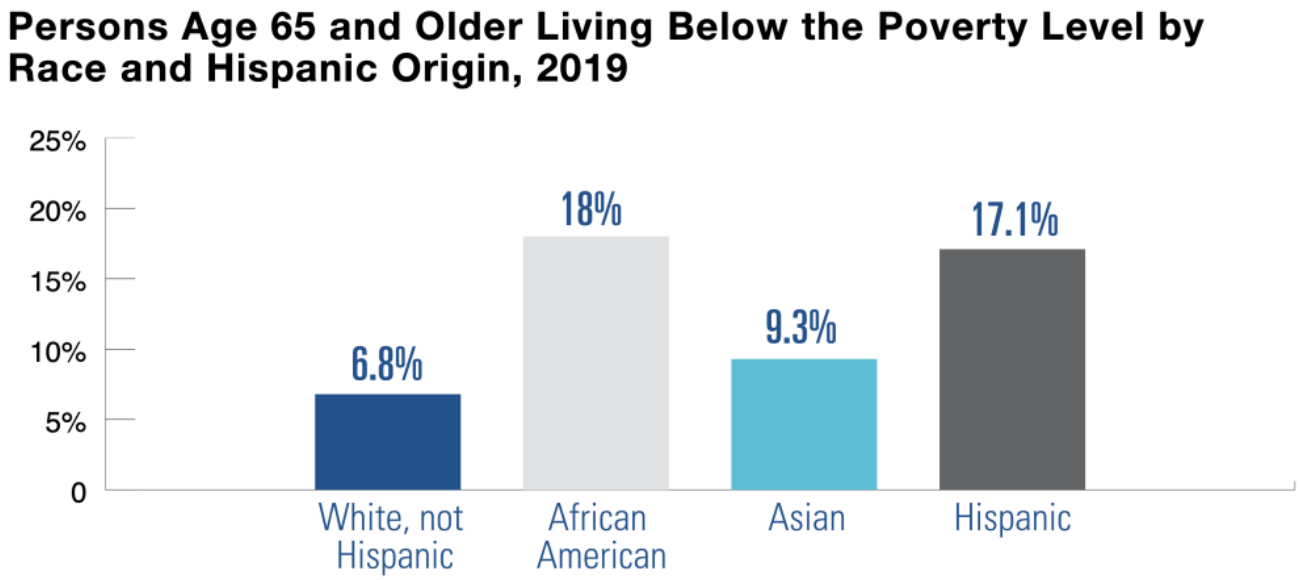


Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement

Marital Status of Persons Age 65 and Older, 2020, by the Administration for Community Living is licensed Public Domain.

Racial/Ethnic Demographics

The older adult population is increasingly becoming more racially and ethnically diverse. Nearly 1 in 4 or 25% of all older adults are currently members of a racial or ethnic minority population. Between 2020 and 2040, the White (non-Hispanic) population over age 65 is expected to increase by 26% compared to 105% for older racial and ethnic minority population. In fact, Hispanic non-White older adults age 65 and older are projected to have the largest proportion increase at 158%, followed by Asian-Americans (93%), Black/African-Americans (73%), and American Indian/Alaskan Native (58%). Across racial/ethnic groups, a greater proportion of African-American/Black older Americans (17.2%) and Non-White Hispanics (16.6%) tend live below the poverty level. The highest poverty rates are experienced among older non-White Hispanic women who live alone (35.6%).

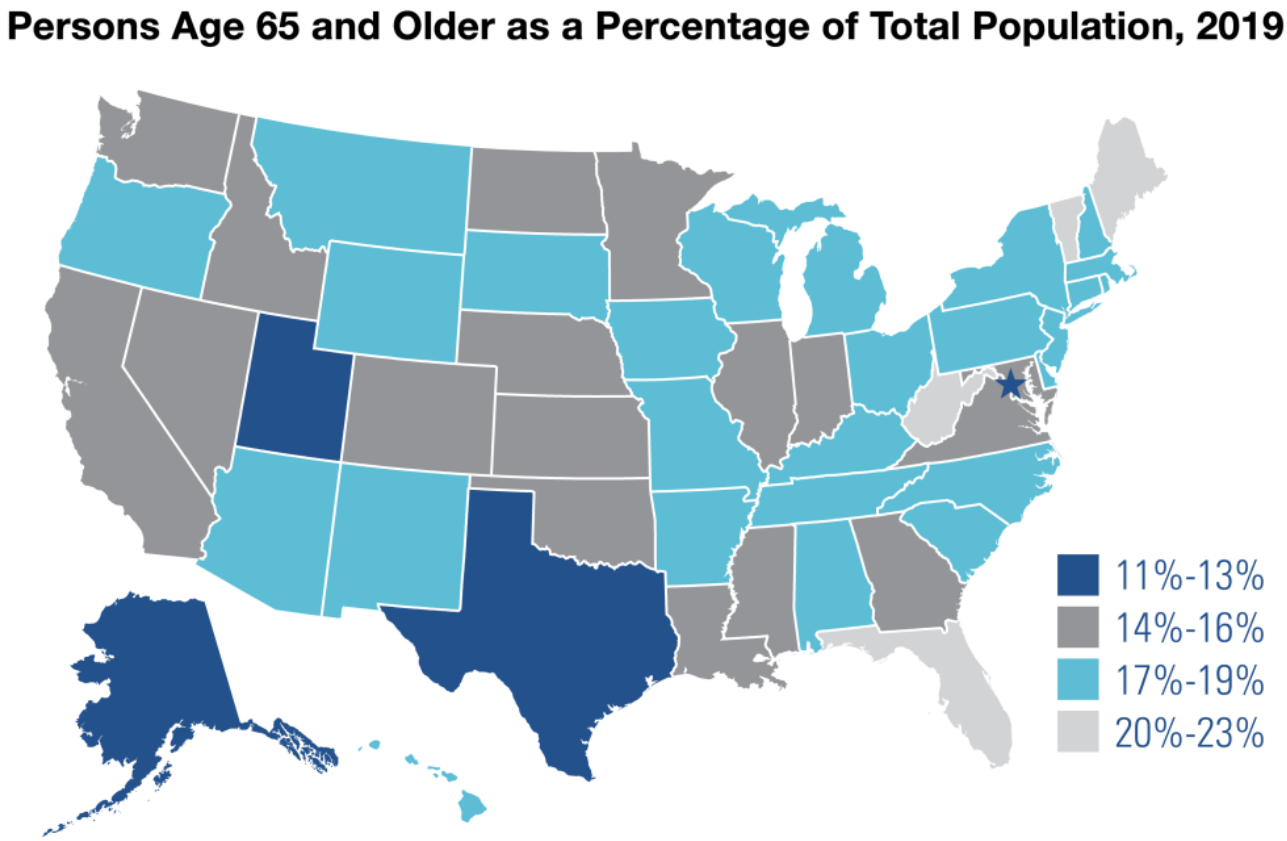


Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement

Persons Age 65 and Older Living Below the Poverty Level by Race and Hispanic Origin, 2019, by the Administration for Community Living is licensed Public Domain.

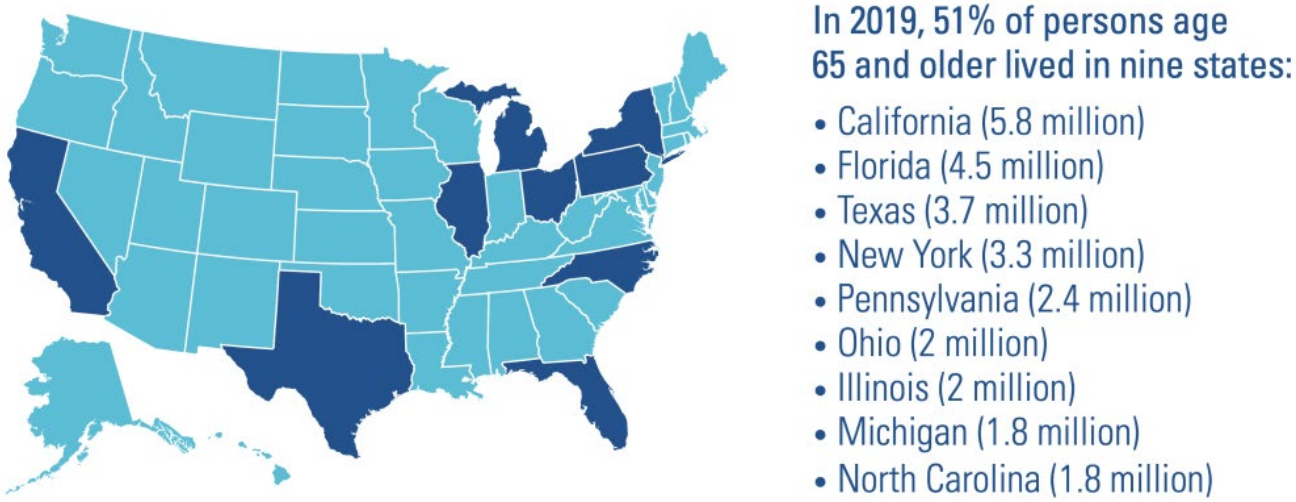
Living Arrangements

Just over half of 51% of Americans age 65 and older lived in nine states. In fact, the four states with the highest proportion of older adults, aged 65 and older, include Maine (22%), Florida (21%), West Virginia (21%), and Vermont (21%).



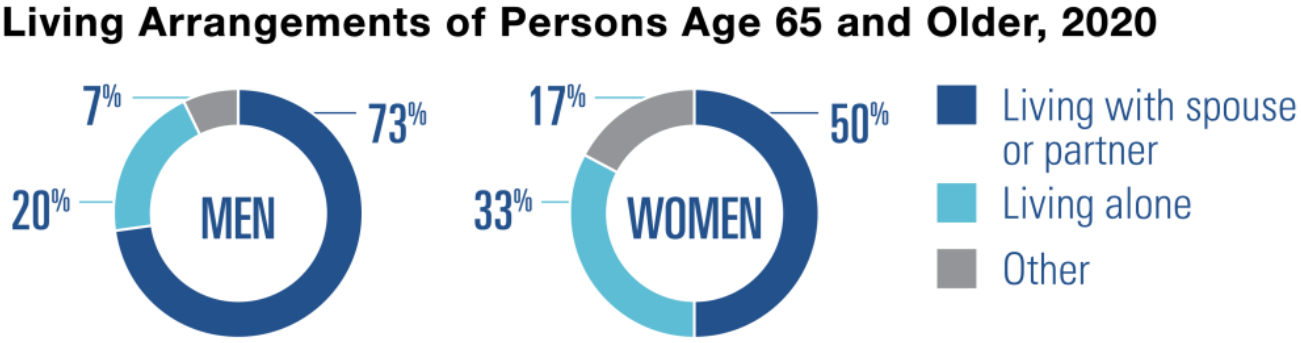
Source: U.S. Census Bureau, Population Estimates

Well-over half (60%) of all older adults live with their spouse or partner in private community-dwellings. Approximately 27% of these older adults reside alone at-home. This proportion increases with age for both men and women. For instance, an estimated 43% of women aged 75 and older live alone. It is important to note that a relatively small proportion of older adult live in nursing homes. However, the percentage of those who do reside in nursing homes is increases with age and ranges from 1% for persons 65-74, 2% for persons 75-84 years of age, and 8% for persons age 85 and older.

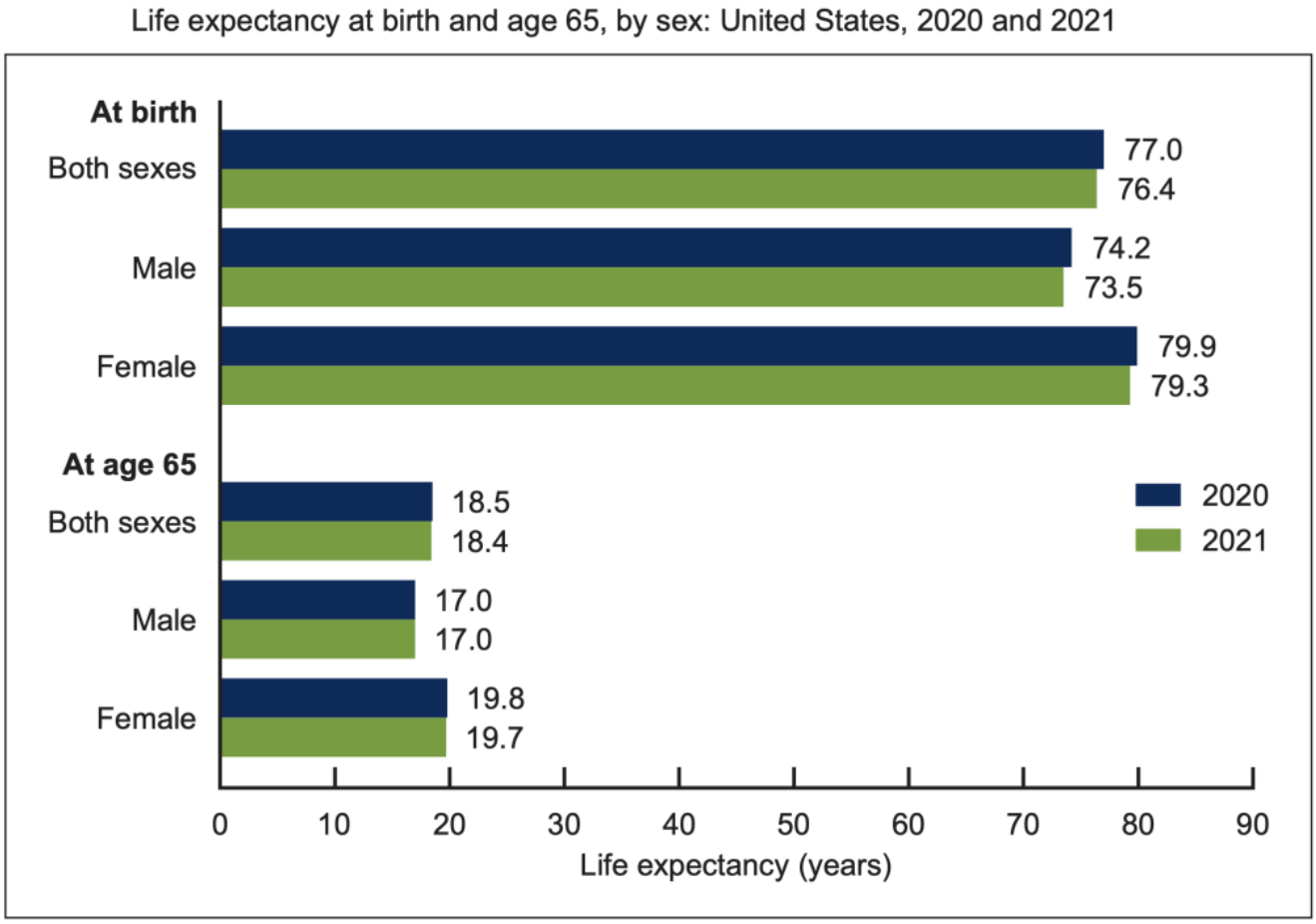


51 Percent of Persons Age 65 and Older, by the Administration for Community Living is licensed Public Domain.

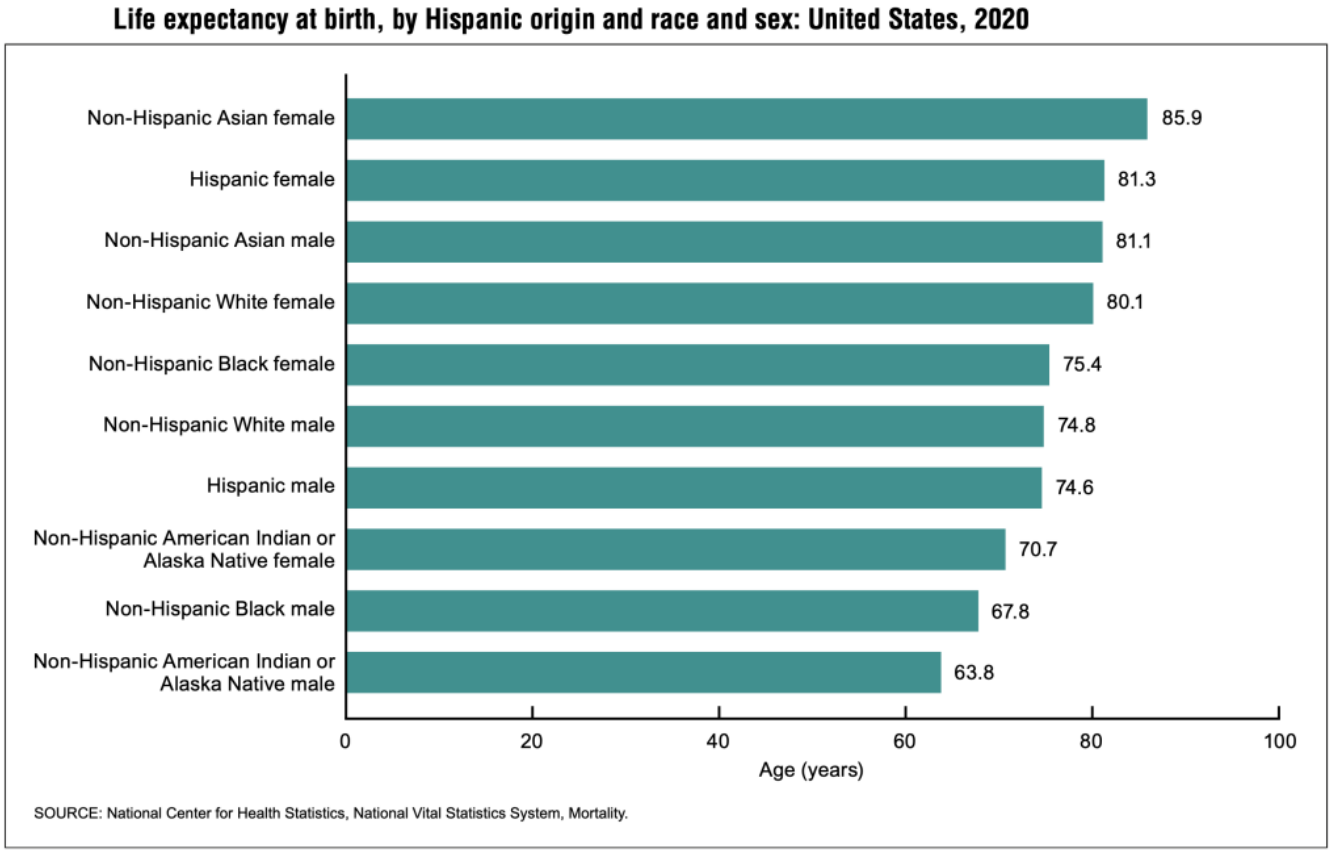
It is important to note that older adult typically age-in-place and do not change living arrangements as often as younger age groups. Over half of all older adults who do move (55%) usually relocate within the same county, another 21% relocate within the same state, and another 24% either move out-of-state or abroad.



Living Arrangements of Persons 65 and Older, 2020, by the Administration for Community Living. Public Domain.



NOTE: Access data table for Figure at: https://www.cdc.gov/nchs/data/databriefs/db456-tables.pdf#1.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.



Life Expectancy at Birth by Hispanic Origin and Race and Sex, United States, 2020, by the U.S. Department of Health and Human Services is licensed Public Domain.

Socioeconomic Demographics

The evidence is clear. Aging is a demographic reality poised to impact persons of regardless of age, sex/gender, racial or ethnic background, or place. In the coming decades, there will be ample opportunity to educate and provide aging individuals, families, and care providers with advice, counsel, and strategies for aging successfully. Based on projected demographic evidence, will age demographics be a little too demanding to handle and efforts to promote successful aging a little too late? This is a question which is hoped can be answered in the coming sections and chapters of this book.

Key Takeaways

The most important points from Chapter 1: Introduction include...

- Aging affects everyone. It is a continuum of short- and long-term developmental change and stability, and among populations of individuals.
- There are many forms of aging, such as Biological Age, Psychological Age, and Social Age.
- People age uniquely depending on where, when, and with whom they live, opportunity for social activity, engagement, and leisure, and accessibility to family and community resources and other social provisions.

- The United States will soon have more older adults than children–a phenomenon that has never occurred in this country before. This will dramatically impact many aspects of our society including healthcare, living arrangements, poverty, and more.

References

De Grey, A. D. N. J., & Rae, M. (2008). *Ending aging: The rejuvenation breakthroughs that could reverse human aging in our lifetime*. St. Martin's Griffin.

Dychtwald, K., & Flower, J. (1990). *Age wave: The challenges and opportunities of an aging America*. Bantam Books.

Olshansky, S. Jay, and Bruce A. Carnes. "The Future of Human Longevity." *International Handbook of Population Aging*, edited by Peter Uhlenberg, Springer Netherlands, 2009, pp. 731–45. https://doi.org/10.1007/978-1-4020-8356-3_33.

Jeune, B., & Vaupel, J. W. (Eds.). (1999). *Validation of exceptional longevity*. Odense University Press.

Lally, M., & Valentine-French, S. (2019). Lifespan Development: A Psychological Perspective – Second Edition

Rizvi, S. I. (2021). The zugzwang hypothesis: Why human lifespan cannot be increased. *Gerontology*, *67*(6), 705–707. https://doi.org/10.1159/000514861

Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist*, *37*(4), 433–440. https://doi.org/10.1093/geront/37.4.433

Sinclair, D. A., & LaPlante, M. D. (2019). *Lifespan: The revolutionary science of why we age–and why we don't have to*(First Atria Books hardcover edition). Atria Books.

SUCCESSFUL AGING

Chapter 2: Principles of Aging and Biological Theories of Aging

Learning Objectives

By the end of this chapter, students should know, learn, or be able to do the following…

- **Differentiate Gerontology and Geriatrics:** Compare and contrast the fields of Gerontology and Geriatrics, elucidating their respective scopes, objectives, and contributions to the study of human development and aging processes across varying populations.
- **Deconstruct Gerontological and Geriatric Dualisms:** Evaluate and deconstruct prevalent dualisms within gerontological and geriatric science, analyzing their implications for theorizing, research, translation, and applied practice in aging and developmental science,
- **Critique Biological Theories of Aging Categories:** Analyze and critically appraise the two primary categories of biological theories of aging—Programmed and Random Error—by examining their underlying mechanisms, strengths, limitations, and implications for understanding the aging process.
- **Synthesize Aging Principles from Biological and Genetic Perspectives:** Synthesize the fundamental principles underpinning the aging process, integrating insights from biological and genetic perspectives, and assess how these principles contribute to the overall comprehension of aging mechanisms in biological development.

Chapter Outline

Gerontology and Geriatrics

There are two traditional disciplines focused on advancing the conceptualization, theoretical understanding, and empirical examination of successful aging in human development. These two disciplines include gerontology and geriatrics. Despite the fact that these two disciplines are commonly and interchangeably referenced as one in the same across many scientific domains and applied settings, each are independent disciplines which uniquely adhere to specific philosophical, conceptual, and theoretical viewpoints surrounding of human aging. Gerontology involves the multidisciplinary study of psychological, social, and cultural processes and functioning in old age. Many gerontologist traditionally adhere to a psychosocial model of aging, a theoretically approach emphasizing developmental change and stability in underlying social, emotional, and cognitive patterns of behavior, historical and recent patterns of continuity and discontinuity connected to one's lived experiences and life-long aspirations, goals, and decision-making, and socio-cultural interactions and resources that allow aging individuals and populations to adapt and sustain a healthy standard of living and performance, as well as maintain positive quality-of-life throughout later adulthood and near the end-of-life.

Gerontologists are experts trained to implement holistic and human-centered services and programs designed and tailored for individuals and populations, aged 50 and older, across the second-half of life. Such experts translate theory into clinical social work and case management, deliver educational curriculum at institutions of higher learning as well as within adult and life-long learning programs, design age-friendly living environments, and implement and administrate local, state, and federal agencies and services across a variety of long-term and medical care, behavioral mental health, and social and community settings. Meanwhile, geriatrics entails the study of human genetics and biology relative to the diagnosis, treatment, and care individuals and populations challenged by acute and chronic disablement and disease in old age and near the end-of-life. Geriatrics is commonly grounded in the medical model, a theoretically-evolved perspective of aging as a health condition or disease that can be medically diagnosed, treated, and cured. Geriatricians are often recognized as medically specialized practitioners including but not limited to physicians, nurses, psychiatrists, physical and occupational therapists, and dieticians. Such experts are trained to provide specialized or skills-based medical care within the home health care, assisted-living, and long-term care industry, as well as in-patient and outpatient medical centers such as a hospital, urgent care clinic, or community health clinic.

Although gerontology and geriatrics are independent and distinct scientific areas of inquiry, there is an interchangeable link between the two disciplines when it comes to the advancements in theorizing and theory-building on the topic of successful aging. This had entailed reliance on a four-tiered approach including (see **Figure 2.1**):

1. **Monodisciplinary** or reliance upon one type or branch within a discipline in order to identify, define, and theorizing about a basic problem
2. **Multidisciplinary**, or the practice of correspondingly borrowing and applying interchangeable theoretical conceptualizations from a variety of closely-related disciplines to address and solve a problem
3. **Interdisciplinary** or the reliance and use of expertise from specialized disciplines to shift traditional theoretical models of understanding in ways that result in a conceptual redefinition or new theoretical approach of how to more accurately address or resolve a persistent problem and
4. **Transdisciplinary** or mutual cross-blending of disciplinary thinking beyond academic specializations and into applied practice spaces usually involving community aging service providers or stakeholder partners seeking to solve complex social issues that may be too difficult to resolve without the cross-fertilization of academic and applied practice paradigms, concepts, or theory-based models.

Theoretical advancements across these four tiers has contributed to a contemporary blending of gerontology and geriatrics into a gerontology-geriatric link in theorizing and theory-building to understand how bioloical, psychological, and socio-cultural forces shape human aging and development. Two recent examples include the rise and development of comparative animal-human theoretical models to better understand genetic, behavioral, and environmental factors essential to supporting healthy and active aging (McCune & Promislow, 2021; Mitchell et al. 2015), as well as theoretical development surrounding human-machine learning to monitor and improve physical, cognitive, and social functioning and health of older adults (Speiser et al., 2021). The gerontology-geriatric collaboration in science is likely become more prominent within aging research and theory-building in order to achieve common ground and agreement surrounding how best to address theoretical dualities in human aging and development, as well as the advance and align paradigmatic thinking and theories with respect to contemporary biological, psychological and social states and traits essential for reducing vulnerability and increasing success in aging and development outcomes.

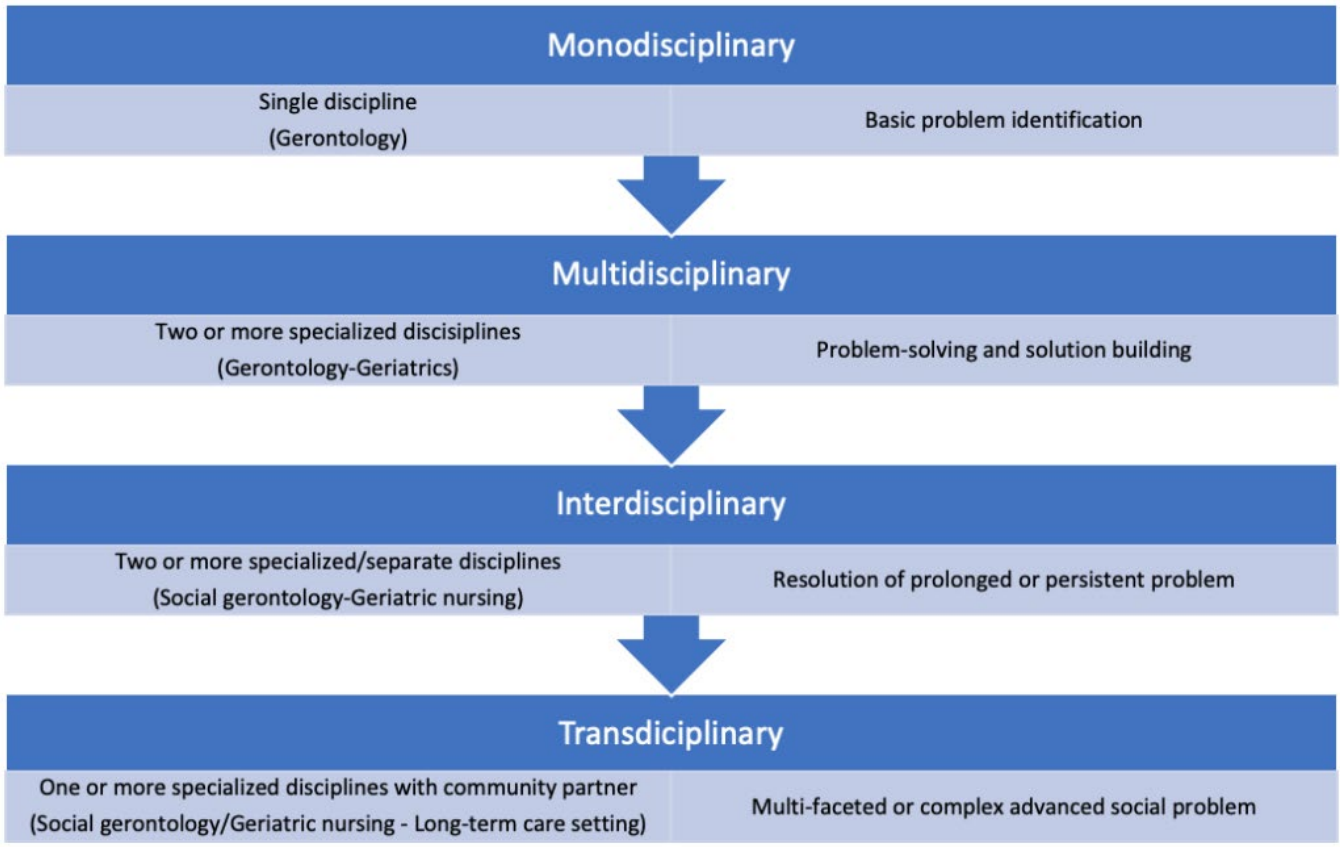


Figure 2.1 Four-Tiered Approach to Gerontology-Geriatric Theorizing by Dr. Alex Bishop is licensed CC BY-NC-SA 4.0

Theoretical Dualities of Studying Human Aging & Development

Many gerontology and geriatric experts seek to clarify the dualisms of growing old using theory. A dualism refers to two or more opposable and different principles that tend to work harmoniously together as much as they contribute to conflict of divergence in understanding a particular phenomenon. Some of the more common dualisms within gerontological and geriatric science include:

Nature vs. Nurture

Why do we age the way we do? Think about some of your physical features (e.g., height, weight, hearing/vision) and personal traits (e.g., emotion, personality, intellect). Do you ever ask yourself whether these features are a result of heredity or due to environmental factors; or perhaps a combination of both. You have likely observed the ways in which both heredity and environmental factors, such as lifestyle, diet, and other influences, have contributed to making you the way you are. For decades, developmentalists have continued to ask: Is aging and human development due to "nature or nurture." Those who argue in favor of nature believe that genetics and heredity play the most essential role in human aging and development. Those who debate in support of nurture argue that environment provides

the greatest influence in shaping the way we age and develop. The debate over the nature vs. nurture dualism will likely continue across aspects of inquiry into human development, yet most scholars tend to agree that there is a constant interplay between the two forces that seem to contribute significantly to the ways that human age and mature across time. Therefore, the root of any single human behavior or developmental outcome as a result solely due to nature or nurture remains inclusive.

Continuity vs. Discontinuity

Is human development best characterized as a slow and gradual process unfolding across time, or is it best viewed as one consisting of ages, stages, or developmental periods that bring about more abrupt change? The answer to that question often depends on which developmental theorist you might ask and what topic is being studied. Classical developmental theories such as those created by Freud, Erikson, and Piaget are referred to as stage theories, or the theoretical notion that human development and aging processes occur through universally distinct and sequential stages that are qualitatively different from one another. At each respective stage of development, humans express different qualities and characteristics, as well as fulfill certain age or period appropriate developmental tasks or milestones. In other words, stage theorists assume development is more discontinuous. However, developmental theories advanced by Vygotsky and information processing experts, coincide with continuous theories, or the assumption that human aging and development is a more slow and gradual process. For instance, such theorists would view adults as not possessing new skills; rather as person age over time they advanced skills and abilities that were already present in some form when they were a young child. Such experts would also contend that contextual and environmental experiences contribute to the acquisition, advancement, or adaptation of skills and abilities necessary for maturation.

Active vs. Passive

How much do you play a role in your own aging and developmental path? Are you at the beckoning mercy 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. In this regard, humans possess agency, or the ability to make decisions and choices in order to fulfill aims and goals throughout life. Those favoring an active form of development view the human as agents of change. Classic developmentalists, such as Piaget, maintained the philosophy that human beings actively explore their world at a young age and construct new ways of thinking to explain the things they experience later in life. In contrast, many behaviorists such as Erikson maintained view of that that human interactions within the social environment were somewhat more essential to the developmental process. To this regard, humans are believed to be passive recipients of the environmental contexts in which they interact. Thus, the environment motivates and shapes human actions rather above and beyond the human agent alone.

Disease vs. Process

Is human aging a disease or a process? Some theorists view aging as a disease, or something that can ultimately be diagnosed, treated, and cured. Modern-day theorists, such as Aubrey DeGrey and David Sinclair believe that aging is ultimately reversible. In other words, some experts believe common chronic and lethal disease arising with age, such as heart disease, cancer, and dementia just to name a

few can be stopped with the proper detection and intervention. Yet, other experts such as Jay Olshansky and Bruce Carnes have noted that aging is a process and cannot be stopped without the complete absence of disease. Therefore, human must learn to adjust and adapt by engaging in preventative measures that help delay or slow outcomes of aging in order to increase the number of quality days one lives.

Disengagement vs. Activity

Do humans desire more time to be alone in old age to process and find meaning the happenings of life, or would they rather remain socially engaged in the present. Cumming and Henry (1961) originally proposed that human beings prefer to disengage from their traditional roles in society as they reach advanced older age. Such behavior is believed beneficial to the individual who desires more time to appraise the meaning of life; as well as to the younger or next generation of society who seeks to new opportunity and advancement in roles once held by those who were older. However, Neugarten asserted (1964) that contentment in old age largely depends on active maintenance of forging on-going and new personal relationships, as well as engaging in the fulfillment of new social roles and endeavors which one enjoys or did not previously have the opportunity in which to engage during the early and middle years of life.

Mind vs. Body

Is aging and human development a matter of mind over matter? There is growing interest evolving from the world of neuroscience to better understand the interconnection between the aging mind versus the aging body. While some experts follow a more reductionistic approach via identification of specific genes, nerve pathways, imaging and or structural brand damage connected to decrements in one's ability to walk, maintain balance, or react to environmental stimuli; others seek a more holistic explanation relative to pinpointing the interconnection between brain activity and performance of everyday activities of daily living, brain fitness activities and risk of dementia, and mindfulness practices (meditation, spirituality) and body awareness in time and space.

Causation vs. Association

How much of our development as humans is due to age versus something else? Of primary concern is understanding to what extent developmental outcomes are due to largely to age or being old. In other words, is age the cause and determinant of one's physical and functional health, cognitive status and memory, or social preferences and relationships. Of additional interest is understanding to what extent developmental outcomes might be due variables beyond human aging. For instance, some experts commonly inquire as to what extent human development is less about growing old and more about other variables such as family heredity of genetics, biological sex, race/ethnicity, gender identity, education, geographic context, and other ecological factors that might come into play.

Paradigm	Source	Causation	Process	Analysis	Premise
Organismic	Organism	Cells	Universal	Reductionistic	Programmed
		Genetics			Random
		Environment			
Mechanistic	Social	Environment	Discontinuous	Additive	Social
		Genetics			Cognitive
					Psychological
Contextual	Ecological	Genetics	Continuous	Interactive	Life-History
		Environment			Life-Span
		Socio-historical			Life-Course

Three Theoretical Paradigms of Aging and Human Development

There are three prominent paradigms, or "worldviews of how phenomenon operate," that guide how aging and developmental science experts develop theory for scientific inquiry (see Table 2 summary).

It is not unusual to find gerontological or geriatric experts relying on one or a combination of three perspectives to understand and explain age-related phenomenon that contribute to success in biological, psychological, and social development. Those who promote an organismic paradigm are often interested in studying the biology of the human organism relative to cellular and molecular functioning, genetics, and environmental exposures. A key assumption of this paradigmatic thinking is that human aging and development is a universal process that can be reduced to one analytical explanation linked to programmatic or random process as the human organism ages within their respective environment. Aging and developmental theorists following a mechanistic paradigm tend to focus less on the organism and emphasize the social environment as having a significant impact on aging and human development outcomes. Such experts are often interested in understanding how human interactions within the social environment contribute additive differences and similarities in maturational abilities and psychological outcomes across various age and stages of life. Of additional interest is understanding discontinuous processes or age-development stage human experiences and behaviors within social environments is interconnected with genetic expression as observed through psychological (e.g., identity/personality, positive/negative emotion, intellect and learning, or wisdom), as well as social (e.g., romance and marriage, friendship, generativity) outcomes. A final foundational paradigm concerns the broader context. Aging and developmental theorists who endorse the contextual paradigm consider humans as living organisms embedded within the ecology of the social environment, which serve as a dynamic and interactive gateway by which genes are expressed, environments influence behavior, and individuals and populations uniquely respond and cope to socio-historical experiences within the cultural context or system. Based on the contextual paradigm, it is assumed that aging and development is continuously altered for better or worse by human biology, psychological risk and resilience, and socio-historical timing.

Biological Theories of Aging

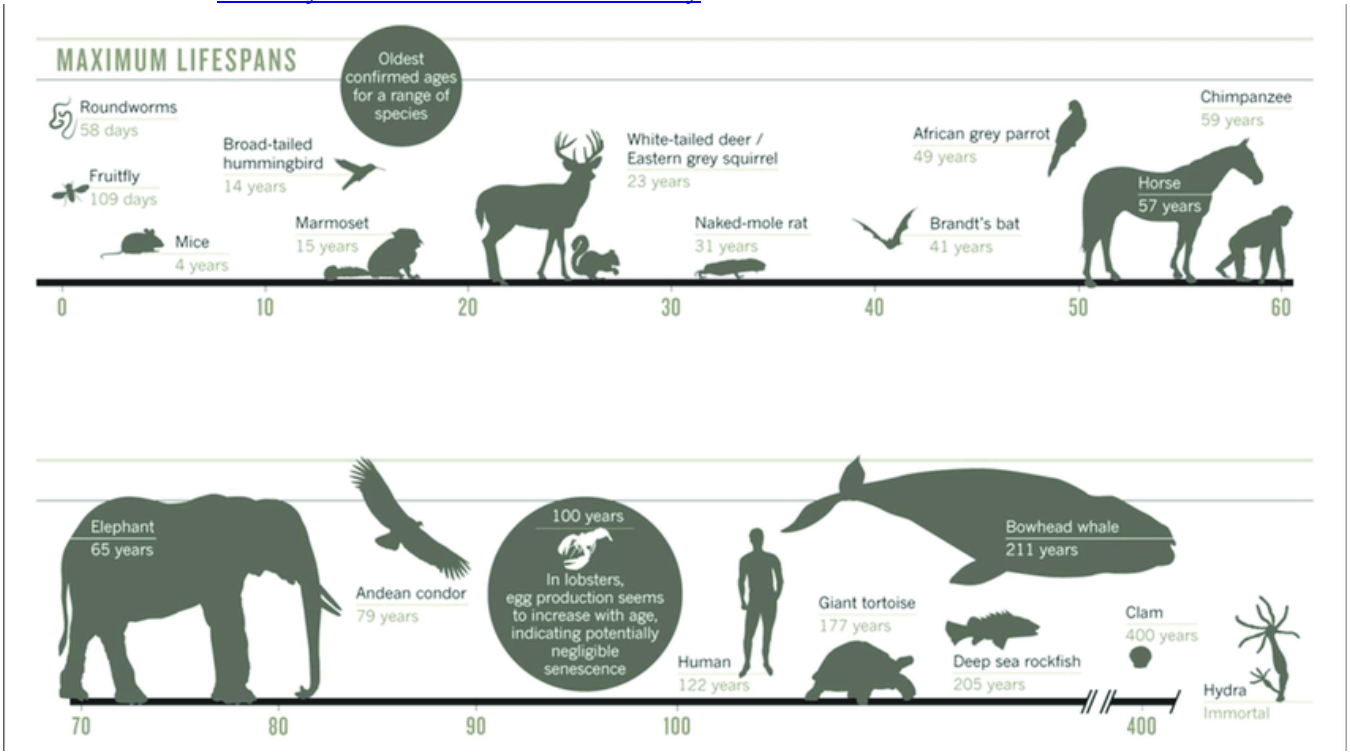
Biological theories of aging fall under two categories of thinking:

1. Programmed
2. Random Error

Programmed theories of aging follow a biological timetable, possibly a continuation of infant and childhood development. This timetable is believed to be linked to changes in gene expression that affect systems responsible for the maintenance, repair, and protection of the body. Thus, programmed theories of aging posits that human aging, particularly at the cellular level contribute to biological changes which are genetically pre-determined or set across the course of time or the life-span of the organism. On the other hand, random error theories of aging focus on chance exposure to environmental stressors which causes accidental risk or random cellular damage at the molecular level, which ultimately lead to catastrophic age-associated disease or even genetic mutations.

Have you ever wondered to what extent biology or genetics explains how long different species live? No species is capable of living forever. Yet, a key rationale in support of programmed theories of aging comes from the fact that the average life-spans across various species is highly variable. For instance, the common house mouse is capable of living up to 4 years, domesticated dogs can potentially live to be

roughly 30 years, domesticated cats can survive 38 years, and horses can live a maximum of 57 years; however giant tortoises have a life span of approximately 180 years. In fact, the world's oldest tortoise named Jonathan recently celebrated his 190th birthday.



Maximum lifespans across different species by Sarah DeWeerdt is licensed CC BY 4.0.

Meanwhile, humans have the potential to live 122 years; a record set by Jeanne Louise Calment of Arles, France, who lived to be 122 years and 164 days.

Programmed Theories of Aging

Gompertz's Equation

One of the earliest programmed theoretical approaches applied to aging was the Gompertz Equation, a statistical function used to plot and compare the association between age and death rates of a given species. The creator of this statistical process was Benjamin Gompertz, an 18th century British mathematician and actuary who applied calculus to mortality data to demonstrate that death increases in geometric progression at increasing ages (Gompertz, 1825). In other words, the longer a human being lives, there chances of survival decrease while their chances of death increase. The Gompertz Equation is still considered a relevant calculation today and is widely use as a statistical comparison of human populations within the field of biodemography, a sub-discipline of gerontology-geriatrics combining demography, epidemiology, and biology to understand population-based patterns related to fertility, survivorship, longevity, and death. Of central focus is understanding population aging, or the median age in a given population based on fertility and life-expectancy rates, as well as population longevity, or the estimate of survival versus death within a given population of persons.

A second credible and classical theory of programmed aging included Raymond Pearls' (1928) rate of living theory, in which basal metabolic rate or metabolism was theorized to be causally associated with an organism's life-span. One key assumption is that as metabolic rate increases; the lifespan of an organism was expected to decrease. However, a 2007 study using modern statistical methods to correct and control for the effects of body size and phylogenetic contrasts indicated that metabolic rate does not necessarily correlate or translate into a longer life for mammals, including humans (de Magalhães, Costa, & Church, 2007). Yet, the jury is still not out relative to the theoretical role of metabolism in human aging, which by some accounts remains essential to how human aging is programmed and controlled biologically.

Replicative Senescence (Hayflick Limit)

Modern-day programming theories of aging have focused on senescence, or the cellular processes of growing old. Cellular senescence is a process of by which cells age, stop dividing, an die. It is believed that large numbers of old or senescent cells build-up in tissues and organs of the body, which ultimately contributes to disablement and diseases leading to the death of the organism. Replicate senescence refers to the process by which normal somatic cells reach an irreversible stage of death following multiple rounds of division and replication. The final stage of cell live is associated with notable changes to genetic expression and organism functioning. Leonard Hayflick advanced theoretical understanding of cellular senescence by discovering that normal cultured human cells have a pre-set and limited capacity to replicate and divide 40-60 times after which they become senescent; a phenomenon known as the Hayflick Limit. Hayflick's discovery further propelled theoretically understanding of the effects and connection of cellular aging to genetics.

Telomere Theory

The telomere theory of aging is one such theory built upon the concept of replicative senescence or the Hayflick Limit (see **Figure 2.2**). A telomere is believed to be a protective sheath or coating on the ends of chromosomes. Chromosome contain DNA or genetic information which vital to human health and protection against illness and disease. Telomere theory proposes that exposure to environmental stressors, as well as appraisal of life-event stressors due to normative aging processes erode and shorten telomere length over time (Méndez-Chacón, 2022; Rehkopf et al., 2013; Ruiz-Narváez et al., 2021; Sanders & Newman, 2013). This biological timing of telomere shortening is further hypothesized to be pre-set. As humans age across mid-life and into old and very old age, the telomere progressively shrinks until the ends of chromosomes are no longer protected and our DNA or genes are exposed. This leads to cellular senescence and critical transformation of somatic cells which results in irreparable biological damage to the organism. The end-result includes diminished health functioning, increased incidence of chronic diseases such as heart disease, cancer, dementias, and other pathological processes of aging, and reduced life-span or chances of further survival.

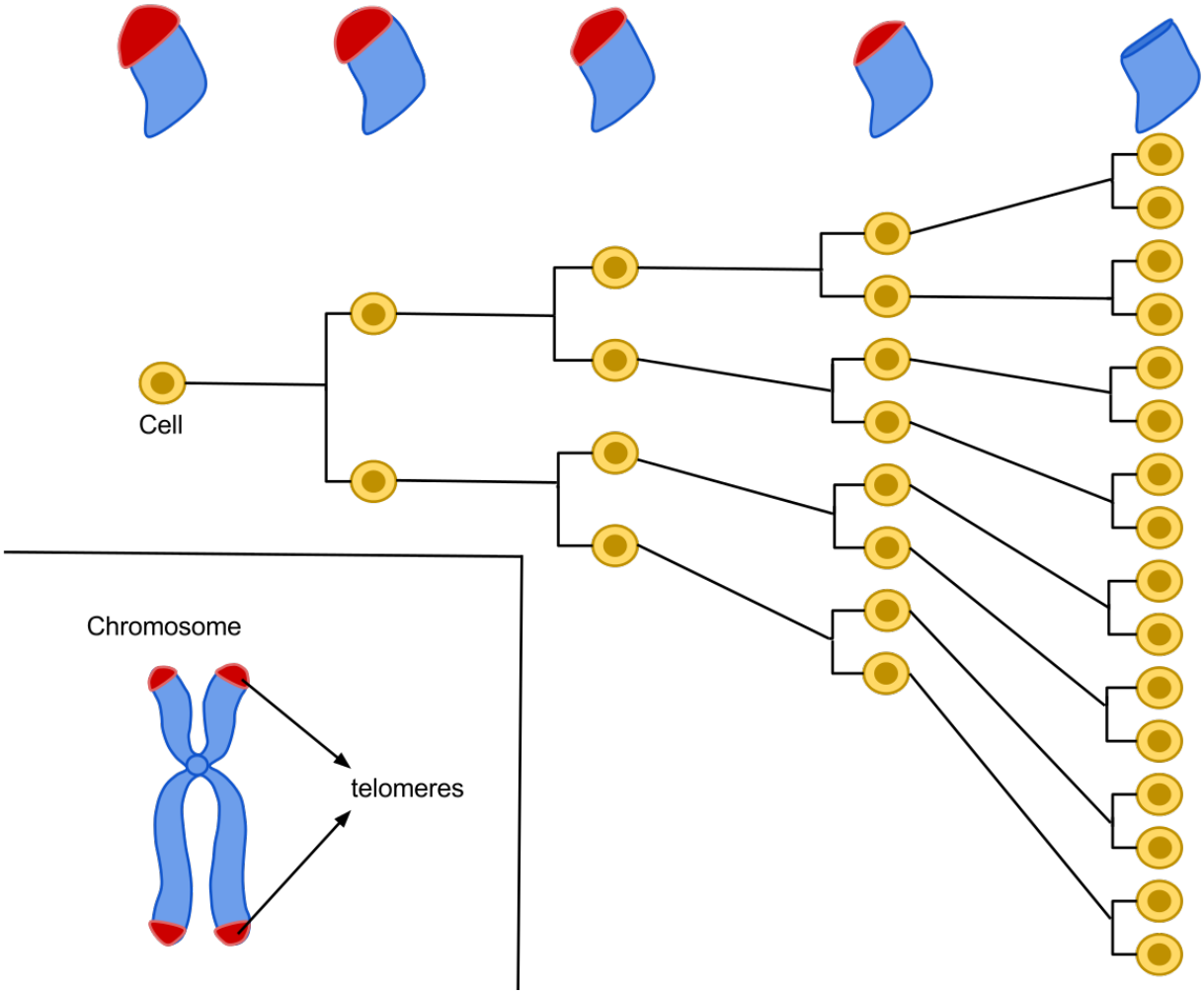


Figure 2.2 Hayflick Limit by Azmistowski17 is licensed CC BY-SA 4.0

FOX Gene Theory

Among humans, researchers have estimated roughly 25% of longevity is genetic or inherited. However, this estimate genetic influence increases among life-spans over 60 years of age. Sabastiani & Perls (2012) estimated that genetics may explain as much as 33% of life-span among women and 48% among men who survive to age 100. This brings to question whether there is an aging or longevity gene responsible for biological robustness. The FOXO gene theory proposes that there are a group of genes called the FOXO genes, which place a critical role in regulating cellular processes regulating stress, metabolism, and the cycle of cellular life. FOXO is referred to the the forkhead box (FOX) family of genetic transcription factors, with forkhead referring to its' winged or butterfly-like helix structure (Hannenhalli & Kaestner, 2009). In particular, the FOXO3 gene variant had been dubbed as the "longevity gene" (Wilcox et al. 2008). A convincing amount of empirical evidence suggests that FOXO3 is a key genetic regulator of age-associated diseases such as hypertension, cardiovascular disease, cancer, and dementias (Donlon et al., 2022; Nakagawa et al., 2022; Morris et al. 2015;). There is also increasing empirical support that FOXO3 may differentially pre-determine the biological onset, timing, and progression of such age-related diseases by gender and across various racial and ethnic

groups (Wilcox et al., 2017). Recent report further suggests that FOXO3 serves as the genetic control of telomere attrition during the aging process, a hypothesis that has gained some recent empirical interest and will likely continue to be investigated (Allsopp et al., 2019).

Random Error Theories of Aging

Ever hear someone express or imply that feel as if they are “falling apart” or “wearing out” they older they get? One of the earliest classical random error theories was devised by German biologist, August Wiesmann who proposed that aging results from a gradual deterioration of the cells and tissues via “wear and tear.” Known as the wear and teary theory of aging, Wiesmann theorized that aging is symptomatic of progressive damage to the cells and bodily systems over time due to an array of internal and external factors such as exposure to environmental toxins, radiation other sources which can harm cells and eventually damage genes. Over time the human body “wears out” due to overexposure as well as overuse resulting in disease and disablement that renders humans unable to biologically function correctly. According to this perspective, our bodies are somewhat like machines, such as a car. With repeated use, regular maintenance is required from a trained repair specialist for proper short and long-term functioning. Normative structural issues and occasional accidental damage may periodically arise and require repair and replacement of damaged or non-functional parts. With some general diagnostics, installation of new parts, and repair, things should operate like new or normal. However, one must also pay attention to everyday exposure within the environment and due to climate, which can further create stressors resulting in gradual decrements, accidental damage, and even errors in proper functioning. In contrast, programmed errors theories would argue that aging is not linked to random or chance encounters that may contribute to accident, damage, or error; rather the human body was not built to last and therefore must systematically deteriorate in an expected pre-determined manner.

Cross-Linking Theory

You likely know someone who has complained of stiffness of the back, knees, toes or fingers. Perhaps, you may have also heard them complain about bending over, standing up after having sat in a chair, or having to walk a short distance. One of the commonly known Random Error Theories in the Biology of Aging includes cross-linking theory. Cross-linking theory proposes that normative aging causes detrimental changes to cells that make up connective tissues within the human body, such as cartilage, tendons, skin, muscles, and bones. Cross-linking develops within collagen, a fibrous protein in the body. Collagen is responsible for provide flexibility, elasticity, and strength to bodily tissues for purpose of contributing to mechanical functions such as sitting, standing, stretching or walking. The molecular make-up of collagen consists of three strands or chain of amino acids wound together into a tight helix structure. Similar to the structure of a ladder, the strands of collagen are horizontally attached to the strands of protein. With increasing age, each strand starts to become interconnected with the other causing the molecules to shrink size and become increasingly rigid. In the midst of this process, consumption and in-take of various sugars leads to a process known as glycation. This believed to contribute the formation what is labeled as Advanced Glycation End-Products or AGEs over time (Boaz & Moshe, 1998). AGEs initiate progression of cross-linking collagen which results in increase stiffness of muscles, joints, tendons, and cartilage. It is believed that diet and lifestyle habits play an important role relative to the onset, progression, and impact of AGEs on human biological functioning and diseases linked to inflammation, arthritis, and diabetes (Chuah et al., 2013; de Groot, 2011; Ott et al.,

2014). Recent evidence testing cross-linking theory appears to suggest that long-term consumption of dietary sugars represents a mechanism by which AGEs contribute to cumulative biological damages in the form of disease (Aragno & Mastrocola, 2017).

Free Radical/Oxidative Stress Theory

Another theory focuses on free radicals, or unstable oxygen molecules that are produced when cells create energy. A free radical thrives by seeking out and binding to other molecules. Mitrocondria, a cell organelle that uses oxygen to produce energy for food, is vital to converting oxygen to adenosine triposhphate (ATP) and providing the cell with energy. When the mitochondria uses oxygen to produce energy, they also produce potentially harmful by-products 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 (See **Figure 2.3**).

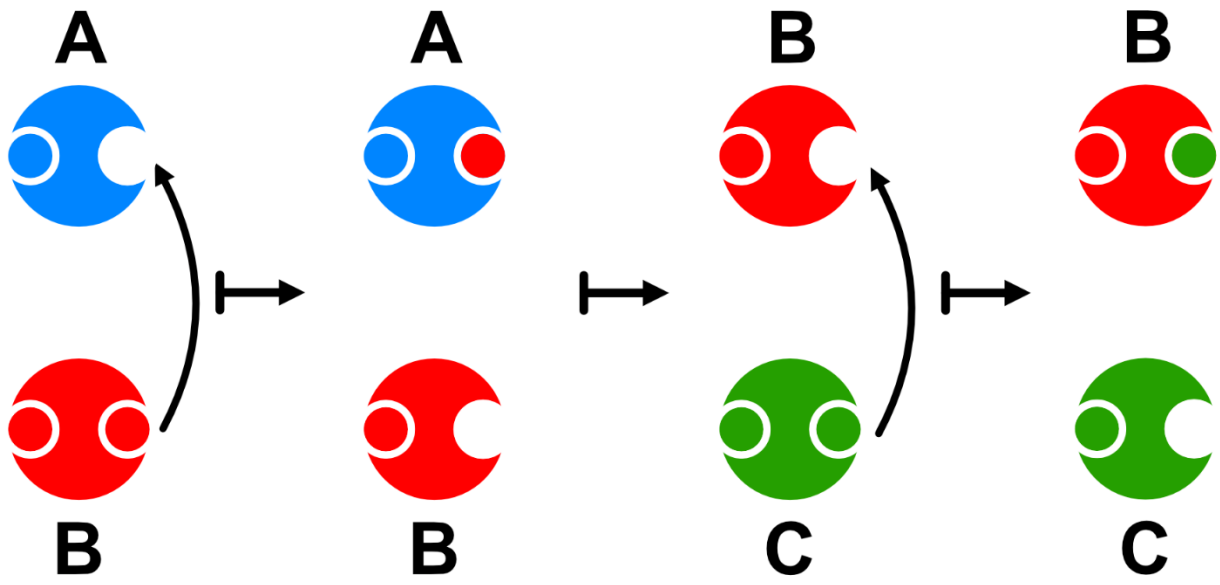


Figure 2.3 Free Radicals by Simon Ringsmuth is licensed CC BY-NC-SA 4.0.

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, including consumption of various vegetables, fruits, and nuts, to counter the effects of free radical damage because the antioxidants can donate an electron that can neutralize damaged molecules. However, the research on the effectiveness of antioxidants is not conclusive (Harvard School of Public Health, 2016).

Alternatives to free radical theory itself have focused on explaining the role of antioxidants as contributors to the rate of aging. One plausible hypothesis involves the concept of caloric restriction, the view that limiting consumption of daily dietary calories can improve health and prolong life with or

without exercise (Coleman, 2014; Walford et al., 2002). Another plausible explanation of free radical theory suggests that resveratrol, a natural compound found in grapes and particularly red wine, is a highly potent antioxidant (Pearson et al., 2008). However, the amount of wine human would need to consume on a daily basis far exceeds that which would be necessary to have immediate benefits to protection against age-associated disease. Scientists remain interested in the effects of resveratrol and believe the age benefits may be comparable to that of caloric restriction.

Hormonal Stress Theory

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).

Autoimmune Theory

The autoimmune theory of aging proposes that aging is due to faulty immune system functioning. In particular, the immune system attacks the body's own cells. Lifetime exposure to stress affects how e age. Aging. It is believed that human possess an innate and adaptive immune system vital to healthy aging. 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 immune defenses. Meanwhile, 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," or cells that 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). Although the autoimmune theory of aging does not provide a broad enough explanation to address the rate or process of aging, it does deserve mention as a plausible explanation as to why certain prevalent diseases in old age such as, arthritis or lupus, are inadvertently diagnosed despite limited family health history for certain diseases. One example is Sjögren's Syndrome, a chronic autoimmune disorder that commonly attacks the glands that produce tears, saliva, and joint and muscle pain. This particular auto-immune health issue commonly impacts women more than men of all ethnic and racial background starting around 50 to 50 years of age (https://www.niams.nih.gov/health-topics/sjogrens-syndrome) .

Error Catastrophe

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. 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). Damage to mitochondrial DNA can lead to a decaying of themitochondria, which is a cell organelle that uses oxygen to produce energy from food. Themitochondria convert oxygen to adenosine triphosphate (ATP) which provides the energy for the cell. When damaged, mitochondria become less efficient and generates less energy for the cell and can lead to cellular death (NIA, 2011a). Factors that can damage DNA include ultraviolet radiation, cigarette smoking, and exposure to hydrocarbons, such as auto exhaust and coal (Dollemore, 2006).
According to Error Catastrophe Theory, the source of aging-related errors are hypothesized as being associated with mutations in the mitochondrial DNA, or the "powerhouse" of the cell passed down from the mother (Sun et al., 2016). There is a three-part process vital to DNA replication and catastrophic biology of aging outcomes (Clancy et al., 2008). First, errors may be introduced at the point of DNA replication. Replication involves the production of a new cell with its' own complete genome. The incorporation of this replicated cell into a growing DNA strand can result in mismatched genetic pairing. DNA enzymes are then activated to proofread correct these mistakes, but on occasion mispairing and mistakes survive and are incorporated into the next round of replication in the form of mutations which have no, limited, and full consequences for the organism in terms of a genetic-oriented disease. A second process involves transcription. Transcription is a process by which DNA is copied or transcribed to mRNA, which carries genetic information needed for protein synthesis. This involves the formation of pre-messenger RNA which is edited to produce a desired mRNA molecule. Partial unwinding of the DNA double-helix must occur for full transcription to take place, which mRNA enzymes then help to further catalyze the process and form mRNA. Finally, mRNA is transported out of the cell nucleus via transfer RNA (T-RNA) or a process known as translation. This activates delivery of specific amino acids which help deliver genetic information for expression. If the incorrect tRNA is selected during translation this can contribute to mispairing and have further errors and consequences relative to the biological mutations and health functioning of the organism.

In animal models, mice with mutations in the mitochrondrial have been reported to show accelerated signs of aging, including graying and hair loss, muscle wasting, and reduced bone and spinal mass and strength (Kukat & Trifunovic, 2009; Ma et al., 2018). Such findings seem to be translated to the experience of human aging. There is further evidence that exposure to environmental stress may alter a process known as DNA methylation, or amino acid sequencing within a gene. This is believed to have unique effects during fetal development, include maternal stress experiences during pregnancy which can alter genetic expression across the biological life-span of the child; thus increasing susceptibility to disease more prevalent in later adulthood. In effect, our exposure to the environment entails an interaction with genetic timing and predisposition to influence how individuals age at varying rates. Progeria, also known as Hutchison-Gilford syndrome is a very rare type of genetic mutation that occurs in fetal development and impact. Progeria is a mutated and fatal disease that causes individuals, particularly children, to rapidly age faster than usual. Most of the time, these young children appear older than they are as evidenced by early age-associated symptoms such as wrinkled skin, graying and loss of hair, vision and hearing loss, joint stiffness and pain, and musculoskeletal dengeneration. Children with progeria usually have a normal appearance in early infancy with the signs and symptoms of accelerated aging appearing around 9-24 months. Humans born with progeria live approximately 14-

15 year with heart disease being the primary cause of death. However, some children diagnosed with Progeria can live 20 or more years.

Information Theory of Aging

There is growing evidence in support of the Information Theory of Aging (Karnaukhov et al., 2017; Sinclair, 2019; 2023; Vujin & Dick, 2020). This theory suggests that biological aging results from an accumulation of errors in an organism's genetic code over the course of its' lifespan, which leads to an genetic instability and an epigenome disruption or loss of cellular expression and identity. In other words, this disruption results in an inability of genes to "turn-on" or "turn-off." In effect, this theory assumes that the loss of epigenetic or non-DNA encoded gene regulatory information is the principal cause of human aging (Vujin & Dick, 2020). one principal central biological cause of aging. As cells divide and replicate, genetic information is subject to errors, including mutations and epigenetic changes. The accumulation of genomic damage contributes to decreased cellular repair functioning. In other words, genetic damage renders cells ineffective and increases probability of organism death. The Information Theory of Aging affirms that human aging is a form of "error catastrophe," most notably associated with a critical tipping point during which accumulated errors in genetic code activate decline in biological functioning. The information theory of aging further posits the that molecular modifications occurring on the surface of DNA, acts as secondary layer of genetic control vital to cellular growth and development. According to Sinclair (2019), if assumptions of Information Theory of Aging hold true, it is possible that individuals will one day have greater control over age-associated diseases, as well as enjoy the prospect of cheating death to a certain extent.

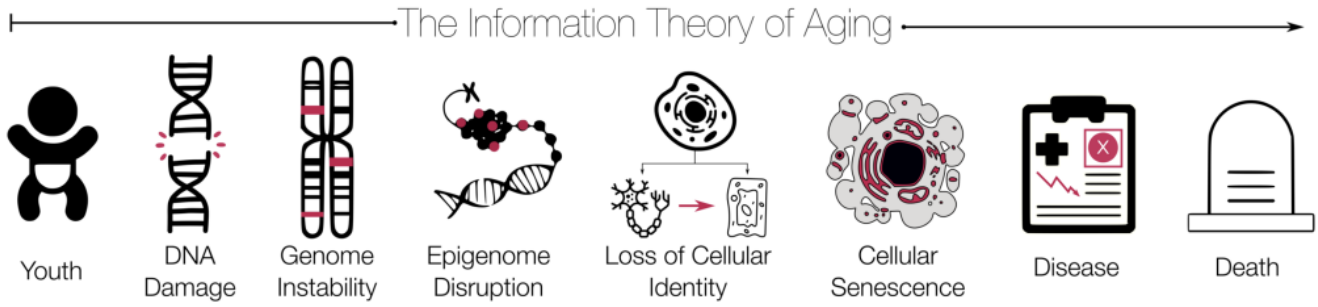


Figure 2.4 Illustration of Sinclair's Information theory of aging, licensed CC BY 4.0.

David Sinclair: An Information Theory on Aging (Audio, 48:26)

Life History Theory

Life history theory is a contemporary theory that combines underlying and associated concepts surrounding programmed versus random-error biological perspectives in aging with evolutionary biology, a subdiscipline of biological science focused on the origins, diversification, and adaption of life over time. Life history theory is often used as a framework for understanding the genetic and environmental interactions (i.e. Gene X Environment) that contribute to increased as well as decreased survivorship and longevity across various populations of people. It has also be used as a relevant explanatory basis of the mechanisms by which certain genetics, behavioral expressions, and

environmental conditions may protect certain persons or populations against common age-associated diseases.

Central to life-history theory is the concept of natural selection, or differential survival and reproduction of individuals due to heritable or selective traits that become more common within population resulting in biological advantages connected to human development, aging, and survival. This is often dependent on fitness, or reproductive success or propensity to produce offspring across the lifetime of the individual. Of particular interest is theoretically understanding how organisms living under various environmental conditions are differentially challenged by fundamental tradeoffs in their ability to pass along two key heritable traits vital to aging and biological development: (1) genotypes or an organism's genetic code by way of DNA and; (2) phenotypes, observable physical, structural, and behavioral traits or characteristics necessary for continued environmental adaptation and survival. One primary assumption of life-history theory contends that any mismatch between genetic expression and traits that may have previously benefited biological aging in one environment may no longer be adaptive or beneficial to the offspring's biological aging process or chances of survival in a current or different environment. Thus, it is believed that the environment play an influential role in determining the extent which offspring may or may inherit certain genes, the timing by which genetic traits may be "turned-on" or "turned-off" across the lifetime of the organisms, as well as the extent which various phenotypes may or may not be expressed.

Del Giudice and colleagues (2015) highlighted three trade-offs or biological assumptions surrounding the developmental trajectory of human aging and survival. These assumptions include the (1) present-future reproduction trade-off or the differential costs and benefits to fertility or mortality associated with deciding to have offspring at a younger age at the expense of delaying the timing of reproduction and having offspring at in the future or at an older age; (2) quality vs. quantity of offspring tradeoff or the idea that high individual investment in reproducing and raising offspring usually results in the birth of offspring with higher quality biological or genetic traits; whereas limited individual investment or concern regarding reproduction and raising offspring results in a greater number of offspring with lower quality biological or genetic traits and; (3) the mating effort versus parenting tradeoff whereby greater parental effort and decision to invest resources (i.e., time, energy, money) toward offspring already born contributes to a slower life history strategy (i.e., decision to invest and distribute resources to fewer children); however or greater effort and investment of resources to conceive more offspring coincides with a faster life history strategy (i.e., decision to invest, divide, and distribute resources across greater number of children).

Maternal-offspring advantage versus disadvantage can help illustrate the trade-off assumptions pertaining to life-history theory. For instance, adult woman who is actively engaged in reproduction and having multiple children across younger ages may actually reduce their own biological potentials for growth, maintenance, and chances of survival across later adulthood; yet the offspring will experience a gains potential biological growth and expected number of years to live (Gavrilov et al., 1997; Gavrilov & Gavrilova, 2001; 2011; 2015). Yet, an adult woman who decides to safeguard their own biological potentials by delaying childbirth, subsequently confines fertility to a fewer numbers of years at an older age, when they are ready to invest in reproduction and children. Maternal delay of childbirth is associated with an increased probability that the mother will live longer, but the offspring is less likely to experience the biological benefit of increased longevity (Gavrilov et al., 1997; Gavrilov & Gavrilova, 2001; 2011; 2015). What is might be a plausible explanation for the biological and development outcomes associated with such trade-offs? For starters, adult women who engage in tasks of fecundity or frequent childbirth at an earlier ages, may be simultaneously compromising their own survival relative to the cost to their immune functioning, particularly in instances where there are environmental risks in

the season or timing of conception (e.g., exposure risk to season diseases such as the common cold or influenza; Gavrilov et al., 1997; Gavrilov & Gavrilova, 2011). Although the fetus receives genetic benefits of enhanced immune protection from the mother; the mother's immunity may actually be reduced. In addition, some adults may not survive long enough to feel they have reached full sexual maturity and personal responsibility to reproduce or have a child (Garvrilov & Gavrilova, 2015). In such cases, an opportunity for heritability of genotypes or expression of varying phenotypes is lost. Finally, if the mother is spending a substantial amount of time nurturing, feeding, and caring for a fewer number of existing offspring, this will potentially increase the quality of genetic heritability) and phenotype expression to existing offspring. Yet, it might be that such investment may be physiologically demanding and stressful resulting in diminished biological functioning and reduced survival, as well as any future chances to extend one's fertility and reproduction.

Key Takeaways

Important concepts from this chapter include, but are not limited to, the following:

- Gerontology and Geriatrics are related, but distinct and separate disciplines
- The aging process is not fully understood, but several theories help explain what it is and why it happens. This includes dualities like Nature vs. Nurture, Continuity vs. Discontinuity, Active vs. Passive, Disease vs. Process, Disengagement vs. Activity, Mind vs. Body, and Causation vs. Association.
- There are three prominent paradigms, or worldviews of how phenomenon operate, that guide how gerontologists develop theory for scientific inquiry: Organismic, Mechanistic, and Contextual.
- Biological theories of aging fall under two categories: Programmed and Random Error
- Benjamin Gompertz's equation states that chances of survival decrease while chances of death increase
- Genetic theories of aging include Replicative Senescence, Telomere Theory, and FOX Gene Theory
- Random Error theories of aging are based in the idea that the human body wears out over time
- Life History Theory is often used as a framework for understanding the genetic and environmental interactions that contribute to aging

References

Allsopp, R. et al. (2019). The longevity associated allele of FOXO3 protects against telomere attrition during aging. Innovations in Aging, 3 (Suppl 1), S99-S100. https://doi.org/10.1093%2Fgeroni%2Figz038.374

Arangno, M., & Mastrocola, R. (2017). Dietary sugars and endogenous formation of advanced glycation endproducts: Emerging mechanisms of disease. Nutrients, 9(4), 385. https://doi.org/10.3390/nu9040385

Boaz, L., & Moshe, W. J. (1998). Long-term fructose consumption accelerates glycation and several age-related variables in male rats. *The Journal of Nutrition, 128 (9*), 1442-1449. https://doi.org/10.1093/jn/128.9.1442

Chuah, Y. K., Basir, R., Talib, H., Tie, T. H., & Nordin, N. (2013). Receptor for advanced glycation end products and its involvement in inflammatory diseases. *International Journal of Inflammation, Vol. 2013*, Article ID 403460. https://doi.org/10.1155/2013/403460

Clancy, S. et al. (2008). Translation: DNA to mRNA to protein. Nature Education, 1, (1). https://www.nature.com/scitable/topicpage/translation-dna-to-mrna-to-protein-393/

Coleman et al. (2014). Caloric restriction reduces age-related and all-cause mortality in rhesus monkeys. *Nature Communication, 5*, 3557. doi:10.1038/ncomms45557.

Cumming, E., & Henry, W. E. (1961). *Growing old, the process of disengagement*. Basic books.

de Groot, L., Hinkema, H., Westra. J., Smit, A. J., Kallenberg, C. G. M., Bijl, M., & Posthumus, M. D. (2011). Advanced glycation endproducts are increased in reheumatoid arthritis patients with controlled disease. Arthritis Research & Therapy, 13. Article R205(2011). https://doi.org/10.1186/ar3538

Del Giudice, M. et al. (2015). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (foundations 2nd ed., Vol. 1, pp 88-114). Hoboken: Wiley.

Donolon et al. (2022). FOXO3, A resilience gener: Impact on lifespan, healthspan, and deathspan. The *Journals of Gerontology, Series A, 77 (8)*, 1479-1484. https://doi.org/10.1093/gerona/glac132

Garvilov, L. A. et al. (1997). Maternal age and lifespan of offspring. *Doklady Akademi Biological Sciences, 354 (4)*, 569-572.

Garvilov, L. A., & Garilova, N. (2001). Biodemographic study of familial determinants of human longevity. *Population: An English selection*, 13, 197-221.

Gavrilov, L. A. & Gavrilova, N. (2011). Season of birth and exceptional longevity: Comparative study of American centenarians, their siblings, and spouses. *Journal of Aging Research.* Vol. 2011. Article ID 104616. Doi: 10.4061/2011/104616.

Garvrilov, L. A., & Gavrilova, N. S. (2015). New developments in the biodemography of aging and longevity. *Gerontology, 61(4),* 364-371.

Goldhaber, D. E. (1999). Theories of human development: Integrative perspectives (1st edition). New York, NY: McGraw-Hill.

Gompertz, B. (1825). XXIV. On the nature of the function expressive of the law of human mortality, and on a new mode of determining the value of life contingencies. In a letter to Francis Baily, Esq. FRS &c. *Philosophical transactions of the Royal Society of London*, (115), 513-583.

Hannehalli, S., & Kaestner, K. H. (2008). The evolution of Fox genes and their role in development and disease. *Nature Reviews Genetics, 10*, 233-240. https://doi.org/10.1038/nrg2523

Karnaukhov, A. V. (2017). The information theory of aging: The major factors that determine lifespan.*Biophysics, 62 (5),* 829-835.

Kukat, A., & Trifunovic, A. (2009). Somatic mtDNA mutations and aging- facts and fancies. *Experimental Gerontology, 44(102)*, 101-105. https://doi.org/10.1016/j.exger.2008.05.006

Li, J. et al. (2017). A comparative study of anti-aging properties and mechanism: Resveratrol and caloric restriction. *Oncotarget, 8(39),* 65717-65729. https://doi.org/10.18632/oncotarget.20084

Ma, H. et al. (2018). Germline and somantic mtDNA mutations in mouse aging. *PloS ONE, 13(7), e0201304*. doi:10.1371/journal.pone.0201304

de Magalhães, J. P., Costa, J. & Church, G. M. (2007). An analysis of the relationship between metabolism, developmental schedules, and longevity using phylogenetic independent contrasts. *Journals of Gerontology A: Biological and Medical Sciences, 62(2)*, 149-160. https://doi.org/10.1093/gerona/62.2.149

Méndez-Chacón, E. (2022). Gender differences in perceived stress and its relationship to telomere length in Costa Rican adults. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.712660

McCune, S., & Promislow, D. (2021). Healthy, active aging for people and dogs. *Frontiers in Veterinary Science*, 570.

Morris, B. J., Wilcox, D. C., Donion, T. A., & Wilcox, B. J. (2015). FOXO3 – A major gene for human longevity. *Geronotology, 61(6*), 515-525. doi: 10.1159/000375235

Nakagawa, K., et al. (2022). Forkhead box O3 longevity genotype may attenuate the impact of hypertension on risk of intracerebral haemorrhage, Journal of Hypertension, 40 (11), 2230-2235. doi:10.1097/HJH.0000000000003249

Neugarten, B. L. (1964). Personality in middle and late life: Empirical studies.

Ott, C., Jacobs, K., Haucke, E., Santos, A. N., Grune, T., & Simm, A. (2014). Role of advanced glycation end products in cell signaling. *Redox Biology, 2*, 411-4129. https://doi.org/10.1016/j.redox.2013.12.016

Pearl, R. (1928). Experiments on longevity. *The Quarterly Review of Biology*, *3*(3), 391-407.

Rehkopf, D. H., Dow, W. H., Rosero-Bixby, L., Lin, J., Epel, E. S., & Blackburn, E. H. (2013). Longer leukocyte telomere length in Costa Rica's Nicoyan Penisula: A population-based study. *Experimental Gerontology, 48(11)*. https://doi.org/10.1016/j.exger.2013.08.005

Ruiz-Narváez, E., Baylin, A., Azofeifa, J., Leal, A., & Rosero-Bixby, L. (2021). Diet and leukocyte telomere length in a population with extended longevity: The Costa Rican Longevity and Healthy Aging Study (CRELES). *Nutrients*, 13(8). doi 10.3390/nu13082585

Sander, J. L., & Newman, A. B. (2013). Telomere length in epidemiology: A biomarker of aging, age-related disease, both, or neither? *Epidemiologic Reviews, 35, 1*, 112-131. https://doi.org/10.1093/epirev/mxs008

Sebastiani, P., Solovieff, N., DeWan, A. T., Walsh, K. M., Puca, A., Hartley, S. W., & Perls, T. T. (2012). Genetic signatures of exceptional longevity in humans. *PloS one*, *7*(1), e29848.

Sinclair, D. A, & LaPlante, M. (2018). *Lifespan: Why we age-and why we don't have to*. New York, NY: Atria Books.

Speiser, J. L., Callahan, K. E., Houston, D. K., Fanning, J., Gill, T. M., Guralnik, J. M., & Miller, M. E. (2021). Machine learning in aging: an example of developing prediction models for serious fall injury in older adults. *The Journals of Gerontology: Series A*, *76*(4), 647-654.

Vujin, A. & Dick, K. (2020). The information theory of aging: Hacking immortality? *Health Science Inquiry*, Vol. 11. https://doi/10.29173/hsi304.

Wilcox, B. J., Morris, B. J., Tranah, R. C., Masaki, K. H., He, Q., Wilcox, D. C. , Allsopp, R. C., Moisyadi, S., et al.(2017). Longevity-associated FOXO3 geneotype and its impact on coronary artery disease mortality in Japanese, Whites, and Blacks: A prospective study of three American populations. *The Journals of Gerontology Series A, 72,(5),* 724-728. https://doi.org/10.1093/gerona/glw196

Wilcox, B. J., Donlon, T. A., He, Q., & Curb, J. D. (2008). FOXO3A genotype is strongly associated with human longevity. *PNAS, 105 (37).* https://doi.org/10.1073/pnas.0801030105

SUCCESSFUL AGING

Chapter 3: Life-Span and Life Course Theories of Aging

Learning Objectives

After reading through Chapter 3: Psychological and Sociological Theories of Aging, students should know, learn, or be able to do the following:

- **Analyze Psychological Perspectives on Aging:** Compare and contrast the psychological theories of aging presented in Chapter 3 with those rooted in biology and genetics from Chapter 2, evaluating their underlying principles and implications.
- **Explore Gerotranscendence Theory Dimensions**: Appraise the dimensions comprising the Theory of Gerotranscendence, critically evaluating their significance and potential impact on the aging and developmental process.
- **Evaluate Life-Span Developmental Approaches:** Assess Paul Baltes's holistic developmental approach to aging, considering how multiple perspectives are integrated and how this approach contributes to a comprehensive understanding of aging and human life span development.
- **Apply Selection, Optimization, and Compensation Theory:** Utilize the components of the Selection, Optimization, and Compensation (SOC) Theory to analyze and propose strategies for managing challenges associated with aging.
- **Synthesize Classical Sociological and Psychological Aging Theories:** Construct a comparative analysis outlining the distinctions between sociological theories of aging and psychological/biological theories, highlighting key differences and their implications for understanding aging processes.
- **Synthesize Life Course Theory Principles:** Synthesize the five principles of the Life Course Theory, and demonstrate their interconnectedness in shaping individuals' life trajectories and experiences across various stages of life.

Chapter Outline

Psychological Theories of Aging

Erikson's Eight Stages of Psychosocial Development

Erik Erikson (1950) proposed one of the better known psychologically based theories of aging and lifespan development. This classic theory provides a useful guideline for thinking about the changes humans experience beyond childhood and into the second half of life. Erikson proposed that human aging and development functioned on the basis of the epigenetic principle. This principle suggests that humans developmental largely through a pre-determined and genetically influenced unfolding of personalities across eight stages. Our progress through each stage is partially determined by our success or lack of success in addressing certain developmental tasks at each stage. Each stage entails developmental tasks that are psychosocial in nature; thus entailing an interaction between our ego identity and the social environment. Erikson (1950) proposed that each developmental period of life presents a unique challenge or crisis that persons confront, 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. Erikson referred to the management of such crises as involving dystonic, or negative dispositions (i.e., isolation, stagnation, despair) versus syntonic or positive dispositions (i.e. intimacy, generativity, integrity). These crises are usually called stages, although Erikson consider each development period to involve resolution of opposable dispositions. Nonetheless, if a person does not fully resolve a stage in a positive manner, it may hinder their ability to deal with the impending challenges one will face at later stages in life. For example, if a person does not develop a sense of trust (Erikson's first stage) early in life, they may find it more difficult as an adult to form positive intimate relationships during the emerging adult years (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 rather than work toward meeting the concerns and betterment of others (Erikson's seventh stage). However, most individuals are able to successfully complete the eight stages of Erikson's theory without much difficulty.

Age Range	Psychosocial crisis	Positive resolution of crisis
Birth to 12 to 18 months	Trust vs. Mistrust	The child develops a feeling of trust in caregivers

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

Erikson further posited that the successful resolution of psychosocial crises across various the developmental life periods contributes to the acquisition of positive character.

Developmental Period	Psychosocial Virtue
Infancy	Hope
Toddlerhood	Will
Young Childhood	Purpose
Childhood	Competency

Adolescence	Fidelity
Emerging Adulthood	Love
Middle Adulthood	Care
Later Adulthood	Wisdom

For example, when a young adult achieves a sense of social intimacy over feelings of social isolation, they gain an understanding of love. Mid-life adults who positively develop a general concern toward building a lasting legacy and guiding the next generation through concern and commitment above and beyond feeling frustrated with the demands of life and unhappy in achieving a work-life balance. Meanwhile, Erikson maintained that older adults who reflect upon and accept the totality of their life experiences and achievements, whether good or bad, come to achieve a sense of life satisfaction rather than a feeling of disappointment and despair. Moreover, the acceptance of one's live experiences fosters an improved understanding surrounding the many meanings and lessons learned in life, or which Erikson referred to as the acquisition of wisdom.

Erikson's Psychosocial Theory of Development has received various criticism over the years. Erikson's theory has been criticized for focusing too heavily on the concept of "crises;" thus assuming that the completion and resolution of one crisis is a prerequisite before the next or other future crisis in psychosocial development can be addressed. Erikson's theory has also been criticized as focusing too much on the social expectations that might commonly be 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.

Joan Erikson's Ninth Stage Concept

Joan Erikson, the wife of Erik Erikson, extended an edited version of Erikson's original eight stages of psychosocial development in a written work entitled, The Life Cycle Completed (Erikson, 1997). In this work, Joan Erikson conceptualized the Ninth Stage. The Ninth Stage Concept referred to the psychosocial development of long-lived adults, notably persons living 90 years and longer. Joan Erikson acknowledged that outliving familiar social supports and surviving into very old age presents unique developmental changes in physical mental, social functioning. Old-old adults commonly have a greater need for

1. Behavioral health monitoring in meeting everyday activities of living (i.e., shopping, cooking, eating; toileting);
2. Assistive devices (e.g., hearing, visual, and mobility aids);
3. Modifications to the built environment (i.e., ramps, grab bars, accessible doorways) and;
4. Long-term care assistance.

Joan Erikson proposed that such needs contribute to an increased interdependence upon family and community relationship for success in development. However, many long-lived adults outlive their familiar familial and social network supports from which they depend for meeting everyday tasks of living. To complicate matters, most old-old adults have been culturally socialized since birth to value, seek, and preserve individual autonomy, rather than to burden family or request the assistance of community supports, such as in-home care services, meals-on-wheels programs, or transportation services. In some cases, long-lived adults may begin to ask: Why am I still here? Joan Erikson proposed that, persons reaching the Ninth Stage experience a developmental shift in which they begin to psychosocially "age-in-reverse" through the varying developmental crises or tasks of psychosocial development. Joan Erikson theorized that learning how to trust rather than mistrust others represented a key development entry point into the Ninth Stage of life. Joan Erikson believed that old-old adults who gained a sense of trust and reliance upon others entered into the Ninth Stage with improved ability to meet a higher-order developmental task: finding faith in humanity. At the core of this task was the acquisition of humility, or the virtue of "being human." Joan Erikson coined the ninth stage developmental process as gerotranscendence or acts of contemplation and resolution surrounding one's human experience or condition that goes beyond self, others, and time to the point that continued survival and even death are no longer feared, but accepted as purposeful to humanity.

Ninth Stage Process	Ninth Stage Developmental Tasks
First Stage	Accepting one's life situation
Second Stage	Feeling others are concerned and care about one's situation
Third Stage	Seeking intimacy and accepting love from others
Fourth Stages	Feeling respected by others for "who I am."
Fifth Stage	Achieving new standards of how to "be" rather than to do
Sixth Stage	Feeling included by others to make choice and decisions
Seventh Stage	Accepting what can and cannot be controlled
Eight Stage	Becoming interdependent and trusting of others
Ninth Stage	Faith and understanding in humanity

Theory of Gerotranscendence

Lars Tornstam (2005) revised and expanded the concept of gerontranscendence into a developmental theory of positive aging. Tornstam (2005) postulated that gerotranscendence consists of three primary

dimensions which become markedly observable among long-lived adults. Tornstam (2005) posited the following dimensions as reflecting the construct of gerotranscendence:

- **Cosmic Dimension**
  - Childhood reminiscence – process of life reconciliation through increased storytelling and narrative reconstruction and oral sharing of life events and memories, many of which occurred during childhood;
  - Connection to earlier generations – increased flashbulb memories and recall of former or deceased family members to whom one has had a life-long emotional connection, as well as an expressed desire with whom one wants to be near once in the present and after death;
  - Life versus death – transformation and disappearance of rumination, worry, anxiety, and fear of death in favor of accepting and appreciating the wholeness of one's life;
  - Mysticism – increased interest, contemplation, and acceptance of "unexplained," "coincidental," "consequential," or mysterious experiences and events surrounding one's life;
  - Joyfulness – expression of gratitude and contentment for the "little" things that matter most in life including that which may be observed in nature, involving the cycle of life, or subtle human experiences.
- **Selfing Dimension**
  - Self-confrontation – discovery, recognition, and understanding of the good and bad of oneself and personhood, as well as how one may or may not have presented the self to others;
  - Diminished self-centeredness – removal of self as the center of one's own universe and development shift toward positive self-esteem and confidence that feels appropriate and with equal regard and respect for others;
  - Body transcendence – continuation of care for one's physical body without obsessing over or drawing attention over one's state of health functioning;
  - Self-transcendence – shift from perceptions and expressions of egoism to a increased sense of altruism, empathy, and self-less care and concern for others with whom one may or may not know or be socially connected;
  - Ego-integrity – increased desire for acceptance, tranquility, and contentment involving the formation and piecing together of fragmented and momentary life experiences into the "wholeness" of one's past, present and future.
- **Social and Personal Relationship Dimension**
  - Valued Social Relations – diminished preference to associate with superficial relationships in favor of selectively associating with social ties that provide maximum social and emotional benefit as well as bring increased value and meaning to one's life and opportunities for solitude;
  - Role Playing – renew understanding of one's social commitments accompanied by an urgency to abandon past roles in favor of understanding one's current role and place in both time and space;
  - Emancipated innocence – abandonment of needless social conventions, technologies, and ways of doing things in favor of expressing innocence to enhance the maturity of self and others;
  - Modern ascetism – Increased understanding and appreciation of wealth versus freedom and happiness via living within one's means by maintaining enough for the basic necessities of life without the necessity of needing, wanting or competing for more;

- Wisdom – Increased demonstration and expression of open-mindedness, behavioral tolerance and the withholding of judgements or advice to others when approached by others with ethical dilemmas involving right versus wrong

Although the Theory of Gerotranscendence provides a contemporary approach to understanding human development among long-lived persons, critics have suggested that the theory is too focused on micro-level process (i.e., individual lived experiences, subjective viewpoints) and fails to explain how macro-level factors (i.e., demographic or family and community context) impact how persons in very old age transcend and find meaning in life (Rajani, 2015). Furthermore, critics have noted that the theory also fails to account for the cognitive and mental health of very old adults, noting that it is difficult to judge to what extent to which common geriatric mental disorders such as dementia, depression, and anxiety impact positive ego development among long-lived adults. Finally, some critics have remarked that Torstam assumes gerotranscendence is developmentally universal, yet the theory does not take into account culturally dependent factors that contribute to divergent positive aging outcomes within and across Western versus non-Western cultures.

Life-span Human Development Theory

Paul Baltes (1987) devised a more holistic theoretical approach to aging and human development that moved beyond basic ages and stages. Baltes (1987) favored a continuous and contextual approach to thinking about aging and human development. Of central interest was providing theoretical understanding and explanation regrading the gains and losses persons experience across the span of biopsychosocial development beginning from the moment of concept until death. A secondary Several foundational principles provided the framework of a lifespan perspective (Baltes, 1987;Baltes, Lindenberger, & Staudinger, 2006):

1. **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.
2. **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, becoming a parent or grandparent, or becoming a caregiver to a parent entails both growth and loss. Today we are more aware of the variations in development. We no longer assume that those who develop in predictable ways are normal and those who do not are abnormal. So the assumption that early childhood experiences dictate our future is also being called into question. Instead, we have come to appreciate that growth and change continue throughout life and experience continues to have an impact on who we are and how we relate to others. Moreover, we recognize that adulthood is also a dynamic period of life marked by continued cognitive, social, and psychological development.
3. **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 adult who has begun planning for

retirement will encounter many financial choices and work-related decisions, thus fostering developmental change in adult understanding linked to the timing and transitioning form work-related roles into new social or family roles.

4. **Development is multidisciplinary.** Human development is such a vast topic of study that it requires the incorporation of theories, research methods, and perspective of many academic disciplines. Reliance on multiple disciplinary perspectives rather than just one solitary viewpoint of aging provides a more holistic and well-rounded understanding of what contributes to adaptation to age-associated change and the acceptable levels of performance that will allow the aging individual to maintain success over loss or failure with advancing age.
5. **Development is characterized by plasticity.** Plasticity is all about our ability to change and that many of our characteristics are malleable, or capable of being altered or influenced by socio-environmental or other contextual influences. For instance, plasticity is illustrated in the brain's ability to learn from experience and how it can recover from injury or impaired functioning.
6. **Development is multicontextual.** Development occurs in many contexts. Baltes (1987) identified three specific contextual influences:
    1. **Normative age-graded:** An age-grade is a specific age group, such as a emerging adult, middle-aged adult, or older adult. Humans in a specific age-grade share many expected and similar experiences and developmental changes.
    2. **Normative history-graded:** A history-grade refers to the time period in which individuals are born. In particular, a cohort is a group so persons who are born during the same year or roughly within the same time period in a specific society. This group of persons age through life often experiencing and witnessing similar historical circumstances and experiences.
    3. **Non-normative life influences:** Despite sharing age and history with our peers, each of us will age through life and encounter unique experiences that seemingly shape our own individual development. For instance, child who loses a parent at a young age has experienced a life event not typical of others within her age group. This event will likely shape development uniquely and differently for this individual as they continue to grow old.

Selection, Optimization, and Compensation (SOC Theory)

Baltes (1997) referred to the architecture of human development as an incomplete process involving *ontogenesis,* or the entirety of development biologically, psychologically, and socially from the time of conception to the moment of death. Baltes (1997) was particularly intrigued by developmental processes in the *fourth age*, or persons living 80 years and older. Baltes (1997) considered this period of life to be the most evidence form of developmental incompleteness and essential to understanding the interplay between gains and losses across the human life-span. Baltes (1997) posited three key dynamics that govern human aging and development across the life-span (see Figure 3.1).

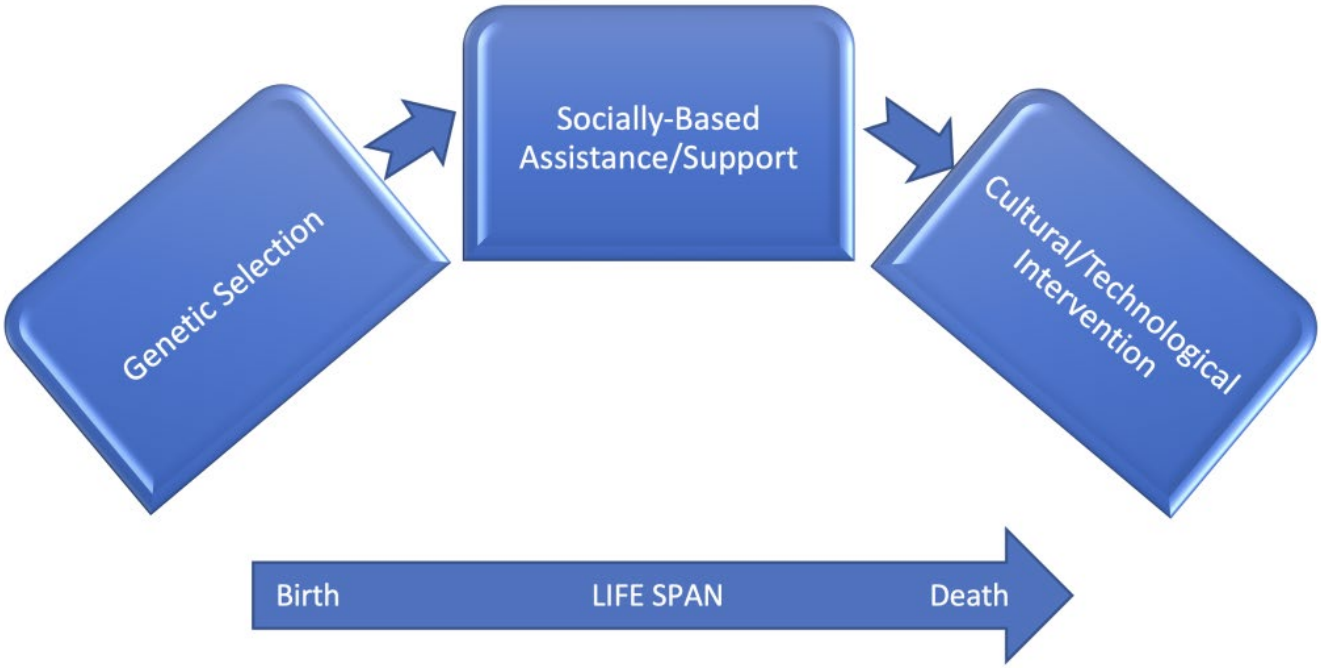


Figure 3.1 Selection, Optimization, and Compensation Theory by Dr. Alex Bishop is licensed CC BY-NC-SA 4.0.

First, evolutionary selection benefits decrease with age. In other words, the transmission of genetics vital to the unfolding and timing of human physiological performance, cognitive functioning, and goal directed social behaviors begins to operate inefficiently. Human become less genetically protected and gradually unable to recover fully from negative genetic attributions in the form of disease and disablement, in the second half of life. Genetic attributes become activated during this time and come to be manifested in the form of chronic and even lethal ailments one must manage and maintain to prevent further losses in functioning.

Second, human development and aging increases our need for culture. As humans experience more frequently encounter marked set-backs or declines in the form of physical or cognitive functioning, impairment, or disease; they develop a greater need for social support and cultural assistance to mitigate the selective evolutionary pressures of genetics warranting decline and loss. In other words, humans require culture-based resources in the form of education, medical technologies, economic assistance, community support services, and caregiving. Such socio-cultural resources allow those older in age to compensate or adapt to losses in biological and psychological potentials in order to generate or maintain appropriate levels of functioning necessary to live safely and independently. However, the effectiveness of such resources are not enough to ward off human aging.

This reflects a third and final dynamic in which the efficacy of culture decreases with age. The human organism is unable to fully recover from the experience of set-backs and losses which impact high-level performance in biological and cognitive potentials. With age, humans are unable to reach the same levels of functioning as they once enjoyed when younger or even with extensive cultural interventions (e.g., exercise, diet, brain fitness). The cultural resources of which one depends in old age are essentially rendered ineffectively in ceasing the end to life. The losses encumbered by the human organism essentially outnumber any gain that can be made or any ability to maintain acceptable levels of functioning necessary to sustain life. Therefore, the life of the human organism is cut-short from reaching full developmental success by the fact of an ontogenetic directional course.

To better represent developmental dynamics across the human life-span, Baltes (1987) formulated Selection, Optimization, and Compensation (SOC) Theory. Baltes (1997) framed that individuals always maintain a specific set of targets or goals involving their functioning, or what is termed selection. As we age, Baltes (1997) noted that development generally proceeds within the conditions of evolving constraints in time and resources surrounding limited capacity in functioning. Humans possess behavioral dispositions or characteristics which they are able to effectively activate or perform despite encountering loss. Such processes allow the individual to maintain plasticity and to adapt to loss. Thus, the individual will selectively target such dispositions in the form of a refined set of new goals which they aim to pursue and achieve. For instance, an older adult admitted to a care facility after surgery may devise a new or more realistic strategy related to their recovery, such as integrating new foods within their diet, devising some type of exercise plan or regimen to follow, or setting a date to return home.

Once the older adult has engaged in goal selection, Baltes (1997) posited that they will likely pursue optimization. Optimization entails the application and engagement of behaviors necessary to reach selected goals and achieve improved adaptative capacity or plasiticity. In effect, older adults may pursue desirable outcomes by seeking cultural-based knowledge, committing to a particular goal or set of goals, engaging in practice, or using personal energy or effort to meet an established goal. As an example, an older adult who devised an exercise plan or regimen after surgical recovery may commit to such plan by attending physical therapy sessions or putting in extra time or effort practicing a particular form of exercise.

Baltes (1997) further proposed that older adults who optimize their goal commitments will eventually experience compensation, or the redirection of loss into a gain or set of gain which can be better regulated and managed for sustained plasticity or performance. Baltes (1997) suggested that optimization of selected goals allows for overcoming negative transfer or incongruency among one's goals. This allows the older adult to direct loss in way that reduces varying constraints that may have previously limited the ability to perform or function on some level. Baltes (1997) hypothesized that compensation comes in varied forms. To illustrate, an older adult who demonstrates an improved ability to walk, maintain balance, and independently perform varying activities of daily living (e.g., taking medications, dressing and undressing, getting in and out of bed) after surgery may be deemed by their physician as safe and appropriate to return home, where the older adult can continue to age-in-place.

Although SOC Theory provides a theoretical basis relative to addressing how older persons adapt and remain resilient to developmental losses, some critics have noted the theory to be somewhat reductionistic and weak relative to explaining individual differences in resilience. Others have further noted that this creates problems relative to application of measurement and assessment within group settings, such as work environments and residential or community settings where multiple people with different skills and abilities interact on a daily basis.

Established Adulthood: A New Contemporary Life-Span Theory

Since Erik Erikson first released his eight-state theory of human development in 1950, substantial progress has been made relative to advancements surrounding theoretical understanding of adult human development. According to Mehta and colleagues (2020) most theoretical conceptualizations have

Domain	Emerging Adulthood	Established Adulthood	Mid-Life
Romantic Relations	Formation/Evolving	Long-Term	Long-term
Work/Career	Information gathering Skill formation Multiple jobs	Commitment Building expertise Responsibility Stability	Seniority Recognized expert Legacy building Building
Family Caregiving	Child free Launch from home Parental interdependence	Childbearing decision Birth of first child Young children Aging parents	Empty nest Older children Advising/supporting children Caring for aging parent due to declining health or death
Physical Health	Risky behaviors Unhealthy diets Inconsistent sleep High stamina Strong immunity High self-rated health	Fewer risk behaviors Healthy diets Sleep adjustments due to young children Strong immunity Initial decline in metabolism High self-rated health	Metabolic syndrome risk Obesity risk Increased risk of heart disease and cancer. Diminishing immunity Decrease in self-rated health
Cognition/Intellect	Gaining cultural knowledge High fluid intelligence Fast processing speed Developing problem-solving skills	Declining knowledge level Intellectual expertise Reduced processing speed Increasing cultural knowledge Problem creation and solving	Domain-specific knowledge Recognized expertise Noticeable declines in processing speed Increased cultural knowledge Problem anticipation Wisdom development

Domain	Emerging Adulthood	Established Adulthood	Mid-Life
Emotional Well-being	Low Positive Affect ----------> High Positive Affect		

primarily focused on the children under age 18, the emerging adult years (18 to 29 years), and the developmental periods of mid-life and later adulthood. In addition, there has long been philosophical disagreement as to when mid-life begins and ends as a life-stage or developmental period of life. Conclusive evidence stemming from longitudinal explorations of the Midlife in the United States Longitudinal Study (MIDUS) has indicated that mid-life represents a new crossroad between continued developmental growth and initial decline (Lachman et al. 2015). In fact, there is some agreement that the unique developmental characteristics involving gain and loss occur when persons are 45 to 65 years of age (Brim et al, 2004; Ryff et al., 2011). In turn, one developmental period of aging in adult life has remained overlooked and received limited theoretical attention. According to Mehta et al. (2020) this developmental period of life concerns persons who are age 30 to 45 years. This is a stage of life during which persons are extremely focused on balancing career development and personal achievement, while fulfilling the responsibilities of an intimate or romantic partnership, raising children, and even caring for an older parent. Therefore, Mehta et al. (2020) have advocated for a new theoretical conceptualization covering the period of life referred to as "established adulthood." Established adulthood is a developmentally unique period and pre-cursor to middle age. Unlike mid-life adults who are more likely to be experiencing biopsychosocial changes that require maintenance of gains, peaks, plateaus, and losses; established adults tend to encounter relative stability in personal gains involving career expertise, becoming new parents and raising young children, and meeting the demands of aging and mostly independent older parents. Furthermore, established adulthood is a developmental period during which humans experience the benefit of good health, enhanced use of cognitive and intellectual abilities, and increasing positive emotions. However, established adulthood involves what Mehta et al. (2020) referred to as the "career-and-care-crunch." Although established adulthood may be assumed to be a rather mundane, developmental tasks during this period of life are far from routine. Established adulthood brings new developmental challenges surrounding work-life balance, while maintaining one's sense of personal identity and variations in personal (internal) and cultural (external) beliefs, values, or attitudes that can improve as well as impede the extent to which established adults are adequately meet work demands and the family matters (see Table below).

Sociological Theories of Aging

The Kansas City Studies of Adult Life represented the foundational theoretical root of social gerontology (Hendricks, 1994). The original aim of this study was the bridge multidisciplinary theoretical thinking across disciplines such as sociology, psychology, and human development in order

to create a stand-alone social aging theory. The Kansas City Studies originated out of the University of Chicago and was conducted from 1952-1963 through a series of longitudinal interviews and surveys with middle aged adults. These efforts resulted in three classical and sociological-based theories of aging and development which any novice-learner of gerontology should be aware. These theories include:

- **Disengagement Theory** (Cumming & Henry, 1961): Postulates that aging involves a mutual withdraw or disengagement between the older adult and the social or cultural system to which that individual belongs. This withdraw or disengagement is considered socially normative and expected and requires that the older adult abandon or assume different social roles in preparation of giving the younger generation social opportunity, as well as allowing the older adult greater flexibility in using one's remaining time to engage in contemplation, solitude, or attending to other worthy efforts central to martial and family relations or preparation for death.
- **Activity Theory** (Havighurst, 1961; Havighurst, Neugarten, & Tobin, 1968): Proposes that aging is a more positive experience when adults remain socially engaged and active as they become older. Social engagement is hypothesized to slow or delay the negative aging processes, as well as enhance life satisfaction and quality of life. As an antithetical response to disengagement theory, it was believed that older adults do not disengage or remove themselves from society, rather they continue to maintain on-going personal relationships and adopt new social roles through activities which they may not have been able to fully engage due to prior adult social obligations, such as employment, civic responsibility, or child rearing. Activity further posits that older adults challenged by role loss substitute alternative roles or activities in order to remain social integrated and connected.
- **Continuity Theory** (Atchley, 1971; 1989): Details an extension of activity theory by proposing that older adults maintain continuity in lifestyle pursuits by adapting and preferring socially and emotionally fulfilling roles and activities connected to their past lived experiences. This process was theorized to reflect internal psychological structures reflecting the older adult's personality, perceptions, and beliefs, as well as external social influences including the family system, social network, and community in which the older adult receives gives and receives support for further maintenance of their self-concept and preferred lifestyle activities and pursuits.

Alternative theoretical perspectives surrounding ageism involve the interaction between race/ethnicity and gender. For instances, the double-jeopardy hypothesis posits that being an older adult member of a racial and ethnic minority population presents a double-disadvantage due to the interactive effect of being old as well as being a person of color (Dowd & Bengtson, 1978; Ferraro & Farmer, 1996). Thus, the combined effect of occupying two potentially socially stigmatized statues has a greater negatively combined effect than only maintaining single social status. For example, being older can contribute to increased disparities in socio-economic stability, increased risk of stereotyping or discrimination, and diminished successful aging potentials; however being older as well as identifying as a woman of color further exacerbates age-associated disadvantages above and beyond one's racial or ethnic identity. King (1988) expanded upon this notion by further coining the theoretical term multiple jeopardy hypothesis, which presumed that one's identity leading to social prejudice or discrimination can result in multiplicative effects and outcomes. Identification as a older person of color can contribute to increased risk of racism, gender discrimination, and reduce social opportunity or socio-economic affluency which have a negative cumulative impact relative to how well one might age across the life-span. Older individuals who fit into more than one "discriminated-against" category are affected by biases against each of category. For example, women may be subject to ageism and sexism, whereas minority-status women are subjective to the multiplicative impact of racism in addition to ageism and sexism.

However, it is plausible that some older adults may be protected from double or multiple jeopardy situations. The age-as-a-leveler hypothesis theorizes that as people continue to become older and closer to death, age itself overrides all other "ism" experiences (Beckett, 2000; Ferraro & Farmer, 1996; Huisman, 2004). Despite any prior status in life, all older adults become victims of the same social stereotypes no matter their gender, race, or other social characteristics. This can be best demonstrated through an example of socio-economic status. For example, an older white man may have enjoyed advantages relative to climbing the corporate career ladder through adult life which allowed for an accumulation of wealth and greater access to resources while supporting family affluency; whereas an older low-income minority woman may have financially struggled throughout her adult years having to work two to three jobs and find accessible social and community resources or government assistance to help support raising multiple children. Although the man may have enjoyed many years of social advantages above and beyond the woman when younger, that age-as-a-leveler hypothesis proposes they are now regarded by society as being old and dependent; thereby having an equally low social ranking and status because they are no longer younger. Thus, there is only a single jeopardy process of ageism rather than a combination of "isms" operating relative to social status and old age.

Another alternative theoretical perspective includes the inoculation hypothesis or the viewpoint that older adults who experience multiple jeopardy may actually fare better in old age than those who have maintained a high social standing and therefore experienced little to no ageism (Kite & Johnson, 1988; Levy & Banaji, 2002; Montepare & Clements, 2001; Zebrowitz, 2003) . The inoculation hypothesis posits that older persons of color and those representing ethnic minorities, particularly women, have endured years of exposure to discrimination, stereotyping, and prejudice. In turn, they have learned how to adopt strategic and innovative ways of coping, developed a higher tolerance level to withstand negative social experiences, and have managed to become immune to the impact of ageism compared to their older counterparts. Thus, upper-income white men may actually find social stereotypes, discriminatory acts, and ageist opinions more challenging and difficult to confront and accept in old age compared to low-income minority women, who have endured many years of being treated as a less respected and desirable member of society. Depending on each person's social experience, the man's long-standing social privilege may also benefit access to economic resources by which to temporary draw upon for protection against a newly acquired lower social status by default of his age. However, this may still not be enough to provide long-term protection against the immediate impact of ageism, which will eventually erode the man's tolerance and ability to cope and adjust to ageist encounters much faster had he endured a lifetime of social discrimination and stereotypes. The inoculation hypothesis is believed to explain why many low-income minority women may thrive better in later adulthood relative to health, longevity, and well-being than their white male and female counterparts.

Ecological Systems Theory

Bronfrenbrenner (1977; 1995) believed that human aging and developmental is shaped by a complex and interactive set of larger social forces and institutions, such as the family, schools, religion, culture, and the passing of time. Bronfenbrenner advocated for an ecological systems perspective to enhance understanding of how different environmental contexts simultaneously impact the development of all humans. According this theoretical approach, there are five ecological systems in place that operate across the life-span As individuals, we are embedded within and surrounded by the dynamic operations of all five systems which determine how we age and develop in space and across time (Bronfrenbrenner 1977; 1995; Bronfrenbrenner & Ceci, 1994; see Figure 3.2). These systems include:

- Microsystem includes the individual's setting and those who have direct, significant contact with the person, such as parents and siblings. The input of those is modified by the cognitive and biological state of the individual as well. These influence the person's actions, which in turn influence systems operating on him or her.
- Mesosystem includes the 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.
- Exosystem includes the 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.
- Macrosystem includes the socio-cultural elements, such as domestic and global economic conditions, geopolitical conflicts, technological trends, cultural values, religious and spiritual philosophies, laws and principles, and public policies that govern social and cultural operations.
- 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.

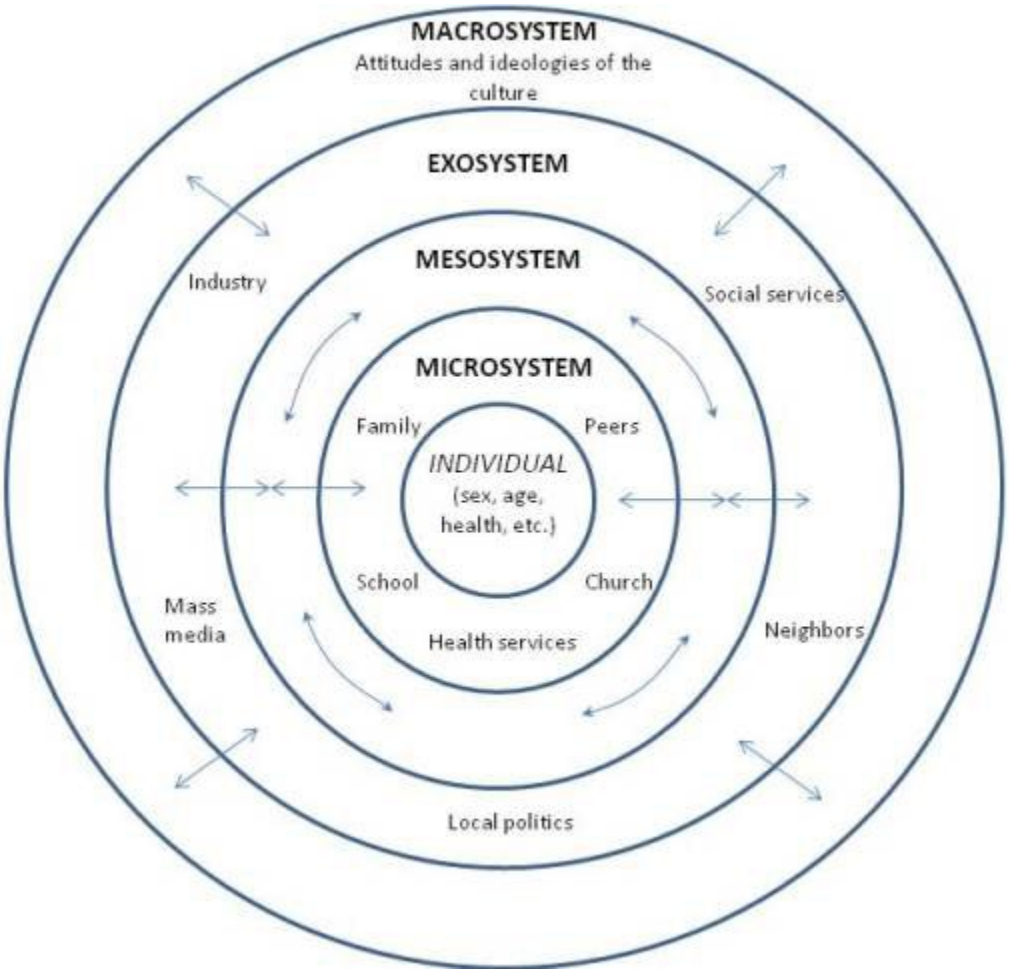


Figure 3.2 Bronfenbrenner's Ecological Theory of Development by Hchokr is licensed CC BY-SA 3.0.

Despite its comprehensiveness, Bronfenbrenner's ecological system's theory has been criticized by critics as not easy to use. For instance, accounting for all the different contextual influences makes it difficult to research and determine the impact of all the different contextual variables that shape human aging and development (Dixon, 2003). Consequently, developmentalists and gerontologists have not fully adopted this approach. Yet, they recognize the importance ecology relative to how humans age, grow, and mature in time.

Life Course Theory

Researchers form the Rochester Adult Longitudinal Study have cited five routes or "life pathways" that individuals encounter when navigating the human life course (Constantinolple, 1969; Whitbourne & Waterman, 1979; Whitbourne, 2010; 2020; Whitbourne, Sneed, & Sayer, 2009; Whitbourne, Zuschlag, Elliot, & Waterman, 1992). First, individuals follow a straight and narrow pathway, whereby they seek to avoid any dramatic life events that might change the current course of their life. Such individuals maintain a philosophy of "if it's not broken; then don't fix it." Therefore, persons on the straight and narrow path of life are engage in consistent and routine patterns of lifestyle choices and decisions resulting in limited to no deviation. Simply put, they are content with the way life is and do very little to change it. Second, persons follow a meandering life pathway. This life pathway represents an antithesis of the straight and narrow in as much that there are some persons who may not be happy or satisfied with the course of their life. Such persons often change their minds and interests and fail to really settle on core direction life should take. Instead, they spend much of their life course engaging in a variety of life commitments such as moving to new geographical locations, trying new careers, and pursuing new hobbies and other interests. For these individuals, it might be said that "variety is the spice of life." Third, some persons enjoy an authentic life pathway or trajectory the includes a series of various changes in order to improve one's sense of identity and meaning, enhance personal growth, or personal security. As an example many persons enter the second-half of life often enter into an authentic trajectory, whereby they may choose to go back to school to receive specialized training or pursue a different college degree or lifelong learning program in order to embark upon a different or more personally fulfilling career, improve work-life flexibility for purposes of spending more time in preferred social role pursuits (e.g., grandparenthood, volunteerism, travel), learning a whole new set of life-skills, or saving and financially planning for one's health and retirement. Fourth, there are persons who also following a triumphant life pathway, or life course trajectory whereby they learn to cope and overcome a variety of early life traumas or set-backs across the life course, such as being abused as a child, exposure to warfare, marital conflict and divorce, or death of a child or spouse. Such persons do not necessarily seek to change the course of their life. Rather, they learn to develop favorable strategies vital to seeking and finding supportive resources, as well as adopting positive resolutions involving the traumatic adversities of life. Despite lifetime exposure to negative events, such persons adopt a more optimistic perception of the past and hopeful view of the future. The real triumph comes when they are better able to handle the difficult moments and developmental challenges of aging during the later years.

Life Course Theory provides a framework for theoretically understanding the course of life. Elder (1998) proposed that that human development and aging occurs across a socio-historical trajectory. Of central importance is the concept of human agency, or an individual's timing, will, and capacity to make decisions and choices relative to directing, determining, and deriving personal meaning from the socio-cultural environment, as well as directing the course of life within the socio-historical constraints and circumstances during which individuals and populations of people age and develop.

To give explanation of the human life course, Elder (1998) framed the "Four T's" of the human life course. The Four T's represented four basic concepts by which the life course perspective is framed. These concepts include:

1. **Trajectories**: long-standing developmental patterns of stability and change reflecting advantage(s) and disadvantage(s) in human agency (e.g., decision to marry, preferred line of work, raising a family)
2. **Transitions**: Momentary periods along the life course representing normative life experiences and expected change(s) along the developmental continuum (e.g., high school graduation, voting, marriage, work, retirement)
3. **Turning points**: Transitions marked by substantial and sometimes life-altering change(s) to the life-course trajectory (e.g., divorce, unemployment, death)
4. **Timing:** Socio-historical circumstances reflecting individual and collective encounters of "on-time" versus "off-time" life events which delay or accelerate stability or change (e.g., economic growth; state and national elections, supreme court decisions; climate change; warfare)

Expanding upon the Four T concepts, Elder (1998) recognized that these concepts incorporate three key variables necessary for understanding human aging and development. These variables include: Age (Individual-level chronology and social experience); Cohort (Collective and shared social experiences of persons born the same year or within same period of years) and; Period (Historical timing of social experiences relative to onset, progression, duration, and ending). Taking these variables into account, Elder (1994; 1998) elaborated upon the Four T's concept by positing five essential principles of the human life course.

Principle 1: Age-Stage

According to life course theory, chronological timing within development stages or periods of life shapes how individuals perceive and make meaning out of life (Elder, 1999; Elder & Conger, 2000; Settersten, Elder, & Pearce, 2021). More specifically, Elder (1998; 1999) theorized that the age and developmental stage during which we encounter various socio-historical events shapes our developmental outcomes later in life. Elder (1998) referred to this process as the age-stage principle. To illustrate this principle, Elder (1998) originally reported evidence pertaining to development outcomes of adults who experienced the Great Depression at age 10. Most notably, children during the Great Depression had to develop specific behavioral routines to maintain a sense of self-worth as well as feeling of industry or "doing good." When examined as adults later in life, these same children recalled that they had to often find work to economically support their family, and in some cases they were designated as the head of the household in the absence of a father who was away actively seeking work (Elder, 1999; Settersten et al., 2021). Elder (1999) noted that such critical developmental experiences during childhood shape the way persons behave, cope, and develop in later in life. Among children of the Great Depression, many commonly adopted minimalist living standards such as recycling, restoring, and reusing various products of living, engaging in frivolous consumer spending favoring saving one's money for a rainy day or potential future economic collapse, as well as having the knowledge to complete a variety of life skills or what is commonly referred to as being a "jack-of-all-trades and master of none." Thus, our chronological age and the developmental stage at which we are exposed to social and historical experiences differentially shape our behaviors, routines, preferences, beliefs, and attitudes later in life. Similar evidence based on the life course of children who experienced the Iowa family farm crisis of the 1980's has demonstrated further replication of the age-stage principle (Elder &

Conger, 2000). Bengston and Kuypers (1973) referred to the development link between age and stage across family members as a phenomenon as the "intergenerational stake," or a process by which persons of varying ages and stages express perceptual and behavioral differences unique to their own development. While children seek to secure a sense of individuation from parents through autonomy and productivity; their adult parents seek to maintain a sense of social interconnection through a demonstration of care, commitment, and legacy toward the next generation. Such processes in childhood as well as adulthood are essential determinants of how both child and adult will address the domains of life (e.g., family, work, economics, religion) in old and very old age.

Principle 2: Linked-Lives

Similar to Brofrenbrenner's ecological systems approach, Elder (1994; 1998; 1999) believed that humans are ecologically embedded within social settings. Most important, our social networks, relationships, and interactions are interconnected across multiple social contexts. At a very basic level, we are share an interconnection to family at birth. Whether we are born to a single-parent or two married parents, our birth right automatically makes an interconnected member of a family unit and system in which we are have direct and indirect kinship ties including but not limited to grandparents, siblings, cousins, aunts and uncles. Life course theory acknowledges that family systems further connect individual members to the broader ecology of the social system via the neighborhoods in which one may live, work, and play; the schools which one may attend and are educate; the churches, synagogues, or mosques of which one may have membership to practice faith; or even the local, county, state, or national regions in which the individual may come to engage in various cultural customs or agree or dissent to obey laws and policies (Elder, 1998; 1999; Elder & Conger, 2000). However, Elder (1998; 1999) also theorized that each of us is also bonded to a multitude of different persons with whom we may share or not share commonalities in our development. Some of these persons may remain complete strangers for the rest of our lives, whereas others will be considered acquaintances or life-long family and friends. Elder (1994; 1998; 1999; Elder & Conger, 2000; Settersten et al., 2021) noted that all humans are born into and represent a particular birth cohort of persons with whom they collectively adopt, share, and witness similar socio-historical events across the life course. We are not only individual members linked to a family. Instead, we are individual members linked to a greater collective membership of society by virtue of the year or historical period in which we may be born. Being a member of such group means that we develop together rather than alone. Essentially, our lives are linked to people whether as an individual connected to a generation, or family and blood-related social ties; or an individual who by default enters into a collective membership or cohort of others who share the same birth year. Regardless, Elder (1994; 1998; 1999) postulated that developmental course of human life is influenced by the persons with whom we are linked immediately from birth, and with whom we may affiliate by virtual of being born at a particular point in time and history. Such social connections further shape our social development into old and very old age relative to our preferences, beliefs, attitudes and alignments involving others with whom we will gravitate as well as seek care and assistance.

COHORT	SHARED HISTORY	SHARED BELIEFS	SHARED IDENTITIES
TRADITIONALISTS (1925-1945)	• Great Depression • World War II • Post-War growth	• Work for the common good • Age earns respect • Skill advancement • Live within means	• Loyal • Dependable • Straight-forward • Tactful
BABY BOOMERS (1946-1964)	• Cold War • Vietnam War • Civil Rights • Watergate	• Wealth through sacrifice • Work hard; play fair • Focus on teamwork • Peace, love, and equality	• Competitive • Optimistic • Workaholic • Team-oriented
GENERATION X (1965-1980)	• Arms Race • Aids Epidemic • Fall of Berlin Wall • Dot-com boom	• Diversity • Work-life flexibility • Practicality and efficiency • Technology progression	• Flexible • Skeptical • Independent • Informal
MILLENIALS (1981-2000)	• Columbine shooting • 9/11 • Internet	• Personal growth • Work-life-balance • Sustainability • Social responsibility	• Civic engagement • Open-mindedness • Competitive • Achievement-oriented
GENERATION Z (2001-2020)	• Iraq/Afghanistan War • Great Recession • COVID-19 • Smart/AI Tech	• Social justice • Diversity, Equality and Inclusion • Individuality and self-identity • Innovation and creativity	• Progressive • Global • Autonomy • Tech dependent

Principle 3: Cycle-of-control

Life course theory posits that most persons seek control over the direction and outcome of their life course (Elder, 1994; 1998; 1999). However, the trajectory of the individual life course development

depends upon two types of control (Elder, 1998; Elder & Conger, 2000; Settersten et al., 2021). First, some persons may feel a high degree of personal or internal control over the direction of their life. Elder (1998) referred to this as the internalization of control, or individual perception or internal locus of control belief that the timing and occurrence of life experiences and events is due to the choice, decisions, or actions of the person. In other words, persons with an internal locus of control believe they largely responsible for current and future failures and success in life. In turn, persons with a strong internalization of control view negative life experience, difficulty, or challenge as something that can be easily corrected or resolved by one's own behavioral actions and efforts. Second, some persons may feel a high degree of external control over the trajectory of their life. Elder (1998) referred to this as the externalization of control, or the individual perception or external locus of control whereby the timing, circumstances, and outcomes of one's life are due to chance, luck, fate, or something greater than one's self. Thus, persons who express an externalization of control often less responsible for the trajectory of life. They may feel that certain situations, circumstances, or happenings in life are beyond their control, skills, or abilities. Ultimately, nothing can be done to change one's current or future life experience. Instead of taking corrective action to change the direction of life, a externally controlled individual may elect do to little or nothing about the situation. If it turns out something good or bad, as well as easy or difficult will result in life, then it was likely due to someone or something else beyond the person. A classic example of the cycle-of-control in the life course involves the impact of a natural disaster. A natural disaster can be a life-altering event that sets the individual life course on a varying trajectory. In the aftermath of a natural disaster, it is not uncommon to hear two contrasting responses from those who experienced the same devasting event. First, there are those who tend to be internally directed. Such persons take control of the situation by immediately and independently cleaning-up, rebuilding, and trying to regain some type of normalcy to everyday life. In some cases, persons with a high sense of internal control might admit that they are not going to sit around and await until local emergency management officials or government assistance has arrived before they begin to "build again." Second, there are those who may be externally directed. These persons may be somewhat resistant at first take immediate action. Instead, they make take a moment to reflect upon the aftermath of the disaster, contemplate their own survival, or even say a prayer. Such persons may admit that the event was an act of nature, or event further suggest something beyond oneself, whether God or some other supernatural power or entity, had provided for their safety and continued survival. In some instances, such persons may admit that they are going to "wait and see" what happens before picking up the pieces.

Principle 4: Situational imperative(s)

There moments in the life course that demand individuals immediately engage human agency. The unpredictability of life can translate into situations where quick decision-making and choices need to be made. Doing otherwise is an imperative matter of life and death. Elder (1998) referred to such situations across the life course as situational imperatives, or life-situations that require use of human agency to resolve and the consequential or potential threat of harm due to a life-occurring stressors. In some cases, situational imperatives can be thought of as being like a "fork in the road" of life. There are times during the course of life, we as humans may be forced to take action and make decisions that could potentially be life-changing. Any decision, whether informed or uninformed, will potentially have good as well as bad consequential effects on our development as we continue to age through life. You might say situational imperatives are like having a "damned if you do; damned if you don't" compromising moment in life. For many, the question may be: What do I do? Dannefer (2003) elaborated on Elder's (1998) situational imperative concept by proposing the Cumulative Advantage/Disadvantage (CAD) theory, which posits that interindividual divergence in late-life development emerges from lifetime

decisions involving domain-oriented experiences in marriage, family, work, health, or socio-economics. Failure to act or resolve the divergent life situations may imperatively do harm and can significantly and negatively alter the trajectory of the life course to the point of contributing to the accumulation of disparities. For example, addictive behavior may contribute to marital conflict, which then leads to the risk of divorce and possibly unemployment and financial setbacks. Over time, this can lead to negative developmental outcomes in biological, psychological, and social functioning. However, positively engaging one's human agency to resolve imperative life situations helps offset the deleterious nature of domain-oriented stressors contributes to advantageous developmental outcomes. Similar to the example above, a person may seek treatment for addiction, which helps subside marital conflict as well as reduces the risk of job termination resulting in financial stability. According to Elder (1998), the timing of imperative situations is essential to making sound decisions. It is important to note that situational imperatives can arise as both (1) "off-time" experiences or what might be termed unexpected or developmentally non-normative stressors (e.g., being married, remarried, and divorced multiple times before age 30); and (2) "on-time" experiences or expected and developmentally normative life conditions or situations (e.g., high school graduation, followed by work or college, which is then followed by employment, marriage, and raising a family).

Principle 5: Accentuation

Elder (1994; 1998) designated accentuation as a fifth and final principle of life course theory. This principle emphasizes the link between early life experiences later-life developmental outcomes. However, the magnitude (e.g. strength/severity), direction (e.g., negative/positive) or significance (e.g., meaning/non-meaning) of this relationship is only positively or negatively robust to the extent that the individual can access and favorably use individual psychological traits (e.g., identity/personality, cognition, will, and purpose) and social and community provisions (e.g., support, economic, religious) resources. For example, a mid-life adult who was physically abused as a child might directly anticipate being challenged by post-traumatic stress symptoms and negative memories of the past. In the near-absence of psychosocial resources, the severity of these symptoms and memories would likely be greater and more negative. Yet, if the person is able to access and use psychosocial resources effectively the severity of such symptoms and memories of one's past might potentially diminished or be reduced during later life. Martin and Martin (2002) proposed a similar model which illustrates accentuation (See Figure 3.3). Designated as the Developmental Adaptation Model (DAM), Martin and Martin (2002) posited that adverse child experiences and family adversity represent two of the most salient and distal early-life experiences detrimental to successful late-life development. Such early experiences contribute to proximal life experiences and everyday access and use of psychosocial resources. In turn, this proximal mechanism contributes to adaptative behavior in the form of coping strategies which can help improve biological, psychological, or social development in old age. Recent evidence suggests that DAM provides a sound conceptual framework for modeling, testing, and theorizing life course processes involving accentuation among middle aged and older adults with a history of child and family adversity (Randall & Bishop, 2019; Randall & Bishop, 2022).

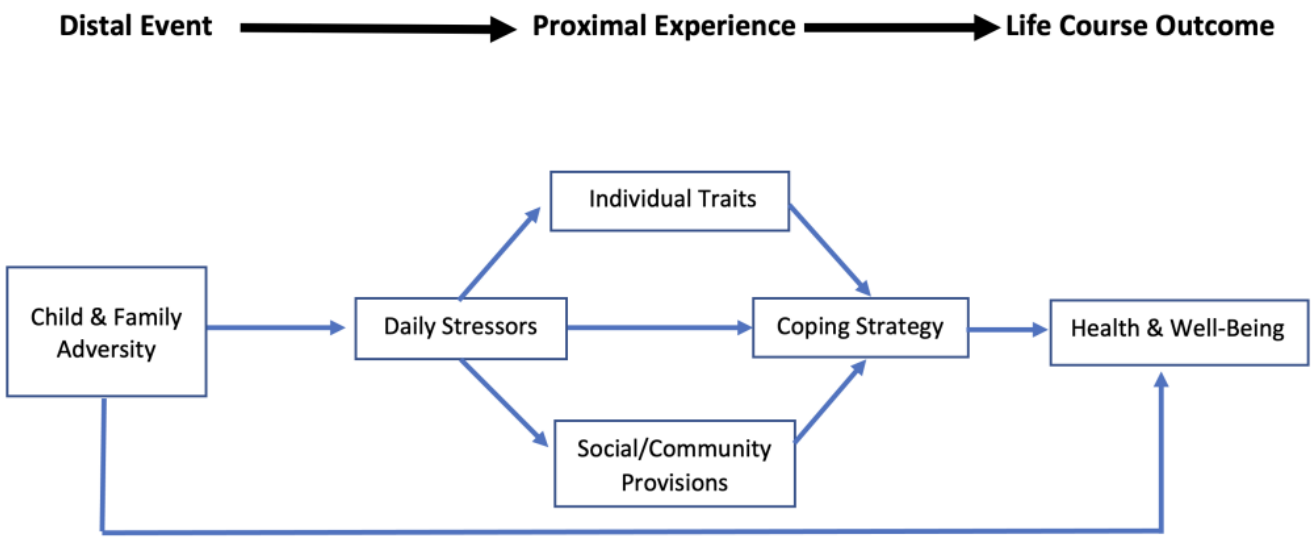


Figure 3.3 Developmental Adaptation Model by Dr. Alex Bishop, licensed CC BY-NC-SA 4.0.

Key Takeaways

Important concepts from this chapter include, but are not limited to, the following:

- In addition to genetic processes, aging also involves psychological dimensions as well as sociological dimensions
- Erik Erikson's stages of development help explain common connections that many people share based on their age range
- Joan Erikson's Ninth Stage helps explain the unique needs and considerations of older adults
- Gerotranscendence consists of three dimensions that are primarily observable among older adults: the Cosmic dimension, the Selfing dimension, and the Social and Personal Relationship dimension.
- Paul Baltes's holistic approach to gerontology involves the study of aging as a holistic process
- Sociological Theories of Aging primarily involve Disengagement Theory, Activity Theory, and Continuity Theory
- Ecological Systems Theory involves five key systems: Micro, Meso, Exo, Macro, and Chrono
- Live Course Theory provides a framework for theoretically understanding the entire course of life, including the four T's of Trajectories, Transitions, Turning Points, and Timing.
- Elder's five essential principles of the human life course are Age-Stage, Linked Lives, Cycle of Control, Situational Imperatives, and Accentuation.

References

Atchley, R. C. (1971). Retirement and leisure participation: Continuity or crisis? The Gerontologist, 11(1), 13-17. https://doi.org/10.1093/geront/11.1_Part_1.13

Atchley, R. C. (1989). A continuity theory of normal aging. The Gerontologist, 28(2), 183-190. https://doi.org/10.1093/geront/29.2.183

Baltes, P. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. Developmental Psychology, 23(5), 611-626. https://psycnet.apa.org/doi/10.1037/0012-1649.23.5.611

Baltes, P. (1997). On the incomplete architecture of human ontogeny: Selection, optimization, and compensation as foundation of developmental theory. American Psychologist, 52(4), 366-380. https://psycnet.apa.org/doi/10.1037/0003-066X.52.4.366

Becket, M. (2000). Converging health inequalities in later life-An artifact of mortality selection. *Journal of Health and Social Behavior, 41*, 106-119. doi: 10.2307/2676363.

Brim, O. G., Ryff, C. D., & Kessler, R. C. (2004). The MIDUS National Survey: An Overview. In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we?: A national study of well-being at midlife* (pp. 1–34). The University of Chicago Press.

Bronfrenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32(7)*, 513-531. https://psycnet.apa.org/doi/10.1037/0003-066X.32.7.513

Bronfrenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder Jr., & K. Lüscher (Eds.). Examinging lives in context: Perspectives on the ecology of human development (pp. 619-647). American Psychological Association. https://psycnet.apa.org/doi/10.1037/10176-018

Bronfrenbrenner, U. & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. P*sychological Review, 101(4),* 568-586.

Cowgill, D. O., & Holmes, L. D. (Eds.). (1972). *Aging and Modernization*. New York: Appleton-Century Crofts.

Constantinople, A. (1969). An Eriksonian measure of personality development in college students. *Developmental Psychology, 1(4),* 357-372.

Cumming, E. & Henry, W. E. (1961). *Growing Old: The process of disengagement*. New York: Basic.

Darrell, A., & Pyszczynski, T. (2016). *Terror management theory: Exploring the role of death in life*. New York, NY: Routledge.

Dowd, J. J., & Bengtson, V. L. (1978). Aging in minority populations: An examination of the double jeopardy hypothesis. *Journal of Gerontology, 33(3).* 427-36. doi 01.1093/geronj/33.3.427.

Elder, G. H., Jr. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly, 57 (1)*, 4-15.

Elder, G. H., Jr. (1998). The life course as developmental theory. Child Development, 69 (1), 1-12. https://doi.org/10.1111/j.1467-8624.1998.tb06128.x

Elder, G. H. (1999). *Children of the great depression, 25th anniversary edition*. New York, NY: Taylor and Francis.

Elder, G. H., & Conger, R. D. (2000). *Children of the land: Adversity and success in rural America*. Chicago, IL: University of Chicago Press.

Erikson, E. H. (1950). *Childhood and society*. New York: W.W. Norton & Company.

Erikson, E. H., & Erikson, J. M. (1997). *The life cycle completed*. New York: W. W. Norton & Company.

Ferraro, K. F., & Farmer, N. M. (1996). Double jeopardy, aging as a leveler, or persistent health inequality? A longitudinal analysis of white and black Americans. *Journal of Gerontology: Social Sciences, 51(60), S319-328*.

Flamion, A., Missotten, P., Jennotte, L., Hody, N., & Adam, S. (2020). Old-age related stereotypes of preschool children. *Frontiers in Psychology, 28,* Vol. 11-2020. https://doi.org/10.3389/fpsyg.2020.00807.

Havighurst, R. J. (1961). Successful aging. *Gerontologist.* https://doi.org/10.1093/geront/1.1.8

Havinghurst, R., Neugarten, B. & Sheldon T. (1968). In B. Neugarten (Ed.). *Patterns of Aging in Middle Age and Aging*, pp. 161–172. Chicago, IL: University of Chicago Press

Huisman, M. (2004). Socioeconomic inequalities in mortality among elderly people in 11 European countries. *Journal of Epidemiology and Community Health, 58*, 468-475. doi: 10.1136/jech.2003.010496.

Kennison, S. K., & Byrd-Craven (2018). Childhood relationship with mother as a precursor to ageism in young adults. *Current Psychology.* https://link.springer.com/article/10.1007/s12144-018-9838-2

King, D. K. (1988). Multiple jeopardy, multiple consciousness: The context of a black feminist ideology. *Signs, 14(1)*. https://doi.orgg/10.1086/494491.

Kite, M. E., & Johnson, B. T. (1988). Attitudes toward older and younger adults: A meta-analysis. *Psychology and Aging, 3,* 233-244.

Lachman, M. E., Teshale, S., & Agrigoroaei, S. (2015). Midlife as a pivotal period in the life course: Balancing growth and decline at the crossroads of youth and old age. International Journal of Behavioral Development, 39, 20-31. https://doi.org/10.1177%2F0165025414533223

Levy, B. R., & Banaji, M. R. (2002). Implicit ageism. In T. Nelson (Ed.). *Ageism: Stereotypes and prejudice against older persons (pp. 49-75)*. Cambridge, MA: MIT Press.

Levy, S. R. (2018). Toward reducing ageism: PEACE (positive education about aging and contact experiences) model. *The Gerontologist, 58(2),* 226-232. doi:10.1093/geront/gnw116

Martin, P., & Martin, M. (2002). Proximal and distal influences on development: The model of developmental adaptation. *Developmental Review, 22 (1),* 78-96. https://psycnet.apa.org/doi/10.1006/drev.2001.0538

Mehta, C. A., Arnett, J. J., Palmer, C. G., & Nelson, L. J. (2020). Established adulthood: A new concept of ages 30-45. *American Psychologist, 75, 4*, 431-444.

Montepare, J. M., & Clements, A. M., (1988). "Age schemas:" Guides to processing information about the self. *Journal of Adult Development, 8*, 99-108.

Randall, G. K., & Bishop, A. J. (2021). Testing a portion of the Oklahoma aging inmate forgiveness model. *Journal of Religion, Spirituality, & Aging, 33(4),* 430-447. https://doi.org/10.1080/15528030.2021.1891187

Randall, G. K, & Bishop, A. J. (2022). Forgotten variables and older men in custody: Negative childhood events, forgiveness, and religiosity. *International Journal of Aging and Human Development, 94(1).* https://doi.org/10.1177/00914150211031892

Ryff, Carol D., Kitayam, Shinobu, Karasawa, Mayumi, Markus, Hazel, Kawakami, Norito, & Coe, Christopher (2011). Survey of Midlife in Japan (MIDJA), April-September 2008 – Version 2. https://doi.org/10.3886/ICPSR30822.v2

Settersten, R. A. Jr., Elder, G. H. Jr., & Pearce, L. A. (2021). *Living on the edge: An American generation's journey through the 20th century.* Chicago, IL: University of Chicago Press.

Tornstam, L. (2005). *Gerotranscendence: A developmental theory of positive aging*. New York: Springer Publishing.

Whitbourne, S. K. (2010). The search for fulfillment. New York: Ballantine.

Whitbourne, S. K., Sneed, J. R., & Sayer, A. (2009). Psychosocial development form college through midlife: A 34-year sequential study. *Developmental Psychology, 45(5),* 1328-1340. doi2009-12605-011[pil] 10.1037a0016550.

Whitbourne, S. K., & Waterman, A. S. (1979). Psychosocial development during the adult years: Age and cohort comparisons. *Developmental Psychology, 15(4),* 373-378.

Whitbourne, S. K., Zuschlag, M. K., Elliot, L. B., & Waterman, A. S. (1992). Psycosocial development in adulthood: A 22-year sequential study. *Journal of Personality and Social Psychology, 53(2),*260-271.

Zebrowitz, L. A. (2003). Aging stereotypes-internalization or inoculuation? A commentary. The Journals of Gerontology, Series B, 58(4), P215-P215. https://doi.org/10.1093/geronb/58.4.P214

SUCCESSFUL AGING

Chapter 4: Health and Aging

Learning Objectives

After reading through Chapter 4: Health and Aging, students should know, learn, or be able to do the following:

- **Analyze Health-Aging Dynamics and Indicator Decreases:** Analyze the intricate connection between health and aging, exploring how diminishing health indicators over time contribute to the aging process, and critically evaluate the implications of these changes on individuals' well-being.
- **Evaluate Human Health Warranty and Age-Related Susceptibility:** Evaluate the concept of Human Health Warranty, assessing its implications on human susceptibility to health-related issues as age advances, and apply critical thinking to discuss potential strategies for managing these challenges.
- **Examine Physical Changes with Aging:** Examine physical changes, including alterations in hair, skin, and body composition, that occur as humans age, and critically assess how these changes impact self-perception and societal attitudes toward aging.
- **Analyze Sensory and Perception Alterations:** Analyze the diverse sensory and perception changes that accompany human aging, including vision, hearing, balance, taste, smell, touch, and pain, and evaluate the potential consequences of these changes on individuals' daily lives.
- **Assess Vital Bodily Function Changes and Implications:** Assess the changes and degradation in vital bodily functions as humans age, including incontinence, hypothyroidism, decreased immunity, and altered sleep patterns, and compare and contrast the implications of these aging symptoms on overall well-being.

Chapter Outline

Americans live to breathe. This had become a commonly adopted and socially accepted worldview of health. Our individual health is extremely important and priceless. Yet, some adults maintain the belief that “you only live once (YOLO)” and thus they tend to be careless when it comes to protecting health. Such individuals tend to engage in risky health behaviors such as smoking, binge drinking alcohol, consuming large amounts of high sugar and high caffeinated energy drinks, staying awake all hours of the night and functioning on less than six hours of sleep, or engaging in unprotected sexual intercourse. On the other hand, a growing proportion of individuals expressed a heightened awareness about their health and prefer to protect and maintain health functioning for as long as possible across the course of their adult human life-span and into old age. Many of these adults will visit a physician for a routine annual physical, periodically check key vital signs such as temperature, blood pressure, respiration, and pulse, or even opt to order the salad or vegetarian menu item over the usual cheeseburger, fries, and large soda at the drive-thru. Meanwhile, others spend countless amounts of time and energy going to the gym, hitting the weights, exercising, and staying fit in order to maintain peak levels of strength and performance. Furthermore, many adults remain food conscious and highly attentive and aware of the nutritional content of the food they consume by checking the caloric content, type and amount of fat,

percent of sugars and added sugars, and overall ingredient listing on printed labels of food products which they purchase to eat, drink, and ingest and absorb into their bodies.

Health is way of life in today's contemporary world. Any given second, minute, hour, or day we are bombarded by marketing advertisements on television, radio, podcasts and webpages, that claim to delay, prevent, or eradicate aging in some way, shape, or form. You are not alone if you have experiment with the latest exercise, diet or health craze, purchased an anti-aging beauty product, or consumed the latest designated "super food" which marketed and advertised as helping humans look, feel, and be younger. Countless number of persons have fallen victim to spending money on skin care lotions and products, fruit and vegetable-based energy drinks, pills, vitamins and protein powders; smart watches and other devices, trinkets, and whatnot, that promise to enhance immunity, ward off disease, and make it easier live a longer and healthier life. Why would not a person try such products from time-to-time? For centuries, we humans have possessed a certain a level of curiosity when it comes to seeking and discovering the fountain of youth and eternal health. Even Ponce de León, the great Spanish explorer, led an expedition along the coast of Florida in 1513, where myth and legend suggests he discovered the fountain of youth in what is now the community of St. Augustine, the oldest continuously occupied European settlement and city in the United States. Here, Ponce de León claimed he had discovered magical healing waters which restored one's youthful appearance, vigor, and stamina. Unfortunately, de León's life was cut short when he was wounded by an arrow in his thigh during a skirmish with the native Calusa people while attempting to establish a Spanish colony in Southwest Florida. De León died from his wounds, likely due to his body's inability to fight infection, a few months later. An ironic twist of fate in the fountain of youth myth which has persisted for over 500 years. Nonetheless, our health is the ultimate investment with the greatest lifetime of potential return. If we do not make attempts to seek, discover, or invest in our health, then the probability that we will succumb to disease, disablement, or death before rather reaching a successful old age will increase.

Human Health Warranty

When does human health begin to fail? Some experts contend that mid-life marks the beginning of the end of the human health warranty, or the state in which the human species can expect to encounter biological loss and physiological constraint that necessitate medical intervention and monitoring in order to sustain continued functioning and delay mortality. Carnes and Witten (2014) revealed that the chronological age period of 50-55 years represents the effective beginning of biological decline and increased susceptibility to disease and disablement in humans. Three processes are hypothesized as effectively changing our biological system between the 50-55 year age period. For women, age 50 typically marks the beginning of menopause, or the cessation of the menstrual cycle and end of reproduction. In fact, the average age of menopause is around 51 years of age. There are three stages of menopause. First, there is perimenopause which can occur 3-5 years before menopause. When women reach their late 40's, estrogen and hormonal levels begin to drop which contributes to irregular menstrual cycles and a variety physical symptoms that can include: hot flashes, insomnia, night sweats, elevated heart rate, mood disturbances, vaginal dryness, and urinary problems. Menopause represents the second stage. Menopause technically occurs when a woman has missed their period for at least 12 straight months without experience of illness, medication, pregnancy or breastfeeding. The transition from perimenopause to menopause can take an estimated 1-3 years. The third stage involves post-menopause. Post menopause begins one year since the last menstrual cycle of period. Similar to periomenopause, it is not unusual to experience the aforementioned physical symptoms. Continued decreases in estrogen during this stage put women at greater risk for increased health risks including

weight gain, heart disease, and osteoporosis. It is important to note that events other than normative aging do contribute to an earlier menopause. For instance, women that undergo surgical removal of the uterus or hysterectomy will certain experience an early menopause than their counterparts who do not.

On the other hand, middle aged men after age 50 may experience a process referred to as andropause. This is often referred to as "male menopause" and is largely used to describe decreasing testosterone levels. However, it is important to note that this process is significantly different from women. In women, ovulation ends and hormone production diminishes in a relative short period of time. Among men, the production of testosterone and other hormones gradually declines at a much slower rate and elongated period of years, and many men experience no symptoms whatsoever. Most older men are able to maintain testosterone levels within the normal range. In fact, there is much variability among those who have levels considered low with an estimated 10-25% of men considered to have low testosterone. Unlike women experiencing menopause, men can also remain fertile well-beyond 50 years of age and across the entirety of their life-span. Yet, experts note that aging men normatively have negative semen and fertility parameters that can contribute to difficulty reproducing with a partner, as well as greater risk of offspring born with physical or neurological health problems (Mazur & Lifpshultz, 2018). That being said, it is still not well-understood whether the symptoms men report are due to low testosterone or other normative age-associated health conditions linked to a high body max index or increase use of certain prescriptions medications. Nonetheless, common signs and symptoms of adndropause can include things such as:

- Increased weight gain and body fat
- Complaints of fatigue or low energy
- Reduced libido or sexual desire and activity
- Hot flashes and sweating
- Low bone mineral density
- Erectile dysfunction
- Sleep disturbances and insomnia
- Depressed mood
- Reduced sperm count and fertility

In 2018, the Endocrine Society recommended testosterone therapy for men with age-related signs and symptoms of low testosterone. However, further research is needed to determine the negative effects of such treatment. Such treatment can increase risk of stroke, heart attack, and blood clots in men. Thus, it is always best for men to consult a physician before deciding to be placed on any type of testosterone therapy.

In addition to the effective end of reproduction, sex ratio differences also warrant concern relative to a health warranty period. Sex ratio pertains to the available pool of prospective reproductive mates. The highest risk of from avoidable mortality occurs around the age of sexual maturity or approximately age 25 through age 35. There is evidence that number of males and females born during any calendar year can vary. Nonetheless, there has historically been a greater number of females born with the exception of greater equality in sex ratio which had occurred since the 1970's. This may be explained by the (1) absence of major world wars, such as World War II and the Vietnam War, during which a greater number of sexually mature men were killed and are effectively taken out of the mate selection pool, as well as, (2) more recent advances in medicine and health care that have improved and benefited life expectancy of males more than females (Carnes & Witten, 2014). Thus, human life histories can impact the health warranty by the fact of reproductive biology and the failure or ability to pass on genetic

qualities that afford men and women a warranty extension, whereby 50-55 years may be a plausible window of time.

A final contributing factor to the health warranty involves mortality. Risk of mortality exhibits a significant acceleration for both males and females after age 50. In other words, with each additional year of life lived after 50 years, humans have an significantly reduced chance of survival to live another year. The longer we continue to live the more accelerated is our chance for mortality. The only thing standing in-between human survival and the threat of death after age 50 is the fact that many of us will routinely engage in preventative health screenings, seek diagnositic testing for abnormal health symptoms, and undergo minor and major surgical procedures as a corrective cure. In other words, human interaction with modern medicine after age 50 helps to extend an expired warranty. Thus, reaching the end effective end of one's human health warranty is not an automatic death sentence, yet it is important to know that the morbities, or rate of acute, chronic, and lethal diseases, that can impede our health performance and eventually lead to our death start to accelerate the process toward death. According to Carnes and Witten (2014), there is a fourfold increase in lethal morbidities by age 55; a 12-fold increase by age 65; and a 40-to 50-fold increase by age 80. Thus, human need to prepare for geriatric health prevention in their 50's rather than wait until a later age for continued health survival.

Conceptualizations of Health

You may be asking yourself, what basic types of morbidities or health conditions might I encounter once I reach middle age and cross the threshold into late adulthood? For starters, health can be divided in to three simple types. First, there is a physiological health type. Physiological health relates to the body's ability to physiologically function and is best demonstrated by varying health systems such as the cardiovascular, circulatory, respiratory, musculoskeletal, and nervous system. Physiological health is best assessed and evaluated through objective means or tools designed to produce a numerical marker, range, or some other indicator reflective normative versus below normal function. Vital readings are a good example and include objective physiological assessments in the form of weight and height, thermometer readings for body temperature, blood pressure, pulse rate, and respiration rates. More sophisticated ways of evaluation come in the form of blood testing and comparison of white versus red blood cell counts, levels of detectable sugar or iron in the blood, and other comparable tests. Such assessments allow for a determination of whether our physiological health is functioning at a normative level or may be operating under stress depending on what the objective numerical indicator may be and where it may fall on the continuum of normality. Second, there is the functional health type. Functional health relates to the individual ability to engage in some type of physiological function relative as demonstrated through the observation of kinesics or movement and mobility. Of particular importance is the observing performance related to how well one is one is able to move their arms and legs, walk, and perform daily tasks vital to one's livelihood, health, and well-being. Functional health is usually evaluated in one of two performance areas:

1. Physical Activities of Daily Living (PADLs), or everyday task that require performance of routine coordination of movement in the form of sitting, standing, walking, as well as, getting in and out of bed, being able to get on and off a toilet, feeding oneself, and putting on and taking off clothing
2. Instrumental Tasks of Daily Living (IADLs) or daily performance of tasks requiring routine minor movements but essential to one's well healthy well-being including shopping, cooking,

operating and driving a vehicle, taking over-the-counter or prescription medication, paying the bills and monitoring finances, or vacuuming or cleaning one's living area.

A third and final type of health pertains to perceived health, or subjective and qualitative judgement of how one may physically or functionally feel or rate their current state of health. It is not uncommon for humans to base their subjective or qualitative report of health based on social comparison. In fact, older adults commonly compare their health to same-age peers and often report feeling or looking younger, better able to accomplish everyday tasks of living, and physically healthier. Some experts contend that social comparisons of health may actually benefit and protect older adults from developing a negative self-perceptions about their health (Cheng & Chan, 2007; Sayag & Kavé, 2022); thus allowing them to worry less about minor acute symptoms yet pay attention to more significant health problems that might arise. Over time, self-rated perceptions of health tend to be helpful predictors of impending morality among middle aged and older adults (Lorem et al., 2020; Wuorela et al., 2020)

Normative Biological Changes

Physical and Bodily Appearance

How do you know someone is old? Most likely, the first thing that comes to mind are physical features such as wrinkles and gray hair. These are some of the most commonly recognized physical signs of change in our human biology. Humans tend to judge the maturity or age of others on the basis of appearance. There association between the physical signs of aging and the latent changes occurring within the body is often mixed, yet some experts believe that what can be seen on the outside is often an indication of what is likely happening on the inside when it come to human aging (Blume-Peytavi et al., 2016; Christoffersen & Tybjerg-Hansen, 2016).

Skin

Our skin is the largest organ in the human body. Our skin undergoes a visible transformation reflecting age-related changes as early as the 20's with the first signs of aging appearing in our 30's. By the time persons reach age 50, changes in the skin are most apparent around our face, hands, feet, and upper arms. Age-associated changes occur across the various layers of the skin starting with the epidermis, or the outermost layer of skin. The epidermis consist of a thin layer of cells protecting underlying tissue, which loses integrity and patterning with advancing age. The dermis is the middle layer of skin that lies just under the epidermis. The dermis consists of connective tissue, in which nerve cells, glands, and hair follicles. Changes in collagen and elastin, two key protein molecules contribute to changes in the dermis. First, cross-linking of the collagen molecules causes the skin to become more rigid and less flexible. Meanwhile, elastin, a molecule that promotes skin flexibility, is less able to return back to its natural shape as one ages. As we reach mid-life and beyond, this leads to a sagging appearance of the skin particularly around the arms, neck, and face. Below the dermis lies the subcutaneous layer of skin, or the most bottom layer which give the skin its opacity smoothing the curves of our arms, legs, and face. Around middle age, this layer begins to thin and provides less support for the other layers above it. Promote features of this process include increased wrinkling and sagging of the skin. Another prominent feature involves the appearance of visible blood vessels just beneath the skin.

Human skin changes color over the course of our adult life and into old age. A common visible sign of skin aging involves the appearance of lentigo senilis, or age spots, which appear as areas of brown pigmentation particularly on sun-exposed portions of our skin such as the face, hands, arms, and legs. Fair-skinned persons are especially vulnerable relative to developing age-spots over their life-span. Furthermore, it is fairly common for persons to also develop and increasing number of pigmented outgrowths such as moles, as well as angiomas or visibly elevated blood vessels.

Our nails are also a part of skin subject to normative age-associated changes. Our toenails grow more slowly as we age, as well as develop a yellowed and rigid thickened appearance. Many older adults develop fungal infections in their toenails. This causes the nails to thicken and separate from the nail bed. Yeast, bacteria, and molds can also contribute to nail infections. For instance, bacterial infections of the nails is usually visible as a green or black discoloration of the nail. Key risk factors include older age, diabetes, circulatory problems, psoriasis, walking barefoot around damp or wet areas, and wearing shoes that cause the feet to sweat heavily. Medications that suppress the immune system can also make older adults more suspectibl to fungal issues of the nails. In severe cases, fungal infections of the toenails can be painful, lead to permanent nail damage and require removal of the toenail.

General changes to the skin further exacerbate changes in the physical appearance of the face. There are normative changes relative to bone loss in the skill, as well as cartilage changes of the nose and ears, resulting in the nose and ears becoming elongated. In addition, our facial muscles lose the ability to fully contract, thus resulting in diminished smiling width (Chetan et al., 2013). Such changes in our physical facial appearance can make it difficult for others to determine whether we may be happy and content or sad and upset.

Our genetics plays a large part in how slow or fast our skin ages. Fair-skinned persons tend to display a more rapid rate of aging of the skin compared to those with darker or olive-complicated skin. In addition, lifestyle behaviors which increase exposure to sunlight, such as working outside, sun bathing, or driving with the top down, can significantly accelerate the rate at which our skin ages. This is primarily due to photoaging, or age-related changes in the skin due to exposure to ultraviolet light from the sun which accelerates cross-linking, causes mutations altering protein synthesis, and increases production of free radicals.

Hair

Beyond the appearance of skin, our hair represents one of the most outward visible signs that the body is aging. Hair itself does not turn gray; rather the number of pigmented or colored hairs on our head decreases while the number of non-pigmented hairs on our head increases. Around 50 years of age, the production of melanin, which gives our hair color, slows and eventually stops being produced. By the time persons reach 75-80 years of age, there are no naturally colored hairs left on the scalp or other areas of the body. The natural color of our hair no longer exists, and thus we remain gray haired for the remainder of life.

Along with diminished pigmentation, both men and women can expect to experience loss and thinning of the hair. This tends to be more pronounced and visible in men and is a results from the destruction of the germination centers responsible for producing growth of hair in the hair follicles. Although there are several types of hair loss linked to immunity imbalances (areata), stress from childbirth (telogen), radiation/chemotherapy (anagen), and thermal hair treatment damage (traction) the most common type impacting older adults is androgenetic alopecia (see photo insert), in which long, thick, and pigmented

hair or terminal hair is no longer produced and instead is replaced by short, fine, unpigmented hair or vellus hair, which is largely invisible. This type is typically linked to genetics and hormonal changes in aging. For men entering mid-life, it usually comes in the form of male-patterned baldness in which the hairline gradually recedes of moves backward in the form of a "M" shape, while a circular area on the back of the head may thin or gradually expand. Typically, this process results in hair no longer growing on top of the head. Instead, most older adults will find that hair continues to grow and appear in thicker amounts in places on the head where it is not necessarily wanted, such as ones' chin, ears, or eyebrows. There is no cure to end gray hair or thinning and baldness, but consumer topical hair shampoos such as Rogaine can certainly simulate some hair growth; whereas hair coloring beauty products can reduce some depigmentation.

Figure 4.1 Male Pattern Baldness by BlaiserPascal is licensed CC BY-SA 4.0

Body composition

When it comes to the physical maturity, shape, and size of the human body during the middle adult years, most persons experience change in the form of a different resemblance than when they were younger. You may have heard many middle-aged adults refer to this change as the middle age "bulge" or "spread." By the time persons reach 50-60 years of age, one of the first things they will notice is a redistribution of fat in different parts of the body, which creates a new body build or look. Most persons will notice an accumulation of fat resulting in a wider waist and hip circumference. Yet, there is a clear explanation for this process and why it seems more noticeable during our middle years. First, there is conclusive research evidence that people get shorter as they get older. It is a fact. We shrink in height

with age. Human can expect to lose nearly one-half inch in height every 10 years after age 40. By the time persons reach 70 or more years of age, it not unusual to lose a total of 1 to 3 inches in height. Normative age-associated height decrease tends to be more accelerated and pronounced for women. Loss in height over time is due to normative aging processes linked to loss of bone mass in the vertebrae, which results in spinal collapse and a shortening in length (Kaiser et al., 2018). Another explanation for why our bodies change in size and stature involves normative loss in lean body tissue and muscle or what is referred to as fat-free mass (FFM). This contributes to changes in our overall body composition, or body mass index (BMI) across the adult years an into mid-life. BMI is a persons weight in kilograms divided by the square height in meters and serves as an easy screening method to determine if an individual is underweight, at an ideal weight, overweight, or obese. BMI has demonstrated a moderate correlation to body fatness (Flegal & Fraubard, 2009; According to the Centers for Disease Control and Prevention (2022), a healthy BMI is between 18.5 to 24.9. The CDC maintains an easy-to-use and interactive calculator which adults can use to determine whether they are within a healthy BMI range.

It is important to note that the overall pattern of body weight across the adult life span is usually in the form of an inverse or upside-down growth curve. Most persons will experience initial weight gain beginning in their 20's and lasting until around the mid-50's. By the time persons reach age 65 and older, they often experience unintentional weight loss. It is typically normal to lose one-quarter to a half pound of weight each year after turning age 65. Anything more should be considered abnormal and require consultation with a physician or dietician regarding a change in diet. Weight loss after age 65 is not due to a loss of fat. Rather, it is due to a loss of lean muscle, which is often attributed to a normative decreases in physical activity and movement that come with aging.

Sensory and Perception

Beyond the variety of bodily changes we might notice, two of the most commonly expected and normative age-associated changes in health include vision and hearing loss. There are no two ways around it. Most people will require some type corrective action to improve their vision and hearing by the time they reach middle age or enter into later life.

Vision

Around 50 years of age, most if not all persons will experience normal changes of the eye due to age is presbyopia, which is Latin for "old vision." It refers to a loss of elasticity in the lens of the eye that makes it harder for the eye to focus on objects that are closer to the person. When we look at something far away, the lens flattens out; when looking at nearby objects tiny muscle fibers around the lens enable the eye to bend the lens. With age these muscles weaken and can no longer accommodate the lens to focus the light. Anyone over the age of 35 is at risk for developing presbyopia. According to the National Eye Institute (NEI) (2016), signs that someone may have presbyopia include:

- Hard time reading small print
- Having to hold reading material farther than arm's distance
- Problems seeing objects that are close
- Headaches
- Eyestrain

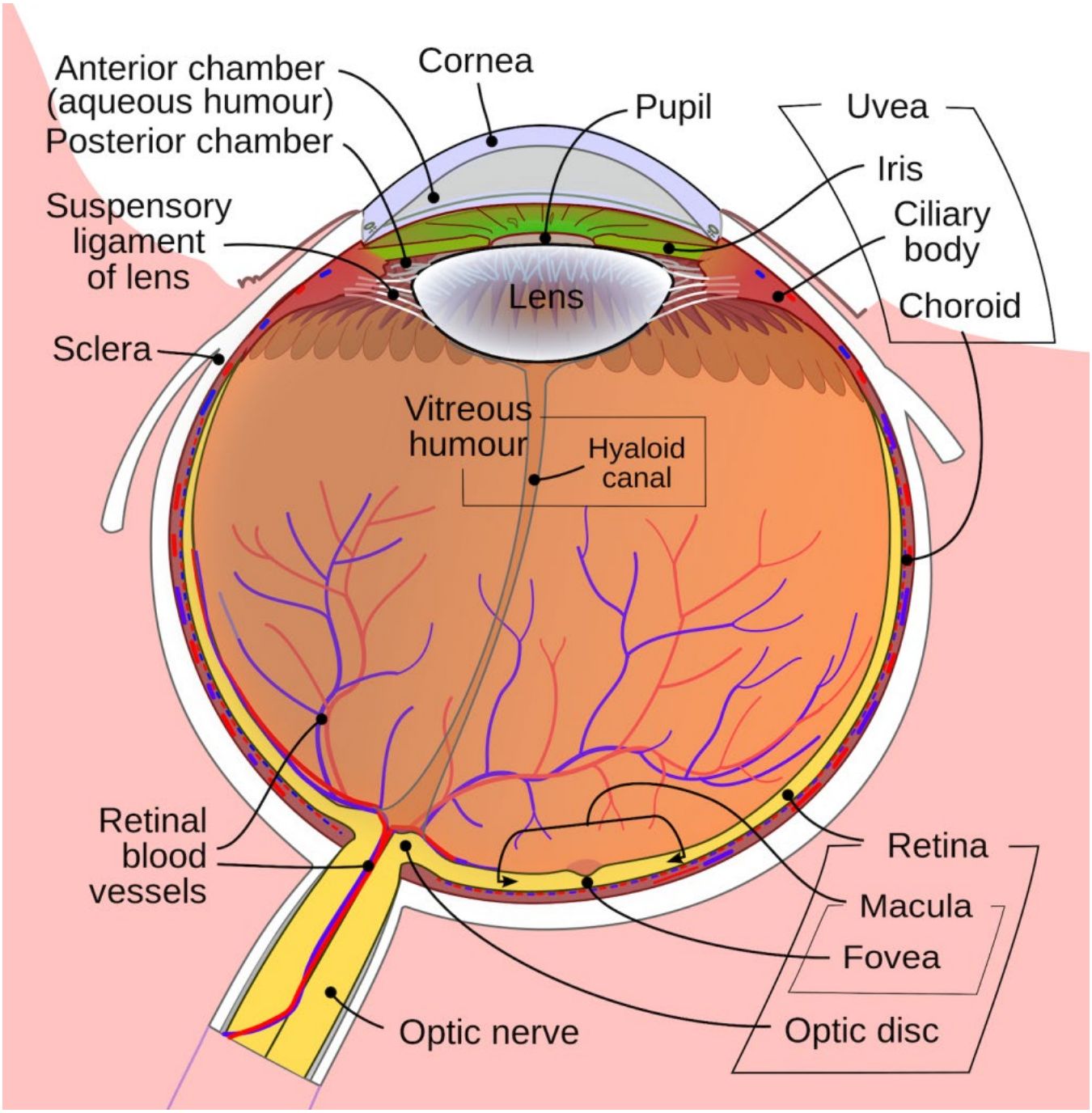


Figure 4.2 Schematic diagram of the human eye by Rhcastilhos and Jmarchn is licensed CC BY-SA 3.0.

Loss of visual acuity is also normative age associated vision issue. The older we become the less likely we are able to make out the details of something seen at a distance. One vision problem that impacts how well an older adults can see are floaters, little spots or "cobwebs" that float around the field of vision. They are most noticeable if you are looking at the sky on a sunny day, or at a lighted blank screen. Floaters occur when the vitreous, a gel-like substance in the interior of the eye, slowly shrinks. As it shrinks, it becomes somewhat stringy, and these strands can cast tiny shadows on the retina. In most cases, floaters are harmless, more of an annoyance than a sign of eye problems. However, floaters that appear suddenly, or that darken and obscure vision can be a sign of more serious eye problems, such a retinal tearing, infection, or inflammation. People who are very nearsighted (myopic), have diabetes, or who have had cataract surgery are also more likely to have floaters (NEI, 2009).

During midlife, adults may begin to notice a drop visual acuity due to scotopic sensitivity, or the ability to see in dimmer light. By age 60, the retina receives only one third as much light as it did at age 20, making working in dimmer light more difficult (Jackson & Owsley, 2000). Night vision is also affected as the pupil loses some of its ability to open and close to accommodate drastic changes in light. Eyes become more sensitive to glare from headlights and street lights making it difficult to see people and cars, and movements outside of our direct line of sight (NIH, 2016c). Finally, some people experience dry eye syndrome, which occurs when the eye does not produce tears properly, or when the tears evaporate too quickly because they are not the correct consistency (NEI, 2013). While dry eye can affect people at any age, nearly 5 million Americans over the age of 50 experience dry eye. It affects women more than men, especially after menopause. Women who experienced an early menopause may be more likely to experience dry eye, which can cause surface damage to the eye.

Amid the experience of normative age-related changes in vision, it is estimated that 50% of adults over age 65 live with a visual disorder. The most common vision impairment or eye disease is a cataract, a clouding or opacity in the lens of the eye often reported as blurred or distorted vision, as well as a "yellowish" hue or tint. Some older adults even describe cataracts as seeing halos or similar to looking a pair of old tinted and blurry sunglasses. Cataracts begin developing in people around age 40 but do not impair vision until age 60 or older. By age 75, approximately half of all persons have cataracts. Cataracts start out as gradual visual cloudiness and progressively evolve into a more opaque visual field. They can impact quality-of-life in old age relative to experiencing difficulty reading, walking and maintain balance, watching television, recognizing faces, or engaging in work, hobbies, or leisure pursuits. Many older adult with cataracts also avoid driving during peak hours of sunlight, as well as at night. Thus, they become dependent on others for transportation. A variety of other age-associated conditions can further impact the onset and progression of cataracts, including obesity, high blood pressure, high blood sugar levels, and excess blood lipids (Poh et al., 2016). However, the use of sunglasses when outside, blue-light blocking lens when working in front of brightly lit screens, as well as a diet high in beta-carotene and vitamin C can keep the eyes health and protect against the severity of cataracts (Sideri et al., 2019). Luckily, cataracts can be easily treated through outpatient eye surgery. Persons who undergo surgical procedures to remove cataracts are usually in and out of an outpatient surgical center in an hour or less and return home to fully recover back to full vision within 7 days or less.

Figure 4.3 Normal vision, cataracts, macular degeneration, and glaucoma by the National Institutes of Health is licensed Public Domain.

A second significant age-associated vision disorder includes age-related macular degeneration (ARMD), a visual condition caused by damage to the photoreceptors located in the central region of the retina or what is referred to as the macula. In other words, ARMD results in a blurred central field of vision. This retinal area is essential for being able to read, drive, and complete visually demanding and selective activities requiring use of one's central vision. In ARMD, receptors in the macular are damaged the point that central vision is impaired and the individual must adapt by rely on peripheral vision fields. Nearly 9.1 million persons age 50 and older in the United have been diagnosed with late stage ARMD, a stage that can lead to severe vision loss and even permanent blindness. By the time persons reach 80 years of age, one in ten can expected to be diagnosed with ARMD. Women around the globe have been reported to be at greater risk than men for developing ARMD (Rudnicka et al., 2012; Sasaki et al, 2018).

There are two forms of ARMD. The "dry" form involves development of drusen in the macula, which are yellow deposits located under the retina. Drusen are easily detectable in persons aged 60 and older. The wet form entails the leaking of blood or fluid from the blood vessels in the retina. The wet form is most likely to rapidly progress and lead to a sudden loss of central vision. Roughly 10% of persons with

ARMD are diagnosed with this wet type; thus most individuals are diagnosed as having the dry form of ARMD.

ARMD forms are clinically classified within clinically groups based on examination of the presence of drusen development in the macula (Ruia & Kaufman, 2023):

- **Group 1: No ARMD/Sub clinical:** No drusen or small drusen but no AMD pigmentary abnormalities; normal to impaired dark adaptations.
- **Group 2: Early-stage ARMD:** More than 15 small drusen or less than 20 medium-sized and indistinct soft drusen with pigment abnormalities without geographic atropy but dark adapatations.
- **Group 3: Intermediate Stage:** At least one large drusen or numerous medium sized drusen present, including those with indistinct as well as distinct boundaries; or presence of pigmentary abnormalities and impaired dark adaptations with non-central geographic atropy not involving the fovea.
- **Group 4: Advanced Stage:** Central geographic atrophy involving the fovea or presence of neovascular ARMD.

A final age-associated visual impairment is glaucoma, or a series of conditions involving the destruction of the neurons leading from the retina to the optic nerve due to increased pressure inside the eyeball. Glaucoma affects more than 2.7 million persons in the United States and represents the most common cause of blindness (NEI, 2016a). Persons over 40 years of age are most at-risk for developing this vision disorder. Over half of all persons diagnosed with glaucoma developed a common type that gradually develops undetected without any real symptoms. Thus, glaucoma can go undetected until the disease has reached advanced stages and it is too late to effectively treat with intervention. Glaucoma essentially involves loss of peripheral vision, and over time remaining vision may diminish altogether leading to complete blindness. In some cases, glaucoma symptoms arise suddenly and may include blurred vision, peripheral vision loss, perception of colored rings around lights, and pain or redness of the eyes. Interestingly, there are variations by sex, race, and health condition. For instance, glaucoma is more common among men than women, particularly those who are nearsighted. Furthermore, African-Americans over age 40 are 6-8 times more likely to be diagnosed with glaucoma than whites. Older adults with diabetes are also twice as likely to be diagnosed with glaucoma. There is no cure for glaucoma, but its rate of progression can be slowed, especially with early diagnosis. Routine eye exams to measure eye pressure and examination of the optic nerve can detect both the risk and presence of glaucoma (NEI, 2016b). Those with elevated eye pressure are given medicated eye drops. Reducing eye pressure lowers the risk of developing glaucoma or slow its progression in those who already have it.

Hearing

Almost 1 in 4 adults aged 65 to 74 and 1 in 2 aged 75 and older have disabling hearing loss (NIH, 2016). Table 9.4 lists some common signs of hearing loss. Presbycusis is a common form of hearing loss in late adulthood that results in a gradual loss of hearing, particulary high-pitched sounds. This has an effect on an older adult's ability to engage in and understand normal conversation and can thereby cause an older adult to avoid noisy social situations or larger gatherings, such as eating in a restaurant or attend group meetings or celebrations (Murphy et al., 2006). Presbycusis is also believed to be hereditary within families and can affect the hearing or a single as well as both ears (NIA,2015c). The single best way to reduce and minimize the risk of hearing loss due to presbycusis is to reduce your exposure to noise.

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 also be potentially related to the use of aspirin, antibiotics, and anti-flammatory medications, past history of head trauma or concussion and the build-up of wax in the ears. 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). The auditory system has two jobs: To help hear, and to help maintain balance. 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).

Common Signs of Hearing Loss
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

Balance

Sense of balance becomes increasingly important with age. It can be the different between unintentional injury and hospital admission, as well as life and death. In fact, poor balance is one of the main factors associated with falls in older adults. Falls are preventable, yet one out of every four older adult, aged 65 and older fall each year in the United States. This equates into over 36 million falls involving older adults reported yearly, resulting in more than 32,000 deaths. Another 3 million older adults treated annually in hospital emergency room departments for an unintentional fall injury. Of those who fall, nearly 75% are women who have fractured their hip, usually due to falling sideways. Thus, age-associated changes in balance should be taken seriously.

It is natural for persons who have had a painful and frightening fall in the past to remain feeling anxious and insecure about any future subsequent or similar fall. The fear of falling can be a vicious cycle in which older adults increasingly restrict their movement and avoid any situations which might make them feel uneasy about ambulating across time and environmental space. In a sense, fear of falling can be adopted by older adults as part of their identity, and thus they can lose confidence in their ability to walk or avoid a fall and eventually encounter other negative physiological outcomes (Horslen et al., 2015). Interestingly, researchers have reported mixed results relative to whether being infected with COVID-19 or obeying stay-at home restrictions increased falls risk or fear of falling among older adults during or after the pandemic (Gawronska & Lorkowski, 2021; Kiyoshi-Teo et al., 2022; McIntyre, Prichett, & McNabney, 2022).

Nonetheless, there are two conditions associated with age-related vestibular dysfunction. These include dizziness and vertigo. Dizziness is an uncomfortable sensation of feeling light-headed and unbalanced. Vertigo refers to the sensation of that one is spinning despite being stationary or at-rest. The vestibular system is so intricately interconnected to other parts of the nervous system that persons may experience a variety of symptoms such as headaches, muscular aches in the neck and back, or increased sensitivity to noise or bright lights. In addition, some persons may report feeling fatigued, unable to concentrate, unsteady while standing, or unable to formulate words. Some of these changes are due to other conditions or diseases of normal aging; whereas others occur as a result of normal alterations in vestibular receptors. Recent evidence on the origins of vertigo suggest that over 50% of vertigo cases in older adults can be traced to three predominant origins (Fancello et al., 2023) approximated as 28.4% attributed to audio-vestibular disorders (conductive and sensorineural hearing loss), 20.4% due to cardiovascular conditions (e.g., hypertension, arrhythmia, ischemic heart disease), and 15.1% connected to on-going neurological diseases (e.g., migraine headache, cerebrovascular disorder, traumatic head injury).

Although older adults may be impacted by dizziness and vertigo, risk of falling is preventable. From a basic practical level, the older adults should sit upright or lie down immediately while tilting their head away from the side in which they feel the sensation of dizziness or vertigo the most. Furthermore, the older adult should avoid drinking caffeine and instead opt to drink more water in order to stay hydrated. Exercise can also help reduce the chances of dizziness and vertigo as well as compensate for factors that might otherwise increase the risk for following. Such exercises include practice relative to maintain proper posture and balance. Other recommended solutions might include having one's ears checked by an audiologist for wax build-up or other inner ear infection or issue, visiting the eye doctor in order to check that one's vision or eyeglasses do not need correction, providing adaptative devices such as grab bars within the home, walking sticks or canes, improved hallway lighting, or providing a bench or stool which can be used to sit while cooking or even taking a shower.

Taste and Smell

Have you ever heard an older loved complain about the taste of food, request for the salt and pepper, and proceed to over-season their food? Better yet, have you ever observed an older adult who seems to have a sweet tooth and enjoys eating abundance of chocolate or other types of candies? The reason for such behaviors may stem from normative age-related changes in taste and smell. The sense of taste and smell are part of our chemical sensing system. Our sense of taste, or gustation, appears to age well. Normal taste occurs when molecules that are released by chewing food stimulate taste buds along the tongue, the roof of the mouth, and in the lining of the throat. These cells send messages to the brain, where specific tastes are identified. After age 50 we start to lose some of these sensory cells. Most people do not notice any changes in taste until ones 60s (NIH: Senior Health, 2016b). Given that the loss of taste buds is very gradual, even in late adulthood, many people are often surprised that their loss of taste is most likely the result of a loss of smell. Our sense of smell, or olfaction, decreases more with age, and problems with the sense of smell are more common in men than in women. 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). In fact, some clinicians use a diagnostic test for dementia referred to as the peanut butter test, in which they measure an older patient's ability to detect and smell peanut butter through each nostril (Stamps et al., 2013).

If any sudden changes in a older adult's ability to taste or smell does occur, then it 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. Such dietary changes can lead to complications relative to high blood pressure, spikes in blood glucose levels, and malnourishment.

Types of Smell Disorders	
Presbyosmia	Smell loss due to aging
Hyposmia	Loss of only certain odors

Types of Smell Disorders	
Anosmia	Total loss of smell
Dysosmia	Change in the perception of odors. Familiar odors are distorted.
Phantosmia	Smell odors that are not present.

Touch

With advancing older 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 time persons reach age 60 and older (Bowden & McNelty, 2013). Yet, there is considerable variability, with almost 40% showing sensitivity 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 greater risk for potential injury (Martin, 2014).

Pain

According to Molton and Terrill (2014), approximately 60%-75% of people over the age of 65 report at least some chronic pain, and this rate is even higher for those individuals living in nursing homes. Although the presence of pain increases with age, older adults are less sensitive to pain than younger adults (Harkins, Price, & Martinelli, 1986). There is a lack of evidence to suggest that older adults become immune from the sensation of pain by the very fact of experiencing a multitude of age-associated sensory changes. 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 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.

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, Moore, Bockow, Ehde, & Engel, 2011). A decline in physical activity because of pain is also associated with weight gain and obesity in adults (Strine, Hootman, Chapman, Okoro, & Balluz, 2005). Therefore, managing or controlling one's weight would most likely be a one effective intervention to enhance quality of life across the life-span. 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).

Vital Bodily Functions

Aging and Muso-Skeletal System Functioning

Mobility is essential to human health and aging. It is considered one of the underlying secrets to living a long life. Our ability to move around and about in our environment is a vital source of autonomy in everyday functioning. Our bones, muscles, tendons, and ligaments are interconnected structures that allow humans to move. On average, each of these structures undergo significant observable change once persons cross the threshold of 40 years of age. Around this time, persons are likely to notice significant age-related losses in walking speed that require them to more intentionally adapt how they move within various spaces over time without making a catastrophic mistake that could lead to an unintentional fall of injury (Dommes et al, 2012). It's a simple fact of aging. Humans walk slower with age (Asher et al., 2015; Dommes et al., 2012; Shumway-Cook et al., 2007). Even a simple task, such as crossing the street, takes us more time to do the longer we live and the older we become (Asher et al., 2015; Dommes et al. 2012). Decline in mobility has been linked to normative age-associated changes in the gait cycle, or the sequential action of walking (Jerome et al., 2015). A gait cycle consists of two primary phases:

1. Stance phase or act of walking in which some part of the foot is in contact with the ground and
2. Swing phase or act of walking in which the foot is not in contact with the ground and one's bodyweight is borne by the other leg or foot.

Normative age-related changes come in the form of slower movement, impaired coordination, balance and stability, reduced muscle strength for weightbearing support in the lower extremities, and increased risk of falling. There is no doubt that many of these age-associated changes are influenced by various foot problems, such as bunions, fungal infections, heel spurs, poor circulation, and nerve damage. In fact, it is very common for older adults to experience neuropathic pain or neuropathy in the feet (Giovannini et al., 2021). Neuropathy entails peripheral nerve damage usually located in the hands or feet which causes sensations such as numbness, tingling, burning, and sharp and stabbing pain. Neuropathy commonly occurs in the presence of other morbidities, such as diabetes, vitamin deficiencies, inflammation, autoimmune disorders, or as a side-effect from taking various toxic medications commonly used in chemotherapy cancer treatments (Bouche, 2020). Approximately 5-7% of all adults over the age of 45 suffer from neuropathy. However, an estimated 50% of all older adults, aged 65 and older, diagnosed with diabetes report symptoms of neuropathy impacting their lower extremities during their lifetime (Hicks & Selvin, 2019). It is further estimated that nearly 10 to 20% of all older adults suffer from some form of neuropathic pain that negatively impacts their ability to walk or ambulate, yet they remain clinically undiagnosed (Bouche, 2020; Giovannini et al., 2021).

Muscles

Our adult years are also characterized by age-associated loss of muscle mass. Consequently, we lose strength and become physically weaker as we age. This has a lot to do with a process known sarcopenia, a geriatric disease characterized by the progressive loss of skeletal muscle mass and decrease in the size and number of fast-twitch muscle fibers responsible for our physical speed and strength (Rosenberg, 1997). When sarcopenia reaches severe levels, it sometimes referred to “muscle wasting.” This is commonly seen in older adults who have spent an extended duration of time bed bound, such as in a hospital or care facility, with little to no physical movement, exercise, or weight and resistance training. Interestingly, muscle strength peaks in our 20’s and 30’s, plateaus in our 40-50’s, and declines at a rate 12-15% faster per decade after reaching 60 (Kostka, 2005). Diminished muscle strength tends to be more pronounced among men. By the time persons reach their 80’s, approximately 50% of all muscle fibers have been lost (Faulkner et al, 2007). Changes in muscle mass are highly associated with age-related decline in strength during our middle and older adult years (Walston, 2012). Loss in muscle strength also occurs from disruption and misfiring of neurotransmission signals within the nervous system that make the muscles contract (Clark & Fiedling, 2012). Finally, the tendons of our joints become more rigid with age. Thus, it becomes difficult and requires greater exertion of muscular strength to create movement in individual joints of the body (Carroll et al., 2008).

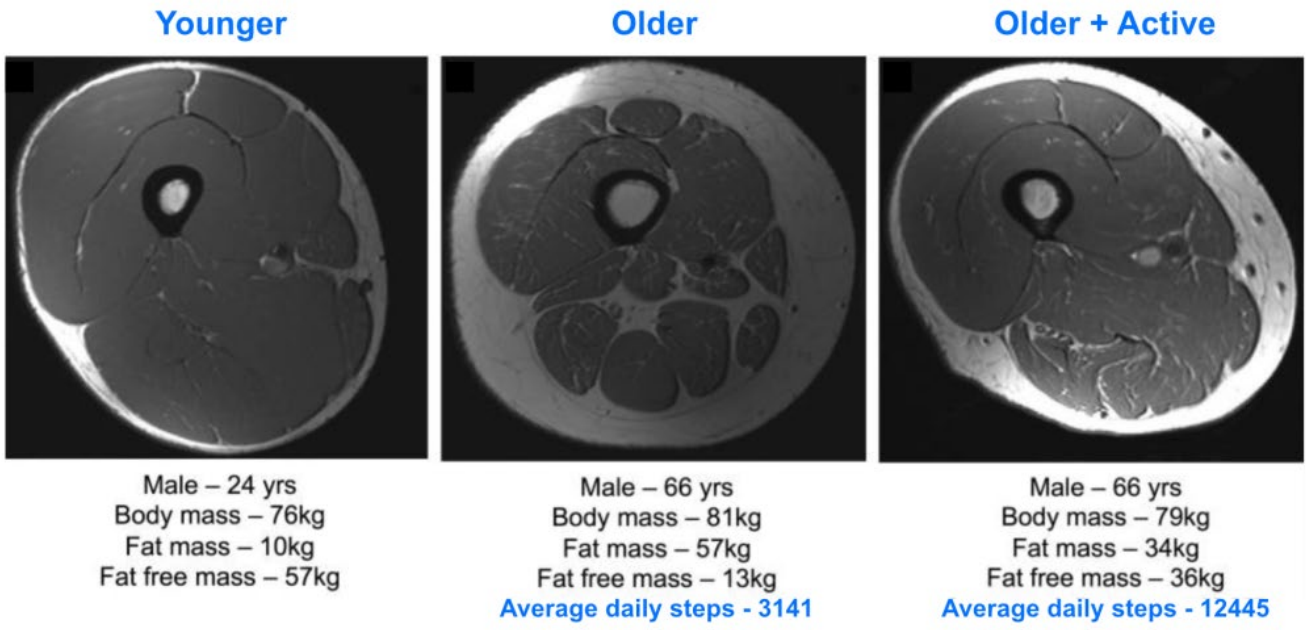


Figure 4.4 Examples of loss of skeletal muscle size and quality during healthy aging by Jan Lexell and William Evans is licensed CC BY 4.0.

As persons age, they normatively engage in lower levels of physical activity. This is one primary contributing risk factor of sarcopenia. Muscle mass decline is further complicated by normative dietary changes that come with aging, such as a decreased appetite or meal-skipping which leads to reduced intake of nutrient and caloric rich foods high in vitamin D and protein (Papadopoulou, 2020). In fact, older adults generally consume 25% less food than they did when younger (Alexandre et al., 2014). Other contributing age-associated risk factors of sarcopenia include genetics, low birth weight, diminished testosterone and estrogen in men and women, chronic inflammation, and poor sleep quality (Papadopoulou, 2020).

Loss of muscle mass put older adults at-risk for falling, limiting mobility, and reduced quality-of-life. Sarcopenia can severely compromises engagement in activities that older adults might enjoy the most. For example the greater the loss in muscle mass; the more difficult it can be to participate in a daily exercise routine, which only leads to more weakening of the muscles (Lang et al., 2009; Papadopoulou, 2020). There is also the possibility that older adults might experience a condition known as, sarcopenic obesity, or muscle loss in the presence of gains in overall body fat.

One of the most effective preventions against sarcopenia is strength training whether with free weight or resistance exercises (Nascimento et al. 2019; Papadopoulou, 2020). Every little bit counts when it comes to resistance-based strength training programs. This is evidence by the fact that older adults show improvement relative to gaining fast-twitch muscle fibers both in number and size in just under 16 weeks of engaging in resistance training (Negaresh et al., 2019). Age is not a good excuse for preferring not to exercise and strengthen one's muscles. Older adults well into their 90's have been reported to demonstrate gains in overall muscle strength. The stronger we can keep our muscles, the better we will be relative to being able exert the force necessary to walk, push, and pull.

Bones

Bone is a composite structure and genetically living tissue, consisting of cells, lipids, minerals and water (Boskey & Coleman, 2010). There is a prevailing misconception that our bones are rather static, never-changing, and likened to a skeleton that sits in the closet of an anatomy classroom only to be brought out whenever the instructor is addressing the topic of bone identification. The opposite is true. Our bones are constantly changing as we age. Bone is constantly reconstructing and repairing itself through a process called bone remodeling, which involves a set of protein-like substances that act on bone cells, whereby old cells are destroyed and replaced by newly regenerated cells. These substances are under the direction of sex hormones, estrogen for women and testosterone for men. As a result, as person age and experience decrease sex hormone production, and they also lose bone mineral content (Sigurdsson et al., 2006). Consequently, this contributes more brittle and weaker bones at older ages. However, there are reported sex and racial differences. For example, bone mineral content has been estimated to decrease about 0.5% for men and 1% per year for women (Emaus et al., 2006). These rates increase and range from 3-5% for women as they reach 50-years of age, with white post-menopausal women showing higher rates of bone loss than black post-menopausal women; whereas the reverse is true among men (Conradie et al., 2015; Sheu et al., 2009).

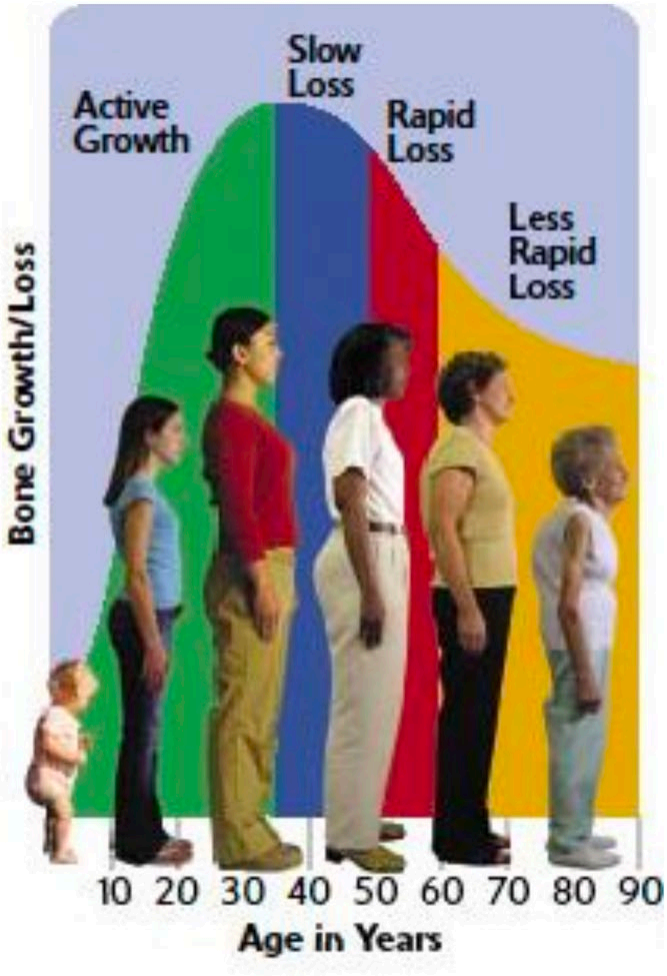


Figure 4.5 Bone mass reduction over time by National Institutes of Health is licensed Public Domain.

Additional weakening of the bones occurs due to microcracks. The older we become the more brittle and fragile our bones become. This should come as no surprise. Bone is continuously and repetitively loaded and under stress during the normal activities of daily life, as well as extreme periods of exercise and conditioning throughout the course of life. In turn, our bone naturally develops cracks over time, initially

invisible at the sub-micron level, but these cracks become visible with aging, especially if not repaired during the bone remodeling process (O'Brien et al., 2005). A part of that aging bones risk of fracture can be explained by a loss of collagen, which reduces bone flexibility in response to pressure (Saito & Maumo, 2009). The extent of this micro-damage leading to failure or fracture increases exponentially with age (Schaffler et al., 1995). This can be particularly detrimental for the upper part of the thigh bone just beneath the hip, which has limited mechanical pressure and tends to disproportionately thin with normative aging. In studies investigating old-old adults, persons age 85 and older, the incidence of bone fracture has been reported to be 10-15 times more likely than for persons aged 60-65 (Tommasini et al., 2007;Melton, 1996; Yates et al., 2007). Hip fractures can be especially lethal for older adults. Continued survival for old men and women following a hip fracture is significantly reduced. The absolute mortality risk one-year after a hip fracture has been reported to be 21.5% in women and 32.3% in men (Brown et al., 2021)

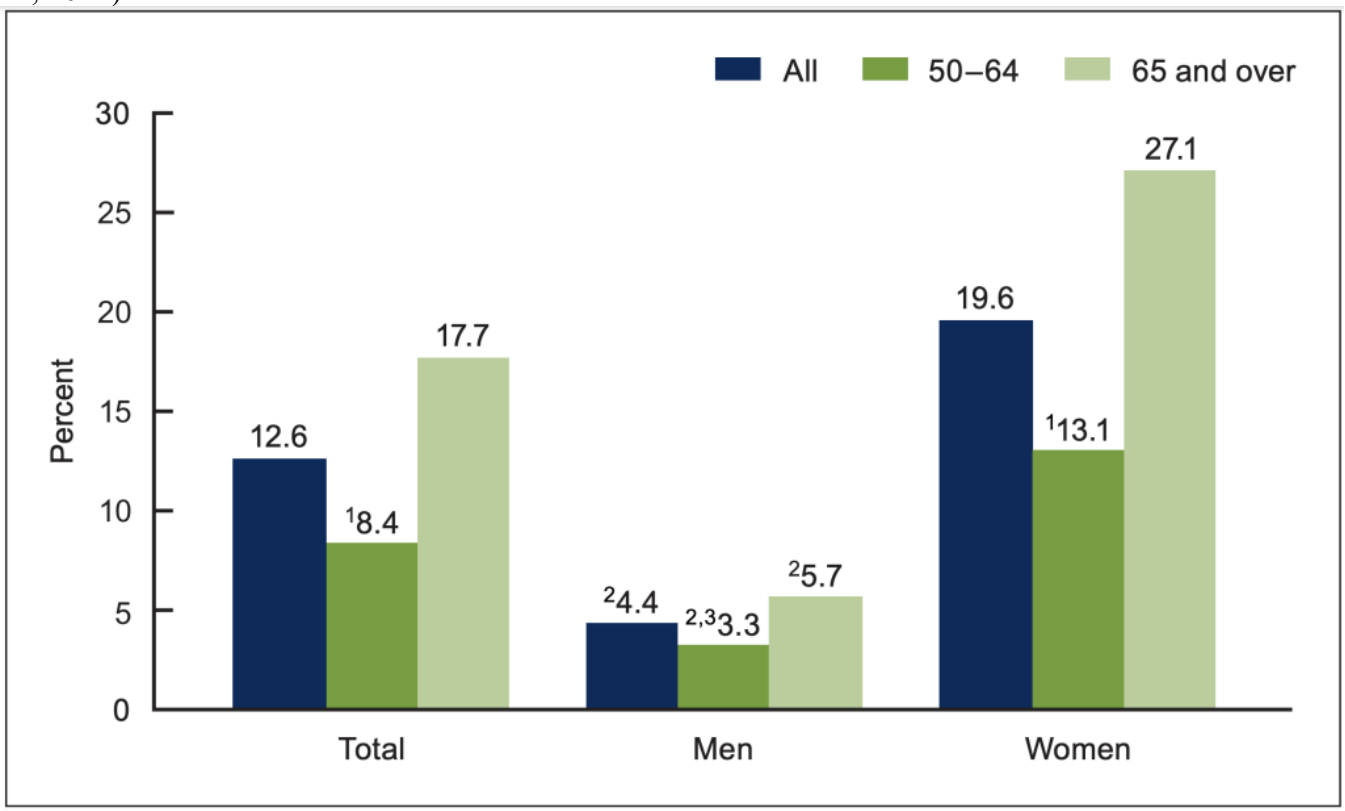


Figure 4.6 Prevalence of osteoporosis among adults aged 50 and over, by sex and age: United States, 2017–2018 by the U.S. Department of Health and Human Services is licensed Public Domain. [1]Significantly different from adults aged 65 and over. [2]Significantly different from women. [3]Estimate potentially unreliable due to relative confidence interval width greater than 130%. NOTES: Osteoporosis is defined as occurring at the femur neck or lumbar spine or both. Estimates for adults aged 50 and over were age adjusted by the direct method to the 2000 U.S. Census population using age groups 50–64 and 65 and over. Crude estimates are 12.0% for total, 4.2% for men, and 18.8% for women. The age-adjusted prevalence of osteoporosis at the femur neck only is 6.3%, lumbar spine only is 4.3%, and both is 2.0%.

Our bones remain healthy into old and very old age only to the extent that engage in positive lifestyle choices and behaviors. Persons who elect to live a sedentary life, smoke and drink, eat protein deficient foods, and have inadequate in-take of calcium and Vitamin D showing accelerated rates and greater prevalence of bone loss in later life (Shapse & Sukumar, 2012). Conversely, individuals who engage in daily or routine exercise (both aerobic and resistance), maintain a balanced diet rich in nutrients, do not

smoke and resist the temptation to binge drink or consume large amounts of alcohol, and maintain adequate in-take of calcium and Vitamin D are likely to delay the rate and prevalence of bone loss into advanced older ages.

Interestingly, bone health may also depend on where persons reside. Mounting evidence suggests that environment shapes bone health over time. Persons who live in regions where climates have sharp demarcations between seasons, including but not limited to longer periods of cloud cover and reduced duration of sun exposure, are more likely to be diagnosed with early onset bone loss. For instance, persons living in Norway have some of highest rates of bone loss than anywhere else in the world (Formso et al., 2005); whereas persons living in India have lower prevalence of bone loss or risk of fracture (Shen et al., 2022). Such differences are associated with exposure to sunlight and Vitamin D production, which greatly benefits bone health for older adults.

Joints

Joint pain is one of the more common complaints of aging. Unlike our muscles, joints benefit little from continuous and repeated daily use. Rather, the opposite is true. Joints are effectively damaged with overuse. At some point during our lifetime, many have probably played a sport, participated in an exercise class, hiked, jogged, or even participated some other physically demanding activity. By the time we reach our 20's and 30's, the articular cartilage that protects the joints has already begun to deteriorate and the fibers within the joint capsule become less flexible, which also had negative consequences for our bone health. This normative aging process impacts our knees, limbs, hands, ankles, and feet and persons find it increasingly harder to move, walk, sit down and stand up, or even roll in and out of bed. Joint pain especially impacts mobility and quality-of-life among middle aged women as early as 40 years of age (Ding et al., 2017). Individuals should take precautions during the emerging adult year to reduce the risk developing joint stiffness or pain. Some sound advice includes eating a balanced anti-inflammatory diet consisting of a lot of fruits and vegetables, managing one's weight within a healthy BMI range, wearing supportive foot wear during high-impact exercise or sport participation, making swimming or water aerobics a part of your exercise routine, and engaging in daily stretching exercises to maintain flexibility.

Aging and Cardiovascular Functioning

Our major bodily organs are the source of life. Remaining aware of age-associated changes impacting the heart, lungs, kidney, and stomach is essential to avoiding acute and chronic diseases and remaining active and healthy in old age. This requires understanding of each system, as well as knowledge regarding how to modify our behavior in terms of managing psychological and socio-emotional stressors, eating a balanced diet, and staying physically fit.

Heart health is vital to human survival. The heart is part of the cardiovascular system which also consists of the arteries circulate oxygenated blood throughout the body and away from the heart, as well as veins which carry blood back to the heart for oxygenation. The heart muscle itself and supporting arteries go through some of the most significant age-associated changes unlike other major organs of the body; whereas our veins are left mostly intact.

To review the structural and mechanical operation of the heart, there are two ventricles: (1) the left ventricle is the chamber responsible for pumping oxygenated blood out to the arteries throughout the body and; (2) the right ventricle right ventricle pumps oxygen-poor blood from out veins to the lungs for elimination of CO2 and oxygenation. Cardiovascular efficiency is evaluated by aerobic capacity, or maximum amount of oxygen that can be delivered through the blood; and cardiac output, the amount of blood that heart pumps per minute. From age 20 to 70 years of age, aerobic capacity will decline on average by 5-10% per decade. Around age 30 to 40 years this decline amounts to 3-6% per decade, and by age 70 the rate increases to approximately 20% per decade. Thus, physical activity as well as exercise are vital to staying fit and managing heart health despite normative loss in functioning.

Arteries are further regulated by lipid metabolism. High-density lipoproteins (HDLs) or good cholesterol help transport lipids out of the body; whereas Low-density lipoproteins (LDLs) or "bad" cholesterol deliver cholesterol to the arteries. Cholesterol is an essential marker of overall cardiovascular wellness and thus cholesterol biomarker levels are commonly evaluated as the ratio of HDLs and LDLs. In addition, blood levels of triglycerides are another biomarker use to reflect the total amount of fat that is being stored in the body's cells. Moderate levels of exercise help manage cholesterol levels, yet persons who remain sedentary and smoke across their lifetime tend to have higher inflammatory biomarker levels in their blood (Yilmer & Kayancicek, 2018).

Many of the health-related problems older people experience 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 through mid-life into late adulthood.

Aging and Respiratory Functioning

Normal aging impacts all functions of our respiratory system. Our respiratory systems helps bring oxygen into the body, as well as remove carbon dioxide. The is accomplished through breathing, a mechanical process involving contraction of the diaphragm and muscles of chest wall, which exchange gases. This process takes place within the alveoli, tiny air sacs located within the airways of the lungs. The lungs are fully developed by the time person reach 20-25 years of age (Sharma & Colemant, 2006). However, the respiratory muscles become less effective in promoting the expansion and contraction of the chest wall, and lung tissue itself is also unable to fully expand and contract during inhalation. By the time humans reach 40 years of age, all measurable indicators of lung functioning begin to show age-related declines. The result of such losses involve difficulty breathing whenever the body is under physical duress. According to the American Lung Association (2023), the most common age-associated respiratory changes include:

- Alveoli losing their shape
- Weakening of the diaphragm
- Alteration and thinning of the ribcage bones making is more difficult to expand and contract when breathing;
- Nerves in the airway that trigger coughing become less sensitive to particle;
- Reduced immunity increases risk of contracting the flu and pneumonia

To protect the lungs from normative age-related changes it is highly recommended that older persons avoid smoking, minimize exposure to air pollution, engage in daily aerobic exercise, practice weight management, and frequently stand up and move rather than lay down while awake during the day.

Aging and Urinary System Functioning

The kidneys, bladder, ureters, and urethra comprise the urinary system. The main function of this system is to excrete and remove waste from the baby in the form of urine The kidneys are made up of nephrons, cells that operate of as tiny filters to cleanse and rid the body of metabolic waste. These waste products combing with excess water from the blood and are eliminated through the urethra.

The kidneys undergo several age-related changes. Renal aging involves a complex array of genetics, environment, and cellular processes that lead to structure and functional changes in the kidneys. Structural age-changes in the kidneys can be divided into two broad categories: (1) micro-anatomical and; (2) macro-anatomical (Denic et al., 2016). On a micro-level, there is a decline in the total nephron size leading to a reduced rate at which waste is filtered and removed from the body (O'Sullivan et al., 2017). This believed to be initiated by atereriosclerosis of the small arteries in the kidney which cause an ishemic injury to the nephrons. This can lead to nephrosclerosis or irreversible chronic changes in kidney functioning. Normative aging also brings about macro-level changes in blood flow through the kidneys and an increased inability to raise and lower the volume concentration or urine starting around age 50 and has a greater impact on women than for men (Karam & Tuazon, 2013; Denic et al., 2016). An additional common macro-level change with older age includes the greater risk of developing benign kidney cysts, round pouches of fluid that form on the surfaces of the kidneys and impair the flow of urine. Kidney cysts that burst can cause fever and severe back pain, as well as produce blood in the urine. Health care professionals must be aware of several other counteraction processes that impact kidney health when dealing with older adults, namely stress placed on the kidneys due to infection or illness, physical exertion, or exposure ot extreme heat (Esposito et al., 2007). Thus, when trying to prescribe medications or interventions to treat kidney issue in geriatric patients, prescription dosages used to treat other health problems, such as antianxiety medications, anticoagulants, and antibiotics symptoms, must be accounted in order not to further harm kidney functioning (Guerville et al., 2019).

The bladder also undergoes extensive change as persons age. A common problem for most older adults is no longer being able to effectively and efficiently retain or expel urine. The bladder does not shrink with age, however the perception of when and if one has to urinate certainly does change with advanced age. For instance, many aging men experience hypertrophy or enlargement of the prostate gland, which is anatomically located on top of the bladder. This puts pressure on the bladder and can lead a sudden perception and urge to urinate without much warning, or what is termed urge incontinence. In some cases, accidental leakage of urine can happen. Approximately 35% of community-dwelling adults in the United States over the age of 60 suffer from urinary incontinence, whereas this proportion increases to more than 50% among older adult residents in long-term care setting (McDaniel et al., 2020. Milsom & Gyhagen, 2018). Urge incontinence is closely related to overactive bladder, or the feeling that one needs to urinate which can occur more frequently than normal or even immediately following urination in the absence of infection, kidney stones, or other pathology (Suskind, 2017). Overactive bladder is estimated to effect nearly 40% of older men and 30% of women after the age of 75 (Milsom et al., 2000). Many times, overactive bladders goes untreated. In fact, it is estimated that nearly 76% of older adults with diagnosable symptoms for overactive bladder are untreated (Hefland et al., 2009). Finally, older adults can also experience stress incontinence, whereby the individual is unable to retain urine while engaging in some form of physical exertion, such as a sneezing, coughing, or exercising.

There is a clear gender disparity when it comes to problems with incontinence. As a whole, older women are five times more likely to experience daily urinary incontinence compared to older men. Despite the fact that many men may be challenged by enlarged prostates, older women generally experience more progressive degenerative changes relative to pelvic muscle fibers, reduced bladder capacity, and abnormal or low control over bladder contraction (Wilson, 2003). Reasons for this gender difference vary, however it is believed that lifetime experiences including childbirth, need for gynecological procedures, and hormonal changes that accompany menopause are likely contributory variables (Wilson 2003). However, there are treatment alternatives for incontinence and overactive bladder ranging from behavioral monitoring of dietary fluid intake and tracking bathroom visits, to pelvic floor or "Kegel" exercises involving strengthening the urinary sphincters through contraction and relaxation (Felicissimo et al., 2010)

Aging and Digestive System Functioning

Our digestive system is also impacted by normative aging. The digestion of food begins with the breakdown of nutrients in food via the secretion of saliva from the salivary glands. However, salvia production decreases with age (Elliason et al., 2006). This results in a less than efficient ability to process certain foods. Oral health changes including but not limited to reduced mobility of the lower jaw, gum disease, tooth decay and loss, and use of dentures can make it more difficult to eat certain foods that may be hard in texture. Furthermore, changes in the esophagus involving reduced effectiveness in contracting and expanding to help move food down into the stomach also impact the digestive process in later life (Cook & Omari, 2018). Finally, the stomach secrets fewer gastric juices with age. This is a necessary process of digestion which results in a reduced rate in the breakdown of food and expulsion from the body as solid waste (Remond et al., 2015). In turn, age-associated gastrointestinal changes can contribute to a number of other complications including but not limited to malnourishment, stomach ulcer, fecal incontinence, or constipation.

Fecal incontinence increases with age and involves the accidental leakage or passing of bowel movements in the digestive process. An estimated 7-15% of able-bodied adults have fecal incontinence (Whitehead et al., 2016); whereas between 50-70% of older adults residing and receiving long-term care have been reported as challenged by accidental bowel movements. When it does occur, fecal incontinence is very embarrassing for the older adults. As true with urinary incontinence, preventative behavioral training to ward off the sudden urge to defecate can help older adults regain control over a common bodily function and even improve their sense of autonomy and control in life (Olsson & Berero, 2014). In addition, increasing daily consumption of foods high dietary fiber, such as beans and lentils, whole grains, vegetables, and dried fruits, is also a common solution.

Meanwhile, one of the most common digestive complaints among persons beginning around age 50 and continuing into later adulthood is constipation. Constipation is a condition in one the person has fewer than three bowel movements in a given week and in which stools are hard, dry, lumpy, and often difficult and painful to pass. According to the Rome III Criteria for Adults used to diagnose constipation, an older adult is considered to have constipation when at least two of the following symptoms have occurred in the previous 3 months with an onset of symptoms of at least 6 months including:

- Straining to pass fecal matter or stool
- Hard and lumpy stool
- A sense of incomplete evacuation of stool

- A sense of anorectal obstruction
- Need for manual maneuvers
- Fewer than 3 defecations per week
- Loose stools rarely present without use of a laxative

Among individuals 65 years of age and older, 26% of women and 16% of men are clinically reported as having difficulty with constipation. By the time persons reach 85 years of age, this prevalence rate increases to 34% for women and 26% for men. Among older adults residing in long-term care settings, the prevalence rate can reach as high as 80% (Schuster et al., 2015). There are a multitude of known conditions believed to cause constipation among older men and women including normative age-associated hormonal changes, muscular atrophies or muscle wasting, eating disorders, kidney disease, diabetes, and feeling anxious or depressed. Older adults can also experience numerous side-effects from constipation including fever, bloody stool, unintentional weight loss, and severe abdominal pain. In some cases, chronic constipation can be symptomatic of a more serious underlying health issue requiring direct medical intervention such as dehydration, anemia or iron deficiency, colon cancer, or even neurological linked to Parkinson's Disease and dementia (Schuster et al., 2015). The Bristol stool scale was developed by the Bristol Royal Infirmary (1997) as a diagnostic tool by which researchers, physicians, nurses, and family caregivers can evaluate various bowel problems, including constipation, whereby Type 1 and Type 2 of the scale indicate constipation.

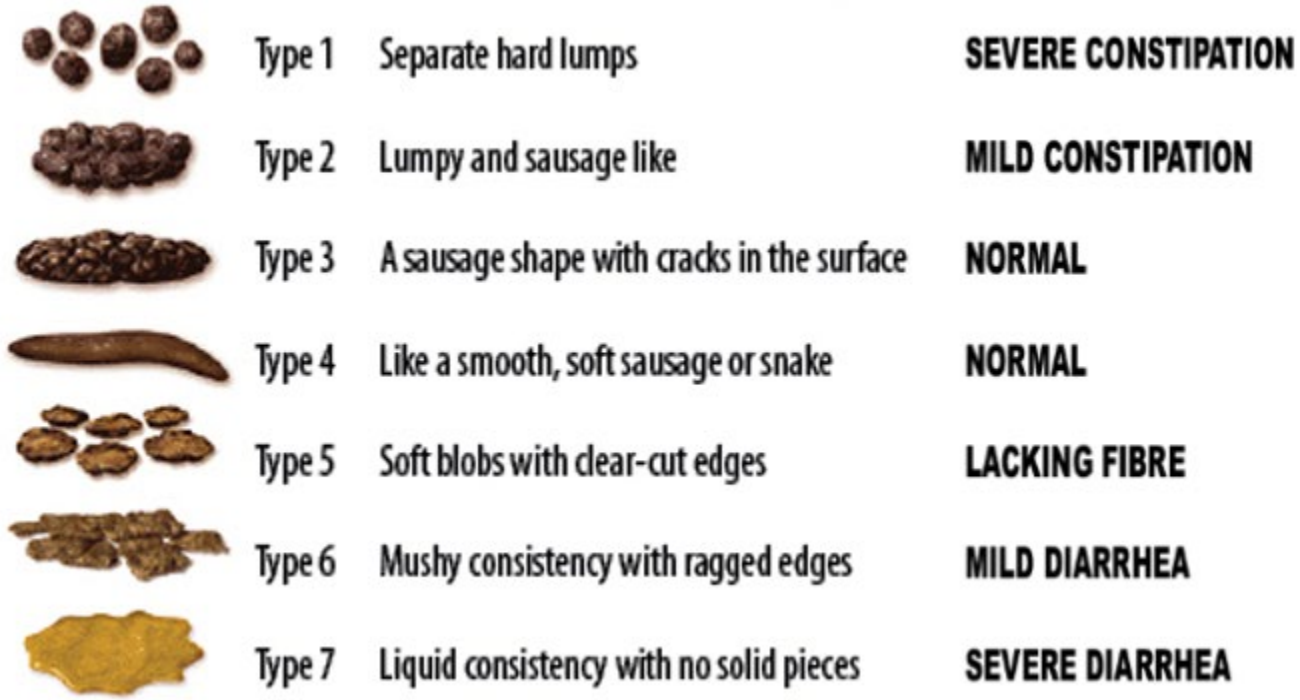


Figure 4.7 Bristol Stool Chart by Cabot Health is licensed CC BY-SA 3.0.

Aging and Endocrine System Functioning

The endocrine system is complex and diverse set glands which control "target" organs via hormone production. Meanwhile, hormones are produced within the endocrine system serve as chemical messengers which regulate and control organ activity. With advanced age, changes occur relative to the regulatory pathways. A change in one pathway can create a chain-reaction in others whether it be a

decrease or increase in the release of a particular hormone. Adding to the complexity of this process is the fact that the endocrine system can be particularly sensitive to acute and chronic illness as well as exposure to physiological stress. One vital gland includes the pituitary gland, located deep within the base of the brain and controlled by hypothalamus and anterior (front) section of this gland. Hypothalamus-releasing factors (HRFs) are produced in the hypothalamus which in turn help to regulate secretion of hormones produced by the anterior pituitary gland. It is important to note that the hypothalamus is a structure also part of the nervous system, thus it is considered a neuroendocrine structure, to the extent that it may release HRFs in response to information sent from various parts of the nervous system.

Six key hormones linked to the aging process are produced within the anterior pituitary gland including:

- Growth Hormone (GH; referred to as somatotropin)
- Adrenocortiotrophic hormone (ACTH)
- Thyroid stimulating hormone (TSH)
- Follicle stimulating hormone
- Leutenzing Hormone (LH)
- Prolactin

Growth Hormone

Throughout infancy through adolescence, growth hormone (GH) stimulates the growth of our bones and muscles and regulates the growth of our internal organs. Physiologically, GH is responsible for directing the metabolism of proteins, lipids, and carbohydrates within normal food intake. A closely related hormone produced in the liver, insulin-like growth factor-1 (IGF-1) stimulates the number and mass of muscle cells. GH and IGF-1 work together but with advanced aging there is a decline in their activity. This process is referred to s somatopause of aging, which is associated with age-related changes in body composition including loss of bone mineral content, increase fat, reduced muscle mass, and loss in physical strength and endurance through the adult years (Lombardi et al., 2005). When we are younger, GH rises during periods of physical exercise but in persons age 60 and older it is generally diminished.

GH plays an important role within so many basic biological processes of aging. In face some aging experts and even older former professional athletes and modern-day celebrities, such as Mike Tyson, Suzanne Somers, and Sylvester Stallone, have advocated GH replacement therapy as an antidote to counter the signs, symptoms, and effects of age-associated health declines. It does appear that GH replacement therapy helps reduce fatty mass and enhance lean muscle, but there is a lack of overall evidence that it can increase muscle strength, enhance physical and athletic performance, or improve quality-of-life. Thus, despite the fact that many older former athletes and celebrities suggest GH replacement therapy can reverse aging, there is sufficient longitudinal evidence to justify continued administration and use in persons over age 65 (Samaras et al., 2016). Instead, there is increasing evidence that long-term GH replacement therapy may actually increase negative side-effects for some persons in terms of cardiovascular morbidities (Tidbland et al., 2021).

Cortisol

Cortisol is a hormone produced by the adrenal gland. Cortisol has been used a key biomarker within the saliva and blood as an indicator of physiological stress. Cortisol actually functions to energize the body, particularly in fight and flight situations, where the body may require energy to the muscles to prepare them for reaction and action. Therefore, cortisol is commonly referred to as a "stress hormone" within many physiology of aging studies. The perspective that aging causes dangerous spikes in cortisol levels is referred to as the glucocorticoid cascade hypothesis (Angelucci, 2000). This hypothesis suggests that increased cortisol level accelerates neuronal losses in the hippocampus of the brain, which is a key center for memory. A high activated cortisol level or an elongated sustained time period can be symptomatic of future poor cognitive functioning in the form of memory deficient including memory complaint, forgetfulness, and permanent loss (Comijs et al., 2010), yet more recent research has called such associations into question providing evidence that contextual conditions under which environmental stressors originate and operate may provide a more plausible explanation of how cortisol levels impact aging our body and mind (Sindi et al., 2014).

Thyroid Hormones

The thyroid is a small butterfly-shaped gland in the front of the neck that produces hormones which control basal metabolic rate (BMR) or what is otherwise metabolism. BMR shows signs of slowing around middle age, as evidenced by increased weight gain, fatigue, mood disturbances despite caloric in-take and activity levels remaining the same. There are three types of hypothyroidism (See Figure 4.8):

1. Primary (under-stimulation of the thyroid gland in which there are low levels of thyroid hormones being produced;
2. Secondary (pituitary gland fails to stimulate thyroid to produce enough thyroid hormones)
3. Tertiary (inadequate secretion of hormones from malfunctioning of the hypothalamus leads to insufficient thyroid stimulation)

Hashimoto's Diseases is most common cause and is related to autoimmune disorder in which the immune system attacks the thyroid rendering unable to properly produce hormones to control BMR. The link between age and lower thyroid hormone production is a process clinically referred to as hypothyroidism, or an underactive thyroid. Estimated prevalence of subclinical or mild forms of hypothyroidism vary from 5 to 18% among older adults age 60 and older with women being more likely to be diagnosed with thyroid health problems (Diez & Iglesias, 2009;).

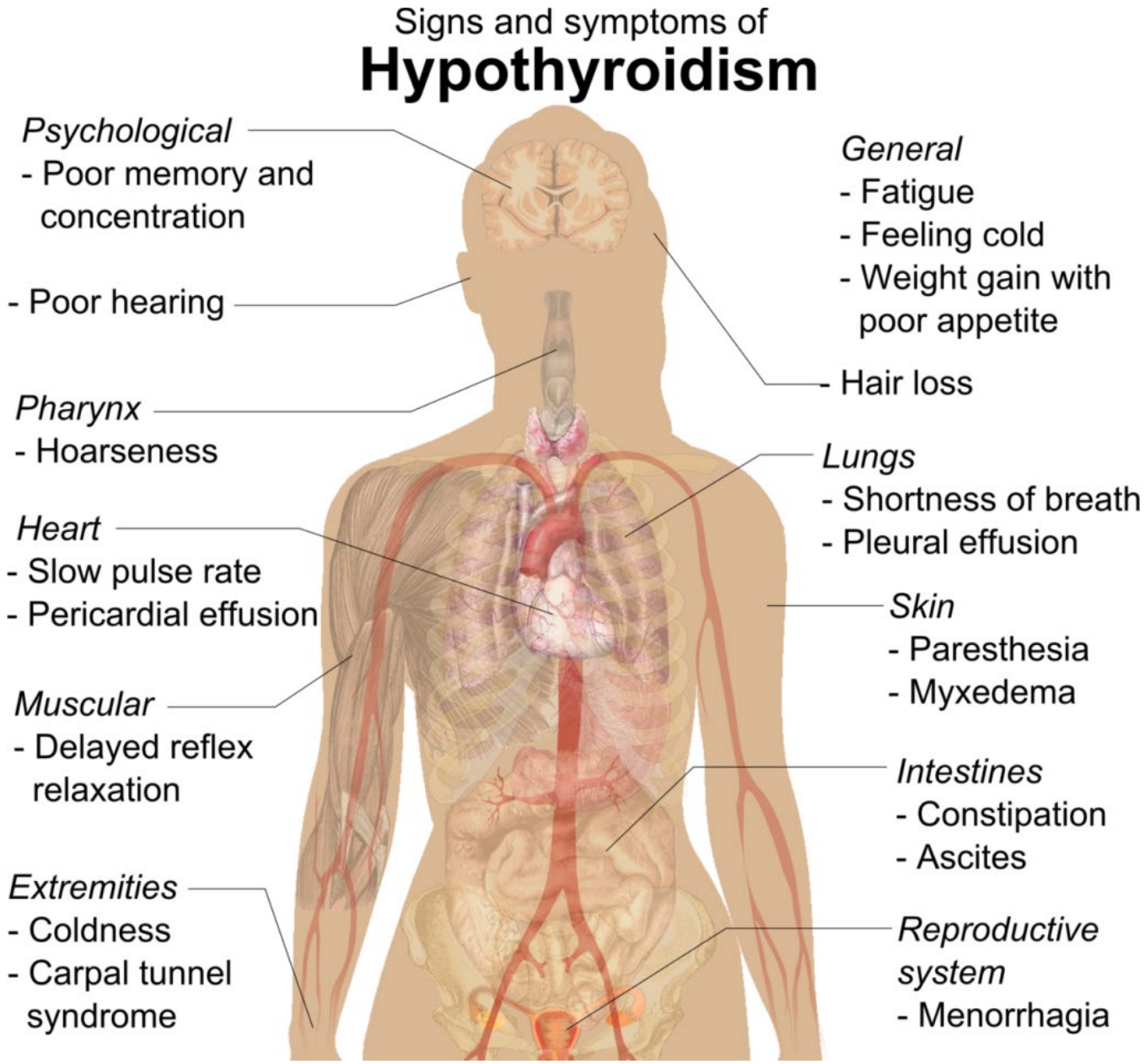


Figure 4.8 Signs and symptoms of hypothyroidism by Mikael Häggström is licensed Public Domain.

Figure 4.9 Myxedema by Herbert L. Fred, MD and Hendrik A. van Dijk is licensed CC BY 2.5. Left: A man with myxedema showing an expressionless face, periorbital puffiness, pallor. Right: A man with myxedema showing an expressionless face, periorbital puffiness, pallor, peripheral edema, and, of course, his massive ascites.

Melatonin

Another hormone, melatonin, is produced by the pineal gland located deep inside the brainstem. Melatonin controls variations in bodily functions associated with sleep and wake cycles, or what is commonly referred to as circadian rhythm. There are significant age-associated differences in circadian rhythm that begin in middle and late adulthood and correspond to the onset and timing of peak melatonin production during the day (Scholtens et al. 2016). Some aging researchers adhere to the belief that melatonin supplements serve as an anti-inflammatory intervention that offsets natural alterations in the hormone, thus contributing to an immunity boost and effectively buffering the risk of contracting viruses as well as the prospect of living with age-associated diseases (Carrillo-Vico et al, 2013; Fvero et al. 2017; Srinivasan et al., 2005; Su et al., 2022). Yet, it is important to recognize that melatonin use can had significant side-effect ranging from migraine headaches, disorientation, drowsiness, and blood vessel constriction. Melatonin supplements can also interfere with sleep cycles if taken at the wrong time of the day or in dosages not aligned with normal circadian rhythms (Vural et al. 2014).

DHEA

The most predominant steroid in the body is dehydroepiandrosterone (DHEA). DHEA is produced by the adrenal glands and is believed to stimulate production of other sex steroids and availability of IGF-1, as well as positively influencing central nervous system functioning. DHEA tends to be higher in males than females with marked decreases of up to 60% across the adult years beginning in age 20 through 80 years of age, a process known as adrenopause. Adrenopause significantly impacts men more than women give higher beginning baseline levels of DHEA. There is a lack of overall evidence to conclude the exact role DHEA plays in human aging with some reports that DHEA replacement therapy is similar to GH and melatonin therapies across anti-aging industrial domains. This has to do with the fact that DHEA present notable health risks in the form of liver functioning problems and prostrate cancer in men (Arnold et al., 2017). More recent evidence suggest that exercise may be the best substitute for any DHEA replacement therapy, noting that physical activity helps compensate for DHEA loss in the latter half of life, especially in men (Al-Turk & Aldujaili, 2016).

Immune System

When gerontologists study stress, they do not just consider major life events, such as unemployment, death of a loved one, or the birth of a child. They are also include metabolic stress, the life sustaining activities of the body, such as circulation ofthe blood, elimination of 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, 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. The human immune system operates to defend bodily health and fight off the noxious effects of stress, acute infections, and potentially lethal threats to our well-being. Immunity operates in sync with the nervous system and therefore influences behavior, perceptions, and emotion (Lupien et al., 2009). The two primary immune cells responsible for protecting human health include “T cells,” and “B cells, which work together with macrophages, a white blood cell that reaches the origin or site of infection via the blood immediately following an attack upon immunity. T-cells are virus or antigen specific, meaning they fight to rid the body of the virus that may be attacking the body. T-cells also come in two forms: (1) Helper T-cells which help coordinate the plan of attack against infection and; (2) Killer T-cells which find and destroy infected cells that have become viral producing. Unlike T-cells, B-cells do not kill antigens themselves. B-cells help sweep-up and clean any leftover viruses after a T-cell attack. Most importantly, B-cells are responsible for the creation of molecules known as antibodies. Antibodies essentially trap invading viruses or other antigens in large clumps making it easy for macrophages to destroy and neutralize infection. Without antibodies, the body would not be able to finish eradicating and ending most infections.

As we continue to age, it is believed that the human body experiences a decline in immune system response and functioning, a process known as immune senescence. In other words, T- and B-cells are negatively impacted by the aging process and lose their ability to effectively protect the body; thus reducing resistance to infections and increasing susceptibility to disease and in some cases morality. Immune senescence was especially apparent during the COVID-19 pandemic, during which over 80% of all COVID-infected deaths occurred among persons aged 65 and older; whereas younger persons may

have become infected but did not necessarily die from the disease due to greater natural and biological immunity.

Age-related changes in immunity are believed to be affected by a variety of factors such as diet, exercise, and stress exposure. Investigators have noted that zinc and Vitamin D are two powerful nutrients that can strengthen immune response in later life (Chambers et al., 2021; Maywald & Rink, 2015). Decreases in zinc or vitamin D intake can exacerbate immune senescence. Likewise, deficient protein intake can also be detrimental to immunity in older adults and accelerate spread and severity of infection in the presence of being obese (Garg et al., 2014). However, some experts believe that lifetime patterns of physical movement and moderate to high intensity exercise help to off-set rate of immune senescence in later adulthood (Turner & Braum, 2017). Finally, stress exposure has a deleterious effect on how the immune system is able to ward-off and protect against viral and bacterial infections. Chronic stress can be especially harmful relative to accelerating the rate of aging and contraction of disease. Such processes are further complicated by clinical bouts of anxiety and depression that may be more pronounced after a stressor and increase rates of immune senescence (Vogelzangs et al, 2014).

Reports from immunity studies tend to be highly variable and inconclusive to varying degrees. This reflects a principle known as interindividual variability, or differences in the expression of one or more behaviors or outcomes between members within any given population. Arguments for and against vaccination versus natural immunity surrounding COVID-19 presented a clear example of interindividual variability. Variability relative to who was versus who was not infected, remained asymptomatic, or most at-risk for contracting the COVID-19 virus may have reflected the fact that younger, middle-aged, and older adults maintain different daily lifestyle patterns and routines, sustain various dietary practices, engage in varying levels of exercise intensity, or are impacted uniquely by biological gene activation and expression. This all plays a role in affecting the rates at which one experiences immune system responses and changes, whether COVID is a factor or whatever the virus or bacteria causing an infection may be.

Aging and Nervous System Functioning

The neuronal fallout model has historically been based on the premise that humans progressively lose brain tissue because neurons can no longer replace themselves when they die. This model was largely based on studies that failed to account for a lot of extraneous variables surrounding what happens after death, the methods applied when studying nervous system functioning, and other underlying diseases that contribute to brain tissue loss. More recently, the neuronal fallout model and hypothesis has been gradually debunked by a set of newer more optimistic sources of thinking regarding how the nervous system functions with advancing age. It has become more evident that a plasticity model provides a better examination in which some neurons are highly adaptable and may actually gain in structure and function when other neurons die (Goh & Park, 2009). In fact, the myelination of neuron or the speed with which neurons communicate with each other demonstrate declines in some brain regions but not in others throughout the human life-span (Grydeland et al., 2019). In other words, older adults can demonstrate neural plasticity by compensating for declines in certain brain regions via the activation of other areas that remain in-tact. It is believed that diet, physical activity, aerobic exercise are vital to brain functioning and cognition.

Several contemporary theories have evolved to help explain plasticity of the nervous system functioning involving the brain. Three key theories include:

- Hemispheric Asymmetry Reduction in OLDer adults (HAROLD) Model: the brains of older adult are activated in the opposite hemisphere when the original area suffers a deficit (Maneti et al., 2011)
- Posterior-Anterior Shift with Aging (PASA): the front (anterior) portion of the brain becomes more responsive in order to make up for reduced responsiveness found in the rear or posterior of the brain (Asnado et al., 2012)
- Compensation-Related Utilization of Neural Circuits Hypothesis (CRUNCH) Model: an incorporation of HAROLD and PASA in which it is proposed that the demands of cognitively challenging tasks contributes to increased brain activity in older adults thus leading to compensatory patterns not limited to one particular are but multiple areas (Berlingeri et al., 2013).

Beyond the concept of plasticity in nervous system functioning, the brain maintains a cognitive reserve or untapped resources in the cerebral cortex from which to maintain brain activity and functioning in the presence of deficit. Research indicates that life-long education and learning, challenging occupational tasks or projects, and health-promoting activities help to further build the brain's capacity to be a reserve of additional resources from which to combat the impact of aging.

Sleep

The human body, mind, and spirit requires sleep for repair, rejuvenation, and healing. It is largely a myth that the older we become, the less sleep we need. Research refutes this notion. It is a fact that all humans, regardless of their age, require 7-9 hours of sleep a night (Ancoli-Israel & Cooke, 2009). Anything less or longer in duration can have adverse health effects ranging from increased stroke risk for women (Waserheil-Smoller et al., 2014) to mental status changes involving anxiety, depressed mood, or memory problems ( ). Studies suggest that good sleep habits play a key role relative to slowing the onset and progression of various chronic disease, most notably Alzheimer's Disease (Holth et al., 2019; Shokri-Kojori et al., 2018)

Unfortunately, half of all older adults are impacted by sleep disturbances (Neikrug & Ancoli-Israel, 2009). This is largely associated with normative changes in circadian controlling melatonin release and core body temperature which further help regulate sleep cycle. Older adults take longer to fall sleep, awaken more often throughout the night, lie in bed longer and awake before rising, and experience a more shallow and fragmented pattern of sleep (Fetveit, 2009). Such sleep patterns correspond to age alterations surrounding increases in Stage 1 sleep and notable decreases in both Stage 4 and REM (rapid-eye movment) sleep (Kamel & Gammack, 2006). Thus, older adults have higher rates of sleep-wake disorders than their younger counterpart, and they are less able to adjust their sleep patterns under conditions where sleep might be lost such as experiencing jet lag when flying overseas or switching from a day to night shift at work (Duffy et al., 2015). This contribute to noticeable shifts in behavior. For instance, many middle aged and older adults begin to classify themselves as "morning" people thus shifting from a preference to stay up late at night to an adopted preference involving early to bed and early to rise.

Sleep in later life can also be impacted by sleep apnea, a condition in which the individual becomes temporarily unable to breathe while asleep. People who have this condition typically have loud snores followed by silence due to closing of the airway. Respiratory centers of the brain respond to a diminished oxygen intake and the sleeper awakens. This process can occur up to as many as 100 times

in a given night. To complicate matters, reduced oxygen in-take forces the heart to pump harder to circulate more blood, which contributes to spikes in blood pressure during the night and elevated blood pressure during the day. Over time, this can contribute an increased risk of hypertension, stroke, arrithymia, and even a heart attack. Sleep apnea is more common among middle aged and older adults who tend to be chronically obese or have a history of diabetes, heart disease or chronic respiratory diseases (Okuro & Morimotu, 2014). However, sleep apnea is very treatable and can be controlled using a continuous positive airway pressure (CPAP device), which keeps the airways open during sleep.

Temperature Control

Many older adults often complain that their sleep is disrupted by an inability to control the feeling of being hot or being cold. Body temperature by itself is an important biological process that impacts health and well-being. Most older adults reside in geographical areas that expose them to variations in climate whether this involve extreme fluctuations in hot temperatures during the summer months or cold and frigid temperatures during the winter months. Older adults are at the greatest risk of dying from two conditions:

1. Hyperthermia – a condition in which the human body cannot rid itself of excessive heat or a temperature greatly above normal, including reaching a temperature of 104 and above, which is considered fatalistic to organ and bodily function and;
2. Hypothermia – a significant drop in body temperature due to prolonged exposure to cold in which the body is unable to warm up to 95 degrees farenheit or greater.

Together, these two conditions are known as dysthermia. Physiologically, the cause of death under conditions of hypothermia are believed to be due to impaired control of the sympathetic nervous system to constrict the blood vessels in the skin in response to extreme cold temperatures (Greaney et al., 2015). In less extreme conditions, older adults are unable to fully adjust their normal bodily temperature. This is linked to reduced sweat output which causes their core temperature to rise (Dufour & Candas, 2007). In addition, the dermal layer of the skin is much thinner when we are older, thus making it more difficult to cool the skin (Petrofksy et al., 2009). Thus, you may encounter an older adult who feels warm even though the environmental temperature is cold. You may further encounter an older adult who complains of feeling cold despite the environmental temperature being hot. Our ability to control our core temperature diminishes. This creates risk of weather-related death under extreme temperature conditions. In many cases, older adults may reside in a home in which they do not use climate control resources like air conditioning in the summer or heat in the winter.

Aging and Sexual Functioning

It is a myth to think that older adult are not sexually active and concerned about health and functioning when it comes to sexuality. A University of Michigan/American Association of Retired Persons (AARP) poll recently reported that approximately 40% of older adults, aged 65-80, are sexually active. According to the National Institute on Aging (2013), normative age-associated changes in biological functioning can all adversely affect sexual functioning. Hormonal changes, physical disabilities, surgeries, and medicines can also affect and older adult's ability to participate in and enjoy a healthy sexual relationship. How one feels about sexual intercourse 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).

There is no doubt that the best way to experience a healthy sex life in later life is to stay sexually active while aging. However, there are clear gender differences when it comes to opportunity for sexual intercourse in later life. The lack of an available partner can affect heterosexual women's participation in a sexual relationship. Beginning at age 40 there are more women than men in the population, and the ratio becomes 2 to 1 at age 85 (Karraker et al., 2011). Because older men tend to pair with younger women when they become widowed or divorced, this also decreases the pool of available men for older women (Erber & Szuchman, 2015). In fact, a change in marital status does not result in a decline in the sexual behavior of men aged 57 to 85 years-old, but it does result in a decline for similar aged women (Karraker et al., 2011). Thus, older men are more likely to be sexually active with multiple partners compared to older women. This can present health risk for both men and women who are sexually active in old age.

As discussed earlier, normative immune system changes with aging means our bodies become less effective at fighting off illnesses and infections. Symptoms of sexually transmitted infections, such as painful urination, fever, swollen lymph nodes, or sore throat are easy to dismiss as some different type of infection. Yet, the Centers for Disease Control and Prevention (CDC) have reported that STIs have more than doubled among persons aged 65 and old. This largely due to advances in medications that counteract erectile dysfunction for men and vaginal dryness for women. Furthermore, older adults unlike other age groups are least likely to use a condom during sexual intercourse due to the fact there is relatively no risk of pregnancy, particularly when couple is over the age of 65. Therefore, there have been recent efforts to develop new screening instruments that can be used to appropriately educate older adults about sexual activity, the signs and symptoms of transmitted diseases, and how to properly treat any infections should they arise (Smith et al., 2020).

References

Alexandre T., Duarte Y.A.D.O., Santos J., Wong R., Lebrao M. Sarcopenia according to the European Working Group on Sarcopenia in Older People (EWGSOP) versus dynapenia as a risk factor for mortality in the elderly. J. Nutr. Health Aging. 2014;18:751–756. doi: 10.1007/s12603-014-0540-2.

Asher, L. et al. (2012). Most older adults are unable to cross the road in time: A cross-sectional study. *Age and Ageing, 41 (5),* 690-694. https://doi.org/10.1093/ageing/afs076

Bharucha AE, Dunivan G, Goode PS, et al. Epidemiology, pathophysiology, and classification of fecal incontinence: state of the science summary for the National Institute of Diabetes and Digestive and

Kidney Diseases (NIDDK) workshop. *The American Journal of Gastroenterology.* 2015;110(1):127–136.

Brown, J.P., Adachi, J.D., Schemitsch, E. *et al.* Mortality in older adults following a fragility fracture: real-world retrospective matched-cohort study in Ontario. *BMC Musculoskelet Disord* **22**, 105 (2021). https://doi.org/10.1186/s12891-021-03960-z

Boskey, A. L., & Coleman, R. Aging and Bone*, Journal of Dental Restoration. 89 (12),* 1333-1348. https://doi.org/10.1177%2F0022034510377791

Bouche, P. (2020). *Revue neurologique, 176, 9*, 733-738. https://doi.org/10.1016/j.neurol.2019.11.007

Cheng, S.T., Fung, H., & Chan, A. (2007). Maintaining self-rated health through social comparison in old age. *Journals of Gerontology, Series B, 62(5),* P277-P285. https://doi.org/10.1093/geronb/62.5.P277

Christoffersen, M., & Tybjaerg-Hansen, A. (2016). Visible aging signs as risk markers for ishemic heart disease: Epidemiology, pathogenesis, and clinical implications. *Ageing Research Review, 25, 24-41.* doi: 10.1016/j.arr.2015.11.002.

Dommes, A et al. (2012). Age-related differences in street-cross safety before and after training older adults. *Accident Analysis & Prevention, 44(1*), 42-47. https://doi.org/10.1016/j.aap.2010.12.012

Faulkner J.A., Larkin L.M., Claflin D.R., Brooks S.V. Age-related changes in the structure and function of skeletal muscles. Clin. Exp. Pharmacol. Physiol. 2007;34:1091–1096. doi: 10.1111/j.1440-1681.2007.04752.x

Giovannini, S. et al. (2021). Neuropathic pain in the elderly. *Diagnostics, 11(4),* 613. https://doi.org/10.3390%2Fdiagnostics11040613

Hicks, C. W., & Selvin, E. (2019). Epidemiology of peripheral neuropathy and lower extremity disease in diabetes. Current Diabetes Report, 19 (10), 86. https://doi.org/10.1007%2Fs11892-019-1212-8

Jerome, G. J. et al. (2015). Gait characteristics associated with walking speed decline in older adults: Results from the Baltimore Longitudinal Study of Aging. *Archives of Gerontology-Geriatrics, 60(2)*, 239-243. https://doi.org/10.1016%2Fj.archger.2015.01.007

Kotronia E, Brown H, Papacosta AO, Lennon LT, Weyant RJ, Whincup PH, Wannamethee SG, Ramsay SE. Oral health and all-cause, cardiovascular disease, and respiratory mortality in older people in the UK and USA. Sci Rep. 2021 Aug 12;11(1):16452. doi: 10.1038/s41598-021-95865-z. PMID: 34385519; PMCID: PMC8361186.

LaCroix AZ, Leveille SG, Hecht JA, Grothaus LC, Wagner EH. Does walking decrease the risk of cardiovascular disease hospitalizations and death in older adults? J Am Geriatr Soc. 1996 Feb;44(2):113-20. doi: 10.1111/j.1532-5415.1996.tb02425.x. PMID: 8576498.

Lorem, G., Cook, S., Leon, D. A., Emaus, N. & Schirmer (2020). Self-reported health as a predictor of mortality: A cohort study of its relation to other health measurements and observation time. *Scientific Reports: Nature Research, 10: 4886*. https://doi.org/10.1038/s41598-020-61603-0.

Mazur, D. J., & Lipshultz, L, I. (2018). Infertility in the aging male. Current Urology Reports, 17 (19): 54. doi: https://doi.org/10.1007/s11934-018-0802-3

McDaniel C, Ratnani I, Fatima S, Abid MH, Surani S. Urinary Incontinence in Older Adults Takes Collaborative Nursing Efforts to Improve. Cureus. 2020 Jul 12;12(7):e9161. doi: 10.7759/cureus.9161. PMID: 32802599; PMCID: PMC7419143.

10. Milsom & M. Gyhagen (2019) The prevalence of urinary incontinence, Climacteric, 22:3, 217-222, DOI: 10.1080/13697137.2018.1543263
11. Milsom I, Stewart W, Thuroff J. The prevalence of overactive bladder. The American journal of managed care. 2000 Jul;6(11 Suppl):S565–573.

Ruia S, & Kaufman E. J. (2023). *Macular Degeneration.* In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. Available from: https://www.ncbi.nlm.nih.gov/books/NBK560778/

O'Sullivan ED, Hughes J, Ferenbach DA. Renal Aging: Causes and Consequences. J Am Soc Nephrol. 2017 Feb;28(2):407-420. doi: 10.1681/ASN.2015121308. Epub 2016 Nov 15. PMID: 28143966; PMCID: PMC5280008.

Sasaki, M. et al. (2018). Gender-specific association of early age-related macular degeneration with systemic and genetic factors in a Japanese population. *Scientific Reports, 8,* Article: 785 (2018). doi:10.1038/s41598-017-18487-4. https://rdcu.be/diimz

Sayag, M. & Kavé, G. (2022). The effects of social comparisons on subjective age and self-rated health. Ageing & Society, 42(9), 2140-2153. doi: https://doi.org/10.1017/S0144686X20002056

Schuster BG, Kosar L, Kamrul R. Constipation in older adults: stepwise approach to keep things moving. Can Fam Physician. 2015 Feb;61(2):152-8. PMID: 25676646; PMCID: PMC4325863.

Sharma G, Goodwin J. Effect of aging on respiratory system physiology and immunology. Clin Interv Aging. 2006;1(3):253-60. doi: 10.2147/ciia.2006.1.3.253. PMID: 18046878; PMCID: PMC2695176.

Shen Y, Huang X, Wu J, Lin X, Zhou X, Zhu Z, Pan X, Xu J, Qiao J, Zhang T, Ye L, Jiang H, Ren Y, Shan PF. The Global Burden of Osteoporosis, Low Bone Mass, and Its Related Fracture in 204 Countries and Territories, 1990-2019. Front Endocrinol (Lausanne). 2022 May 20;13:882241. doi: 10.3389/fendo.2022.882241. PMID: 35669691; PMCID: PMC9165055.

Stamps, J. J., Bartoshuk, L. M., & Heilman, K. M. (2013). A brief olfactory test for Alzheimer's disease. Journal of Neurological Science, 333, 102, 19-24. https://doi.org/10.1016%2Fj.jns.2013.06.033

Blume-Petyavi, U. et al. (2016). Age-associated skin conditions and diseases: Current perspectives and future options. *The Gerontologist, 56 (2),* S230=242. https://doi.org/10.1093/geront/gnw003

Rosenberg, I. H. (1997). Sarcopenia: Origins and clinical relevance. *Journal of Nutrition, 127*, 990S-991s. doi: 10.1093/jn/127.5.990S.

Rudnicka, A. R., Jarrar, Z., Wormald, R., Cook, D. G., Fletcher, A., & Owen, C. G. (2012). Age and gender variations in age-related macular degeneration prevalence in populations of European ancestry: A meta-analysis. *Opthalmology, 119,3,* 571-580. https://doi.org/10.1016/j.ophtha.2011.09.027

Wuorela, M., Lavonius, S., Salminen, M., Vahlberg, T., Viitanen, M., & Viikari (2020). Self-rated health and objective health status as predictors of all-cause mortality among older people: A prospective study with a 5-, 10-, and 27-year follow-up. BMC Geriatrics, 20, Article 120. https://doi.org/10.1186/s12877-020-01516-9

Whitehead WE, Palsson OS, Simren M. Treating fecal incontinence: an unmet need in primary care medicine. *North Carolina Medical Journal.* 2016;77(3):211–215.

10: LATE ADULTHOOD

LibreTexts™

CHAPTER OVERVIEW

10: Late Adulthood

10.1: Late Adulthood - What Will You Learn?

After reading "Late Adulthood" you should be able to:

1. Differentiate between non-typical, typical, and optimal aging.
2. Identify examples of ageism.
3. Describe changes in the senses in late adulthood.
4. Describe theories of aging.
5. Define Hayflick Limit.
6. Evaluate previous ideas about aging and cognition based on new research.
7. Describe Erikson's psychosocial stage for late adulthood.
8. Contrast disengagement, activity, and continuity theories of aging.
9. Describe ways in which people are productive in late adulthood.
10. Explain the stages of aging.
11. Explain theoretical models of health, as well as the role of psychological stress in the development of disease.
12. Describe psychological factors that contribute to resilience and improved health.
13. Defend the relevance and importance of psychology to the field of medicine.

Figure 10.1.1 (Unsplash license; **Tristan Le** via **Pexels**)

10.2: Late Adulthood

Figure 10.2.1 (Unsplash license; Vidar Nordli-Mathisen via Unsplash)

We are considered in late adulthood from the time we reach our mid-sixties until death. The number of Americans aged 65 and older is projected to more than double from about 46 million in 2018 to over 98 million by 2060, and the 65-and-older age group's share of the total population will rise to nearly 24 percent from 15 percent.

We are currently living in an aging society (Rowe, 2009). Because of increases in average life expectancy, each new generation can expect to live longer than their parents/caregivers generation and certainly longer than their grandparents' generation. As a consequence, it is time for individuals of all ages to rethink their personal life plans and consider prospects for a long life. When is the best time to start a family, if at all? Will the education gained up to age 20 be sufficient to cope with future technological advances and marketplace needs? What is the right balance between work, family, and leisure throughout life? What's the best age to retire? How can I age successfully and enjoy life to the fullest when I'm 80 or 90?

Developmentalists divide this population into categories with an "**optimal aging**" view. That is, exploring older adults through the lens of health and social well-being. Optimal aging refers to an individual's capacity to function across various domains—physical, functional, cognitive, emotional, social, and spiritual—to one's own satisfaction and acknowledges that people have different levels of these domains. The optimal aging lens honors this fact. **"Typical" aging** refers to those who seem to have the same health and social concerns as the median majority of those in the population. However, there is still much being done to understand exactly what "typical" aging means. **Non-typical aging** (formerly called impaired aging) refers to those who experience non-optimal health and dependence to a greater extent than would be considered typical. Aging "successfully" involves making adjustments as needed in order to continue living as independently and actively as possible. This is referred to as **selective optimization with compensation**. For example, a person who can no longer drive, is able to find alternative transportation. Or a person who is compensating for having less energy, learns how to reorganize their daily routine to avoid over-exertion. Perhaps nurses and other allied health professionals working with older adults will continue and strengthen the focus more on helping people remain independent than on simply treating illnesses. Promoting health and a person's sense of independence are vital for optimal aging.

Ageism and Abuse

Figure 10.2.2 (Unsplash license; Nick Karvounis via Unsplash)

Ageism

Many media portrayals of older adults reflect negative cultural attitudes toward aging. In the United States, society tends to glorify youth and associate it with beauty and sexuality. In comedies, older adults are often associated with grumpiness, over-the-top silliness or senility meant to be "funny." Rarely do the roles of older people convey the fullness of life experienced by seniors—as employees, lovers, or the myriad roles they have in real life. What values does this reflect?

Ageism is discrimination (when someone acts on a prejudice) based on age and it exists in all cultures (Brownell, 2010). Ageist attitudes and biases based on stereotypes reduce older people to inferior or limited positions. Ageism happens when we believe in the stereotypes of older adulthood and treat people as though they are conforming to those stereotypes or as we expect them to conform to those stereotypes. Popular expressions like, "You can't teach an old dog new tricks," cause us to pass our 50th or 60th birthday thinking it is too late to start something new such as going back to college.

Stereotypes of people in late adulthood lead many to assume that aging automatically brings poor physical health and mental decline when these issues really fall on a spectrum depending on many factors about an individual, including the cumulative effects

of how they treated their bodies in younger years. These stereotypes are reflected in everyday conversations, the media, and even in greeting cards (Overstreet, 2006). We have all seen the "over-the-hill" greeting cards that mock growing older starting at around age 40. Age is simply not revered in the United States, currently. The negative attitudes people have about those in late adulthood are examples of ageism, or prejudice based on age and it remains one of the most institutionalized forms of prejudice today. Nelson (2016) reviewed the research on ageism and concluded that when older individuals believed their culture's negative stereotypes about those who are old, their memory and cognitive skills declined. In contrast, older individuals in cultures, such as China, that held more positive views on aging did not demonstrate cognitive deficits. It appears that when one agrees with the stereotype, it becomes a self-fulfilling prophecy, or the belief in one's ability results in actions that make it come true.

Think about it: A lot of times in our society, older people can not help but feel left out or "out of it," not "cool", and behind-the-times. The message comes through clearly– "You have to be young to be okay" or you must be an older adult who is non-typical in some way (brilliant, rich, hilarious, etc.) to be considered valued. These messages also stifle the expectations of younger people regarding their own aging process. Many younger people today fear getting closer to their 50th or 60th birthdays and beyond, viewing ageing as a sad event.

One hindrance to society's fuller understanding of aging is that people rarely understand the process of aging until they reach older age themselves (as opposed to childhood, for instance, which we can all look back on). Therefore, myths and assumptions about older adults and aging are common. Many stereotypes exist surrounding the realities of being an older adult. While individuals often encounter stereotypes associated with race and gender and are thus more likely to think critically about them, many people just accept age stereotypes without question (Levy 2002).

You've likely seen online calculators that promise to determine your "real age" as opposed to your chronological age. These ads target the notion that people may "feel" a different age than their actual years. Some sixty-year-olds feel frail and elderly, while some eighty-year-olds feel sprightly. Equally revealing is that as people grow older they define "old age" in terms of greater years than their current age. Many people want to postpone old age and regard it as a phase that will never arrive. Some older adults even succumb to stereotyping their own age group (Rothbaum 1983) forgetting briefly that they are that exact age!

How do Stereotypes Effect Older Adults?

Today, wealth, power, and prestige are often held by those in younger age brackets. The average age of corporate executives was fifty-nine years old in 1980. In 2008, the average age had lowered to fifty-four years old and today, we see huge numbers of CEO's of Fortune 500 companies in their 30's and early 40's. This makes the stereotyped view of older adults in the career field (especially for aging women) as obsolete and out of touch with today's market by those younger. What are some potential implications of this? Being the target of stereotypes can adversely affect individuals' performance on tasks because they worry they will confirm those cultural stereotypes. This is known as stereotype threat, and it was originally used to explain race and gender differences in academic achievement (Gatz et al., 2016). Stereotype threat research has demonstrated that older adults who internalize aging stereotypes exhibit worse memory performance, worse physical performance, and reduced self-efficacy (Levy, 2009).

Figure 10.2.3: Are these street signs humorous or harmful? (Flickr license: Tumbleweed via Flickr)

Here's a story: Driving to the grocery store, Peter, 23 years old, got stuck behind a car on a four-lane main artery through his city's business district. The speed limit was 35 miles per hour, and while most drivers sped along at forty to forty-five mph, the driver in

front of him was going the posted speed. Peter pressed on his horn. He then tailgated the driver in an attempt to get him to speed up. Finally, Peter had a chance to pass the car. He glanced over. Sure enough, Peter thought, a gray-haired old man guilty of "DWE," driving while elderly. At the grocery store, Peter waited in the checkout line behind an older woman. She carefully paid for her groceries, slowly lifted her bags of food into her cart, and shuffled slightly toward the exit. Peter, guessing her to be about eighty years old, was reminded of his grandmother. He paid for his groceries and caught up with her. "Here," he said, grabbing one of her bags without asking. "I can help you with your heavy grocery bags." "No, thank you. I can get it myself," she said and marched off toward her car.

Peter's responses to both older people, the driver and the shopper, were prejudiced. In both cases, he made unfair assumptions. He assumed the driver drove cautiously simply because the man was a senior citizen, and he assumed the shopper needed help carrying her groceries just because she was an older woman. Responses like Peter's toward older people are fairly common. He didn't intend to treat people differently based on personal or cultural biases, but he did.

Ageism can vary in severity, of course. Peter's attitudes are probably seen as somewhat mild, but relating to older adults in ways that are patronizing can be offensive and harmful. When ageism is reflected in the workplace, in healthcare, and in assisted-living facilities, the effects of discrimination can be more severe. Ageism can make older people fear losing a job, feel dismissed by a doctor, or feel a lack of power and control in their daily living situations.

In early societies, the elderly were respected and revered. Many preindustrial societies observed **gerontocracy**, a type of social structure wherein the power is held by a society's oldest members. In some countries today, the elderly still have influence and power and their vast knowledge is respected. Reverence for the elderly is still a part of some cultures, but it has changed in many places because of social factors.

In many modern nations, however, industrialization contributed to the diminished social standing of the elderly. Today wealth, power, and prestige are also held by those in younger age brackets. The average age of corporate executives was fifty-nine years old in 1980. In 2008, the average age had lowered to fifty-four years old (Stuart 2008). Some older members of the workforce felt threatened by this trend and grew concerned that younger employees in higher level positions would push them out of the job market. Rapid advancements in technology and media have required new skill sets that older members of the workforce are less likely to have.

Changes happened not only in the workplace but also at home. In agrarian societies, a married couple cared for their aging parents. The oldest members of the family contributed to the household by doing chores, cooking, and helping with child care. As economies shifted from agrarian to industrial, younger generations moved to cities to work in factories. The elderly began to be seen as an expensive burden. They did not have the strength and stamina to work outside the home. What began during industrialization, a trend toward older people living apart from their grown children, has become commonplace.

Mistreatment and Abuse

Mistreatment and abuse of the elderly is a major social problem. As expected, with the biology of aging, the elderly sometimes become physically frail. This frailty renders them dependent on others for care—sometimes for small needs like household tasks, and sometimes for assistance with basic functions like eating and toileting. Unlike a child, who also is dependent on another for care, an elder is an adult with a lifetime of experience, knowledge, and opinions—a more fully developed person. This makes the care-providing situation more complex.

Elder abuse occurs when a caretaker intentionally deprives an older person of care or harms the person in his or her charge. Caregivers may be family members, relatives, friends, health professionals, or employees of senior housing or nursing care. The elderly may be subject to many different types of abuse.

In a 2009 study on the topic led by Dr. Ron Acierno, the team of researchers identified five major categories of elder abuse: 1) physical abuse, such as hitting or shaking, 2) sexual abuse, including rape and coerced nudity, 3) psychological or emotional abuse, such as verbal harassment or humiliation, 4) neglect or failure to provide adequate care, and 5) financial abuse or exploitation (Acierno 2010).

The National Center on Elder Abuse (NCEA), a division of the U.S. Administration on Aging, also identifies abandonment and self-neglect as types of abuse. The table below shows some of the signs and symptoms that the NCEA encourages people to notice.

Signs of Elder Abuse. The National Center on Elder Abuse encourages people to watch for these signs of mistreatment. (Chart courtesy of National Center on Elder Abuse)

Type of Abuse	Signs and Symptoms

Type of Abuse	Signs and Symptoms
Physical abuse	Bruises, untreated wounds, sprains, broken glasses, lab findings of medication overdosage
Sexual abuse	Bruises around breasts or genitals, torn or bloody underclothing, unexplained venereal disease
Emotional/psychological abuse	Being upset or withdrawn, unusual dementia-like behavior (rocking, sucking)
Neglect	Poor hygiene, untreated bed sores, dehydration, soiled bedding
Financial	Sudden changes in banking practices, inclusion of additional names on bank cards, abrupt changes to will
Self-neglect	Untreated medical conditions, unclean living area, lack of medical items like dentures or glasses

How prevalent is elder abuse? Two recent U.S. studies found that roughly one in ten elderly people surveyed had suffered at least one form of elder abuse. Some social researchers believe elder abuse is underreported and that the number may be higher. The risk of abuse also increases in people with health issues such as dementia (Kohn and Verhoek-Oftedahl 2011). Older women were found to be victims of verbal abuse more often than their male counterparts.

In Acierno's study, which included a sample of 5,777 respondents age sixty and older, 5.2 percent of respondents reported financial abuse, 5.1 percent said they'd been neglected, and 4.6 endured emotional abuse (Acierno 2010). The prevalence of physical and sexual abuse was lower at 1.6 and 0.6 percent, respectively (Acierno 2010).

Other studies have focused on the caregivers to the elderly in an attempt to discover the causes of elder abuse. Researchers identified factors that increased the likelihood of caregivers perpetrating abuse against those in their care. Those factors include inexperience, having other demands such as jobs (for those who weren't professionally employed as caregivers), caring for children, living full-time with the dependent elder, and experiencing high stress, isolation, and lack of support (Kohn and Verhoek-Oftedahl 2011).

A history of depression in the caregiver was also found to increase the likelihood of elder abuse. Neglect was more likely when care was provided by paid caregivers. Many of the caregivers who physically abused elders were themselves abused—in many cases, when they were children. Family members with some sort of dependency on the elder in their care were more likely to physically abuse that elder. For example, an adult child caring for an elderly parent while at the same time depending on some form of income from that parent, is considered more likely to perpetrate physical abuse (Kohn and Verhoek-Oftedahl 2011).

A survey in Florida found that 60.1 percent of caregivers reported verbal aggression as a style of conflict resolution. Paid caregivers in nursing homes were at a high risk of becoming abusive if they had low job satisfaction, treated the elderly like children, or felt burnt out (Kohn and Verhoek-Oftedahl, 2011). Caregivers who tended to be verbally abusive were found to have had less training, lower education, and higher likelihood of depression or other psychiatric disorders. Based on the results of these studies, many housing facilities for seniors have increased their screening procedures for caregiver applicants.

Figure 13.2.4 (Unsplash license; Bruno Aguirre via Unsplash)

Where Have the Multi-Generational Households Gone?

In the United States, the experience of being an older adult has changed greatly over the past century. In the late 1800s and early 1900s, large numbers of U.S. households were home to multi-generational families, and the experiences and wisdom of elders was respected. They offered wisdom and support to their children and often helped raise their grandchildren. In some countries today, older adults still have influence and power and their vast knowledge is respected. Multi-generational U.S. families began to decline after World War II, and their numbers reached a low point around 1980. But now, they are on the rise again. In fact, the number of Americans living in multi-generational family households have continued to rise, despite improvements in the U.S. economy since the Great Recession. In 2016, a record 64 million people, or 20% of the U.S. population, lived with multiple generations under one roof, according to a new Pew Research Center analysis of census data (http://www.pewresearch.org/fact-tank...al-households/).

Resources and Attributions

Introduction to Sociology 2e. **Authored by**: OpenStax CNX. **Located at**: http://cnx.org/contents/02040312-72c8-441e-a685-20e9333f3e1d/Introduction_to_Sociology_2e. **License**: *CC BY: Attribution*.

10.3: Phases of Aging

Figure 10.3.1: Can you guess the ages of older adults you see out in public in your daily life? (Unsplash license; SHIRAZ HENRY via Unsplash)

In modern U.S. society, appearance is not a reliable indicator of age. Hair dyes, Botox, and the like make traditional signs of aging increasingly unreliable. While enhancing our appearance can be personally rewarding for lots of reasons and is a very personal choice, how many older people try to look younger in order to feel more accepted in society? Why do we, as a society, shame the aging process and make attempts to hide the fact that we age? An old saying goes like this: "Do not complain about getting old. Some people are denied the privilege."

The Young-Old, Middle-Old, and Old-Old

In the United States, all people over eighteen years old are considered adults, but there is a large difference between a person who is 21 years old and a person who is 45 years old. More specific breakdowns, such as “young adult” and “middle-aged adult,” are helpful. In the same way, groupings are helpful in understanding older adults who are often lumped together to include everyone over the age of 65. But a 65 year old’s experience of life is much different from a 90 year old’s.

The United States’ older adult population can thus, be divided into three life-stage subgroups: the young-old (approximately 65 to 74 years old), the middle-old (ages 75 to 84 years old), and the old-old (over age 85). Today’s young-old age group is generally happier, healthier, and financially better off than the young-old of previous generations.

In the United States, people are better able to prepare for aging because resources are more widely available. Many people are making proactive quality-of-life decisions about their old age while they are still young. In the past, family members made care decisions when an elderly person reached a health crisis, often leaving the elderly person with little choice about what would happen. Older adults are now better able to choose housing, for example, that allows them some independence while still providing care when it is needed. Living wills, retirement planning, and medical power of attorney are other concerns that are increasingly handled in advance.

Caring for the Aging around the World

Figure 10.3.2: Cultural values and attitudes can shape people’s experience of aging. (Flickr license; Tom Coppen via Flickr)

As healthcare improves and life expectancy increases across the world, elder care will continue to be an expanding field. Worldwide, the expectation governing the amount and type of elder care varies from culture to culture. For example, in Asia the responsibility for elder care lies firmly on the family (Yap, Thang, and Traphagan, 2005). This is different from the approach in most Western countries. In the United States, by contrast, many people view caring for the elderly as a burden. Even when there is a family member able and willing to provide for an older family member, 60 percent of family caregivers are employed outside the home and are unable to provide the needed support. At the same time, however, many middle-class families are unable to bear the financial burden of “outsourcing” professional healthcare, resulting in gaps in care (Bookman and Kimbrel, 2011). It is important to note that even within the United States not all demographic groups treat aging the same way. While most people in the United States are reluctant to place their elderly members into out-of-home assisted care, demographically speaking, the groups least likely to do so are Latinos, African Americans, and Asians (Bookman and Kimbrel, 2011) who tend to embrace the multi-generational household idea, which cab benefit everyone in the home in numerous ways.

In 2002, the Second World Assembly on Aging was held in Madrid, Spain, resulting in the Madrid Plan, an internationally coordinated effort to create comprehensive social policies to address the needs of the worldwide aging population. The plan identifies three themes to guide international policy on aging: 1) publicly acknowledging the global challenges caused by, and the global opportunities created by, a rising global population; 2) empowering the elderly; and 3) linking international policies on aging to international policies on development (Zelenev, 2008).

The Madrid Plan has not yet been successful in achieving all its aims. However, it has increased awareness of the various issues associated with a global aging population, as well as raising the international consciousness to the way that the factors influencing the vulnerability of older adults (social exclusion, prejudice and discrimination, and a lack of socio-legal protection) overlap with other developmental issues (basic human rights, empowerment, and participation), leading to an increase in legal protections (Zelenev 2008).

10.4: Theories of Aging

Biochemistry and Aging

There are a number of attempts to explain why we age and many factors that contribute to aging. Genetics, diet, lifestyle, activity, and exposure to pollutants all play a role in the aging process.

The Hayflick Limit

At the cell level, cells divide a limited number of times and then stop. This phenomenon, known as the Hayflick limit, is evidenced in cells studied in test tubes which divide about 50 times before becoming senescent. Senescent cells do not die. They simply stop replicating. Senescent cells can help limit the growth of other cells which may reduce the risk of developing tumors when younger, but can alter genes later in life and result in promoting the growth of tumors as we age (Dollemore, 2006). Limited cell growth is attributed to telomeres which are the tips of the protective coating around chromosomes. Each time cells replicate, the telomere is shortened. Eventually, loss of telomere length is thought to create damage to chromosomes and produce cell senescence.

Free Radical Theory

As we metabolize oxygen, mitochondria in the cells convert oxygen to adenosine triphosphate (ATP) which provides energy to the cell. Unpaired electrons are a by product of this process and these unstable electrons cause cellular damage as they find other electrons with which to bond. These free radicals have some benefits and are used by the immune system to destroy bacteria. However, cellular damage accumulates and eventually reduces functioning of organs and systems. Many food products and vitamin supplements are promoted as age-reducing. Antioxidant drugs have been shown to increase the longevity in nematodes (small worms), but the ability to slow the aging process by introducing antioxidants in the diet is still controversial.

Protein Crosslinking

The protein crosslinking theory focuses on the role blood sugar, or glucose, plays in the aging of cells. Glucose molecules attach themselves to proteins and form chains or crosslinks. These crosslinks reduce the flexibility of tissue and tissue become stiff and loses functioning. The circulatory system becomes less efficient as the tissue of the heart, arteries and lungs lose flexibility. And joints grow stiff as glucose combines with collegen. (To conduct your own demonstration of this process, take a piece of meat and place it in a hot skillet. The outer surface of the meat will caramelize and the tissue will become stiff and hard.)

DNA Damage

As we live, DNA is damaged by environmental factors such as toxic agents, pollutants, and sun exposure (Dollemore, 2006). This results in deletions of genetic material, and mutations in the DNA that is duplicated in new cells. The accumulation of these errors results in reduced functioning in cells and tissues.

Decline in the Immune System

As we age, B-lymphocytes and T- lymphocytes become less active. These cells are crucial to our immune system as they secrete antibodies and directly attack infected cells. The thymus, where T-cells are manufactured, shrinks as we age. This reduces our body’s ability to fight infection Berger, 2005).

Cognitive Aging

Researchers have identified areas of both losses and gains in cognition in older age. Cognitive ability and intelligence are often measured using standardized tests and validated measures. The psychometric approaches identified two categories of intelligence that show different rates of change across the life span (Schaie & Willis, 1996). Crystallized intelligence is a type of intellectual ability that relies on the application of knowledge, experience, and learned information. Crystallized intelligence encompasses abilities that draw upon experience and knowledge including vocabulary tests, solving number problems, and understanding texts. Fluid intelligence is a type of intelligence that relies on the ability to use information processing resources to reason logically and solve novel problems. Fluid intelligence includes information processing abilities, such as logical reasoning, remembering lists, spatial ability, and reaction time.

There are many stereotypes of older adults. They are sometimes seen as slow because of changes in cognitive processing speed. They are though, on average, excellent at drawing on personal experience and knowledge. And they tend to outperform young adults when it comes to social and emotional challenges. [Image: Alex E. Proimos, https://goo.gl/20SbW8, CC BY-NC 2.0, goo.gl/FIlc2e]

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. 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. The ability to process information quickly also decreases with age. This slowing of processing speed may explain age differences on many different cognitive tasks. 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.

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).

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). Research on interpersonal problem solving suggested that older adults use more effective strategies than younger adults to navigate through social and emotional problems (Blanchard-Fields, 2007). In the context of work, researchers rarely find that older individuals perform poorer on the job (Park & Gutchess, 2000). Similar to everyday problem solving, older workers may develop more efficient strategies and rely on expertise to compensate for cognitive decline.

10.5: Psychosocial Development in Late Adultood

Growing older means confronting psychological highs and lows that come with entering the last phase of life. Young people moving into adulthood take on new roles and responsibilities as their lives expand, but an opposite arc can be observed in older age.

Each phase of life has challenges. As you likely recall, the psychologist Erik Erikson, in his psychosocial theory, broke the typical life span into eight phases. Each phase presents a particular challenge to overcome. In the final stage, late adulthood, the challenge is to embrace ego integrity over despair. Some people are unable to successfully overcome the challenge. They may have to confront regrets. They may have to accept that they will never reach certain career goals. Or they must come to terms with what their career success has cost them, such as time with their family or declining personal health. Others, however, are able to achieve a strong sense of ego integrity and are able to embrace the new phase in life. When that happens, there is tremendous potential for creativity. They can learn new skills, practice new activities, and peacefully prepare for the end of life.

Ego Integrity vs. Despair

Erikson believed that late adulthood is a time for making sense out of one's life, finding meaning to one's existence, and adjusting to inevitable death. He called this stage ego integrity vs. despair. Imagine being able to look back on life with the sense that whatever choices you made as a younger person, those choices served to help grow you (or others, or even the world) in some positive way. Of course, life does not typically involve perfect choices or linear growth. But a sense of general contentment and acceptance, understanding and tolerance of others are important features of integrity. Bitterness and unresolved resentments about life events can bring a sense of despair in older adulthood as one asks the question, "Did I live a meaningful life?" But, Erikson's theory leaves room to heal emotionally and gain a sense of "ego integrity". Some ways (and this is not an exhaustive list) include psychotherapy, strong social support, journaling, forgiving ourselves or others, and taking time to mourn our losses and move forward however feels right for us.

Here is a "snap shot" view of Ego Integrity vs. Despair:

Ego Integrity involves:

- Feeling whole, complete, satisfied with achievements
- Viewing life in the context of all humanity
- Achieving psychosocial maturity

Despair (of this stage) involves:

- Feeling too many decisions were wrong, yet time is now too short; holds strong regrets
- Having an overall sense of bitterness; unaccepting of death
- Enmeshed with a general sense of anger and contempt for others; blames others for personal failures

Aging and Sexuality

Figure 10.4.1: In *Harold and Maude*, a 1971 cult classic movie, a twenty-something young man falls in love with a seventy-nine-year-old woman. The world was shocked by this movie! What is your response to this picture, given that that the two people are meant to be lovers, not grandmother and grandson? (Flickr license; luckyjackson via Flickr)

It is no secret that people in the United States are unsettled about the subject of sex when it comes to older adults expressing their sexuality. It seems that no one wants to think about it or even talk about it. Most people want to believe that as we age, we become completely asexual, as though aging and asexuality automatically go hand-in-hand (ignoring also the fact that many people are asexual from an early age and others enjoy sexual activity well into their 90s and beyond). That fact is part of what makes 1971's

Harold and Maude so provocative. In this cult favorite film, Harold, a wealthy, alienated young man, meets and falls in love with Maude, a seventy-nine-year-old eccentric woman. What is so telling about the film is the reaction of his family, priest, and psychologist, who exhibit disgust and horror at such a match.

Although it still remains somewhat taboo to have an open, public national dialogue about aging and sexuality, the reality is that our sexual selves do not disappear after age sixty-five and older adults feel the consequences of the asexual-after-65 stereotype in ways including feeling isolated in sharing about their intimate lives to fear in seeking safe sex methods resulting in a rise in Sexually Transmitted Infections (STIs) among the aging population. "Older adults appear to be at increasing risk for STIs," says Dr. Khady Diouf, a reproductive infectious disease specialist at Harvard-affiliated Brigham and Women's Hospital. Diouf points to several possible reasons for the increase in STIs among older adults which includes not getting STI screening and treatment because both they and their doctors are often reluctant to raise the issue (Harvard Health Publishing).

Figure 10.4.2: Consistent with a cultural discomfort about aging and sex, openly license images depicting such things are hard to find. (Unsplash license; Renate Vanaga via Unsplash)

Aging and Social Interaction

Aging "Out": LGBTQ Seniors

How do different groups in our society experience the aging process? Are there any experiences that are universal, or do different populations have different experiences? An emerging field of study looks at how older lesbian, gay, bisexual, and transgender and queer (LGBTQ) people experience the aging process and how their experience differs from that of other groups or the culturally dominant group. This issue is expanding with the aging of the Baby Boomer generation; As the Baby Boomer generation ages, the older adult population will increase from 12.8 percent to an estimated 19 percent in 2030 (https://www.apa.org/pi/lgbt/resources/aging.aspx).

A study titled *Shifting Social Context in the Lives of LGBTQ Older Adults* found that more than 2/3 of LGBTQ older adults have experienced victimization and discrimination more than three times in their lives, including discrimination in health, aging, and disability services (Public Policy & Aging Report, 2018). As these older adults transition to assisted-living facilities, they have the added burden of “disclosure management:” Having to decide with each new caretaker if it is safe to be "out" and discuss a life partner they may be missing terribly or the loneliness involved. In one case study, a 78 year old lesbian lived alone in a long-term care facility. She had been in a long-term relationship of thirty-two years and had been visibly active in her community earlier in her life. However, in the long-term care setting, she was much quieter about her orientation, feeling safer with anonymity and silence (Jenkins et al. 2010).

Even with laws that have passed to promote protection of these older adults, new data from a survey (Discrimination in America; Harvard School of Public Health, 2017) shows that discrimination still abounds and discourages LGBTQ older adults from seeking care and that they often have trouble finding alternative services if they are turned away. These data underscore the importance of protecting LGBTQ people from discrimination in health care. In the future, this will undoubtedly be an expanding career field for gerontologists, psychologists, medical personnel, and caregivers. Services intended for the older adult population need to be assessed proactively with positive changes implemented as may be necessary to be welcoming for people who are both older and identify as LGBTQ.

Disengagement Theory

Disengagement theory (Cummings & Henry, 1961) suggests that during late adulthood, the individual and society mutually withdraw. Older people become more isolated from others and less concerned or involved with life in general. This once popular

theory is now criticized as being ageist and used in order to justify treating older adults as second class citizens. Most older adults do not disengage from society.

Activity Theory

Many older adults *want* to remain active and work toward replacing opportunities lost with new ones. Those who prefer to keep themselves busy demonstrate the Activity theory, which states that greater satisfaction with one's life occurs with those who remain active. Not surprisingly, more positive views on aging and greater health are noted with those who keep active than those who isolate themselves and disengage with others. Community, faith-based, and volunteer organizations can all provide those in late adulthood with opportunities to remain active and maintain social networks. According to Activity theory, social barriers to engagement, not the desires of aging adults, cause declining rates of interaction if that occurs. Erikson's concept of generativity applies to many older adults, just as it did in midlife.

Continuity Theory

Another theory, Continuity theory, suggests that as people age, they continue to view the self in much the same way as they did when they were younger. Their approach to problems, goals, and situations is much the same as it was before. They are the same individuals, but simply in older bodies. Consequently, older adults continue to maintain their identity even as they give up previous roles. For example, a retired Coast Guard commander attends reunions with shipmates, stays interested in new technology for home use, is meticulous in the jobs she does for friends and displays mementos of life on the ship. She is able to maintain a sense of self as a result. We do not give up who we are as we age. Hopefully, we are able to share these aspects of our identity with others throughout life. Focusing on what a person can do and pursuing those interests and activities is one way to optimize and maintain self-identity.

10.6: Personality and Emotional Well-Being in Late Adulthood

Personality and Self-Related Processes

Have you ever heard anyone say something like, "Old people are all alike. They all eat the same kind of food, wear the same kind of clothes and have the same kind of haircuts"? It isn't because they age that you may find such similarities. It is because they belong to a *cohort* that experienced the same historical events and environmental conditions, just as you did (and are doing).

Figure 10.6.1: All elderly are not alike. (Unsplash license; Alex Harvey via Unsplash)

Cohort Effects

A cohort is a group of people typically born around the same time or historical period, who share common experiences over time; sometimes called a generation (e.g., Baby Boom Generation or Millennial Generation).Your own age cohort has similarities as a result of the events of your times. Someday, people who are much younger than you will say things like, "All those Millennial old people are alike! They just want to carry their HUGE old iphones around while taking old school selfies and looking at cat videos while telling us how 'sick' that new GIF was!" See what I mean here? There will be things from your cohort that generations not yet born will identify you with. But...while there certainly are generational similarities for people due to being part of a cohort, there are also differences because people are individuals. Individual differences are just as pronounced among older people as among younger ones. You are *you* and unique in that. But, you are also part of a historical cohort which plays a role in your development as you age as well.

Self-Perceptions

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.

Social Relationships

Much research focuses on the associations between specific effects of long-term social relationships and health in later life. Having friends is an especially strong predictor of mental health among older adults. Regarding marriage, older married individuals who receive positive social and emotional support from their partner generally report better health than their unmarried peers (Antonucci, 2001; Umberson, Williams, Powers, Liu, & Needham, 2006; Waite & Gallagher, 2000). Despite the overall positive health effects of being married in old age (compared with being widowed, divorced, or single), living as a couple can have a "dark side" if the relationship is strained or if one partner is the primary caregiver. The consequences of positive and negative aspects of relationships are complex (Birditt & Antonucci, 2008; Rook, 1998; Uchino, 2009). For example, in some circumstances, criticism

from a partner may be perceived as valid and useful feedback whereas in others it is considered unwarranted and hurtful. In long-term relationships, habitual negative exchanges might have diminished effects. This is another reason having friends at this stage is important. Parent-child and sibling relationships are often the most long-term and emotion-laden social ties. Across the life span, the parent-child tie, for example, is characterized by a paradox of solidarity, conflict, and ambivalence (Fingerman, Chen, Hay, Cichy, & Lefkowitz, 2006).

Figure 10.6.2 (Unsplash license; Mary Blackwey via Unsplash)

Emotion and Well-being

As we get older, the likelihood of losing loved ones or experiencing declines in health increases. Does the experience of such losses result in decreases in well-being in older adulthood? Researchers have found that well-being differs across the life span and that the patterns of these differences depend on how well-being is measured.

Measures of global subjective well-being assess individuals' overall perceptions of their lives. This can include questions about life satisfaction or judgments of whether individuals are currently living the best life possible. What factors may contribute to how people respond to these questions? Age, health, personality, social support, and life experiences have been shown to influence judgments of global well-being. It is important to note that predictors of well-being may change as we age. What is important to life satisfaction in young adulthood can be different in later adulthood. Early research on well-being argued that life events such as marriage or divorce can temporarily influence well-being, but people quickly adapt and return to their average baseline (called the hedonic treadmill; Diener, Lucas, & Scollon, 2006). The hedonic treadmill theory proposes that people eventually return to their own base range of happiness (higher or lower as the case may be for each person), regardless of what happens to them. More recent research suggests otherwise. Using longitudinal data, researchers have examined well-being prior to, during, and after major life events such as widowhood, marriage, and unemployment (Lucas, 2007). Different life events influence well-being in different ways, and individuals do not often adapt back to baseline levels of well-being. The influence of events, such as unemployment, may have a lasting negative influence on well-being as people age. Research suggests that self-reported well-being is actually highest in early adulthood and late adulthood and lowest in middle adulthood when there is a temporary U-shaped dip (which does not necessarily equate with the myth of the midlife crisis as you may recall). Other research finds that older adults report more positive and less negative affect than middle age and younger adults (Magai, 2008; Mroczek, 2001). It should be noted that both self-reported well-being and positive affect tend to taper off during late older adulthood and these declines may be accounted for by increases in health-related losses during these years (Charles & Carstensen, 2010).

The Six-factor Model of Psychological Well-being

Psychological well-being aims to evaluate the positive aspects of psychosocial development, as opposed to factors of ill-being, such as depression or anxiety. The Six-factor Model of Psychological Well-being is a theory developed by Carol Ryff, which determines six factors that contribute to an individual's psychological well-being, contentment, and happiness. Ryff's Model proposes the following six core dimensions of positive well-being:

1. Self-acceptance
2. Personal growth
3. Purpose in life
4. Environmental mastery
5. Autonomy
6. Positive relations with others

Ryff's model differs from other models in that it recognizes that well-being, like people, is multidimensional, and not merely about happiness, or "positive" emotions. A life well-lived is thought to be balanced, engaging each of the different aspects of well-being,

instead of being too narrowly focused. Ryff roots her model from Aristotle's *Nichomachean Ethics*, where the goal of life isn't "feeling good" necessarily, but is, instead, about living optimally.

Research on this model has shown that older adults report higher levels of environmental mastery (feelings of competence and control in managing everyday life) and autonomy (independence), lower personal growth and purpose in life, and similar levels of positive relations with others as younger individuals. Links between health and interpersonal flourishing, or having high-quality connections with others, may be more important than previously thought in understanding how to optimize quality of life in old age.

The Impact of Ageism

Studying bias against old people is a relatively new phenomenon, partly because old people are a relatively new phenomenon. For hundreds of millennia, the average human lifespan rarely reached 40. There have always been some people who lived well beyond that age. Socrates, born in 470 B.C., died at 70 (of execution by poisoning, not age). Harriet Tubman, born in 1822, died at 91. But 20th century health care advancements and other factors caused life expectancy to skyrocket. An American born in 1900 lived, on average, just over 47 years. By 1960, that number had jumped to almost 70. Today, we can expect to live to about 80 (but we could like much longer).

Meanwhile, old people have become more segregated. Throughout most of human history, different generations usually lived together or nearby. But the Industrial Revolution lured younger people into cities for jobs, and urban living quarters couldn't accommodate extended families, said psychologist Todd D. Nelson, of California State University Nelson, Stanislaus. Grandparents and great-grandparents were transformed from familiar household members into relatives who lived separately and often distantly. Nelson mentioned an even less obvious reason for the changing status of old people: the invention of the printing press. Before then, old people were respected sources of valuable knowledge handed down from earlier generations and accumulated through their years of experience. Books made knowledge readily obtainable from strangers.

This transition 500 years ago seems echoed in today's supposed gap between "digital native" millennials and older people who, according to conventional wisdom, are technologically inept. Still another theory holds that ageism reflects our deep fears about dying. Death, once a normal household event, now usually occurs in nursing homes and hospitals — unfamiliar and unsettling places.

"Reminders of our mortality make us very anxious," Nelson said. Casual ageism, on the other hand, isn't even especially frowned upon. It's so common it may seem routine, trivial, well-intentioned. But it's not necessarily harmless. Researchers have found numerous links between cultural ageism and health problems — physical, cognitive and emotional — among older people.

Challenging ageism means getting people to pay closer attention to messages they've been hearing all their lives. These messages are found in jokes and insults and compliments and offhand remarks. They're in the TV programs and commercials we watch (one study found that people who watched more TV held more anti-age biases). They're posted on Facebook, which officially bans hate speech based on categories including race, nationality, religion and gender — but not age. They're in the advertising claims that have built a $200 billion "anti-aging" industry of skin creams, Botox injections, hair coloring, hair restoration and cosmetic surgery.

From childhood on, Americans receive messages that old age means "you're unhealthy, your mind is shot, you're boring, you're depressed and sad and lonely," said Sally Brown of St. Paul, who teaches a course called "Aging With Gusto" through the St. Paul-based Vital Aging Network.

Negative Images

True, some older people are unhealthy or lonely — as are some young people. But similar characteristics are interpreted differently by age. A physically fit young person is healthy; a fit old person seems "younger." A teenager losing the car keys is momentarily careless, an older person is developing dementia. Statements that denigrate older people's functioning, thinking and appearance, advocates say, can lead to old people being stigmatized, isolated, ignored, politically disadvantaged and treated as "others." Yet despite — or because of — the ubiquity of these messages, people rarely consider that they might be damaging. Compared with other common prejudices, ageism is rarely discussed.

“Ageism is a thing, just like racism and sexism, and it’s been under the radar for, well, forever,” said Todd D. Nelson, a psychologist at California State University, Stanislaus. While researching the psychology of prejudice in general, Nelson noticed the scarcity of information about ageism. So he published a book, Ageism: Stereo-typing and Prejudice Against Older Persons. “In my writing, I ask the very simple question: Why are we hiding that we’re getting older?” Nelson said. “It implies we’re ashamed of getting older, that it’s bad to get older. It’s so deeply embedded in our culture.”

Biases take different forms with different targets, so comparisons aren’t always valid, but sometimes swapping groups in a statement can highlight offensiveness. A birthday card that says “‘Ha ha ha, too bad you’re [insert ethnicity, religion, etc.],’” Nelson said, “wouldn’t go over so well.”

‘Everyone Is Ageist’

Ageism is a weird prejudice in several respects. For one, it has an ironic aspect: It’s a bias held by younger people against a group to which they will eventually belong — if they’re lucky. Nelson has called it “prejudice against our feared future selves.”

“Everyone is ageist because we are all biased,” said Ashton Applewhite, author of *This Chair Rocks: A Manifesto Against Ageism* and a blog of the same name. Everyday ageism is so widespread that people tend to use “young” and “old” as almost synonymous with positive versus negative traits. “Someone will say, ‘My mom is 94 but she’s not old,’” Applewhite said. Wrong. “She may be peppy, she maybe having wild sex every night, she may be a lingerie model, she may be a marathon runner. But she is old.”

Figure 10.6.3 (Unsplash license; Mehmet Turgut Kirkgoz via Unsplash)

A Self-Fulfilling Prophecy

People who accept negative age stereotypes are likelier to suffer cardiovascular problems and symptoms of Alzheimer’s, according to extensive research by Becca Levy, a professor of public health and psychology at Yale University. Meanwhile, Levy found that people with more positive images of aging had better psychiatric healthand physical functioning. Her subjects were studied over periods of years, minimizing the possibility that worsening health conditions shaped their outlook rather than the other way around. In one study, people over 60 with negative images of aging were more than 30 percent more likely to show memory decline. In another, people with positive images of aging lived longer by an average of 7.5 years.

Levy theorizes that young people are especially likely to absorb ageist stereotypes because they don’t identify with older people and feel no need to defend against the insults. Later, when they become old, they turn those attitudes back on themselves, experiencing health problems they’ve grown up expecting old people to experience.

Even health-care professionals may treat older patients differently than they do younger ones.

We’re All OK

Fighting ageism might begin with examining one’s own preconceptions and looking for ways to substitute upbeat thoughts for downers. Start thinking of old age as “a time of growth, learning, exploration, adventure,” Nelson suggested. Sally Brown agrees that people must change their mind-sets. “Embrace age as a natural process that begins at birth and continues throughout life,” she said. Remember that everybody gets older every day, and those who get to be old are the lucky ones.

Consider your own responses to ageist language or behavior — do you laugh politely at an ageist joke or point out that it’s problematic? Brown endorses challenging ageism when you encounter it. At the very least, don’t be complicit — don’t repeat the

joke!

Even beauty magazines, traditionally purveyors of ageist attitudes, may be gaining awareness. Allure magazine announced on its September cover, with Helen Mirren, that it would stop using the term “anti-aging” and called on the industry to follow suit. “Growing older is a wonderful thing because it means that we get a chance, every day, to live a full, happy life,” the inside article said.

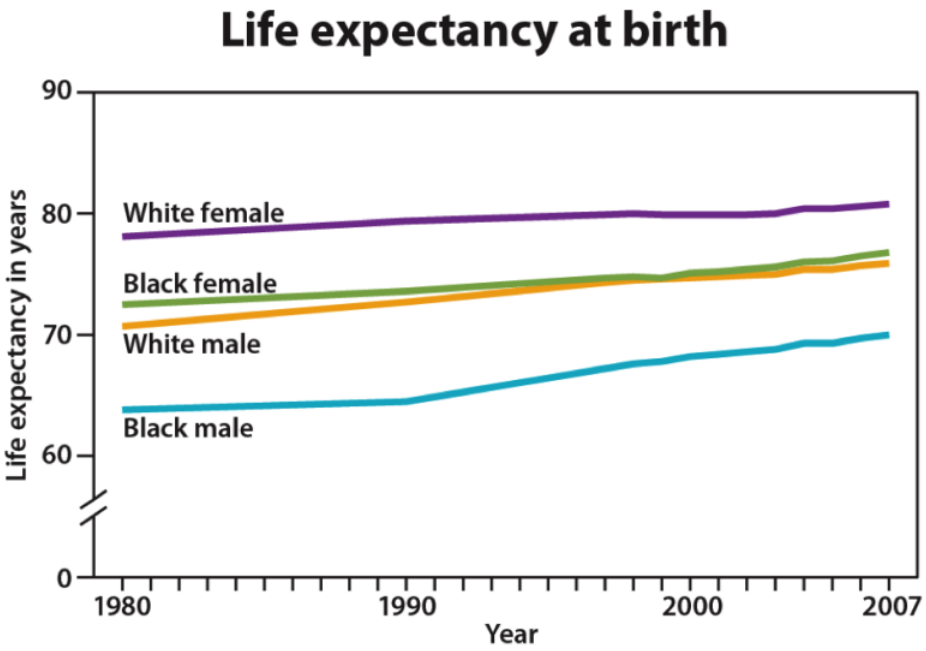
But lifelong lessons can be hard to escape. Even Brown admits she struggles not to feel flattered if someone tells her she looks younger than she is. “It’s really not a compliment,” she said. “It’s saying that who I really am is not OK. To make me be OK you have to tell me I’m younger than I am. Actually, people of every age are OK."

Traditionally, research on aging described only the lives of people over age 65 and the very old. Contemporary theories and research recognizes that biogenetic and psychological processes of aging are complex and lifelong. Functioning in each period of life is influenced by what happened earlier and, in turn, affects subsequent change. We all age in specific social and historical contexts. Perhaps we can re-imagine what aging can mean as we evolve attitudes and stereotypes.

References and Attributions

10.7: Physical Development in Late Adulthood - Life Expectancy and Quality of Life

One way to prepare for the future is to find ways to improve quality of life. Life expectancy in 1900 was about 47 years. In 2017, life expectancy for all races is 77.9, 77.3 for males and 82 for females (Living Longer: Historical and Projected Life Expectancy in the United States, 1960 to 2060, U.S. Census Bureau, 2020). For whites, life expectancy is 77.7 for males and 82.82 for females. For black males, life expectancy is 73.2 and is 79 for black females (U.S. Census Bureau, 2020). Historic racism or years of living under oppressive prejudice and discrimination can increase the incidence of stress-related illness and contribute to a lower life expectancy. As of 2015, the United States ranks 40th among other countries for its life expectancy. The Japanese and the Swedish men have the longest life expectancies (U.S. Census Bureau, 2020).

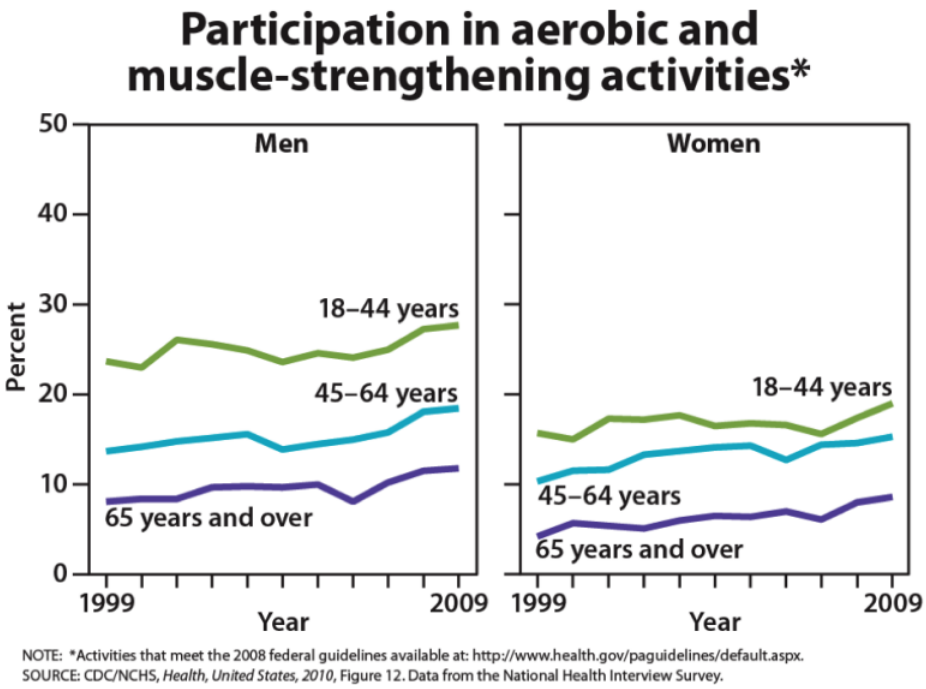


SOURCE: CDC/NCHS, *Health, United States, 2010*, Figure 1. Data from the National Vital Statistics System.

Increased life expectancy brings concern over the health and independence of those living longer. Greater attention is now being given to the number of years a person can expect to live without disability which is referred to as active life expectancy. When this distinction is made, we see that although women live longer than men, they are more at risk of living with disability (Weitz, 2007). What factors contribute to poorer health? Marriage has been linked to longevity, but spending years in a stressful marriage can increase the risk of illness. This negative effect is experienced more by women than men and seems accumulates through the years. Its impact on health may not occur until a woman reaches 70 or older (Umberson, Williams, et. al., 2006). Sexism can also create chronic stress. The stress experienced by women as they work outside the home as well as care for family members can also ultimately have a negative impact on health. Poorer health in women is further attributed to an increase in rates of smoking by women in recent years (He et als, 2005).

The shorter life expectancy for men in general, is attributed to greater stress, poorer attention to health, more involvement in dangerous occupations, and higher rates of death due to accidents, homicide, and suicide. Social support can increase longevity. For men, life expectancy and health seems to improve with marriage. Spouses are less likely to engage in risky health practices and wives are more likely to monitor their husband's diet and health regimes. But men who live in stressful marriages can also experience poorer health as a result.

Key players in improving the quality of life among older adults will be those adults. By exercising, reducing stress, stopping smoking, limiting use of alcohol, and consuming more fruits and vegetables, older adults can expect to live longer and more active lives. (He et. als, 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.



NOTE: *Activities that meet the 2008 federal guidelines available at: http://www.health.gov/paguidelines/default.aspx.
SOURCE: CDC/NCHS, *Health, United States, 2010*, Figure 12. Data from the National Health Interview Survey.

Attitudes about Aging

Stereotypes about people of in late adulthood lead many to assume that aging automatically brings poor health and mental decline. These stereotypes are reflected in everyday conversations, the media and even in greeting cards (Overstreet, 2006). The following examples serve to illustrate.

1) Grandpa, fishing pole in one hand, pipe in the other, sits on the ground and completes a story being told to his grandson with ". . . and that, Jimmy, is the tale of my very first colonoscopy." The message inside the card reads, "Welcome to the gross personal story years." (Shoebox, A Division of Hallmark Cards.)

2) An older woman in a barber shop cuts the hair of an older, dozing man. "So, what do you say today, Earl?" she asks. The inside message reads, "Welcome to the age where pretty much anyplace is a good place for a nap." (Shoebox, A Division of Hallmark Cards.)

3) A crotchety old man with wire glasses, a crumpled hat, and a bow tie grimaces and the card reads, "Another year older? You're at the age where you should start eatin' right, exercisin', and takin' vitamins . . ." The inside reads, "Of course you're also at the age where you can ignore advice by actin like you can't hear it." (Hallmark Cards, Inc.)

Of course, these cards are made because they are popular. Age is not revered in the United States, and so laughing about getting older is one way to get relief. The attitudes are examples of ageism, prejudice based on age. Stereotypes such as these can lead to a self-fulfilling prophecy in which beliefs about one's ability results in actions that make it come true. A positive, optimistic outlook about aging and the impact one can have on improving health is essential to health and longevity. Removing societal stereotypes about aging and helping older adults reject those notions of aging is another way to promote health and active life expectancy among the old.

10.8: Physical Development in Late Adulthood - Primary and Secondary Aging

Healthcare providers need to be aware of which aspects of aging are reversible and which ones are inevitable. By keeping this distinction in mind, caregivers may be more objective and accurate when diagnosing and treating older patients. And a positive attitude can go a long way toward motivating patients to stick with a health regime. Unfortunately, stereotypes can lead to misdiagnosis. For example, it is estimated that about 10 percent of older patients diagnosed with dementia are actually depressed or suffering from some other psychological illness (Berger, 2005). The failure to recognize and treat psychological problems in older patients may be one consequence of such stereotypes.

Primary Aging

Primary aging refers to the inevitable changes associated with aging (Busse, 1969). These changes include changes in the skin and hair, height and weight, hearing loss, and eye disease. However, some of these changes can be reduced by limiting exposure to the sun, eating a nutritious diet, and exercising.

Skin and hair change as we age. The skin becomes drier, thinner, and less elastic as we age. Scars and imperfections become more noticeable as fewer cells grow underneath the surface of the skin. Exposure to the sun, or photoaging, accelerates these changes. Graying hair is inevitable. And hair loss all over the body becomes more prevalent.

Height and weight vary with age. Older people are more than an inch shorter than they were during early adulthood (Masoro in Berger, 2005). This is thought to be due to a settling of the vertebrae and a lack of muscle strength in the back. Older people weigh less than they did in mid-life. Bones lose density and can become brittle. This is especially prevalent in women. However, weight training can help increase bone density after just a few weeks of training.

Muscle loss occurs in late adulthood and is most noticeable in men as they lose muscle mass. Maintaining strong leg and heart muscles is important for independence. Weight-lifting, walking, swimming, or engaging in other cardiovascular exercises can help strengthen the muscles and prevent atrophy.

Visual Problems

The majority of people over 65 have some difficulty with vision, but most is easily corrected with prescriptive lenses. Three percent of those 65 to 74 and 8 percent of those 75 and older have hearing or vision limitations that hinder activity. The most common causes of vision loss or impairment are glaucoma, cataracts, age-related macular degeneration, and diabetic retinopathy (He et al., 2005).

Auditory Problems

Hearing loss is experienced by 30 percent of people age 70 and older. Almost half of people over 85 have some hearing loss (He et al., 2005). Among those who are in nursing homes, rates are higher. Older adults are more likely to seek help with vision impairment than with hearing loss, perhaps due to the stereotype that older people who have difficulty hearing are also less mentally alert. Being unable to hear causes people to withdraw from conversation and others to ignore them or shout. Unfortunately, shouting is usually high pitched and can be harder to hear than lower tones. The speaker may also begin to use a patronizing form of ‘baby talk’ known as **elderspeak** (See et al., 1999). This language reflects the stereotypes of older adults as being dependent, demented, and childlike. Image others speaking to you in that way. How would you feel? I am reminded of a man dying at home and a hospice worker, on shift for the first time, comes to his bedside and shouts, “Hi, baby. Want me to rub your little feet?” His response was an indignant look of disapproval.

Hearing loss is more prevalent in men than women. And it is experienced by more white, non-Hispanics than by Black men and women. Smoking, middle ear infections, and exposure to loud noises increase hearing loss.

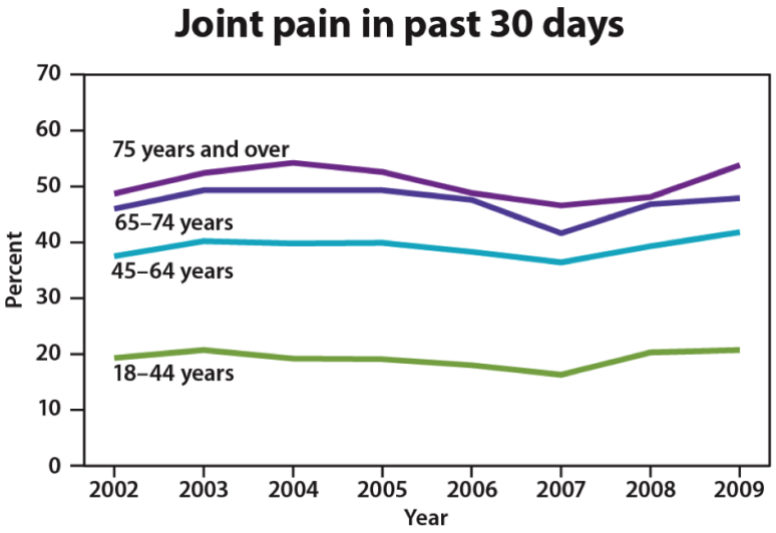
In summary, primary aging can be compensated for through exercise, corrective lenses, nutrition, and hearing aids. And, more importantly, by reducing stereotypes about aging, people of age can maintain self-respect, recognize their own strengths, and count on receiving the respect and social inclusion they deserve.

Secondary Aging

Secondary aging refers to changes that are caused by illness or disease. These illnesses reduce independence, impact quality of life, affect family members and other caregivers, and bring financial burden. Some of the most prevalent illnesses that cause impairment are discussed below.

Arthritis

Arthritis is the leading cause of disability in older adults. Arthritis results in swelling of the joints and connective tissue that limits mobility. Arthritis is more common among women than men and increases with age. About 19.3 percent of people over 75 are disabled with arthritis; 11.4 percent of people between 65 and 74 experience this disability.



SOURCE: CDC/NCHS, *Health, United States, 2010*, Figure 7. Data from the National Health Interview Survey.

Hypertension

Hypertension or high blood pressure and associated heart disease and circulatory conditions increase with age. Hypertension disables 11.1 percent of 65 to 74 year olds and 17.1 percent of people over 75. Rates are higher among women and Blacks. Rates are highest for women over 75.

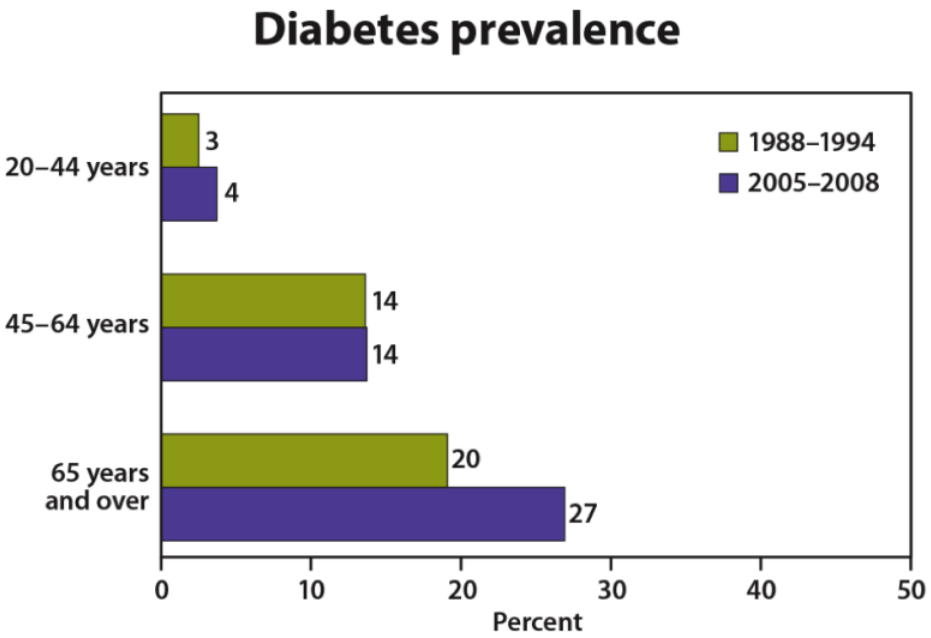
Heart Disease and Stroke

Coronary (heart) disease and stroke are higher among older men than women. The incidence of stroke is lower than that of coronary disease. What exactly is a stroke? As explained by the CDC:

> A stroke, sometimes called a brain attack, occurs when something blocks blood supply to part of the brain or when a blood vessel in the brain bursts. In either case, parts of the brain become damaged or die. A stroke can cause lasting brain damage, long-term disability, or even death.
>
> If something happens to block the flow of blood, brain cells start to die *within minutes* because they can't get oxygen. This causes a stroke.
>
> There are two types of stroke:
>
> - An **ischemic stroke** occurs when blood clots or other particles block the blood vessels to the brain. Fatty deposits called plaque can also cause blockages by building up in the blood vessels.
> - A **hemorrhagic stroke** occurs when a blood vessel bursts in the brain. Blood builds up and damages surrounding brain tissue.
>
> Both types of stroke damage brain cells. Symptoms of that damage start to show in the parts of the body controlled by those brain cells.

Diabetes

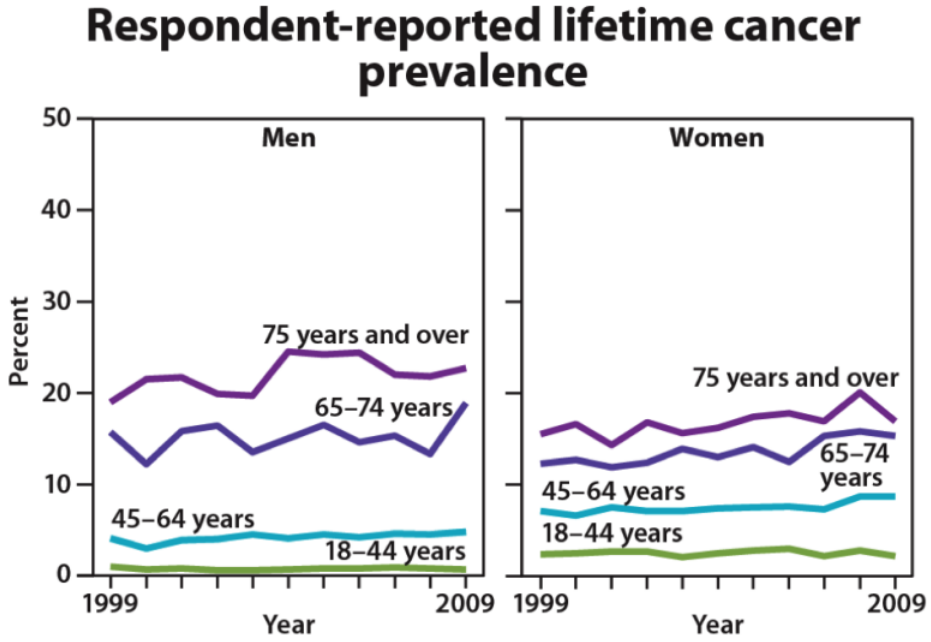
In 2008, 27 percent of those 65 and older had diabetes. Rates are higher among Mexican origin individuals and Blacks than non-Hispanic whites. The treatment for diabetes includes dietary changes, increasing physical activity, weight loss for those who are overweight, and medication (National Institute on Aging, 2011).



SOURCE: CDC/NCHS, *Health, United States, 2010*, Figure 5. Data from the National Health and Nutrition Examination Survey.

Cancer

Men over 75 have the highest rates of cancer at 28 percent. Women 65 and older have rates of 17 percent. Rates for older non-Hispanic Whites are twice as high as for Hispanics and non-Hispanic Blacks. The most common types of cancer found in men are prostate and lung cancer. Breast and lung cancer are the most common forms in women.



SOURCE: CDC/NCHS, *Health, United States, 2010*, Figure 4. Data from the National Health Interview Survey.

Osteoporosis

Osteoporosis increases with age as bones become brittle and lose minerals. Bone loss is four times more likely in women than in men and becomes even more prevalent in women 85 and older. Whites suffer osteoporosis more than do non-Hispanic Blacks.

Alzheimer's Disease

Between 2.4 and 5.1 million people in the United States suffer with Alzheimer's disease (AD) (National Institute on Aging, 2011). This disease is not becomes more prevalent with age, but is not inevitable. This typically appears after age 60 but develops slowly

for years before it's appearance. Social support, and aerobic exercise can reduce the risk of Alzheimer's disease. As the large cohort of Baby Boomers begins turning 65 in 2011, the number of cases of Alzheimer's disease is expected to increase dramatically. Where will these people receive care? Seventy percent of AD patients are cared for in the home. Such care can be emotionally, financially, and physically stressful. Most AD patients live 8 to 10 years with the disease and long-term care costs an average of $174,000 per patient (He et al., 2005).

Normal Aging

The Baltimore Longitudinal Study on Aging (2006) began in 1958 and has traced the aging process in 1,400 people from age 20 to 90. Researchers from the BLSA have found that the aging process varies significantly from individual to individual and from one organ system to another. Kidney function may deteriorate earlier in some individuals. Bone strength declines more rapidly in others. Much of this is determined by genetics, lifestyle, and disease. However, some generalizations about the aging process have been found:

- Heart muscles thicken with age
- Arteries become less flexible
- Lung capacity diminishes
- Brain cells lose some functioning but new neurons can also be produced
- Kidneys become less efficient in removing waste from the blood
- The bladder loses its ability to store urine
- Body fat stabilizes and then declines
- Muscle mass is lost without exercise
- Bone mineral is lost. Weight bearing exercise slows this down.

11: DEATH AND DYING

LibreTexts™

CHAPTER OVERVIEW

11: Death and Dying

11.1: Death and Dying - What Will You Learn?

After reading "Death and Dying" you should be able to:

1. Compare physiological, social, and psychic death.
2. List and describe the stages of loss based on various models including that of Kubler-Ross.
3. Explain the philosophy and practice of palliative care.
4. Describe hospice care.
5. Characterize bereavement and grief.
6. Describe the various types of grief.
7. Explore your own ideas about death and dying.

11.2: Every Story Has an Ending

“Everything has to die,” he told her during a telephone conversation.

“I want you to know how much I have enjoyed being with you, having you as my mentor and confidant and what a good father you have been to me. Thank you so much.” she told him.

“You are entirely welcome.” he replied.

He had known for years that smoking would eventually kill him. But he never expected that lung cancer would take his life so quickly or be so painful. A diagnosis in late summer was followed with radiation and chemotherapy during which time there were moments of hope interspersed with discussions about where his wife might want to live after his death and whether or not he would have a blood count adequate to let him precede with his next treatment. Hope and despair exist side by side. After a few months, depression and quiet sadness preoccupied him although he was always willing to relieve others by reporting that he ‘felt a little better’ if they asked. He returned home in January after one of his many hospital stays and soon grew worse. Back in the hospital, he was told of possible treatment options to delay his death. He asked his family members what they wanted him to do and then announced that he wanted to go home. He was ready to die. He returned home. Sitting in his favorite chair and being fed his favorite food gave way to lying in the hospital bed in his room and rejecting all food. Eyes closed and no longer talking, he surprised everyone by joining in and singing “Happy birthday” to his wife, son, and daughter-in-law who all had birthdays close together. A pearl necklace he had purchased 2 months earlier in case he died before his wife’s birthday was retrieved and she told him how proud she would be as she wore it. He kissed her once and then again as she said goodbye. He died a few days later.

Figure 11.2.1: Photo Courtesy Robert Paul Young

Every story has an ending. Death marks the end of your life story. Our culture and individual backgrounds influence how we view death. In some cultures, death is accepted as a natural part of life and is embraced. In contrast, until about 50 years ago in the United States, a doctor might not inform someone that they were dying, and the majority of deaths occurred in hospitals. In 1967 that reality began to change with Cicely Saunders, who created the first modern hospice in England. The aim of hospice is to help provide a death with dignity and pain management in a humane and comfortable environment, which is usually outside of a hospital setting. In 1974, Florence Wald founded the first hospice in the United States. Today, hospice provides care for approximately 1.65 million Americans and their families. Because of hospice care, many terminally ill people are able to spend their last days at home.

Figure 11.2.3:

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 primary caregiver 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: Children in middle childhood are beginning to understand the finality of death. However, they may think that they could have prevented the death in some way, and may consequently feel guilty and responsible for the death.

Late Childhood: At this stage, children do 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/caregivers 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 as a general.

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/caregivers, 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.

Creating Meaning Through Death

How do we measure a successful life and make meaning of it as we deal with death? How do we find peace around death, especially when it is unexpected? These are existential type questions and perhaps they can only truly be answered individually. One example of a person creating meaning through death is Randy Pausch, who was a well-loved and respected professor at Carnegie Mellon University. Diagnosed with terminal pancreatic cancer in his mid-40s and given only 3–6 months to live, Pausch focused on living in a fulfilling way in the time he had left. Instead of embracing anger and depression, he presented his now famous last lecture called "Really Achieving Your Childhood Dreams." In his moving, yet humorous talk, he shares his insights on seeing the good in others, overcoming obstacles, and experiencing "zero gravity", among many other things. Despite his terminal diagnosis, Pausch lived the final year of his life with joy and hope, showing us that our plans for the future still matter, even if we know that we are dying. Here's is a short excerpt but the full video is posted as an optional view, as well right below this short clip.

Short excerpt:

11.3: End of Life Choices

Advanced Directives

As individuals become more knowledgeable about medical procedures and practices, some people want the psychological comfort of ensuring that their wishes and desires are known in advance. This way, if the person ever becomes incapacitated or can no longer direct their own care, their loved ones will know what they want. For this reason, a person might write a living will or advance directive, which is a written legal document that details specific interventions a person wants - or doesn't want. For example, a person in the last stages of a terminal illness may not want to receive life-extending treatments. A person may also include a Do Not Resuscitate (DNR) Order and would share this with their family and close friends. A DNR Order states that if a person stops breathing or their heart stops beating, medical personnel such as doctors and nurses are NOT to take steps to revive or resuscitate the patient. However, it can be complicated because doctors do have the ability to make decisions for the patient, depending on many variables.

Advanced care planning *refers to all documents that pertain to end-of-life care*. These include advance directives and medical orders. **Advance directives** *include documents that mention a health care agent and living wills*. These are initiated by the patient. **Living wills** *are written or video statements that outline the health care interventions the person wishes under certain circumstances*. A living will can also include a health care proxy, which appoints a specific person to make medical decisions for you if you are unable to speak for yourself. People's desire for living wills and DNRs are often influenced by their spiritual beliefs, culture, and upbringing. **Durable power of attorney for health care** *names the person who should make health care decisions in the event that the patient is incapacitated*. In contrast, **medical orders** *are crafted by a medical professional on behalf of a seriously ill patient*. Unlike advanced directives, as these are doctor's orders, they must be followed by other medical personnel. Medical orders include Physician Orders for Life-sustaining Treatment (POLST), do-not-resuscitate, do-not-intubate, 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 people in the United States 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).

Curative, Palliative, and Hospice Care

When individuals become ill, they need to make choices about the treatment they wish to receive. A person's age, type of illness, and personal beliefs about dying greatly affect the type of treatment chosen.

Curative care *is designed to overcome and cure disease and illness* (Fox, 1997). Its aim is to promote complete recovery, not just to reduce symptoms or pain. An example of curative care would be chemotherapy. While curing illness and disease is an important goal of medicine, it is not its only goal. As a result, some have criticized the curative model as ignoring the other goals of medicine, including preventing illness, restoring functional capacity, relieving suffering, and caring for those who cannot be cured.

Palliative care *focuses on providing comfort and relief from physical and emotional pain to patients throughout their illness, even while being treated* (NIH, 2007). 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.

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

Elizabeth Kübler-Ross (1969), who worked with the founders of hospice care, described the process of an individual accepting their own death. She proposed 5 stages of grief: denial, anger, bargaining, depression, and acceptance. Most individuals experience these stages, but the stages may occur in different orders, depending on the individual. In addition, not all people experience all of the stages. It is also important to note that some psychologists believe that the more a dying person fights death, the more likely the person is to remain stuck in the denial phase. This could make it difficult for the dying person to face death with dignity. However, other psychologists believe that not facing death until the very end is an adaptive coping mechanism for some people.

Whether due to illness or old age, not everyone facing death or the loss of a loved one experiences the negative emotions outlined in the Kübler-Ross model (Nolen-Hoeksema & Larson, 1999). For example, research suggests that people with strong spiritual beliefs are better able to cope with death because of their faith in an afterlife or reincarnation (depending on their particular belief) and because of social support from spiritual community associations (Hood, Spilka, Hunsberger, & Corsuch, 1996; McIntosh, Silver, & Wortman, 1993; Paloutzian, 1996; Samarel, 1991; Wortman & Park, 2008).

11.4: Social Death and Psychic Death

Social Death

Social death begins much earlier than physiological death. Social death occurs when others begin to withdraw from someone who is terminally ill or has been diagnosed with a terminal illness. Those diagnosed with conditions such as AIDS or cancer may find that friends, family members, and even health care professionals begin to say less and visit less frequently. Meaningful discussions may be replaced with comments about the weather or other topics of light conversation. Doctors may spend less time with patients after their prognosis becomes poor. Why do others begin to withdraw? Friends and family members may feel that they do not know what to say or that they can offer no solutions to relieve suffering. They withdraw to protect themselves against feeling inadequate or from having to face the reality of death. Health professionals, trained to heal, may also feel inadequate and uncomfortable facing decline and death. 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.

Psychic Death

Psychic death occurs when the dying person begins to accept death and to withdraw from others and regress into the self. This can take place long before physiological death (or even social death if others are still supporting and visiting the dying person) and can even bring physiological death closer. People have some control over the timing of their death and can hold on until after important occasions or die quickly after having lost someone important to them. They can give up their will to live.

11.5: Ceremonies after Death

A group of students were interviewed and asked what type of funeral they would want when they die. They responded in a variety of ways; each expressing both their personal beliefs and values and those of their culture.

I want a very inexpensive funeral-the bare minimum, only one vase of flowers, no viewing of the remains and no long period of mourning from my remaining family . . . funeral expenses are extremely overpriced and out of hand. . .

When I die, I would want my family members, friends, and other relatives to dress my body as it is usually done in my country, Ghana. Lay my dressed body in an open space in my house at the night prior to the funeral ceremony for my loved ones to walk around my body and mourn for me. . .

I would like to be buried right away after I die because I don't want my family and friends to see my dead body and to be scared.

In my family we have always had the traditional ceremony-coffin, grave, tombstone, etc. But I have considered cremation and still ponder which method is more favorable. Unlike cremation, when you are 'buried' somewhere and family members have to make a special trip to visit, cremation is a little more personal because you can still be in the home with your loved ones . . .

I would like to have some of my favorite songs played . . .I will have a list made ahead of time. I want a peaceful and joyful ceremony and I want my family and close friends to gather to support one another. At the end of the celebration, I want everyone to go to the Thirsty Whale for a beer and Spang's for pizza!

When I die, I want to be cremated . . . I want it the way we do it in our culture. I want to have a three day funeral and on the 4th day, it would be my burial/cremation day . . .I want everyone to wear white instead of black, which means they already let go of me. I also want to have a mass on my cremation day.

I would like the service to be at a Baptist church, preferably my Uncle Ike's small church. The service should be a celebration of life . . .I would like there to be hymns sung by my family members, including my favorite one, "It is Well With my Soul." At the end, I would like the message of salvation to be given to the attendees and an alter call for anyone who would like to give their life to Christ. . .

When I die, I would like to have a befitting burial ceremony as it is done in my Igbo customs. I chose this kind of funeral ceremony because that is what every average person wishes to have.

I want to be cremated . . . I want all attendees wearing their favorite color and I would like the song "Riders on the Storm" to be played . . .I truly hope all the attendees will appreciate the bass. At the end of this simple, short service, attendees will be given multi-colored helium filled balloons . . . released to signify my release from this earth. . .They will be invited back to the house for ice cream cones, cheese popcorn and a wide variety of other treats and much, much, much rock music . . .

I want to be cremated when I die. To me, it's not just my culture to do so but it's more peaceful to put my remains or ashes to the world. Let it free and not stuck in a casket.

Ceremonies provide survivors a sense of closure after a loss. These rites and ceremonies send the message that the death is real and allow friends and loved ones to express their love and duty to those who die. Under circumstances in which a person has been lost and presumed dead or when family members were unable to attend a funeral, there can continue to be a lack of closure that makes it difficult to grieve and to learn to live with loss. And although many people are still in shock when they attend funerals, the ceremony still provides a marker of the beginning of a new period of one's life as a survivor and can help people grieve as they need to.

11.6: 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, Kutner, & Abrahm,2001). Grief can take many forms.

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.

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 is 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.

Complicated Grief

After the loss of a loved one, some individuals experience **complicated grief**, *which includes atypical grief reactions* (Newson, Boelen, Hek, Hofman, & Tiemeier, 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 an intense and sustained yearning for the deceased. Additionally, these symptoms may mirror those seen in major depressive disorder (Youdin, 2016).

According to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; American Psychiatric Association, 2013), 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, the death of a pet, or ex-spouse, and psychological losses, such as a partner developing Alzheimer's disease. Due to the type of loss, there is 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.

There are layers of grief. Initial denial, marked by shock and disbelief in the weeks following a loss may become an expectation that the loved one will walk in the door. And anger directed toward those who could not save our loved one's life, may become anger that life did not turn out as we expected. There is no right way to grieve. A bereavement counselor expressed it well by saying that grief touches us on the shoulder from time to time throughout life.

Mixed Emotions

Grief and mixed emotions go hand in hand. A sense of relief is accompanied by regrets and periods of reminiscing about our loved ones are interspersed with feeling haunted by them in death. Our outward expressions of loss are also sometimes contradictory. We want to move on but at the same time are saddened by going through a loved one's possessions and giving them away. We may no longer feel sexual arousal or we may want sex to feel connected and alive. We need others to befriend us but may get angry at their attempts to console us. These contradictions are normal and we need to allow ourselves and others to grieve in their own time and in their own ways.

"Modern" Grief

The "death-denying, grief-dismissing world" is the modern world (Kubler-Ross & Kessler, 2005, p. 205). We are asked to grieve privately, quickly, and to medicate our suffering. Employers usually grant us 3 to 5 days for bereavement, if our loss is that of an immediate family member. And such leaves are sometimes limited to no more than one per year. Yet grief takes much longer and the bereaved are seldom ready to perform well on the job. Obviously life does have to continue. But Kubler-Ross and Kessler suggest that contemporary American society would do well to acknowledge and make more caring accommodations to those who are in grief.

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 spiritual organizations, hospitals, hospice, nursing homes, mental health facilities, and schools for children.

Viewing death as an integral part of the lifespan will benefit those who are ill, those who are bereaved, and all of us as friends, caregivers, partners, family members and humans in a global society.

Five Stages 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.

The most well-known module of grief was developed by Swiss psychiatrist Kübler-Ross who first introduced her five stage grief model in her book *On Death and Dying*. Kübler-Ross' model was based off her work with terminally ill patients and has received much criticism in the years since. Mainly, because people studying her model mistakenly believed this is the specific order in which people grieve and that all people go through all stages. Kübler-Ross now notes that these stages are not linear and some people may not experience any of them. Yet and still, others might only undergo two stages rather than all five, or one stage, or three stages and so forth. 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. IMAGE ATTRIBUTION - Photo by behnam jaafarianpoor on Unsplash

Denial

The first reaction to the overwhelming and often unimaginable news of a death is denial. 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 feel a sense of disbelief psychologically even though they know that the results are true.

Anger

Like denial, 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. 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 (according to a person's own beliefs), 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.

Photo by Diana Simumpande on Unsplash

Bargaining

Bargaining involves trying to think of what could be done to turn the situation around. Living better, devoting self to a cause, being a better friend, parent, or spouse, are all agreements one might willingly commit to if doing so would lengthen life. Asking to just live long enough to witness a family event or finish a task are examples of bargaining.

Depression

Depression in this stage might include withdrawal from life, feeling numb, living in a fog, and not wanting to get out of bed. The world might seem too much and too overwhelming to face. There is no desire to be around others, the person does not feel like talking, and experiences feelings of hopelessness, even potential suicidal thoughts – thinking “what’s the point of going on?” Sometimes hospice care may include the use of antidepressants to help manage depression during this stage.

Acceptance

The final stage in the Kübler-Ross model is acceptance. Acceptance involves learning how to carry on and to incorporate this aspect of the life span into daily life. 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 often in the back of their minds.

Criticisms of the Kübler-Ross Five Stages of Grief Model

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).

There have been challenges to the notion that denial and acceptance are beneficial to the grieving process (Telford, Kralik, & Koch, 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 the Five Stage of Grief Model (Maciejewski, Zhang, Block, & Prigerson, 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).

Conclusion

Death and grief are topics that are being given greater consideration. Viewing death as an integral part of the lifespan will benefit those who are ill, those who are bereaved, and all of us as friends, caregivers, partners, family members and humans in a global society.

OpenStax College, Psychology. OpenStax CNX. Oct 29, 2018 http://cnx.org/contents/4abf04bf-93a...fd46e68cc@9.25.

17: MODULE 14- AGING AND THE ELDERLY

Lumen Learning
Lumen Learning

LibreTexts™

CHAPTER OVERVIEW

17: Module 14- Aging and the Elderly

17.1: Why It Matters- Aging and the Elderly

Why learn about the processes, perceptions, and challenges of growing old?

Why are Americans so obsessed with looking and feeling younger? Think of U.S. movies and television shows you have watched recently. Did any of them feature older actors and actresses? What roles did they play? How were these older actors portrayed? Were they portrayed as characters who were healthy and happy? Were they cast as main characters in a love story? Or were they cast as grouchy, sick, incapable old people?

Many media portrayals of the elderly reflect negative cultural attitudes toward aging. In the United States, society tends to glorify youth and associate it with beauty and sexuality. In comedies, the elderly are often associated with grumpiness or hostility. Rarely do the roles of older people convey the fullness of life experienced by seniors—as employees, lovers, or the myriad roles they have in real life. What values does this reflect?

One hindrance to society's fuller understanding of aging is that people rarely understand the process of aging until they reach old age themselves. (As opposed to childhood, for instance, which we can all look back on.) Therefore, myths and assumptions about the elderly and aging are common. Many stereotypes exist surrounding the realities of being an older adult. While individuals often encounter stereotypes associated with race and gender and are thus more likely to think critically about them, many people accept age stereotypes without question (Levy 2002). Each culture has a certain set of expectations and assumptions about aging, all of which are part of our socialization.

In this module you'll examine the sociological processes that accompany growing old. You will also learn how and why people are living longer. Medical advancements, nutrition and health care have all contributed to the rise in life expectancy; however, age, race, social class, gender and other social factors all play a role in how long a person will live. Age is not merely a biological function of the number of years one has lived, or of the physiological changes the body goes through during the life course. It is also a product of the social norms and expectations that apply to each stage of life. Age represents the wealth of life experiences that shape whom we become.

CC licensed content, Original

- Why It Matters: Aging and the Elderly. **Provided by**: Lumen Learning. **License**: *CC BY: Attribution*

CC licensed content, Shared previously

- Aging and the Elderly. **Authored by**: William Little. **Provided by**: BC Open Textbook. **Located at**: https://opentextbc.ca/introductiontosociology/chapter/chapter13-aging-and-the-elderly/. **Project**: Introduction to Sociology. **License**: *CC BY: Attribution*

17.2: Introduction to Aging

What you'll learn to do: evaluate the aging of society and summarize the theoretical perspectives on aging

While the landmark achievements of maturing into adulthood are a source of pride, physical signs of natural aging can be cause for shame or embarrassment. Some people try to fight off the appearance of aging with cosmetic surgery. Although many seniors report that their lives are more satisfying than ever, and their self-esteem is stronger than when they were young, they are still subject to negative cultural attitudes that make them feel invisible and devalued. In this section, we'll examine aging in America and abroad and look at the theoretical perspectives on aging.

17.3: Aging in Society

Learning Outcomes

- Describe senior age groups and the study of the elderly population

Who Are the Elderly?

Figure 1. As senior citizens begin to make up a larger percentage of the United States, the organizations supporting them grow stronger. (Photo courtesy of Congressman George Miller/flickr)

What does it mean to be elderly? Some define it as an issue of physical health, while others simply define it by chronological age. The U.S. government, for example, typically classifies people aged sixty-five years old as elderly, at which point citizens are eligible for federal benefits such as Social Security and Medicare. The World Health Organization has no standard, other than noting that sixty-five years old is the commonly accepted definition in most core nations, but it suggests a cut-off somewhere between fifty and fifty-five years old for semi-peripheral nations, such as those in Africa (World Health Organization 2012).

AARP (formerly the American Association of Retired Persons) cites fifty as the eligible age of membership. It is interesting to note AARP's name change; by taking the word "retired" out of its name, the organization can broaden its base to any older people in the United States, not just retirees. This is especially important now that many people are working to age seventy and beyond. There is an element of social construction, both local and global, in the way individuals and nations define who is elderly; that is, the shared meaning of the concept of elderly is created through interactions among people in society. This is exemplified by the truism that you are only as old as you feel.

Supercentenarians are people living to 110 years or more. In August 2014, there were seventy-five verified supercentenarians worldwide—seventy-three women and two men. These are people whose age has been carefully documented, but there are almost certainly others who have not been identified. The Gerontology Research Group (2014) estimates there are between 300 and 450 people worldwide who are at least 110 years of age.

Madame Jeanne Calment of France was the world's oldest living person until she died at 122 years old; there are currently six women in the world whose ages are well documented as 115 years or older (Diebel 2014). As of April 2019, the Guinness Book of World Records recognizes supercentenarian Tanaka Kane as the world's oldest living person. She was born in Japan on January 2, 1903. While living in Japan, Tanaka worked selling rice cakes with her husband and later moved to the United States after her husband's death. At the age of 103, Tanaka survived colon cancer and even at age 116, was still enjoying calligraphy and the board game Othello in a nursing home in Fukuoka, Japan. Tanaka credits sleep, family and hope for her long life.

Centenarians are people living to be 100 years old, and they are approximately 1,000 times more common than supercentenarians. According to the United States Census, in 2016 there were approximately 53,364 centenarians in the United States down from 80,0000 in 2010.[1] They make up one of the fastest-growing segments of the population (Boston University School of Medicine 2014).

The aging of the U.S. population has significant ramifications for social institutions such as business, education, the healthcare industry, and the family, as well as for the many cultural norms and traditions that focus on interactions with and social roles for older people. "Old" is a socially defined concept, and the way we think about aging is likely to change as the population ages.

We generally classify the elderly as the population above age 65. About 15.2 percent of the U.S. population or 49.2 million Americans are 65 and older.[2] This number is expected to grow to 98.2 million by the year 2060, at which time people in this age group will comprise nearly one in four U.S. residents. Of this number, 19.7 million will be age 85 or older. Developmental changes vary considerably among this population, so it is further divided into categories of 65 plus, 85 plus, and centenarians for comparison by the census.[3]

Studying the Elderly

Figure 2. Society's view of the elderly is likely to change as the population ages. (Photo courtesy of sima dimitric/flickr)

Gerontology is a field of science that seeks to understand the process of aging and the challenges encountered as seniors grow older. Gerontologists investigate age, aging, and the aged. Gerontologists study what it is like to be an older adult in a society and the ways that aging affects members of a society. As a multidisciplinary field, gerontology includes the work of medical and biological scientists, social scientists, and even financial and economic scholars.

Social gerontology refers to a specialized field of gerontology that examines the social (and sociological) aspects of aging. Researchers focus on developing a broad understanding of the experiences of people at specific ages, such as mental and physical well being, plus age-specific concerns such as the process of dying. Social gerontologists work as social researchers, counselors, community organizers, and service providers for older adults. Because of their specialization, social gerontologists are in a strong position to advocate for older adults.

Scholars in these disciplines have learned that "aging" reflects not only the physiological process of growing older but also our attitudes and beliefs about the aging process. You've likely seen online calculators that promise to determine your "real age" as opposed to your chronological age. These ads target the notion that people may "feel" a different age than their actual years. Some sixty-year-olds feel frail and elderly, while some eighty-year-olds feel sprightly.[4]

Equally revealing is that as people grow older they define "old age" in terms of greater years than their current age (Logan 1992). Many people want to postpone old age and regard it as a phase that will never arrive. Some older adults even succumb to stereotyping their own age group (Rothbaum 1983).

In the United States, the experience of being elderly has changed greatly over the past century. In the late 1800s and early 1900s, many U.S. households were home to multigenerational families, and the experiences and wisdom of elders was respected. They offered wisdom and support to their children and often helped raise their grandchildren (Sweetser 1984).

Multigenerational U.S. families began to decline after World War II, and their numbers reached a low point around 1980, but they are on the rise again. In fact, a 2016 Pew Research Center analysis of census data found that multigenerational families in the United States have now reached a record high. Up from 49 million in 2008, 64 million people, or 20% of the U.S. population are living in multigenerational homes—defined as two or more adult generations living in the home or a home that includes grandparents and grandchildren under the age of 25.[5]

Attitudes toward the elderly have also been affected by large societal changes that have happened over the past 100 years. Researchers believe industrialization and modernization have contributed greatly to lowering the power, influence, and prestige the elderly once held. The elderly have both benefited and suffered from these rapid social changes. In modern societies, a strong economy created new levels of prosperity for many people. Healthcare has become more widely accessible, and medicine has advanced, which allows the elderly to live longer. However, older people are not as essential to the economic survival of their families and communities as they were in the past.

Studying Aging Populations

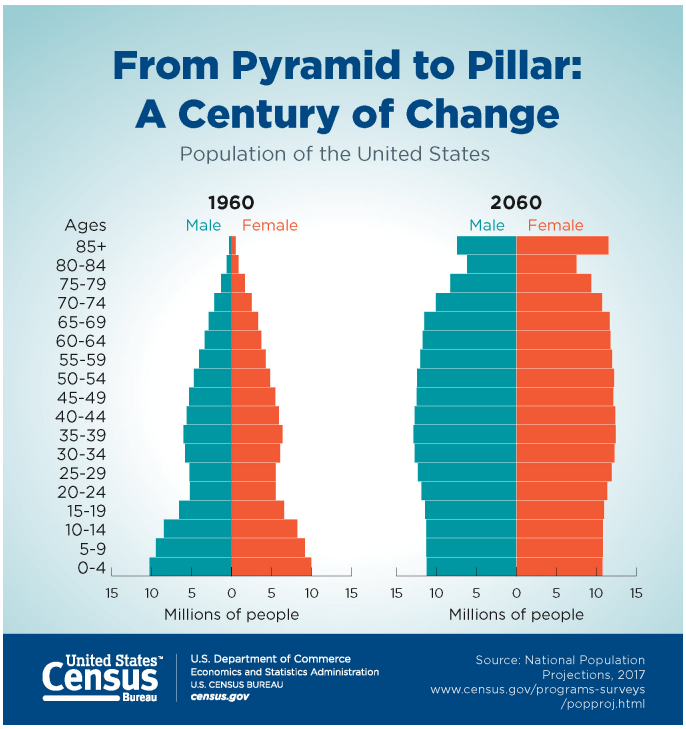


Figure 3. These population pyramids show how population distribution is gradually shifting in the United States, with a rising median age.

Since its creation in 1790, the U.S. Census Bureau has been tracking age in the population. Age is an important factor to analyze alongside other demographic figures, such as income and health.

Statisticians use data to calculate the median age of a population, that is, the number that marks the halfway point in a group's age range. The median age in the United States has been continually rising. In 2016 the median age was 37.9. up from 35.3 in 2000 (U.S. Census Bureau 2017). That means that about half of the people in the United States are under 37.9 and half are over 37.9. This increased indicates the population as a whole is growing older.[6]

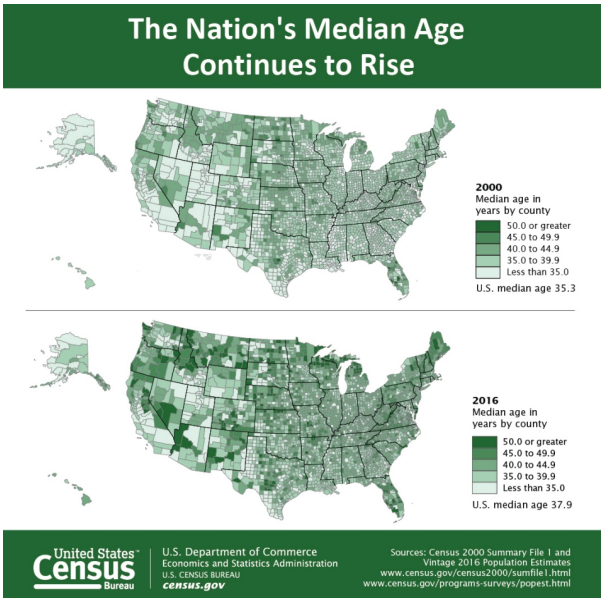


Figure 4. These maps show that the median age is gradually rising.

A **cohort** is a group of people who share a statistical or demographic trait. People belonging to the same age cohort were born in the same time frame. Understanding a population's age composition can point to certain social and cultural factors and help governments and societies plan for future social and economic challenges.

For instance, sociological studies on aging might help explain the difference between Native American age cohorts and the general population. While Native American societies have a strong tradition of revering their elders, they also have a lower life expectancy because of lack of access to healthcare and high levels of mercury in fish, which is a traditional part of their diet.

Try It

https://assessments.lumenlearning.co...essments/14755

Phases of Aging: The Young-Old, Middle-Old, and Old-Old

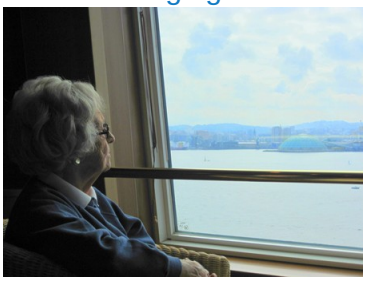


Figure 3. How old is this woman? In modern U.S. society, appearance is not a reliable indicator of age. In addition to genetic differences, health habits, hair dyes, Botox, and the like make traditional signs of aging increasingly unreliable. (Photo courtesy of the Sean and Lauren Spectacular/flickr)

In the United States, all people over eighteen years old are considered adults, but there is a substantial difference between a person who is twenty-one years old and a person who is forty-five years old. More specific categorical breakdowns, such as “young adult” and “middle-aged adult,” are helpful. In the same way, groupings are helpful in understanding the elderly. The elderly are often lumped together to include everyone over the age of sixty-five. But a sixty-five-year-old’s experience of life is much different from a ninety-year-old’s.

The United States’ older adult population can be divided into three life-stage subgroups: the young-old (approximately sixty-five to seventy-four years old), the middle-old (ages seventy-five to eighty-four years old), and the old-old (over age eighty-five). Today’s young-old age group is generally happier, healthier, and financially better off than the young-old of previous generations. In the United States, people are better able to prepare for aging because resources are more widely available.

Also, many people are making proactive quality-of-life decisions about their old age while they are still young. In the past, family members made care decisions when an elderly person reached a health crisis, often leaving the elderly person with little choice about what would happen. The elderly are now able to choose housing, for example, that allows them some independence while still providing care when it is needed. Living wills, retirement planning, and medical power of attorney are other concerns that are increasingly handled in advance.

Further Research

Gregory Bator founded the television show *Graceful Aging* and then developed a web site offering short video clips from the show. The purpose of *Graceful Aging* is to both inform and entertain, with clips on topics such as sleep, driving, health, safety, and legal issues. This website if for seniors, as well as people responsible for caring for an elderly person. Bator, a lawyer, works on counseling seniors about their legal needs. Look at the *Graceful Aging* website for a visual understanding of aging.

Think It Over

- What social issues involve age disaggregation (breakdowns into groups) of a population? What impact does this age stratification have on the social institutions? What kind of sociological studies would consider age an important factor?
- Conduct a mini-census by counting the members of your extended family and include each person’s age. Try to include three or four generations, if possible. Create a table and include total population plus percentages of each generation. Next, begin to analyze age patterns in your family. What issues are important and specific to each group? What trends can you predict about your own family over the next ten years based on this census? For example, how will family members’ needs and interests and relationships change the family dynamic?

glossary

cohort:
a group of people who share a statistical or demographic trait

gerontology:
a field of science that seeks to understand the process of aging and the challenges encountered as seniors grow older

life expectancy:
the number of years a newborn is expected to live

social gerontology:
a specialized field of gerontology that examines the social (and sociological) aspects of aging

1. US Census Bureau. (2018, August 03). Older Americans Month: May 2017. Retrieved from https://www.census.gov/newsroom/facts-for-features/2017/cb17-ff08.html↵
2. US Census Bureau. (2018, April 10). The Nation's Older Population Is Still Growing, Census Bureau Reports. Retrieved from https://www.census.gov/newsroom/press-releases/2017/cb17-100.html↵
3. US Census Bureau. (2018, August 03). Newsroom. Retrieved from https://www.census.gov/newsroom/facts-for-features/2017/cb17-ff08.html↵
4. null ↵
5. Cohn, D., Passel, J. S., Cohn, D., & Passel, J. S. (2018, April 05). Record 64 million Americans live in multigenerational households. Retrieved from http://www.pewresearch.org/fact-tank/2018/04/05/a-record-64-million-americans-live-in-multigenerational-households/↵
6. US Census Bureau. (2018, October 01). From Pyramid to Pillar: A Century of Change, Population of the U.S. Retrieved from https://www.census.gov/library/visualizations/2018/comm/century-of-change.html↵

17.4: The Graying of the United States and the World

Learning Outcomes

- Describe the graying of the United States, including the impact of aging baby boomers
- Examine aging and elder care as a global issue

The Graying of the United States

Demographically, the U.S. population over sixty-five years old increased from 3 million in 1900 to 33 million in 1994 (Hobbs 1994), 36.8 million in 2010, 47.8 million in 2015, and 49.2 million in 2018 (U.S. Census Bureau, 2018). This is a greater than tenfold increase in the elderly population, compared to a mere tripling of both the total population and of the population under sixty-five years old (Hobbs 1994). This increase has been called "the graying of America," a term that describes the phenomenon of a larger and larger percentage of the population getting older and older.

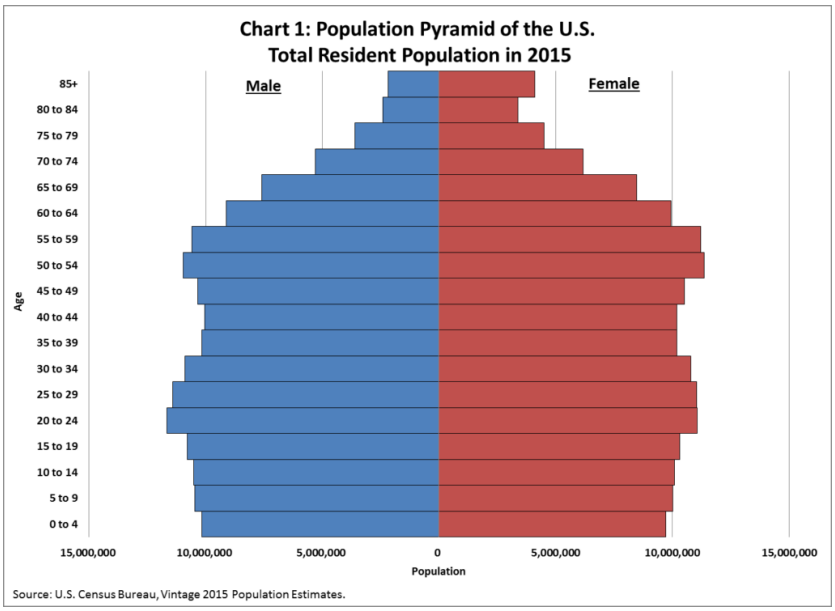


Figure 1. The population pyramid in the United States is beginning to look more like a column than a pyramid.

There are several reasons why the United States is graying so rapidly. One of these is **life expectancy**: the average number of years a person born today may expect to live. When we review Census Bureau statistics grouping the elderly by age, it is clear that in the United States, at least, we are living longer. In 2010, there were about 80,000 centenarians in the United States. According to the CDC, the number of centenarians in the United States in 2014 was 72,197. [1]. They make up one of the fastest-growing segments of the population (Boston University School of Medicine 2014).

People over ninety years of age now account for 4.7 percent of the older population, defined as age sixty-five or above; this percentage is expected to reach 10 percent by the year 2050 (U.S. Census Bureau 2011). As of 2018, about 15.2 percent of the U.S. population is age 65 or older.[2]

It is interesting to note that not all people in the United States age equally. Most glaring is the difference between men and women; as Figure 2 below shows, women have longer life expectancies than men. In 2010, there were ninety sixty-five-year-old men per one hundred sixty-five-year-old women. However, there were only eighty seventy-five-year-old men per one hundred seventy-five-year-old women, and only sixty eighty-five-year-old men per one hundred eighty-five-year-old women. Nevertheless, as the graph shows, the sex ratio actually increased over time, indicating that men are closing the gap between their life spans and those of women (U.S. Census Bureau 2010).

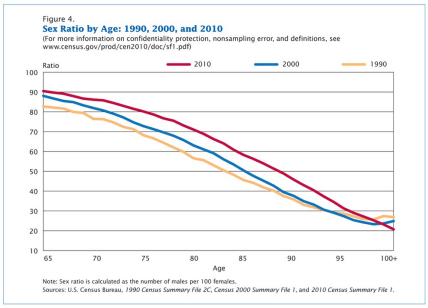


Figure 2. This U.S. Census graph shows that women live significantly longer than men. However, over the past two decades, men have narrowed the percentage by which women outlive them. (Graph courtesy of the U.S. Census Bureau)

Try It

https://assessments.lumenlearning.co...essments/14756

https://assessments.lumenlearning.co...essments/14758

https://assessments.lumenlearning.co...essments/14757

Baby Boomers

Of particular interest to gerontologists today is the population of **baby boomers**, the unprecedentedly large cohort born between 1946 and 1964 and now reaching their 70s. Coming of age in the 1960s and early 1970s, the baby boom generation was the first group of children and teenagers with their own spending power and therefore their own marketing power (Macunovich 2000). As this group has aged, it has redefined, particularly through the mass media forms that emerged during their adulthood, what it means to be young, middle-aged, and now old. People in the boomer generation do not want to grow old the way their grandparents did. The result is a wide range of products designed to ward off the effects—or the signs—of aging, known as **senescence**. Previous generations of people over sixty-five were "old." Baby boomers are in "later life" or "the third age" (Gilleard and Higgs 2007).

The baby boom generation is the cohort driving much of the dramatic increase in the over-sixty-five population. Figure 3 shows a comparison of the U.S. population by age and gender between 2000 and 2010. The biggest bulge in the pyramid (representing the largest population group) moves up the pyramid over the course of the decade; in 2000, the largest population group was age thirty-five to fifty-five. In 2010, that group was age forty-five to sixty-five, meaning the oldest baby boomers were just reaching the age at which the U.S. Census considers them elderly. In 2020, we can predict, the baby boom bulge will continue to rise up the pyramid, making the largest U.S. population group between sixty-five and eighty-five years old.

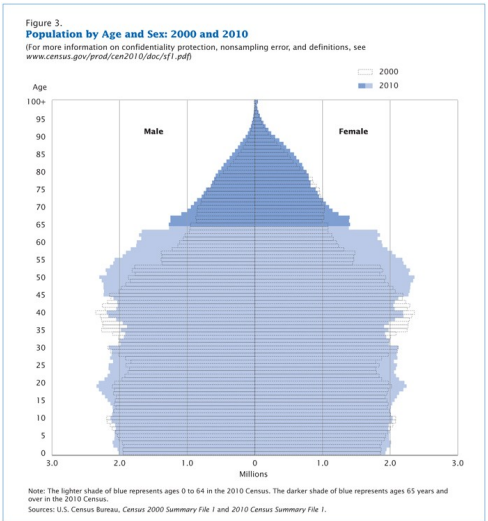


Figure 3. In this U.S. Census pyramid chart, the baby boom bulge was aged thirty-five to fifty-five in 2000. In 2010, they were aged forty-five to sixty-five. (Graph courtesy of the U.S. Census Bureau).

This aging of the baby boom cohort has serious implications for our society. Healthcare is one of the areas most impacted by this trend. For years, hand-wringing has abounded about the additional burden the boomer cohort will place on Medicare, a government-funded program that provides healthcare services to people over sixty-five years old. And indeed, the Congressional Budget Office's 2008 long-term outlook report shows that Medicare spending is expected to increase from 3 percent of gross domestic product (GDP) in 2009 to 8 percent of GDP in 2030, and to 15 percent in 2080 (Congressional Budget Office 2008).

Certainly, as boomers age, they will put increasing burdens on the entire U.S. healthcare system. A study from 2008 indicates that medical schools are not producing enough medical professionals who specialize in treating geriatric patients (Gerontological Society of America 2008). However, other studies indicate that aging boomers will bring economic growth to the healthcare industries, particularly in areas like pharmaceutical manufacturing and home healthcare services (Bierman 2011). Further, some argue that many of our medical advances of the past few decades are a result of boomers' health requirements. Unlike the elderly of previous generations, boomers do not expect that turning sixty-five means their active lives are over. They are not willing to abandon work or leisure activities, but they may need more medical support to keep living vigorous lives. This desire of a large group of over-sixty-five-year-olds wanting to continue with a high activity level is driving innovation in the medical industry (Shaw).

The economic impact of aging boomers is also an area of concern for many observers. Although the baby boom generation earned more than previous generations and enjoyed a higher standard of living, they also spent their money lavishly and did not adequately prepare for retirement. According to a 2008 report from the McKinsey Global Institute, approximately two-thirds of early boomer households have not accumulated enough savings to maintain their lifestyles. This will have a ripple effect on the economy as boomers work and spend less (Farrel et al. 2008).

Just as some observers are concerned about the possibility of Medicare being overburdened, Social Security is considered to be at risk. Social Security is a government-run retirement program funded primarily through payroll taxes. With enough people paying into the program, there should be enough money for retirees to take out. But with the aging boomer cohort starting to receive Social Security benefits and fewer workers paying into the Social Security trust fund, economists warn that the system will collapse by the year 2037. A similar warning came in the 1980s. In response to recommendations from the Greenspan Commission, the retirement age (the age at which people could start receiving Social Security benefits) was raised from sixty-two to sixty-seven and the payroll tax was increased. A similar hike in retirement age, perhaps to seventy, is a possible solution to the current threat to Social Security (Reuteman 2010).

Dig Deeper: Social Security

Watch this video from the National Academy of Social Insurance to learn about the counter-argument that Social Security will last well into the future because it was designed to account for an aging population. You can also visit the National Issues Forum to learn more about alternatives to social security.

Think It Over

- Baby boomers have been called the "Me Generation." Do you know any baby boomers? In what way do they exemplify their generation? Do you think that is an accurate description?

Try It

https://assessments.lumenlearning.co...essments/14759

Aging around the World

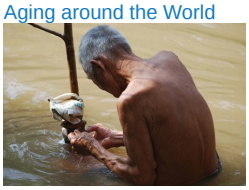


Figure 4. Cultural values and attitudes can shape people's experience of aging. (Photo courtesy of Tom Coppen/flickr)

From 1950 to approximately 2010, the global population of individuals age sixty-five and older increased by a range of 5–7 percent (Lee 2009). This percentage is expected to increase and will have a critical impact on the **dependency ratio**: the number of nonproductive citizens (young, disabled, or elderly) to productive working citizens (Bartram and Roe 2005). One country that will soon face a serious aging crisis is China, which is on the cusp of an "aging boom"— a period when its elderly population will dramatically increase. The number of people above age sixty in China today is about 178 million, which amounts to 13.3 percent of its total population (Xuequan 2011). By 2050, nearly a third of the Chinese population will be age sixty or older, which will put a significant burden on the labor force and impacting China's economic growth (Bannister, Bloom, and Rosenberg 2010).

As healthcare improves and life expectancy increases across the world, elder care will be an emerging issue. Wienclaw (2009) suggests that with fewer working-age citizens available to provide home care and long-term assisted care to the elderly, the costs of elder care will increase. The cost of putting a parent into professional assisted-living averages about $42,000 a year, and

approximately $87,000 in a private room. If the elder family member stays home, he or she is typically cared for by a woman, who is typically “a middle aged mother with children or adult children living in their household. [3]

Worldwide, the expectation governing the amount and type of elder care varies from culture to culture. For example, in Asia the responsibility for elder care lies firmly on the family (Yap, Thang, and Traphagan 2005). This is different from the approach in most Western countries, where the elderly are considered independent and are expected to tend to their own care. It is not uncommon for family members to intervene only if the elderly relative requires assistance, often due to poor health. Even then, caring for the elderly is considered voluntary. In the United States, decisions to care for an elderly relative are often conditionally based on the promise of future returns, such as inheritance or, in some cases, the amount of support the elderly provided to the caregiver in the past (Hashimoto 1996).

These differences are based on cultural attitudes toward aging. In China, several studies have noted the attitude of **filial piety** (deference and respect to one’s parents and ancestors in all things) as fundamentally defining all other virtues (Hsu 1971; Hamilton 1990). Cultural attitudes in Japan prior to approximately 1986 supported the idea that the elderly deserve assistance (Ogawa and Retherford 1993). However, seismic shifts in major social institutions (like family and the economy) have created an increased demand for community and government care. For example, the increase in women working outside the home has made it more difficult to provide in-home care to aging parents, which leads to an increase in the need for government-supported institutions (Raikhola and Kuroki 2009).

In the United States, by contrast, many people view caring for the elderly as a burden. Even when there is a family member able and willing to provide for an elderly family member, 60 percent of family caregivers are employed outside the home and are unable to provide the needed support. At the same time, however, many middle-class families are unable to bear the financial burden of “outsourcing” professional healthcare, resulting in gaps in care (Bookman and Kimbrel 2011). It is important to note that even within the United States not all demographic groups treat aging the same way. While most people in the United States are reluctant to place their elderly members into out-of-home assisted care, demographically speaking, the groups least likely to do so are Latinos, African Americans, and Asians (Bookman and Kimbrel 2011).

Globally, the United States and other core nations are fairly well equipped to handle the demands of an exponentially increasing elderly population. However, peripheral and semi-peripheral nations face similar increases without comparable resources. Poverty among elders is a concern, especially among elderly women. The feminization of the aging poor, evident in peripheral nations, is directly due to the number of elderly women in those countries who are single, illiterate, and not a part of the labor force (Mujahid 2006).

In 2002, the Second World Assembly on Aging was held in Madrid, Spain, resulting in the Madrid Plan, an internationally coordinated effort to create comprehensive social policies to address the needs of the worldwide aging population. The plan identifies three themes to guide international policy on aging: 1) publically acknowledging the global challenges caused by, and the global opportunities created by, a rising global population; 2) empowering the elderly; and 3) linking international policies on aging to international policies on development (Zelenev 2008).

The Madrid Plan has not yet been successful in achieving all its aims. However, it has increased awareness of the various issues associated with a global aging population, as well as raising the international consciousness to the way that the factors influencing the vulnerability of the elderly (social exclusion, prejudice and discrimination, and a lack of socio-legal protection) overlap with other developmental issues (basic human rights, empowerment, and participation), leading to an increase in legal protections (Zelenev 2008).

Try It

https://assessments.lumenlearning.co...essments/14760

glossary

baby boomers:
unprecedentedly large cohort of people in the United States born between approximately 1946 and 1964

dependency ratio: the number of nonproductive citizens (young, disabled, elderly) to productive working citizens

filial piety:
deference and respect to one’s parents and ancestors in all things

life expectancy:
the number of years a newborn is expected to live

senescence:
the aging process, including biological, intellectual, emotional, social, and spiritual changes

1. Jiaquan Xu, M.D. (2016, January). Mortality Among Centenarians in the United States, 2000–2014. NCHS Data Brief. Retrieved from https://www.cdc.gov/nchs/data/databriefs/db233.pdf↵
2. US Census Bureau. (2018, April 10). The Nation's Older Population Is Still Growing, Census Bureau Reports. Retrieved from https://www.census.gov/newsroom/press-releases/2017/cb17-100.html↵
3. Geewax, M. (2012, May 01). Discovering The True Cost Of At-Home Caregiving. Retrieved from https://www.npr.org/2012/05/01/151472617/discovering-the-true-cost-of-at-home-caregiving↵

17.5: Introduction to the Aging Process

What you'll learn to do: examine the process of aging and the biological, social, and psychological changes and perceptions associated with growing old

Old age affects every aspect of human life: biological, social, and psychological. Although medical technology has lengthened life expectancies, it cannot eradicate aging and death. Cultural attitudes shape the way our society views old age and dying, but these attitudes shift and evolve over time. In this section, you'll learn about the types of changes that occur during late adulthood and examine attitudes toward death and dying.

17.6: Growing Old

Learning Outcomes

- Examine the biological changes of aging
- Explain social and psychological changes of aging

As human beings grow older, they go through different phases or stages of life. It is helpful to understand aging in the context of these phases. A **life course** is the period from birth to death, including a sequence of predictable life events such as physical maturation. Each phase comes with different responsibilities and expectations, which of course vary by individual and culture. Children love to play and learn, looking forward to becoming preteens. As preteens begin to test their independence, they are eager to become teenagers. Teenagers anticipate the promises and challenges of adulthood. Adults become focused on creating families, building careers, and experiencing the world as independent people. Finally, many adults look forward to old age as a wonderful time to enjoy life without as much pressure from work and family life.

In old age, grandparenthood can provide many of the joys of parenthood without all the hard work that parenthood entails. And as work responsibilities abate, old age may be a time to explore hobbies and activities that there was no time for earlier in life. But for other people, old age is not a phase that they look forward to. Some people fear old age and do anything to "avoid" it by seeking medical and cosmetic fixes for the natural effects of age. These differing views on the life course are the result of the cultural values and norms into which people are socialized, but in most cultures, age is a master status influencing self-concept, as well as social roles and interactions.

Through the phases of the life course, dependence and independence levels change. At birth, newborns are dependent on caregivers for everything. As babies become toddlers and toddlers become adolescents and then teenagers, they assert their independence more and more. Gradually, children come to be considered adults, responsible for their own lives, although the point at which this occurs is widely varied among individuals, families, and cultures.

As Riley (1978) notes, aging is a lifelong process and entails maturation and change on physical, psychological, and social levels. Age, much like race, class, and gender, is a hierarchy in which some categories are more highly valued than others. For example, while many children look forward to gaining independence, Packer and Chasteen (2006) suggest that even in children, age prejudice leads to a negative view of aging. This, in turn, can lead to a widespread segregation between the old and the young at the institutional, societal, and cultural levels (Hagestad and Uhlenberg 2006).

Dr. Ignatz Nascher and the Birth of Geriatrics

In the early 1900s, a New York physician named Dr. Ignatz Nascher coined the term geriatrics, a medical specialty that focuses on the elderly. He created the word by combining two Greek words: *geron* (old man) and *iatrikos* (medical treatment). Nascher based his work on what he observed as a young medical student, when he saw many acutely ill elderly people who were diagnosed simply as "being old." There was nothing medicine could do, his professors declared, about the syndrome of "old age."

Nascher refused to accept this dismissive view, seeing it as medical neglect. He believed it was a doctor's duty to prolong life and relieve suffering whenever possible. In 1914, he published his views in his book *Geriatrics: The Diseases of Old Age and Their Treatment* (Clarfield 1990). Nascher saw the practice of caring for the elderly as separate from the practice of caring for the young, just as pediatrics (caring for children) is different from caring for grown adults (Clarfield 1990).

Nascher had high hopes for his pioneering work. He wanted to treat the aging, especially those who were poor and had no one to care for them. Many of the elderly poor were sent to live in "almshouses," or public old-age homes (Cole 1993). Conditions were often terrible in these almshouses, where the aging were often sent and just forgotten.

As hard as it might be to believe today, Nascher's approach was once considered unique. At the time of his death, in 1944, he was disappointed that the field of geriatrics had not made greater strides. In what ways are the elderly better off today than they were before Nascher's ideas gained acceptance?

Biological Changes

Figure 1. Aging can be a visible, public experience. Many people recognize the signs of aging and, because of the meanings that culture assigns to these changes, believe that being older means being in physical decline. Many older people, however, remain healthy, active, and happy. (Photo courtesy of Pedro Riberio Simoes/flickr)

Each person experiences age-related changes based on many factors. Biological factors such as molecular and cellular changes are called **primary aging**, while aging that occurs due to controllable factors such as lack of physical exercise and poor diet is called **secondary aging** (Whitbourne and Whitbourne 2010).

Most people begin to see signs of aging after fifty years old, when they notice the physical markers of age known as senescence. Skin becomes thinner, drier, and less elastic. Wrinkles form. Hair begins to thin and gray. Men prone to balding start losing hair. The difficulty or relative ease with which people adapt to these changes is dependent in part on the meaning given to aging by their particular culture. A culture that values youthfulness and beauty above all else leads to a negative perception of growing old. Conversely, a culture that reveres the elderly for their life experience and wisdom contributes to a more positive perception of what it means to grow old.

The effects of aging can feel daunting, and sometimes the fear of physical changes (like declining energy, food sensitivity, and loss of hearing and vision) is more challenging to deal with than the changes themselves. The way people perceive physical aging is largely dependent on how they were socialized. If people can accept the changes in their bodies as a natural process of aging, the changes will not seem as frightening.

According to the federal Administration on Aging (2011), in 2009 fewer people over sixty-five years old assessed their health as “excellent” or “very good” (41.6 percent) compared to those aged eighteen to sixty-four (64.4 percent). Evaluating data from the National Center for Health Statistics and the U.S. Bureau of Labor Statistics, the Administration on Aging found that from 2006 to 2008, the most frequently reported health issues for those over sixty-five years old included arthritis (50 percent), hypertension (38 percent), heart disease (32 percent), and cancer (22 percent). About 27 percent of people age sixty and older are considered obese by current medical standards. Parker and Thorslunf (2006) found that while the trend is toward steady improvement in most disability measures, there is a concomitant increase in functional impairments (disability) and chronic diseases. At the same time, medical advances have reduced some of the disabling effects of those diseases (Crimmins 2004).

Some impacts of aging are gender-specific. Some of the disadvantages aging women face arise from long-standing social gender roles. For example, Social Security favors men over women, inasmuch as women do not earn Social Security benefits for the unpaid labor they perform (usually at home) as an extension of their gender roles. In the healthcare field, elderly female patients are more likely than elderly men to see their healthcare concerns trivialized (Sharp 1995) and are more likely to have their health issues labeled psychosomatic (Munch 2004). Another female-specific aspect of aging is that mass-media outlets often depict elderly females in terms of negative stereotypes and as less successful than older men (Bazzini and Mclntosh I997).

For men, the process of aging—and society’s response to and support of the experience—may be quite different. The gradual decrease in male sexual performance that occurs as a result of primary aging is medicalized and constructed as needing treatment (Marshall and Katz 2002) so that a man may maintain a sense of youthful masculinity. On the other hand, aging men have fewer opportunities to assert their masculine identities in the company of other men (for example, through sports participation)

(Drummond 1998). And some social scientists have observed that the aging male body is depicted in the Western world as genderless (Spector-Mersel 2006).

Watch It

Watch the selected first half of this video to learn more about the aging process.

An interactive or media element has been excluded from this version of the text. You can view it online here: http://pb.libretexts.org/its/?p=488

Aging and Sexuality

Figure 2. In Harold and Maude, a 1971 cult classic movie, a twenty-something young man falls in love with a seventy-nine-year-old woman. The world reacts in disgust. What is your response to this picture, given that that the two people are meant to be lovers, not grandmother and grandson? (Photo courtesy of luckyjackson/flickr)

It is no secret that people in the United States are squeamish about the subject of sex. And when the subject is the sexuality of elderly people? No one wants to think about it or even talk about it. That fact is part of what makes 1971's *Harold and Maude* so provocative. In this cult favorite film, Harold, an alienated young man, meets and falls in love with Maude, a seventy-nine-year-old woman. What is so telling about the film is the reaction of his family, priest, and psychologist, who exhibit disgust and horror at such a match.

Although it is difficult to have an open, public national dialogue about aging and sexuality, the reality is that our sexual selves do not disappear after age sixty-five. People continue to enjoy sex—and not always safe sex—well into their later years. In fact, some research suggests that as many as one in five new cases of AIDS occurs in adults over sixty-five years old (Hillman 2011).

Further Research

Read the article "A Study of Sexuality and Health among Older Adults in the United States." You will find it online at the *New England Journal of Medicine.*

In some ways, old age may be a time to enjoy sex more, not less. For women, the elder years can bring a sense of relief as the fear of an unwanted pregnancy is removed and the children are grown and taking care of themselves. However, while we have expanded the number of psycho-pharmaceuticals to address sexual dysfunction in men, it was not until very recently that the medical field acknowledged the existence of female sexual dysfunctions (Bryant 2004).

Try It

https://assessments.lumenlearning.co...essments/14761

Aging "Out:" LGBT Seniors

How do different groups in our society experience the aging process? Are there any experiences that are universal, or do different populations have different experiences? An emerging field of study looks at how lesbian, gay, bisexual, and transgender (LGBT) people experience the aging process and how their experience differs from that of other groups or the dominant group. This issue is expanding with the aging of the baby boom generation; not only will aging boomers represent a huge bump in the general elderly population but also the number of LGBT seniors is expected to double by 2030 (Fredriksen-Goldsen et al. 2011).

A recent study titled *The Aging and Health Report: Disparities and Resilience among Lesbian, Gay, Bisexual, and Transgender Older Adults* finds that LGBT older adults have higher rates of disability and depression than their heterosexual peers. They are

also less likely to have a support system that might provide elder care: a partner and supportive children (Fredriksen-Goldsen et al. 2011).

As they transition to assisted-living facilities, LGBT people have the added burden of "disclosure management:" the way they share their sexual and relationship identity. In one case study, a seventy-eight-year-old lesbian lived alone in a long-term care facility. She had been in a long-term relationship of thirty-two years and had been visibly active in the gay community earlier in her life. However, in the long-term care setting, she was much quieter about her sexual orientation. She "selectively disclosed" her sexual identity, feeling safer with anonymity and silence (Jenkins et al. 2010). A study from the National Senior Citizens Law Center reports that only 22 percent of LGBT older adults expect they could be open about their sexual orientation or gender identity in a long-term care facility. Even more telling is the finding that only 16 percent of non-LGBT older adults expected that LGBT people could be open with facility staff (National Senior Citizens Law Center 2011).

Social and Psychological Changes

Male or female, growing older means confronting the psychological issues that come with entering the last phase of life. Young people moving into adulthood take on new roles and responsibilities as their lives expand, but an opposite arc can be observed in old age. What are the hallmarks of social and psychological change?

Retirement—the withdrawal from paid work at a certain age—is a relatively recent idea. Up until the late nineteenth century, people worked about sixty hours a week until they were physically incapable of continuing. Following the American Civil War, veterans receiving pensions were able to withdraw from the workforce, and the number of working older men began declining. A second large decline in the number of working men began in the post-World War II era, probably due to the availability of Social Security, and a third large decline in the 1960s and 1970s was probably due to the social support offered by Medicare and an increase in Social Security benefits (Munnell 2011).

Figure 3. Aging is accompanied by a host of biological, social, and psychological changes. (Photo courtesy of Michael Cohen/flickr)

In the twenty-first century, most people hope that at some point they will be able to stop working and enjoy the fruits of their labor. Unfortunately, research indicates that baby boomers do not have enough in savings and are deeper in debt than the retirees a decade older than them.[1] But do we look forward to this time or fear it? When people retire from familiar work routines, some easily seek new hobbies, interests, and forms of recreation. Many find new groups and explore new activities, but others may find it more difficult to adapt to new routines and loss of social roles, losing their sense of self-worth in the process.

Each phase of life has challenges that come with the potential for fear. Erik H. Erikson (1902–1994), in his view of socialization, broke the typical life span into eight phases. Each phase presents a particular challenge that must be overcome. In the final stage, old age, the challenge is to embrace integrity over despair. Some people are unable to successfully overcome the challenge. They may have to confront regrets, such as being disappointed in their children's lives or perhaps their own. They may have to accept that they will never reach certain career goals. Or they must come to terms with what their career success has cost them, such as time with their family or declining personal health. Others, however, are able to achieve a strong sense of integrity and are able to embrace the new phase in life. When that happens, there is tremendous potential for creativity. They can learn new skills, practice new activities, and peacefully prepare for the end of life.

For some, overcoming despair might entail remarriage after the death of a spouse. A study conducted by Kate Davidson (2002) reviewed demographic data that asserted men were more likely to remarry after the death of a spouse and suggested that widows (the surviving female spouse of a deceased male partner) and widowers (the surviving male spouse of a deceased female partner) experience their postmarital lives differently. Many surviving women enjoyed a new sense of freedom, since they were living alone for the first time. On the other hand, for surviving men, there was a greater sense of having lost something, because they were now deprived of a constant source of care as well as the focus of their emotional life.

Try It

https://assessments.lumenlearning.co...essments/14762

Think It Over

- What is your relationship to aging and to time? Look back on your own life. How much and in what ways did you change in ten years and in twenty years? Does a decade seem like a long time or a short time in a life span? Now apply some of your ideas to the idea of aging. Do you think older people share similar experiences as they age?
- What do you think it will be like to be ten, twenty, and fifty years older than you are now? What facts are your assumptions based on? Are any of your assumptions about getting older false? What kind of sociological study could you establish to test your assumptions?

glossary

geriatrics:
a medical specialty focusing on the elderly

life course:
the period from birth to death, including a sequence of predictable life events

primary aging:
biological factors such as molecular and cellular changes

secondary aging:
aging that occurs due to controllable factors like exercise and diet

1. Seeing Our Way to Financial Security in the Age of Increased Longevity, (2017). http://longevity.stanford.edu/sightlines-financial-security-special-report-mobile/↵

17.7: Death and Dying

Learning Objectives

- Examine attitudes toward death and dying

Death and Dying

A young man sits at the grave of his great-grandmother. (Photo courtesy of Sara Goldsmith/flickr)

Every society must deal with the problems that come with an aging population. For most of human history, the standard of living has been significantly lower than it is now. Humans struggled to survive with few amenities and very limited medical technology. The risk of death due to disease or accident was high in any life stage, and life expectancy was low. Because of industrialization and more advanced medical technology people began to live longer and death became associated with old age.

For many teenagers and young adults, losing a grandparent or another older relative can be the first loss of a loved one they experience. It may be their first encounter with **grief**, a psychological, emotional, and social response to the feelings of loss that accompanies death or a similar event.

People tend to perceive death, their own and that of others, based on the values of their culture. While some may look upon death as the natural conclusion to a long, fruitful life, others may find the prospect of dying frightening to contemplate. People tend to have strong resistance to the idea of their own death, and strong emotional reactions of loss to the death of loved ones. Viewing death as a loss, as opposed to a natural or tranquil transition, is often considered normal in the United States.

Link to Learning

Sociologist Nancy Berns explains that in the United States and other western societies, people are encouraged to deal with grief or loss through closure. She contradicts this advice and explains that people do not necessarily need closure in order to "move on." Watch this Ted talk "Beyond Closure" to learn more.

What may be surprising is how few studies were conducted on death and dying prior to the 1960s. Death and dying were fields that had received little attention until a psychologist named Elisabeth Kübler-Ross began observing people who were in the process of dying. As Kübler-Ross witnessed people's transition toward death, she found some common threads in their experiences. She observed that the process had five distinct stages: denial, anger, bargaining, depression, and acceptance. She published her findings in a 1969 book called *On Death and Dying*. The book remains a classic on the topic today.

Kübler-Ross found that a person's first reaction to the prospect of dying is *denial*: this is characterized by the person's not wanting to believe he or she is dying, with common thoughts such as "I feel fine" or "This is not really happening to me." The second stage is *anger*, when loss of life is seen as unfair and unjust. A person then resorts to the third stage, *bargaining*: trying to negotiate with a higher power to postpone the inevitable by reforming or changing the way he or she lives. The fourth stage, psychological

depression, allows for resignation as the situation begins to seem hopeless. In the final stage, a person adjusts to the idea of death and reaches *acceptance*. At this point, the person can face death honestly, by regarding it as a natural and inevitable part of life and can make the most of their remaining time.

The work of Kübler-Ross was eye-opening when it was introduced. It opened up new avenues of exploration for sociologists, social workers, health practitioners, and therapists to study death and to help those who were facing death. Kübler-Ross's work is generally considered a major contribution to **thanatology**: the systematic study of death and dying. Over the years, her model has come under criticism for overgeneralizing the experience of grief and creating a false expectation that a person must pass through distinct stages in their grieving process.

Link to Learning

Watch this SciShow video "The Truth About the Five Stages of Grief" to learn more about some criticisms of the Kübler-Ross model and to consider other theories about dealing with grief.

Of special interest to thanatologists is the concept of "dying with dignity." Modern medicine includes advanced medical technology that may prolong life without a parallel improvement to the quality of life one may have. In some cases, people may not want to continue living when they are in constant pain and no longer enjoying life. Should patients have the right to choose to die with dignity? Dr. Jack Kevorkian was a staunch advocate for **physician-assisted suicide**: the voluntary or physician-assisted use of lethal medication provided by a medical doctor to end one's life. This right to have a doctor help a patient die with dignity is controversial. In the United States, Oregon was the first state to pass a law allowing physician-assisted suicides. In 1997, Oregon instituted the Death with Dignity Act, which required the presence of two physicians for a legal assisted suicide. This law was successfully challenged by U.S. Attorney General John Ashcroft in 2001, but the appeals process ultimately upheld the Oregon law. Subsequently, both Montana and Washington have passed similar laws.

The controversy surrounding death with dignity laws is emblematic of the way our society tries to separate itself from death. Health institutions have built facilities to comfortably house those who are terminally ill. This is seen as a compassionate act, helping relieve the surviving family members of the burden of caring for the dying relative. But studies almost universally show that people prefer to die in their own homes (Lloyd, White, and Sutton 2011). Is it our social responsibility to care for elderly relatives up until their death? How do we balance the responsibility for caring for an elderly relative with our other responsibilities and obligations? As our society grows older, and as new medical technology can prolong life even further, the answers to these questions will develop and change.

The changing concept of hospice is an indicator of our society's changing view of death. Hospice is a type of healthcare that treats terminally ill people when "cure-oriented treatments" are no longer an option (Hospice Foundation of America 2012b). Hospice doctors, nurses, and therapists receive special training in the care of the dying. The focus is not on getting better or curing the illness, but on passing out of this life in comfort and peace. Hospice centers exist as a place where people can go to die in comfort, and increasingly, hospice services encourage at-home care so that someone has the comfort of dying in a familiar environment, surrounded by family (Hospice Foundation of America 2012a). While many of us would probably prefer to avoid thinking of the end of our lives, it may be possible to take comfort in the idea that when we do approach death in a hospice setting, it is in a familiar, relatively controlled place.

The Body after Death

In most cultures, after the last offices have been performed and before the onset of significant decay, relations or friends arrange for ritual disposition of the body, either by destruction, or by preservation, or in a secondary use. In the U.S., this frequently means either cremation or interment in a tomb.

There are various methods of destroying human remains, depending on religious or spiritual beliefs, and upon practical necessity. Cremation is a very old and quite common custom. For some people, the act of cremation exemplifies the belief of the Christian concept of “ashes to ashes”. On the other hand, in India, cremation and disposal of the bones in the sacred river Ganges is common. Another method is sky burial, which involves placing the body of the deceased on high ground (a mountain) and leaving it for birds of prey to dispose of, as in Tibet. In some religious views, birds of prey are carriers of the soul to the heavens. Such practice may also have originated from pragmatic environmental issues, such as conditions in which the terrain (as in Tibet) is too stony or hard to dig, or in which there are few trees around to burn. As the local religion of Buddhism, in the case of Tibet, believes that the body after death is only an empty shell, there are more practical ways than burial of disposing of a body, such as leaving it for animals to consume. In some fishing or marine communities, mourners may put the body into the water, in what is known as burial at sea. Several mountain villages have a tradition of hanging the coffin in woods.

Since ancient times, in some cultures efforts have been made to slow, or largely stop the body’s decay processes before burial, as in mummification or embalming. This process may be done before, during or after a funeral ceremony. The Toraja people of Indonesia are known to mummify their deceased loved ones and keep them in their homes for weeks, months, and sometimes even years, before holding a funeral service. Read more about the Toraja people’s burial tradition.

Watch this TED talk, “The Corpses that Changed my Life” by Caitlin Doughty, a mortician and activist, who strives to encourage Americans to overcome their phobia of death and to be more open and involved in dealing with their deceased loved ones.

Think It Over

Test Elisabeth Kübler-Ross’s five stages of grief. Think of someone or something you have lost. You might consider the loss of a relationship, possession, or aspect of your self-identity. For example, perhaps you dissolved a childhood friendship, sold your car, or got a bad haircut. For even a small loss, did you experience all five stages of grief? If so, how did the expression of each stage manifest? Did the process happen slowly or rapidly? Did the stages occur out of order? Did you reach acceptance? Try to recall the experience and analyze your own response to loss. Does your experience facilitate your empathizing with the elderly?

Try It

https://assessments.lumenlearning.co...essments/14764

https://assessments.lumenlearning.co...essments/14763

Glossary

grief:

a psychological, emotional, and social response to the feelings of loss that accompanies death or a similar event

hospice:

healthcare that treats terminally ill people by providing comfort during the dying process

physician-assisted suicide:

the voluntary use of lethal medication provided by a medical doctor to end one’s life

thanatology:

the systematic study of death and dying

CC licensed content, Shared previously

- The Process of Aging. **Authored by**: OpenStax CNX. **Located at**: https://cnx.org/contents/AgQDEnLI@10.1:2d9eSEty@4/The-Process-of-Aging. **License**: *CC BY: Attribution*. **License Terms**: Download for free at http://cnx.org/contents/02040312-72c...9333f3e1d@3.49

All rights reserved content

- The Brittany Maynard Story. **Provided by**: CompassionChoices. **Located at**: https://www.youtube.com/watch?v=yPfe3rCcUeQ. **License**: *Other*. **License Terms**: Standard YouTube License

---

17.8: Introduction to Sociology and Aging

What you'll learn to do: describe perceptions, challenges, and theories on aging and the elderly

As people enter old age, they face challenges such as ageism, poverty, or abuse. Ageism, which involves stereotyping and discrimination against the elderly, leads to misconceptions about their abilities. Although elderly poverty has been improving for decades, many older people may be detrimentally and disproportionately affected by the 2008 recession. Some elderly people grow physically frail and thus more dependent on caregivers, which may increase the possibility of elder abuse.

CC licensed content, Original

- Introduction to Challenges Facing the Elderly. **Provided by**: Lumen Learning. **License**: *CC BY: Attribution*

CC licensed content, Shared previously

- Challenges Facing the Elderly. **Authored by**: OpenStax CNX. **Located at**: https://cnx.org/contents/AgQDEnLI@10.1:oczeqG_4@2/Challenges-Facing-the-Elderly. **License**: *CC BY: Attribution*. **License Terms**: Download for free at http://cnx.org/contents/02040312-72c...9333f3e1d@3.49
- An elderly man and woman sitting in chairs. **Authored by**: Elien Dumon. **Provided by**: Unsplash. **Located at**: https://unsplash.com/photos/zdvrozV4Lr8. **License**: *CC0: No Rights Reserved*. **License Terms**: https://unsplash.com/license

17.9: Retirement and Poverty

Learning Outcomes

- Explain the historical and current trends of poverty among elderly populations

As already observed, many older adults remain highly self-sufficient. Others require more care. Because the elderly typically no longer hold jobs, finances can be a challenge. And due to cultural misconceptions, older people can be targets of ridicule and stereotypes. The elderly face many challenges in later life, but they do not have to enter old age without dignity.

Poverty

Figure 1. While elderly poverty rates showed an improvement trend for decades, the 2008 recession changed some older people's financial futures. Some who had planned a leisurely retirement have found themselves at risk of late-age destitution. (Photo (a) courtesy of Michael Cohen/flickr; photo (b) courtesy of Alex Proimos/flickr)

For many people in the United States, growing older once meant living with less income. In 1960, almost 35 percent of the elderly existed on poverty-level incomes. A generation ago, the nation's oldest populations had the highest risk of living in poverty.

At the start of the twenty-first century, the older population was putting an end to that trend. Among people over sixty-five years old, the poverty rate fell from 30 percent in 1967 to 9.7 percent in 2008, well below the national average of 13.2 percent (U.S. Census Bureau 2009). However, given the subsequent recession, which severely reduced the retirement savings of many while taxing public support systems, how are the elderly affected? According to the Kaiser Commission on Medicaid and the Uninsured, the national poverty rate among the elderly had risen to 14 percent by 2010 (Urban Institute and Kaiser Commission 2010), and up to 15 percent by 2015 (The Kaiser Family Foundation).

Before the recession hit, what had changed to cause a reduction in poverty among the elderly? What social patterns contributed to the shift? For several decades, a greater number of women joined the workforce. More married couples earned double incomes during their working years and saved more money for their retirement. Private employers and governments began offering better retirement programs. By 1990, senior citizens reported earning 36 percent more income on average than they did in 1980; that was five times the rate of increase for people under age thirty-five (U.S. Census Bureau 2009).

In addition, many people were gaining access to better healthcare. New trends encouraged people to live more healthful lifestyles by placing an emphasis on exercise and nutrition. There was also greater access to information about the health risks of behaviors such as cigarette smoking, alcohol consumption, and drug use. Because they were healthier, many older people continue to work past the typical retirement age and provide more opportunity to save for retirement. Will these patterns return once the recession ends? Sociologists will be watching to see. In the meantime, they are realizing the immediate impact of the recession on poverty among the elderly.

During the recession, older people lost some of the financial advantages that they'd gained in the 1980s and 1990s. From October 2007 to October 2009, retirement accounts for people over age fifty lost 18 percent of their value. The sharp decline in the stock market also forced many to delay their retirement (Administration on Aging 2009). Among those older Americans who were not directly impacted, many assisted their grown children who did experience serious financial difficulties during this time.[1]

Watch It

Watch the selected second half of this video to learn more about the cultural implications of aging, including some of the challenges facing the elderly in America.

An interactive or media element has been excluded from this version of the text. You can view it online here: http://pb.libretexts.org/its/?p=494

World War II Veterans

Figure 2. World War II (1941–1945) veterans and members of an Honor Flight from Milwaukee, Wisconsin, visit the National World War II Memorial in Washington, DC. Most of these men and women were in their late teens or twenties when they served. (Photo courtesy of Sean Hackbarth/flickr)

World War II veterans are aging. Many are in their eighties and nineties. They are dying at an estimated rate of about 740 per day, according to the U.S. Veterans Administration (National Center for Veterans Analysis and Statistics 2011). Data suggest that by 2036, there will be no living veterans of WWII (U.S. Department of Veteran Affairs).

When these veterans came home from the war and ended their service, little was known about posttraumatic stress disorder (PTSD). These heroes did not receive the mental and physical healthcare that could have helped them. As a result, many of them, now in old age, are dealing with the effects of PTSD. Research suggests a high percentage of World War II veterans are plagued by flashback memories and isolation, and that many "self-medicate" with alcohol.

Research has found that veterans of any conflict are more than twice as likely as nonveterans to commit suicide, with rates highest among the oldest veterans. Reports show that WWII-era veterans are four times as likely to take their own lives as people of the same age with no military service (Glantz 2010).

In May 2004, the National World War II Memorial in Washington, DC, was completed and dedicated to honor those who served during the conflict. Dr. Earl Morse, a physician and retired Air Force captain, treated many WWII veterans. He encouraged them to visit the memorial, knowing it could help them heal. Many WWII veterans expressed interest in seeing the memorial. Unfortunately, many were in their eighties and were neither physically nor financially able to travel on their own. Dr. Morse arranged to personally escort some of the veterans and enlisted volunteer pilots who would pay for the flights themselves. He also raised money, insisting the veterans pay nothing. By the end of 2005, 137 veterans, many in wheelchairs, had made the trip. The Honor Flight Network was up and running.

As of 2010, the Honor Flight Network had flown more than 120,000 U.S. veterans of World War II, and some veterans of the Korean War, to Washington. The round-trip flights leave for day-long trips from airports in thirty states, staffed by volunteers who care for the needs of the elderly travelers (Honor Flight Network 2011).

Further Research

Veterans who served in the U.S. Armed Forces during various conflicts represent cohorts. Veterans share certain aspects of life in common. To find information on veteran populations and how they are aging, study the information on the web site of the U.S. Department of Veterans Affairs.

Learn more about the Honor Flight Network, the organization offering trips to national war memorials in Washington, DC, at no cost to the veterans.

Think It Over

- Think of an older person you know well, perhaps a grandparent, other relative, or neighbor. Ask them what they think about aging and how it's perceived? In what ways does this person defy certain stereotypes about aging?

Try It

https://assessments.lumenlearning.co...essments/14765
https://assessments.lumenlearning.co...essments/14766

---

1. Mather, M. (2015). Effects of the Great Recession on Older Americans' Health and Well-Being. Retrieved from https://www.prb.org/todays-research-aging-great-recession-2/https://www.prb.org/todays-research-aging-great-recession-2/↵

CC licensed content, Shared previously

- Challenges Facing the Elderly. **Authored by**: OpenStax CNX. **Located at**: https://cnx.org/contents/AgQDEnLI@10.1:oczeqG_4@2/Challenges-Facing-the-Elderly. **License**: *CC BY: Attribution*. **License Terms**: Download for free at http://cnx.org/contents/02040312-72c...9333f3e1d@3.49

All rights reserved content

- Age & Aging: Crash Course Sociology #36. **Provided by**: CrashCourse. **Located at**: https://www.youtube.com/watch?v=kJ18whKduFo&list=PL8dPuuaLjXtMJ-AfB_7J1538YKWkZAnGA&index=37. **License**: *Other*. **License Terms**: Standard YouTube License

---

17.10: Ageism and Abuse

Learning Outcomes

- Recognize ageist thinking and ageist attitudes in individuals and institutions
- Discuss elderly individuals' risks of being mistreated and abused

Ageism

Figure 1. Are these street signs humorous or offensive? What shared assumptions make them humorous? Or is memory loss too serious to be made fun of? (Photo courtesy of Tumbleweed/flickr)

Driving to the grocery store, Peter, twenty-three years old, got stuck behind a car on a four-lane main artery through his city's business district. The speed limit was thirty-five miles per hour, and while most drivers sped along at forty to forty-five mph, the driver in front of him was going the minimum speed. Peter tapped on his horn. He tailgated the driver. Finally, Peter had a chance to pass the car. He glanced over. Sure enough, Peter thought, a gray-haired old man guilty of "DWE," driving while elderly.

At the grocery store, Peter waited in the checkout line behind an older woman. She paid for her groceries, lifted her bags of food into her cart, and toddled toward the exit. Peter, guessing her to be about eighty years old, was reminded of his grandmother. He paid for his groceries and caught up with her.

"Can I help you with your cart?" he asked.

"No, thank you. I can get it myself," she said and marched off toward her car.

Peter's responses to both older people, the driver and the shopper, were prejudiced. In both cases, he made unfair assumptions. He assumed the driver drove cautiously simply because the man was a senior citizen, and he assumed the shopper needed help carrying her groceries just because she was an older woman.

Responses like Peter's toward older people are fairly common. He didn't intend to treat people differently based on personal or cultural biases, but he did. **Ageism** is discrimination (when someone acts on a prejudice) based on age. Dr. Robert Butler coined the term in 1968, noting that ageism exists in all cultures (Brownell). Ageist attitudes and biases based on stereotypes reduce elderly people to inferior or limited positions and can reduce their quality life as they internalize these false stereotypes.

Ageism can vary in severity. Peter's attitudes are probably seen as fairly mild, but relating to the elderly in ways that are patronizing can be offensive. When ageism is reflected in the workplace, in healthcare, and in assisted-living facilities, the effects of discrimination can be more severe. Ageism can make older people fear losing a job, feel dismissed by a doctor, or feel a lack of power and control in their daily living situations.

In early societies, the elderly were respected and revered. Many preindustrial societies observed **gerontocracy**, a type of social structure wherein the power is held by a society's oldest members. In some countries today, the elderly still have influence and power and their vast knowledge is respected. Reverence for the elderly is still a part of some cultures, but it has changed in many places because of social factors.

In many modern nations, however, industrialization contributed to the diminished social standing of the elderly. Today wealth, power, and prestige are also held by those in younger age brackets. The average age of corporate executives was fifty-nine years old in 1980. In 2008, the average age had lowered to fifty-four years old (Stuart 2008). Some older members of the workforce felt threatened by this trend and grew concerned that younger employees in higher level positions would push them out of the job

market. Rapid advancements in technology and media have required new skill sets that older members of the workforce are less likely to have.

Changes happened not only in the workplace but also at home. In agrarian societies, a married couple cared for their aging parents. The oldest members of the family contributed to the household by doing chores, cooking, and helping with child care. As economies shifted from agrarian to industrial, younger generations moved to cities to work in factories. The elderly began to be seen as an expensive burden. They did not have the strength and stamina to work outside the home. What began during industrialization, a trend toward older people living apart from their grown children, has become commonplace.

Try It

https://assessments.lumenlearning.co...essments/14767

Mistreatment and Abuse

Mistreatment and abuse of the elderly is a major social problem. As expected, with the biology of aging, the elderly sometimes become physically frail. This frailty renders them dependent on others for care—sometimes for small needs like household tasks, and sometimes for assistance with basic functions like eating and toileting. Unlike a child, who also is dependent on another for care, an elder is an adult with a lifetime of experience, knowledge, and opinions—a more fully developed person. This makes the care-providing situation more complex.

Elder abuse occurs when a caretaker intentionally deprives an older person of care or harms the person in his or her charge. Caregivers may be family members, relatives, friends, health professionals, or employees of senior housing or nursing care. The elderly may be subject to many different types of abuse. In a 2009 study on the topic led by Dr. Ron Acierno, the team of researchers identified five major categories of elder abuse: 1) physical abuse, such as hitting or shaking, 2) sexual abuse, including rape and coerced nudity, 3) psychological or emotional abuse, such as verbal harassment or humiliation, 4) neglect or failure to provide adequate care, and 5) financial abuse or exploitation (Acierno 2010).

The National Center on Elder Abuse (NCEA), a division of the U.S. Administration on Aging, also identifies abandonment and self-neglect as types of abuse. The table below shows some of the signs and symptoms that the NCEA encourages people to notice.

Signs of Elder Abuse. The National Center on Elder Abuse encourages people to watch for these signs of mistreatment. (Chart courtesy of National Center on Elder Abuse)

Type of Abuse	Signs and Symptoms
Sexual abuse	Bruises around breasts or genitals, torn or bloody underclothing, unexplained venereal disease
Neglect	Poor hygiene, untreated bed sores, dehydration, soiled bedding

How prevalent is elder abuse? Two recent U.S. studies found that roughly one in ten elderly people surveyed had suffered at least one form of elder abuse. Much like other types of abuse, some social researchers believe elder abuse is underreported and that the number may be higher. (The risk of abuse also increases in people with health issues such as dementia (Kohn and Verhoek-Oftedahl 2011). Similar to younger women, older women are more likely to be victims of verbal abuse than their male counterparts.

In Acierno's study, which included a sample of 5,777 respondents age sixty and older, 5.2 percent of respondents reported financial abuse, 5.1 percent said they'd been neglected, and 4.6 endured emotional abuse (Acierno 2010). The prevalence of physical and sexual abuse was lower at 1.6 and 0.6 percent, respectively (Acierno 2010).

Other studies have focused on the caregivers to the elderly in an attempt to discover the causes of elder abuse. Researchers identified factors that increased the likelihood of caregivers perpetrating abuse against those in their care. Those factors include

inexperience, having other demands such as jobs (for those who weren't professionally employed as caregivers), caring for children, living full-time with the dependent elder, and experiencing high stress, isolation, and lack of support (Kohn and Verhoek-Oftedahl 2011).

A history of depression in the caregiver was also found to increase the likelihood of elder abuse. Neglect was more likely when care was provided by paid caregivers. Many of the caregivers who physically abused elders were themselves abused—in many cases, when they were children. Family members with some sort of dependency on the elder in their care were more likely to physically abuse that elder. For example, an adult child caring for an elderly parent while at the same time depending on some form of income from that parent, is considered more likely to perpetrate physical abuse (Kohn and Verhoek-Oftedahl 2011).

A survey in Florida found that 60.1 percent of caregivers reported verbal aggression as a style of conflict resolution. Paid caregivers in nursing homes were at a high risk of becoming abusive if they had low job satisfaction, treated the elderly like children, or felt burnt out (Kohn and Verhoek-Oftedahl 2011). Caregivers who tended to be verbally abusive were found to have had less training, lower education, and higher likelihood of depression or other psychiatric disorders. Based on the results of these studies, many housing facilities for seniors have increased their screening procedures for caregiver applicants.

Abuse in Nursing Homes

On December 29, 2018, a woman in a vegetative state at a nursing care facility in Arizona gave birth to a baby boy. The staff was surprised by both her pregnancy and birth, and investigation discovered that she had been raped by a nurse in the facility. This terrible case brought abuse in nursing and care facilities into the national limelight.

Institutional abuse refers to physical or psychological harms, as well as rights violations in settings where care and assistance is provided to dependent older adults or others, such as nursing homes. Recent studies of approximately 2,000 nursing home facility residents in the United States reported a growing abuse rate of 44% and neglect up to 95%, making elder abuse in nursing homes a growing danger. Exact statistics are rare due to elder abuse in general and specifically in nursing homes being a silent condition. Watch this TED talk, "Abuse Hurts at Any Age" by Catherine Aaronson to learn more about this type of abuse. You can also read more about elder abuse at the World Health Organization website.

Think It Over

- Make a list of all the biases, generalizations, and stereotypes about elderly people that you have seen or heard. Include everything, no matter how small or seemingly trivial. Try to rate the items on your list. Which statements can be considered myths? Which frequently turn into discrimination?
- Have you known any person who experienced prejudice or discrimination based on age? Think of someone who has been denied an experience or opportunity simply for being too old. Write the story as a case study.
- Older people suffer discrimination, and often, so do teenagers. Compare the discrimination of the elderly to that of teenagers. What do the groups share in common and how are they different?

Try It

https://assessments.lumenlearning.co...essments/14768

https://assessments.lumenlearning.co...essments/14769

glossary

ageism:
discrimination based on age

elder abuse:
the act of a caretaker intentionally depriving an older person of care or harming the person in their charge

gerontocracy:
a type of social structure wherein the power is held by a society's oldest members

- Modification, adaptation, and original content. **Authored by**: Rebecca Vonderhaar for Lumen Learning. **Provided by**: Lumen Learning. **License**: *CC BY-SA: Attribution-ShareAlike*

CC licensed content, Shared previously

- Challenges Facing the Elderly. **Authored by**: OpenStax CNX. **Located at**: https://cnx.org/contents/AgQDEnLI@10.1:oczeqG_4@2/Challenges-Facing-the-Elderly. **License**: *CC BY: Attribution*. **License Terms**: Download for free at http://cnx.org/contents/02040312-72c...9333f3e1d@3.49

17.11: Theoretical Perspectives on Aging

Learning Outcomes

- Explain functionalist views on aging such as disengagement theory, activity theory, and continuity theory
- Explain conflict perspectives on aging such as modernization theory, age stratification theory, and exchange theory
- Explain symbolic interactionist theories on aging such as the subculture of aging theory, selective optimization with compensation theory, and gerotranscendence

What roles do individual senior citizens play in your life? How do you relate to and interact with older people? What role do they play in neighborhoods and communities, in cities and in states? Sociologists are interested in exploring the answers to questions such as these through three different perspectives: functionalism, symbolic interactionism, and conflict theory.

Functionalism

Functionalists analyze how the parts of society work together. Functionalists gauge how effectively society's parts form a systematic whole and do or do not keep society running smoothly. How does this perspective address aging? The elderly, as a group, are considered one of society's vital parts.

Functionalists find that people with better resources who stay active in other roles adapt more smoothly to old age (Crosnoe and Elder 2002). Three social theories within the functional perspective were developed to explain how older people might deal with later-life experiences.

Figure 1. Does being old mean disengaging from the world? (Photo courtesy of Candida Performa/Wikimedia Commons)

The earliest gerontological theory in the functionalist perspective is **disengagement theory**, which suggests that withdrawing from society and social relationships is a natural part of growing old. There are several main points to the theory. First, because everyone expects to die one day, and because we experience physical and mental decline as we approach death, it is natural to withdraw from individuals and society. Second, as the elderly withdraw, they receive less reinforcement to conform to social norms. Therefore, this withdrawal allows a greater freedom from the pressure to conform. Finally, social withdrawal is gendered, meaning it is experienced differently by men and women. Because men focus on work and women focus on marriage and family, when they withdraw they will be unhappy and directionless until they adopt a role to replace their accustomed role that is compatible with the disengaged state (Cummings and Henry 1961).

The suggestion that old age was a distinct state in the life course, characterized by a distinct change in roles and activities, was groundbreaking when it was first introduced. However, the theory is no longer accepted in its classic form. Criticisms typically focus on the application of the idea that seniors universally naturally withdraw from society as they age, and that it does not allow for a wide variation in the way people experience aging (Hothschild 1975).

The social withdrawal that Cummings and Henry recognized (1961), and its notion that elderly people need to find replacement roles for those they've lost, is addressed anew in **activity theory**. According to this theory, activity levels and social involvement are key to this process, and key to happiness (Havinghurst 1961; Neugarten 1964; Havinghurst, Neugarten, and Tobin 1968). According to this theory, the more active and involved an elderly person is, the happier he or she will be. Critics of this theory point out that access to social opportunities and activity are not equally available to all. Moreover, not everyone finds fulfillment in the presence of others or participation in activities. Reformulations of this theory suggest that participation in informal activities, such as hobbies, are what most effect later life satisfaction (Lemon, Bengtson, and Petersen 1972).

According to **continuity theory,** the elderly make specific choices to maintain consistency in internal (personality structure, beliefs) and external structures (relationships), remaining active and involved throughout their elder years. This is an attempt to

maintain social equilibrium and stability by making future decisions on the basis of already developed social roles (Atchley 1971; Atchley 1989). One criticism of this theory is its emphasis on so-called “normal” aging, which marginalizes those with chronic diseases such as Alzheimer’s.

Try It

https://assessments.lumenlearning.co...essments/14770

https://assessments.lumenlearning.co...essments/14771

The Graying of American Prisons

Figure 2. Would you want to spend your retirement here? A growing elderly prison population requires asking questions about how to deal with senior inmates. (Photo courtesy of Claire Rowland/Wikimedia Commons)

Earl Grimes is a seventy-nine-year-old inmate at a state prison. He has undergone two cataract surgeries and takes about $1,000 a month worth of medication to manage a heart condition. He needs significant help moving around, which he obtains by bribing younger inmates. He is serving a life prison term for a murder he committed thirty-eight years—half a lifetime—ago (Warren 2002).

Grimes’ situation exemplifies the problems facing prisons today. According to a recent report released by Human Rights Watch (2012), there are now more than 124,000 prisoners age fifty-five years or older and over 26,000 prisoners age sixty-five or older in the U.S. prison population. These numbers represent an exponential rise over the last two decades. Why are U.S. prisons graying so rapidly?

Two factors contribute significantly to this country’s aging prison population. One is the tough-on-crime reforms of the 1980s and 1990s, when mandatory minimum sentencing and “three strikes” policies sent many people to jail for thirty years to life, even when the third strike was a relatively minor offense (Leadership Conference, n.d.). Many of today’s elderly prisoners are those who were incarcerated thirty years ago for life sentences. The other factor influencing today’s aging prison population is the aging of the overall population. As discussed in the section on aging in the United States, the percentage of people over sixty-five years old is increasing each year due to rising life expectancies and the aging of the baby boom generation.

So why should it matter that the elderly prison population is growing so swiftly? As discussed in the section on the process of aging, growing older is accompanied by a host of physical problems, like failing vision, mobility, and hearing. Chronic illnesses like heart disease, arthritis, and diabetes also become increasingly common as people age, whether they are in prison or not. In many cases, elderly prisoners are physically incapable of committing a violent—or possibly any—crime. Is it ethical to keep them locked up for the short remainder of their lives?

There seem to be a lot of reasons, both financial and ethical, to release some elderly prisoners to live the rest of their lives—and die—in freedom. However, few lawmakers are willing to appear soft on crime by releasing convicted felons from prison, especially if their sentence was “life without parole” (Warren 2002).

Conflict Perspective

Figure 3. At a public protest, older people make their voices heard. In advocating for themselves, they help shape public policy and alter the allotment of available resources. (Photo courtesy of longislandwins/flickr)

Theorists working the conflict perspective view society as inherently unstable, an institution that privileges the powerful wealthy few while marginalizing everyone else. According to the guiding principle of conflict theory, social groups compete with other groups for power and scarce resources. Applied to society's aging population, the principle means that the elderly struggle with other groups—for example, younger society members—to retain a certain share of resources. At some point, this competition may escalate into conflict.

For example, some people complain that the elderly get more than their fair share of society's resources. In hard economic times, there is renewed concern about the mounting costs of Social Security and Medicare. One of every four tax dollars, or about 28 percent, is spent on these two programs. In 1950, the federal government paid $781 million in Social Security payments. Now, the payments are 870 times higher. In 2008, the government paid $296 billion (Statistical Abstract 2011). The medical bills of the nation's elderly population are rising dramatically. While there is more care available to certain segments of the senior community, it must be noted that the financial resources available to the aging can vary tremendously by race, social class, and gender.

There are three classic theories of aging within the conflict perspective. **Modernization theory** (Cowgill and Holmes 1972) suggests that the primary cause of the elderly losing power and influence in society are the parallel forces of industrialization and modernization. As societies modernize, the status of elders decreases, and they are increasingly likely to experience social exclusion. Before industrialization, strong social norms bound the younger generation to care for the older. Now, as societies industrialize, the nuclear family replaces the extended family. Societies become increasingly individualistic, and norms regarding the care of older people change. In an individualistic industrial society, caring for an elderly relative is seen as a voluntary obligation that may be ignored without fear of social censure.

The central reasoning of modernization theory is that as long as the extended family is the standard family, as in preindustrial economies, elders will have a place in society and a clearly defined role. As societies modernize, the elderly, unable to work outside of the home, have less to offer economically and are seen as a burden. This model may be applied to both the developed and the developing world, and it suggests that as people age they will be abandoned and lose much of their familial support since they become a nonproductive economic burden.

Another theory in the conflict perspective is **age stratification theory** (Riley, Johnson, and Foner 1972). Though it may seem obvious now, with our awareness of ageism, age stratification theorists were the first to suggest that members of society might be stratified by age, just as they are stratified by race, class, and gender. Because age serves as a basis of social control, different age groups will have varying access to social resources such as political and economic power. Within societies, behavioral age norms, including norms about roles and appropriate behavior, dictate what members of age cohorts may reasonably do. For example, it might be considered deviant for an elderly woman to wear a bikini because it violates norms denying the sexuality of older females. These norms are specific to each age strata, developing from culturally based ideas about how people should "act their age."

Thanks to amendments to the Age Discrimination in Employment Act (ADEA), which drew attention to some of the ways in which our society is stratified based on age, U.S. workers no longer must retire upon reaching a specified age. As first passed in 1967, the ADEA provided protection against a broad range of age discrimination and specifically addressed termination of employment due to age, age specific layoffs, advertised positions specifying age limits or preferences, and denial of healthcare benefits to those over sixty-five years old (U.S. EEOC 2012).

Age stratification theory has been criticized for its broadness and its inattention to other sources of stratification and how these might intersect with age. For example, one might argue that an older white male occupies a more powerful role, and is far less limited in his choices, compared to an older white female based on his historical access to political and economic power.

Finally, **exchange theory** (Dowd 1975), a rational choice approach, suggests we experience an increased dependence as we age and must increasingly submit to the will of others because we have fewer ways of compelling others to submit to us. Indeed, inasmuch as relationships are based on mutual exchanges, as the elderly become less able to exchange resources, they will see their social circles diminish. In this model, the only means to avoid being discarded is to engage in resource management, like maintaining a large inheritance or participating in social exchange systems via child care. In fact, the theory may depend too much on the assumption that individuals are calculating. It is often criticized for affording too much emphasis to material exchange and devaluing nonmaterial assets such as love and friendship.

Try It

https://assessments.lumenlearning.co...essments/14773

https://assessments.lumenlearning.co...essments/14774

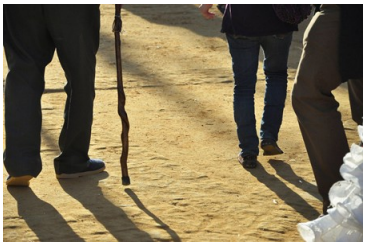


Figure 4. The subculture of aging theory posits that the elderly create their own communities because they have been excluded from other groups. (Photo courtesy of Icnacio Palomo Duarte/flickr)

Symbolic Interactionism

Generally, theories within the symbolic interactionist perspective focus on how society is created through the day-to-day interaction of individuals, as well as the way people perceive themselves and others based on cultural symbols. This microanalytic perspective assumes that if people develop a sense of identity through their social interactions, their sense of self is dependent on those interactions. A woman whose main interactions with society make her feel old and unattractive may lose her sense of self. But a woman whose interactions make her feel valued and important will have a stronger sense of self and a happier life.

Symbolic interactionists stress that the changes associated with old age, in and of themselves, have no inherent meaning. Nothing in the nature of aging creates any particular, defined set of attitudes. Rather, attitudes toward the elderly are rooted in society.

One microanalytical theory is Rose's (1962) **subculture of aging theory**, which focuses on the shared community created by the elderly when they are excluded (due to age), voluntarily or involuntarily, from participating in other groups. This theory suggests that elders will disengage from society and develop new patterns of interaction with peers who share common backgrounds and interests. For example, a group consciousness may develop within such groups as AARP around issues specific to the elderly like the Medicare "doughnut hole," focused on creating social and political pressure to fix those issues. Whether brought together by social or political interests, or even geographic regions, elders may find a strong sense of community with their new group.

Another theory within the symbolic interaction perspective is **selective optimization with compensation theory**. Baltes and Baltes (1990) based their theory on the idea that successful personal development throughout the life course and subsequent mastery of the challenges associated with everyday life are based on the components of selection, optimization, and compensation. Though this happens at all stages in the life course, in the field of gerontology, researchers focus attention on balancing the losses associated with aging with the gains stemming from the same. Here, aging is a process and not an outcome, and the goals (compensation) are specific to the individual.

According to this theory, our energy diminishes as we age, and we select (selection) personal goals to get the most (optimize) for the effort we put into activities, in this way making up for (compensation) the loss of a wider range of goals and activities. In this theory, the physical decline postulated by disengagement theory may result in more dependence, but that is not necessarily negative, as it allows aging individuals to save their energy for the most meaningful activities. For example, a professor who values teaching sociology may participate in a phased retirement, never entirely giving up teaching, but acknowledging personal physical limitations that allow teaching only one or two classes per year.

Swedish sociologist Lars Tornstam developed a symbolic interactionist theory called **gerotranscendence**: the idea that as people age, they transcend the limited views of life they held in earlier times. Tornstam believes that throughout the aging process, the elderly become less self-centered and feel more peaceful and connected to the natural world. Wisdom comes to the elderly, Tornstam's theory states, and as the elderly tolerate ambiguities and seeming contradictions, they let go of conflict and develop softer views of right and wrong (Tornstam 2005).

Tornstam does not claim that everyone will achieve wisdom in aging. Some elderly people might still grow bitter and isolated, feel ignored and left out, or become grumpy and judgmental. Symbolic interactionists believe that, just as in other phases of life, individuals must struggle to overcome their own failings and turn them into strengths.

Further Research

New Dynamics of Aging is a web site produced by an interdisciplinary team at the University of Sheffield. It is supposedly the largest research program on aging in the United Kingdom to date. In studying the experiences of aging and factors that shape aging, including behaviors, biology, health, culture, history, economics, and technology, researchers are promoting healthy aging and helping dispel stereotypes.

Think It Over

- Remember Madame Jeanne Calment of France was the world's oldest living person until she died at 122 years old? Consider her life experiences from all three sociological points of view. Analyze her situation as if you were a functionalist, a symbolic interactionist, and a conflict theorist.
- Which lifestyle do you think is healthiest for aging people—activity, continuity, or disengagement theories? What are the pros and cons of each theory? Find examples of real people who illustrate the theories, either from your own experience or your friends' relationships with older people. Do your examples show positive or negative aspects of the theory they illustrate?

Try It

https://assessments.lumenlearning.co...essments/14772

https://assessments.lumenlearning.co...essments/14774

https://assessments.lumenlearning.co...essments/14775

glossary

activity theory:
a theory which suggests that for individuals to enjoy old age and feel satisfied, they must maintain activities and find a replacement for the statuses and associated roles they have left behind as they aged

age stratification theory:
a theory which states that members of society are stratified by age, just as they are stratified by race, class, and gender

continuity theory:
a theory which states that the elderly make specific choices to maintain consistency in internal (personality structure, beliefs) and external structures (relationships), remaining active and involved throughout their elder years

disengagement theory:
a theory which suggests that withdrawing from society and social relationships is a natural part of growing old

exchange theory:
a theory which suggests that we experience an increased dependence as we age and must increasingly submit to the will of others, because we have fewer ways of compelling others to submit to us

gerotranscendence:
the idea that as people age, they transcend limited views of life they held in earlier times

modernization theory:

a theory which suggests that the primary cause of the elderly losing power and influence in society are the parallel forces of industrialization and modernization

selective optimization with compensation theory:

a theory based on the idea that successful personal development throughout the life course and subsequent mastery of the challenges associated with everyday life are based on the components of selection, optimization, and compensation

subculture of aging theory:

a theory that focuses on the shared community created by the elderly when they are excluded (due to age), voluntarily or involuntarily, from participating in other groups

17.12: Putting It Together- Aging and the Elderly

In this module you learned the impact that the “graying of America” is having on the United States and globally, which is presenting numerous challenges for the elderly population and social institutions such as health care and government. You also learned about the process and challenges of aging and cultural attitudes that shape the way society views and limits the elderly.

The module explained the three theoretical perspectives on aging. Functionalist perspectives focuses on the role of elders in terms of how the elderly disengage from society and assert this is a natural process for the elderly. Conflict theories concentrate on how elders, as a group, are at odds with other groups in society in terms of power and status. Conflict theories also focus on how race, class and gender continue to serve as a basis of inequality even in old age. And theories in the symbolic interactionist perspective focus on how elders’ identities are created through their interactions and the changes associated with old age have no inherent meaning.

The media plays a large role in societal attitudes towards the elderly—we know that in the U.S., society typically looks at the physical processes of aging such as graying hair and wrinkled skin as evidence of being less-than. Ageist attitudes and biases based on stereotypes reduce elderly people to inferior or limited positions and can reduce their quality life as they internalize these false stereotypes.

Watch It

In the following video, Ashton Applewhite, the author of “This Chair rocks: a manifesto of ageism,” asks society to reframe how society labels and values the elderly.

An interactive or media element has been excluded from this version of the text. You can view it online here: http://pb.libretexts.org/its/?p=500

17.13: Discussion- Health and Aging Assignment

The geriatric/elderly population accounts for approximately 12% of the world's population and is rapidly increasing to become approximately ¼ of the world's population by 2050. The challenges facing the elderly are unique to other demographics of the population.

STEP 1: Visit the website for the National Council on Aging, review the information presented, and identify a health issue common to the elderly population.

STEP 2: Use a reputable journal to find an article about your selected health issue. Acceptable journals include Journal of Sociology, American Sociological Review, American Journal of Sociology, The Sociological Review, Journal of Public Health, Health Education Research, American Journal of Public Health, Journal of American Geriatric Society, Age and Ageing, and Journal of Geriatric Psychiatry and Neurology. The study should have been performed within the past 10 years.

STEP 3: Write a blog post of between 200-400 words that addresses all of the following:

- identify the health issue you selected
- discuss how this issue is unique to the elderly population.
- explain the individual, environmental, and societal connection between the health issue and the elderly/geriatric population
- give your own opinion about things society could do to help improve the quality of life for elderly with this health issue, citing evidences from the module.

Be sure to include a link to the original article or any other sources you use.

STEP 4: Comment on at least TWO other posts in a response of at least 100 words.

Rubric

Criteria	Ratings					Points
Journal	Finds appropriate article in academic journal and summarizes it effectively.	Finds appropriate article in academic journal but does not summarize it effectively or is missing some key points as outlined.	Finds article but it is not relevant to the topic or missing connection of topic to article.	Does not provide enough detail and information or does not find an appropriate article	Poor choice of article, incomplete summary or difficult to understand	__/4
Health Issue	Individual, environmental, and societal factors identified and impact to elderly is clearly identified.	Two of three factors are identified and discussed and impact to the elderly is clearly identified.	One of three factors are identified and discussed or factors are identified but impact to the elderly is vague.	Factors are vague or impact to elderly is vague.	No factors are discussed or identified.	__/6
Discussion	Thoroughly discusses what society can do to help improve the quality of life for elderly with this health issue, citing specific evidences from the module.	Discusses what society can do to help improve the quality of life for elderly with this health issue, citing evidences from the module.	Somewhat discusses what society can do to help improve the quality of life for elderly with this health issue, or does not cite evidence from the module.	Partially discusses what society can do to help improve the quality of life for elderly with this health issue, or does not cite evidence from the module.	Does not discuss what society can do or does not cite evidence from the module.	__/5

Responses	Includes TWO substantial responses on classmates' posts	Includes TWO responses on classmates' posts	Includes TWO substantial responses on classmates' posts	Includes one response on classmates' posts or two that are not thought out or meet the length requirement	Does not include responses on classmates' posts	__/5
					Total:	__/20

17.14: Assignment- Aging and the Elderly

For this assignment, you will conduct at least a 30-60 minute interview of a person who is at least age 65 (family or non-family is fine). You will submit a paper that includes the questions and responses from the interviewee, unless you choose to submit the interview as a video or podcast. You'll also submit a final reflection essay.

STEP 1: Browse online for stories and interviews with the elderly. For example, visit websites like The Listening Ear Project (https://www.thelisteningearproject.c...ast-interviews), Memory Well (https://www.memorywell.com/family.html), and the Legacy Project (https://www.legacyproject.org/index.html). Look for suggestions of questions to ask and tips for interviewing, such as this document: https://legacyproject.org/guides/lifeintquestions.pdf.

STEP 2: Conduct an interview. You may be as creative as you would like for this interview, but you must have permission from your interviewee. Remember to follow ethical guidelines and to be respectful during the interview. You may conduct a video interview, a recorded audio interview, or take detailed notes with questions and answers. Be sure to let the individual know of your project and intentions from the beginning, and set aside a minimum of 30 minutes to conduct the interview. Be a good listener, and also a good facilitator. Be prepared with the questions you ask and be genuinely interested in their responses.

STEP 3: You must submit the following paper with your final project:

- The full name of the person you interviewed, with their age, and the date of the interview
- A description of your relationship to that person
- At least 15 of the questions you asked them, *with summarized answers*. At least three of the questions must clearly tie back to concepts you learned about in this module (ask about ageism, attitudes towards aging, etc.)

OR

- You can create a recorded video (with permission) or podcast with highlights from the video (no more than 6 minutes long). If you choose the video or podcast option, you don't need to submit the list of questions and answers, as the gist of those will be apparent in the video or podcast.

STEP 4: Type a 1-page reflection essay (500 words) addressing the following:

- A description of the stage of life the interviewee is in (young-old, middle-old, or old-old)
- An understanding of how the interviewee perceives the aging process, including attitudes and perceptions about growing old
- What did you find most interesting or informative about the interview?
- What are your personal thoughts on growing old, in the light of this interview and the content you learned about in this module?

Criteria	High Quality	Proficient	Not Proficient	Points
Interview	Prepares thoughtful interview questions and conducts an interview for at least 30 minutes with a person who is at least 65 years old.	Prepares questions for interview with a person at least 65 years of old. Questions help facilitate good responses from the interviewee.	Students does not demonstrate that they prepared for the interview, or the interview provides little information about the interviewee.	___/3
Q&A	Final product includes either a list of at least 15 questions and detailed summary responses from the interviewee OR a 4-6 minute video or podcast with edited clips from the actual interview.	Final product includes a list of at least 12 good questions and mostly complete responses from the interviewee OR video or podcast aptly demonstrates a quality interview.	Final product does not include a list of at least 12 good questions with responses from the interviewee OR video or podcast do not demonstrate a quality interview.	___/8
Reflection Essay	Reflective paragraph that describes the stage of life of the interviewee, their perception of the aging process, new things learned, and personal thoughts on aging. Reflection builds on concepts covered in the module. It is written in paragraph/essay form.	Reflective paragraph mostly describes the stage of life of the interviewee, their perception of the aging process, new things learned, and personal thoughts on aging.	Reflective paragraph does not describe the stage of life of the interviewee, their perception of the aging process, new things learned, and personal thoughts on aging. Reflection may be missing all or parts of these, or not be written in essay form.	___/9
			Total:	___/20