1 Introduction to Aging and Older Adulthood

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Aging and Older Adulthood, Third Edition. Joan T. Erber.

Close-ups on Adulthood and Aging

At age 65, Marge feels more energetic than she did when she was in her 30s. At her last routine medical checkup, her doctor told her that her blood pressure is close to that of the average 35-year-old and that she is in excellent physical shape for someone her age. Marge just retired from the office where she worked for more than 30 years. But rather than relaxing and occasionally playing cards with her friends, and instead of moving to a retirement community as many of her age peers plan to do, Marge has decided to complete the undergraduate degree she was on her way to earning 45 years ago. She just received her acceptance from the same college she attended decades earlier. Because it is in another state, she will live in the dormitory while she attends classes full-time. She intends to take full advantage of cultural events offered on campus and to make use of a new student recreation facility that just opened. Marge plans to learn a foreign language and to satisfy her wanderlust by spending her junior year abroad. She is a little concerned that the undergraduates might consider her an old lady, especially with her head of gray curls that she has no intention of altering. However, Marge is eager to mingle with these young adults and learn more about their generation.

The Study of Aging and Older Adulthood

What is aging and when does older adulthood begin? Later, we will look at ways of defining age and determining when older adulthood starts. However, from the beginning of time, people have wondered about aging, and there have been numerous myths about how to slow down the aging process and prolong life (Birren, 1996; Birren & Schroots, 2001). One such myth involved speculation about the miraculous healing powers of various substances in certain parts of the world. The Spanish explorer Ponce de Leon (1460–1521) discovered Florida while searching for a fountain of youth that supposedly would rejuvenate anyone who drank or bathed in its waters. People believed that waters or other magical substances would not only restore youth but perhaps guarantee immortality as well. Birren (1996) contends that the modern equivalent of the search for rejuvenation is evident in the pilgrimages people make to health spas and their willingness to follow dietary regimens touted as having special potency for insuring long and healthy lives. Being able to combat aging and extend life seems to have universal appeal, and many entrepreneurs have amassed great wealth by selling anti-aging products of questionable value to naive consumers (Olshansky, Hayflick, & Carnes, 2002).

History of the Scientific Study of Aging

Although interest in aging goes back centuries, the scientific study of aging and older adulthood is more recent. Several well-known researchers (Birren, 1996; Birren & Schroots, 2001; Schroots, 1996) portray how the scientific study of aging got started, and in the following paragraphs are some of the highlights they recount.

In 1835, Belgian mathematician and astronomer Adolphe Quetelet published a book describing the physical and behavioral characteristics of people at various stages of life. In 1884, Francis Galton, an Englishman trained in medicine and mathematics, sponsored a health exhibition in London, where he measured the physical and mental functions of more than 9,000 people ranging from 5 to 80 years of age. Subsequently, Galton's data were analyzed by several scientists. In 1922, G. S. Hall published a book entitled *Senescence: The Second Half of Life*, which summarized what was known about aging in fields such as physiology, medicine, anatomy, and philosophy. This book touched upon psychology as well.

In the latter part of the 19th century and early part of the 20th century, developmental psychologists focused mainly on children, perhaps because of the practical necessities of training teachers and providing child rearing advice to parents (Birren & Schroots, 2001). However, in 1933, Charlotte Buhler published a book on biological and psychological processes throughout the entire course of human development. Written in German, Buhler's book is considered by many to be the foundation of life-span developmental psychology.

The year 1927 saw the establishment of a scientific laboratory designed to study the psychology of aging systematically (Birren, 1996; Birren & Schroots, 2001; Schroots, 1996). This laboratory, based in the psychology department of Stanford University, was headed by Walter R. Miles, who initiated the Stanford Later Maturity Study. According to Birren's (1996) account, the main reason for establishing this laboratory was that men in California were having difficulty finding work because they were considered too old (Chapter 10 discusses the older worker). For more than five years, Miles conducted research on age and psychomotor functioning.

In 1939, E. V. Cowdry, a cytologist at Washington University in St. Louis, edited a classic volume entitled *Problems of Aging*, which went beyond the biomedical aspects of aging to include social, psychological, and psychiatric information. In 1941, the United States Public Health Service organized a conference on mental health and aging. That same year, the Surgeon General of the United States Public Health Service recruited Dr. Nathan W. Shock to head the newly established Section on Aging within the National Institutes of Health (NIH), which is an agency of the United States government.

In sum, by the late 1930s and early 1940s, the scientific study of aging was beginning to take shape in the United States, although research efforts were temporarily halted when the United Stated entered World War II. But when the war ended, interest in aging research was revived and several professional societies for the study of aging were established. In 1945, the Gerontological Society (subsequently renamed the Gerontological Society of America) was founded. The Gerontological Society and the newly established American Geriatric Society began publishing scientific journals on aging. The International Association of Gerontology, founded at about the same time, began to organize national and international conferences on the scientific study of aging.

In 1945, a small group of psychologists petitioned the American Psychological Association (APA) to approve a new division devoted to the study of development in the later years. Dr. Sidney L. Pressey of Ohio State University argued that a division on adulthood and later maturity would "be a natural complement to the present division on childhood and adolescence" and would "recognize that human development and change continue throughout the adult years and old age" (Pressey, 1945, as quoted by Birren & Stine-Morrow, 1999). The first reference to this new APA division (Division 20) appeared in the minutes of an initial organizational meeting held during the 1946 APA convention. Dr. Pressey was the first president of Division 20, initially named "The Division on Maturity and Old Age." At various times over the years Division 20 has been called "The Division on Maturity and Old Age," "The Division of Psychology of Adulthood and Old Age," and "The Division of Psychology of Adulthood and Later Maturity." In 1973, Division 20 was officially designated in the bylaws as the "Division of Adulthood and Aging," which remains its title to this day. Today, Division 20 has well over 1,000 members and plays an influential role in the American Psychological Association.

The NIH (mentioned earlier) is a federal agency that conducts in-house (intramural) research and also funds extramural research that is carried out at various colleges and universities. The NIH is composed of a number of institutes, and in 1974, the National Institute on Aging (NIA) was established with the late Dr. Robert Butler as its first director. As with the other institutes, the NIA oversees its own intramural research program and also funds research on aging and older adulthood conducted by scientists throughout the nation.

As the quantity of aging research has grown over the past 35 years, so has its quality. Today's researchers are increasingly aware of the complexities of studying aging. Methods for studying aging and older adulthood are covered in Chapter 2.

Geriatrics and Gerontology

Geriatrics and **gerontology** both refer to fields of study related to aging and older adulthood. Geriatrics is the branch of medicine specializing in the medical care and treatment of the diseases and health problems of older adults. Gerontology is the study of the biological, behavioral, and social phenomena from the point of maturity to old age.

Geriatrics and gerontology each have their own definitions, but sometimes it is difficult to make a clear distinction between research studies that fall into one category or the other. The term *geriatrics* is loosely applied to the study of the disease-related aspects of aging, while *gerontology* refers to the study of healthy older adults. Studies of older adults who have been diagnosed with a disease or live in nursing homes usually fall into the category of geriatric research, while studies of healthy community-living older adults fall into the category of gerontology research. However, as described in Chapter 3, most older adults, even those who live independently in the community, are not completely disease-free. Also, not all research conducted in institutional settings is geriatric. For example, studies on social processes among nursing home residents could fall into the category of gerontology.

Why Was the Study of Aging Neglected?

Why did the theories and scientific study of the psychology of aging and older adulthood lag behind those of child psychology? One likely reason was the common belief that development takes place primarily during childhood and adolescence. People assumed that by the time adulthood is reached, personality is formed and no further developmental change occurs.

Until relatively recently, a *two stages of life* viewpoint was prevalent in developmental psychology (Schroots, 1996). According to this perspective, both physical and psychological functions develop up to the point of maturity, after which there is a transition to aging that is characterized by a decline in functioning. From this perspective, there was little reason to study aging and older adulthood

because development reaches a peak in young adulthood, only to be followed by a gradual and predictable downhill progression.

More recently, the assumption of uniform decline in functioning beyond young adulthood has been called into question. The view that universal decrement characterizes all functions as age increases is considered overly simplistic by contemporary researchers. Recognition that development is a complex process even at the older end of the age continuum has spurred greater interest in the study of aging and older adulthood. The life-span developmental perspective, which Chapter 2 describes in greater detail, postulates that development is an ongoing process in which the organism and the environment influence one another throughout life.

Another reason for the belated interest in the scientific study of aging and older adulthood is that, in earlier times, both the number and proportion of older adults was relatively small. Historically, old age was not unknown; even in early societies, some individuals lived into advanced old age. However, the number of such individuals was small and made up a tiny segment of the population. The phenomenal increase in the number of older adults during the 20th and now in the 21st centuries in developed countries such as the United States is due to improvements in sanitation and nutrition, as well as to astounding medical advances. Chapter 3 discusses factors contributing to the expanding older adult population.

Reasons for Studying Aging and Older Adulthood

Interest in the study of aging and older adulthood has arisen from concerns of a scientific nature, but it also stems from those of a personal and/or practical nature (Woodruff-Pak, 1988).

Scientific reasons

Until recently, our knowledge about adult development has been based mainly on tests, observations, and interviews with young adults. From a scientific point of view, it is important to determine whether the findings of studies on these young adult samples apply to older adults. If the findings obtained with young adults do not generalize to older adults, then their scientific value may be limited. From a developmental standpoint, however, different findings for young versus older adults can have significant theoretical implications for the scientific understanding of basic developmental processes. For example, if young adults have better memory for recent events and older adults recall events that happened long ago better, it is possible that the two age groups differ in how they think.

Personal reasons

From a personal standpoint, knowledge about aging and older adulthood can give us insight into the changes that we are experiencing or can expect to experience. Such insight can be helpful when we plan specific events such as our

own retirement or make decisions about how and where we want to live in our older adult years.

Interest in aging and older adulthood may also stem from our concern about others. Information on aging and older adulthood is useful when we cope with dilemmas involving older friends and family members. Perhaps you have noticed an older friend or relative seems to have difficulty hearing or understanding conversations. On the basis of information about age-related changes in hearing (see Chapter 4), what might be done to improve communication? Perhaps an older relative or friend is becoming forgetful. Is this a cause for concern? Chapter 5 covers age-related changes in memory, and Chapter 11 covers the cognitive symptoms of dementia that may be relevant to this concern. Perhaps an older friend or relative seems less outgoing than he or she was at an earlier time. Is this a cause for concern? Chapters 8, 9, and 10 include information on personality, social processes, and lifestyle that is relevant to such concerns.

Practical reasons

Information on aging and older adulthood is valuable from a practical standpoint because older adults are a rapidly growing segment of the population. Health service workers can anticipate increased contact with older adults. Physicians, nurses, psychologists, social workers, physical therapists, occupational therapists, speech therapists, paramedics, and medical support staff are likely to find much of their time spent serving older adults. Educators will have more older adult students in their college and university classes, so providing optimal conditions for older adult learning will be a greater concern in planning university communities. Those who work in business settings will also benefit from knowledge about the aging process because employees will probably remain in the paid labor force until later in life (see Chapter 10 for further discussion of work and retirement), and managers would do well to understand the needs and abilities of older workers. Those who work in housing management, real estate, and banking will have older adult clients. Furthermore, older adults will become ever more important as consumers of manufactured products, so more items will be designed for the older adult market. Those employed in architectural planning will profit from knowledge about aging when they design living environments for older adults.

Up to this point, we referred to *aging* and *older adulthood* without being specific about the meaning of these terms. First, we will look at several ways of defining age. Then we will turn to the question of when older adulthood actually begins and what we can expect when it does.

Defining Age and Older Adulthood

Aging begins at birth and continues throughout life. However, in this book the emphasis is on aging that takes place from the point of maturity (once adulthood is attained) and continues into the later years. Our main focus will be on older

adulthood. However, in many instances, we obtain information about older adults by comparing them with individuals from young or middle-aged adult groups. Another way to study older adults is to follow the same individuals over time, observing how their patterns of behavior change as the years go by. Chapter 2 describes the advantages and disadvantages of each approach. Meanwhile, let's turn our attention to how age is defined.

Definitions of Age

Most of us think about age in terms of the number of birthdays we have celebrated.

Chronological age

Chronological age is measured in units of time (months or years) that have elapsed since birth. Marge, who was described at the beginning of the chapter, is 65 years old. Although merely an index of time, chronological age is the most common measure of age and we will return to it later. However, age can also be defined biologically, functionally, psychologically, and socially. Chronological age does not always accurately predict where a particular individual falls along each of these dimensions.

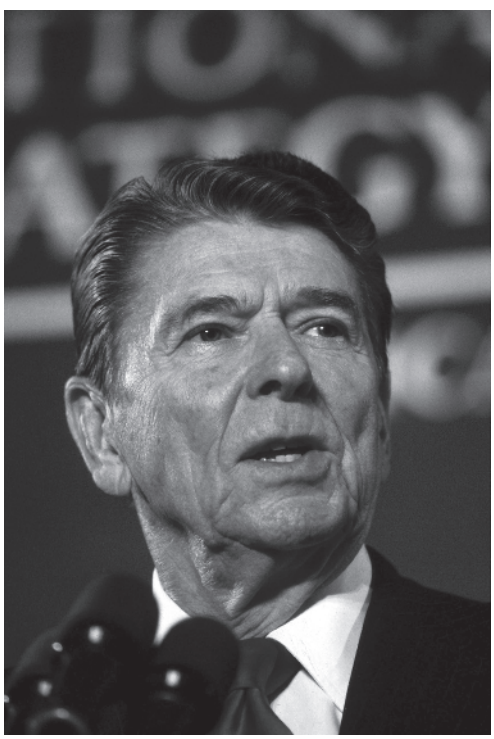

Photo 1.1 *In serving as President of the United States in his 70s, Ronald Reagan would be considered functionally younger than most of his chronological age peers. Photo © AG/Keystone USA/Rex Features*

Biological age

Biological age has to do with where people stand relative to the number of years that they will live (that is, their longevity). One individual might live to the chronological age of 70, in which case he or she might be considered biologically old at the age of 65. Another might live to the age of 90, so he or she would probably not be considered biologically old at the age of 65 because another 25 years of life remain. Because we cannot usually predict the exact length of a particular individual's life with great accuracy, this way of conceptualizing biological age is speculative.

Another way to define biological age is in terms of the body's organ systems and physical appearance. With regard to these measures, how does one individual compare with others in the same chronological age group (that is, age peers)? Even within the same individual, different aspects of biological functioning and physical appearance must be evaluated separately because they can vary. For example, Marge is biologically younger than her age peers in terms of blood pressure and most likely cardiovascular

functioning. However, her gray curls are a sign of physical aging that places her squarely with others in her chronological age group. Chapter 3 looks further at biological aging.

Functional age

Functional age has to do with a person's competence in carrying out specific tasks. As with biological age, functional age involves comparison with chronological age peers. An individual might be considered functionally young when his or her competence in some aspect of functioning compares favorably with that of chronological age peers. For example, an 85-year-old man who drives at night would be considered functionally younger than his chronological age peers who have given up driving at night. (As described in Chapter 4, visual changes that occur with increasing age can make nighttime driving difficult.) Keep in mind that functional capabilities, and thus functional age, can vary within the same individual (Siegler, 1995). For example, the 85-year-old man who drives at night may have severe arthritis that prevents him from walking around the block. Also, functional age is often evaluated in relation to a specific context. In many sports, an athlete might be considered functionally old at the age of 35. However, a 60-year-old chief operating officer of a large corporation or a 60-year-old President of the United States would not be considered functionally old.

Psychological age

Psychological age generally refers to how well a person adapts to changing conditions. To what extent can a person use cognitive, personal, or social skills to adjust to new circumstances or attempt new activities or experiences? Individuals who can adapt to changing conditions are considered psychologically younger than those who have difficulty doing so and prefer to do the same things over and over again. In short, we associate the ability to remain flexible with being psychologically young. Marge's desire to return to college and study abroad would make her psychologically younger than someone who continues to live in the same environment and has no desire to visit new places. Chapters 4 to 7 cover topics related to adaptation in the realm of perceptual, intellectual, and cognitive skills. Topics related to adaptation in the realm of personality, social skills, work, and mental health are covered in Chapters 8 to 11.

Social age

Social age has to do with the views held by most members of a society regarding what individuals in a particular chronological age group should do and how they should behave. For example, people may be expected to complete their education by their early 20s, marry by their late 20s or early 30s, have children by their early or mid 30s, and be established in a career by the age of 40. The individual who does not marry until age 40 and lives with his or her parents up to that time would be considered socially younger than the individual who leaves his or her parents' home at age 22 and marries at age 25.

An individual who does not become a parent until age 42 would be considered socially younger than one who becomes a parent at age 28. Someone working in an entry-level job at age 40 would be considered socially younger than someone promoted to a middle-management level at age 40. Marge might be considered socially young because she plans to return to college and live in a dorm with students younger than she is.

Krueger, Heckhausen, and Hundertmark (1995) found that men and women ranging from 25 to 80 years of age had an especially positive view of a 45-year-old woman who conformed to their social expectations for middle adulthood: She had been married for 20 years, had two children aged 19 and 17, and worked as a department manager in a bank. In contrast, they had a negative view of a 45-year-old woman who had been married for only 5 years, had one young child, and worked at a low-level job in a bank with the hope of getting promoted. This woman had not accomplished what was expected by middle adulthood and she would probably be considered socially young for her chronological age and stage in life.

Each society has its own expectations about roles to play and goals to attain in young, middle, and older adulthood. Krueger et al.'s study was conducted in Berlin, Germany, and it remains to be seen whether the results would be the same if a similar study were to be conducted in the United States. Neugarten (1977) contended that people use a social clock to evaluate whether their own progress or the progress of others is "on-time" or "off-time." Later on, however, Neugarten placed less emphasis on a social clock. She argued that in the United States age was becoming increasingly irrelevant as a predictor of needs, lifestyle, and accomplishments (Binstock, 2002).

What Is Older Adulthood?

Although there are numerous ways to define age, we usually fall back on chronological markers when we judge whether someone has entered older adulthood or even middle age. When does middle age end and older adulthood begin?

Subjective age

The chronological age people select to mark the onset of middle and older adulthood seems to be colored by their own age or stage of adulthood. Individuals in their 20s often think that middle age starts in the 30s and older adulthood starts in the 50s but certainly no later than the 60s. In contrast, individuals in their 60s consider themselves to be middle-aged. As adults become older chronologically, the gap between their chronological age and their subjective age becomes wider (Goldsmith & Heiens, 1992) – they feel younger than they are. Furthermore, the gap between subjective age and actual age is wider for middle-aged and older adult women than it is for middle-aged and older adult men (Montepare & Lachman, 1989).

The magic age of 65

There is no set rule about when an individual is considered to be an older adult. Nonetheless, the age of 65 has come to signify the official age of entry into older adulthood. The association of age 65 with the start of older adulthood can be traced to the Social Security system that the U.S. government established in 1935. Among other functions, Social Security (discussed in more detail in Chapter 10) was intended to provide economic security in the form of a monthly pension to older adults when they retired from the paid workforce. Social Security in the United States was modeled after the German retirement system, which had designated 65 as the age when citizens were eligible for pension benefits upon retirement. Similarly, workers in the United States became eligible for Social Security pension benefits once they reached 65, so 65 became an arbitrary marker of older adulthood. However, as one step to insure the Social Security system remains financially solvent, the government is gradually raising the age at which workers become eligible to draw full pension benefits from 65 to 67. Time will tell whether the chronological age associated with entry into older adulthood will be pushed up as the age of eligibility for Social Security benefits increases.

Categories of older adulthood

A great deal of information in this book is about older adults as a group, and many references are made to averages. General statements about older adults are one way of organizing what we know. At the same time, keep in mind that averages do not describe every individual in the group.

Photo 1.2 *There are great individual differences among older adults in many aspects of functioning. Some are physically active and others have physical limitations. (left) Photo Echo/Getty Images; (right) Photo © Yuri Arcurs/Dreamstime.com*

It would be a mistake to assume that once a person reaches age 65, he or she becomes a member of a homogeneous group. People in any age group are diverse – they have what psychologists call individual differences, or *interindividual variability*. Among people aged 65 and older (65+) there is interindividual variability on almost every possible measure. Some 65-year-olds are fully retired from the paid labor force, while others work full-time. Some 75-year-olds suffer from incapacitating health problems, while others lead active lives, traveling or participating in walking groups or marathon races. Some 80-year-olds have difficulty with hearing or with memory, while others can hear a pin drop and never forget a name. Study after study has shown that individual differences are even greater in the older age group than they are in young adult or middle-aged groups.

One way to acknowledge the variability in individuals who are aged 65 and over (65+) is to segment older adulthood into categories based on chronological age: **young-old** (ages 65–74), **old-old** (ages 75–84), and **oldest-old** (ages 85+). Compared with individuals in the old-old and oldest-old categories, those in the young-old category have greater physical vigor and are less likely to suffer from significant sensory or cognitive decline. In fact, many young-old adults differ very little from adults in late middle age. In general, old-old adults experience more of what are considered to be age-related changes in sensory, perceptual, and cognitive functioning. Compared with individuals in the young-old and old-old groups, individuals in the oldest-old group have the highest rate of health problems and the greatest need for services.

Many researchers (for example, see Hooyman & Kiyak, 2008; Quadagno, 2008) use this three-tier categorization of older adulthood, and we will refer to it throughout this book. Even so, keep in mind that there are individual differences within each category. For example, some people in the oldest-old group are healthier and more active than people in the young-old group.

The three-tier categorization of chronological age is useful for some purposes, but the fact is that chronological age is an **organismic variable**. As Chapter 2 describes further, an organismic variable cannot be manipulated or controlled. We may find that adults who fall into a certain chronological age range tend to behave in particular ways, solve problems using a certain type of strategy, or express certain opinions. Even so, we cannot conclude that chronological age causes them to behave, solve problems, or think as they do. Age is mixed up, or confounded, with other variables, such as educational exposure and life experiences. Either separately or in combination with age, these variables could be the basis for the behavior, problem-solving strategies, or opinions held by individual members of a particular age group.

Terms for the 65+ age group

A number of terms refer to individuals who are age 65 and older. The term *older adults* has already been used in this chapter. *Old* and *elderly* are used more often to refer to individuals in the old-old and oldest-old groups. Although there is no firm rule, *elderly* often refers to older adults who are in frail health or reside

in institutional settings such as nursing homes. The terms *retired* and *retired Americans* are often used but they are not always appropriate because some individuals in the 65+ age group work part- or even full-time. Other terms include *the aged*, *golden-agers*, *older Americans*, *seniors*, and *senior citizens*. Now that the oldest members of the baby boom generation have attained the age of 65, *boomers* is becoming a term that is frequently used. Some gerontology researchers jokingly refer to older adults as *chronologically challenged*, *chronologically gifted*, and *chronologically advantaged*.

Older adults are sensitive to the terms people use to describe their age group. Many of them feel that some terms are less favorable than others. For example, a label such as *the aged* might be considered less favorable than *senior citizens*, which would be regarded as less favorable than *older adults* (Kite and Wagner, 2002). In general, older adults prefer that unfavorable terms be avoided because they fear they will become victims of ageism.

Ageism

Ageism refers to a set of ideas and beliefs that are associated with discriminatory attitudes directed toward older adults (Quadagno, 2008). It implies negative beliefs, or stereotypes, about older adults as a group. Ageism can manifest itself in low expectations about an older adult's cognitive capabilities or in negative beliefs about an older adult's personal or social capabilities. According to Palmore (2001), ageism is the third greatest "ism" in American society, following racism and sexism. Unlike racism and sexism, however, all of us could become targets of ageism if we live long enough.

Although ageism connotes discriminatory attitudes, people's views of older adults are not uniformly negative. Hummert (1990) found that young adult college students hold multiple stereotypes about older adults, some negative (for example, "set in ways" and "old-fashioned") but others positive (for example, "generous" and "loving"). Also, many people recognize the diversity among older adults with regard to personal characteristics (Hummert, Garstka, Shaner, & Strahm, 1994). In some instances, people credit older adults with a higher degree of desirable traits such as being responsible, understanding, and cheerful (Erber & Szuchman, 2002). However, people often stereotype older adults as warm but incompetent, and the view that older people are sweet but feeble has been found not only in the United States, but also in Belgium, Costa Rica, Hong Kong, Japan, Israel, and South Korea (Cuddy, Norton, & Fiske, 2005). Thus, evidence of ageism is not confined to Western countries. Relatedly, a subtle form of ageism is evident in *compassionate stereotypes*, which foster a view of older adults as helpless and in need of advocacy (Revenson, 1989). Quadagno (2008) refers to the *new ageism*, which is an overly solicitous attitude toward older adults, including an assumption that important life-changing decisions that affect their lives should be made without consulting them.

Because of the negative effect it can have, ageism should be carefully monitored. Perhaps ageism will decline as the older population continues to grow in

size. Discussion of topics related to attitudes toward older adults can be found throughout this book (see Chapters 5 to 8 and 10).

Demographic Profile of Older Americans

Demography is the scientific study of populations that focuses on broad groups within a specific population or sometimes across different populations. Demographers study past and present population trends and characteristics, including size, growth, and migration patterns. They also study population characteristics such as age, gender, marital status, living arrangements, health, educational level, economic status, and geographical distribution. Demographic descriptions are usually expressed in terms of statistical measures such as the mean (average), the median (50% of the population is above and the other 50% below the median), or the percentage of a specific group or subgroup in the population that possesses a particular characteristic. These measures provide an overall picture of a population.

Global Considerations and Demographic Transition

At present, there is a larger proportion of older adults (65+) in the more developed regions of the world and a smaller proportion in the less developed regions. Table 1.1 shows the proportion of the older population in Africa, North America, Latin America and the Caribbean, Asia, Europe, and Oceania.

Demographers have described several distinct stages of transition in the aging of populations (Myers, 1990; Myers & Eggers, 1996). Populations in agriculturally based preindustrialized societies are characterized by a high birthrate and a high death rate. The high birthrate is due mainly to low use or availability of birth control methods. The high death rate stems largely from poor sanitary conditions, poor nutrition, and lack of medical technology. Such societies consist of a large proportion of younger members and a small proportion of older ones. As societies become more industrialized and

Table 1.1 *Percentage of population aged 65+ by continent*

Continent	Percentage of population aged 65+
Africa	3
North America	13
Latin America and Caribbean	7
Asia	7
Europe	16
Oceania	11

Source: Population Reference Bureau (2010).

technologically advanced, they enter a second stage of transition in which the death rate declines due to better control of infectious and parasitic diseases, but the birthrate remains high. The size of the population grows but younger members still predominate. For societies in the third stage of demographic transition, the rate of growth is slower because the birthrate declines, which results in an increased proportion of older persons. Societies in the fourth and final stage of transition are characterized by extremely low birthrates and death rates, at least into advanced old age. Population growth is minimal, and the proportion of people in the various age categories is similar. Few babies are born, but those who are will have a good chance of living into old age.

The increase in the older population in developed countries such as the United States has been a major force in the expansion of interest in the study of aging and older adulthood. Demographic information is crucial because it can assist us in recognizing the needs of the older age group. For example, as the age distribution of a population shifts, changes in the types of living environments that are available may be necessary. As described in Chapter 10, there may be an increased need for housing that offers services such as meals on the premises and van transportation. Also, information about demographic characteristics of the older adult population is useful when investigators want to recruit a sample of research participants who are representative of the older adult population. Further discussion of sampling strategies appears in Chapter 2.

Demographic information is essential for understanding past and present population characteristics, but it can also be used to project future trends in the size and growth of a particular segment of the population. The projections that demographers make may not be exact, but they offer guidelines about what the likely size and characteristics of the population will be in the future. The population of primary concern for those who study aging and older adulthood is the group age 65 and over.

Number and Proportion of Older Adults

The high birthrate in the **baby boom years** (1946–1964) and advances in medical care in the United States have long been expected to lead to an increased number of people in the 65+ age category. This projection is fast becoming a reality. The first wave of baby boomers celebrated their 65th birthday in 2011. The baby boom generation will continue to swell the ranks of the 65+ age group through the year 2030. The United States is undergoing a silent revolution: the aging of its population.

Figure 1.1 shows how many older adults aged 65+ lived in the United States at several different points in time. Note that, in 1900, the number was a relatively small 3.1 million. By 2000, the number had increased more than tenfold to 35 million. In 2010, there were 40.2 million, and projected estimates for the future are for 54.8 million older adults (65+) by 2020 and 72.1 million older adults (65+) by 2030 (*A Profile of Older Americans*, 2010).

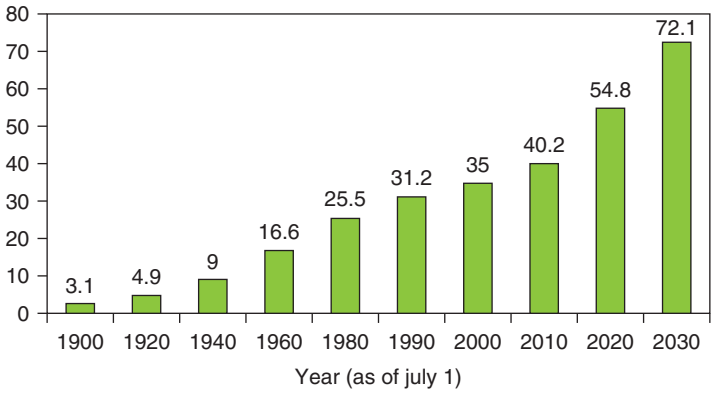

Figure 1.1 *Number of persons aged 65+ in the United States, 1900–2030 (numbers in millions).*
Source: A Profile of Older Americans (2010).

To further illustrate the growth of the older adult population: In 2009, approximately 2.6 million Americans celebrated their 65th birthday; in the same year, approximately 1.8 million persons 65+ died. According to census estimates, there was an annual net increase of 770,699 persons 65+ (*A Profile of Older Americans*, 2010).

Not only is the number of older adults growing, but so is their proportion of the U.S. population. In 1900, older adults (65+) made up 4.1%, but as of 2009 they made up 12.9% of the population (more than one in every eight Americans). By 2030, the proportion of older adults (65+) is expected to surge to 19.3% of the United States population (*A Profile of Older Americans*, 2010).

The projection that older adults will make up approximately 20% of the U.S. population by the year 2030 is based on several trends. First, the entire baby boom generation (born between 1946 and 1964) will have entered older adulthood by 2030 and this will swell the sheer number of people in that age group. Second, with the decline in birthrate after 1964, fewer additions were made to the younger segment of the population. A low birthrate contributes to the general aging of the population because there are fewer babies to offset the large number of people entering the older adult age category. If the birthrate were to increase significantly in the future, the number of older adults in the U.S. population would be more balanced by the youngest members. This would reduce the proportion of the population in the older adult age category.

Population pyramid

A **population pyramid** is a bar graph that illustrates how a population is distributed in terms of both age and gender.

The population pyramids in Figure 1.2 show the proportion, or percentage, of the total U.S. population falling into five-year age categories in 1900, 1970, 1995, and 2030. The youngest age group (<5) is at the base of the pyramid, with increasingly older five-year ages in the segments above. The group at the top of each pyramid includes those in the 85+ age category. Population pyramids represent proportions of a population not only by age but also by gender. The left side of each population pyramid represents the proportion of males in each age cohort, and the right side represents the proportion of females.

The shape of the graph in 1900 suggests why the term *population pyramid* came into use. Note that, in 1900, each five-year category is slightly smaller in proportion

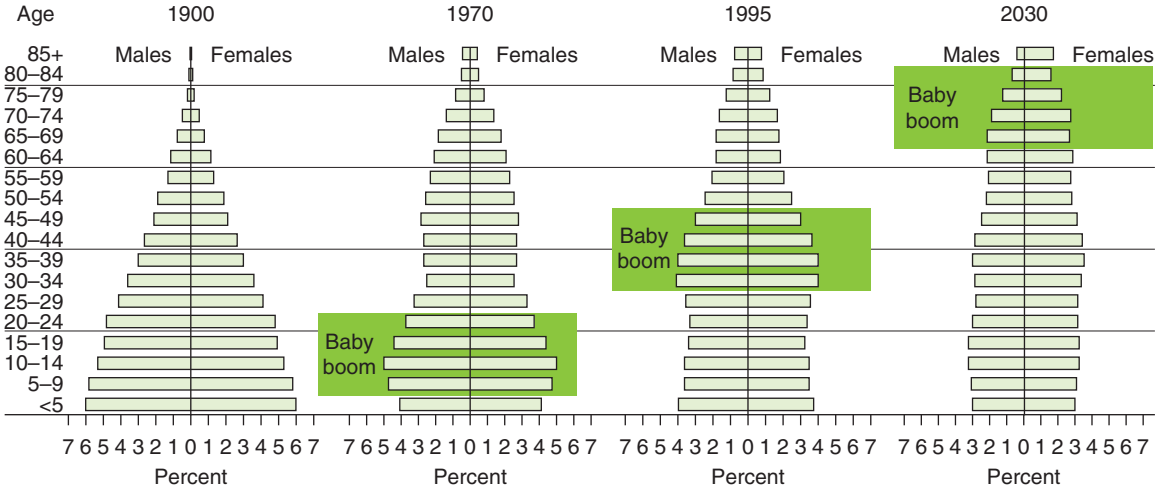

Figure 1.2 *Population pyramids for the United States in 1900, 1970, 1995, and 2030 (projected).*
Source: U.S. Census Bureau (2002).

than the one immediately beneath it, and the proportion of males and females in each age category is almost identical. The resulting shape is a pyramid.

By 1970, the graph bears much less resemblance to a pyramid, but its shape reflects several important features of the U.S. population. First, a smaller base is due to the decline in birthrate. Also, a low birthrate between the years 1925 and 1940 (possibly in response to the social and economic conditions of the Great Depression and the beginning of World War II) gives the graph a constricted middle, indicating that the proportion of the population between the ages of 30 and 45 is relatively small. Third, compared to 1900, a larger proportion of the population now falls into groups aged 65 and over. In 1995, the shape of the graph is even less like a pyramid than it was in 1970. The birthrate remains steady, and the older (65+) age groups are gaining in proportion.

The shape of the population pyramid projected for the year 2030 is based on a number of assumptions, one of which is birthrate. The youngest five-year segments of the graph are all similar in proportion, which indicates a projected age structure with a constant birthrate that is slightly lower than it was in 1995. At the same time, there is a dramatic increase in the population aged 65+ because by 2030 the baby boomers have all entered their older adult years. The most notable increase in proportion is for the oldest-old (85+) age category. Overall, the graph projected for the U.S. population in 2030 resembles a beanpole rather than a pyramid.

The aging of the older adult population

In developed countries, the older population is itself showing signs of aging. In the U.S., a 43% increase is projected for the oldest-old (85+) age group: In the year 2000 there were 4.2 million but by 2010 there were approximately 5.8 million. By 2020, there are expected to be 6.6 million people aged 85 and

older, which represents approximately a 14% increase over a decade. An additional figure of interest is that, in 2009, there were 64,024 persons aged 100 or more (0.20% of the total 65+ population). This represents an approximately 72% increase from the 1990 figure of 37,306 (*A Profile of Older Americans*, 2010).

There is little question that in the United States, and most likely in other developed countries, older adults will be an even more important force than they are today. Now that we have covered present and future trends in the older population, let's take a closer look at some characteristics of this growing segment of the U.S. population.

A Snapshot of the Older Population

Populations can be described in terms of characteristics such as gender, marital status, living arrangements, health, level of education, economic status, and geographical distribution. What can be said about the older adult (65+) population in the United States with regard to these dimensions?

Gender

The population pyramids in Figure 1.2 show the proportion of males in each age group on the left and the proportion of females on the right. The symmetrical shape of the population pyramid in 1900 indicates a balanced proportion of males and females in all age categories. In the pyramid projected for 2030, note that there is a greater proportion of females than males in the groups aged 65 and older.

Photo 1.3 *Men usually marry women younger than themselves. As a result, married men are less likely to lose their spouses than married women are. Photo © Ole Graf/Corbis*

Not surprisingly, the proportion of men and women in the older-adult age group is reflected in their numbers. In the United States in 2009, there were 22.7 million women but only 16.8 million men aged 65 and older, with a ratio of 135 women for every 100 men. This gender gap widens from the young-old to the oldest-old age groups – there were 114 women for every 100 men in the 65–69 group, but 216 women for every 100 men in the 85+ age group (*A Profile of Older Americans*, 2010).

Marital status

In 2009, 72% of older men but only 42% of older women aged 65+ were married (*A Profile of Older Americans*, 2010) (see Figure 1.3). Why are older men more likely than older women to be married?

Men usually marry women younger than themselves. Also, as Chapter 3 describes, women tend to live longer than men. As a result, married women lose their spouses more often than married men do. Another reason more older men are married is that men who lose their spouses are more likely to remarry than are women who lose their spouses. In 2009, 41% of older (65+) women were widows (that is, they had lost their spouses and not remarried), whereas only 13% of older men were widowers. There were more than four times as many older widows (8.9 million) as there were older widowers (2.1 million) (*A Profile of Older Americans*, 2010).

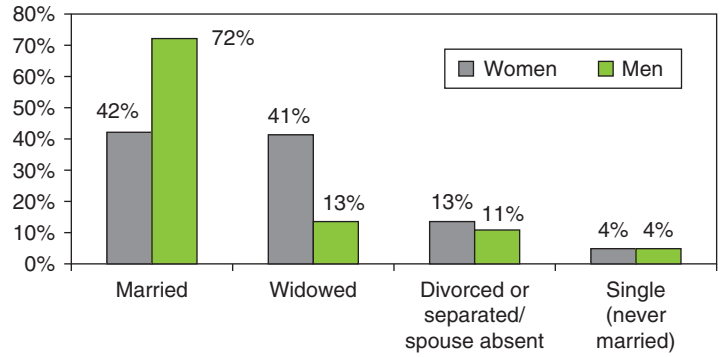

Figure 1.3 *Marital status of older (65+) men and women, 2009. Source: A Profile of Older Americans* (2010).

In 2009, only 4% of older (65+) men and 4% of older (65+) women fell into the never-married category. However, 13% of older (65+) women and 11% of older (65+) men (a combined total of 11.9% of persons 65+) were divorced or separated. This percentage is substantially higher than the 5.3% of the older population that was divorced or separated in 1980 (*A Profile of Older Americans*, 2010).

Living arrangements

The larger proportion of women in the older age group, combined with gender differences in marital status, has implications for living arrangements. In 2009, more than half (54.8%) of older (65+) noninstitutionalized adults were living with a spouse. However, 72% of 65+ men (11.4 million) but only 40.7% of 65+ women (8.7 million) lived with a spouse (*A Profile of Older Americans*, 2010). Note also that 38.8% of older women but only 18.7% of older men were living alone (*A Profile of Older Americans*, 2010).

The proportion of older (65+) adults who reside in nursing homes and other institutional settings at any given point in time has been a relatively stable 4–5% over a number of years. In 1980, approximately 4.8% of older (65+) adults lived in nursing homes, and in 1990 this figure was approximately 5% (*A Profile of Older Americans*, 1996). In 2009, 4.1% of Americans aged 65+ lived in institutional settings, but this figure increases dramatically with age – 0.9% of people aged 65–74, 3.5% of people 75–84, and 14.3% of people aged 85+ live in institutional settings (*A Profile of Older Americans*, 2010). Approximately 35% of nursing home residents are aged 75–84 and another 37% are 85+ (Mitty, 2006). Given the anticipated increase in the number of people living into the old-old (75–84) and especially the oldest-old (85+) age categories, it is not surprising that the nursing home and assisted-living industry has been growing. With regard to gender, approximately 62% of nursing home residents are women and the

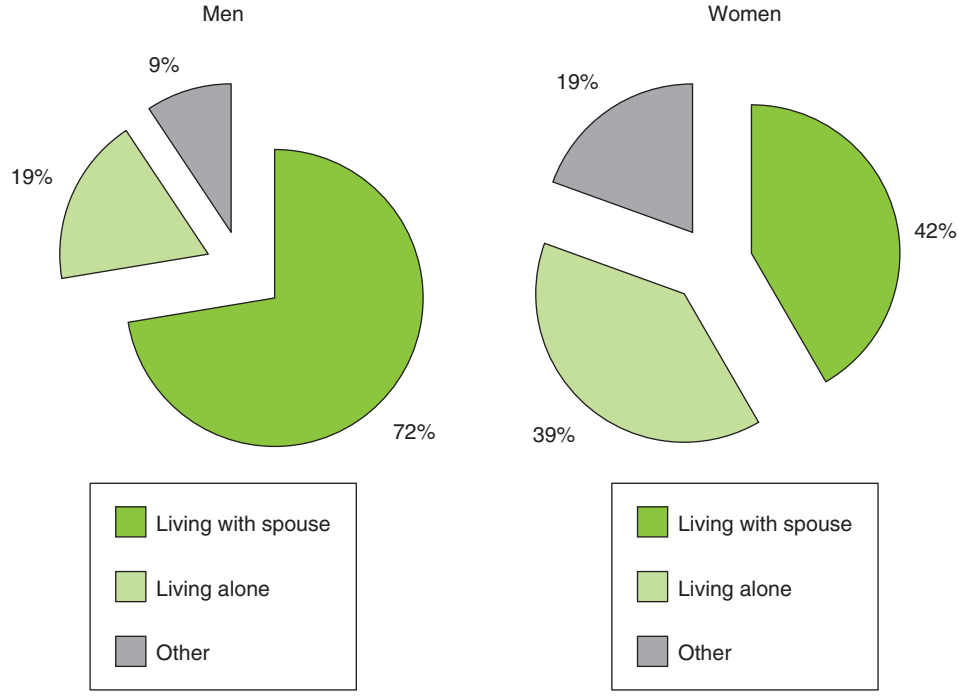

Figure 1.4 *Living arrangements of older (65+) adults, 2009.*
Source: A Profile of Older Americans (2010).

majority (86%) are European American (Mitty, 2006). Nursing homes and assisted-living facilities will play a needed role as more people live into the old-old and oldest-old age categories, especially for older adults who have been living alone in the community. The same is true for senior housing that offers at least some supportive services (for example, one or more meals on the premises) for residents. As of 2009, approximately 2.4% of adults aged 65+ lived in senior housing (*A Profile of Older Americans*, 2010), but there will likely be an increased need for this type of living arrangement.

Racial and ethnic composition

The minority population aged 65+ has increased from 5.7 million in the year 2000 to 8.0 million in 2010, and it is projected to grow to 12.9 million by 2020. In 2009, approximately 20% of persons aged 65+ were members of minority groups as follows: 8.3% African Americans; 7.0% persons of Hispanic origin; 3.4% Asian or Pacific Islanders; less than 1% Native Americans or Native Alaskans; approximately 0.6% of persons 65+ identified themselves as being of two or more races (*A Profile of Older Americans*, 2010).

Health

Many older adults are in good health. In 2009, 41.6% of noninstitutionalized older adults (65+) assessed their health as excellent or very good (compared to 64.5% for people aged 18–64). However, the percentage of older adults

in minority groups who rated themselves as being in excellent or very good health was lower than the percentage of European American older adults who did so (*A Profile of Older Americans*, 2010).

Even so, most older adults have at least one chronic health condition and health becomes a greater concern as people progress from their young-old to old-old to oldest-old years. Limitations on activities because of chronic health conditions increase with age. Figure 1.5 shows the percentage of young-old, old-old, and oldest-old persons with limitations in activities of daily living (ADL) (*A Profile of Older Americans*, 2010). (More detailed discussion of daily functioning and health appears in Chapter 3.)

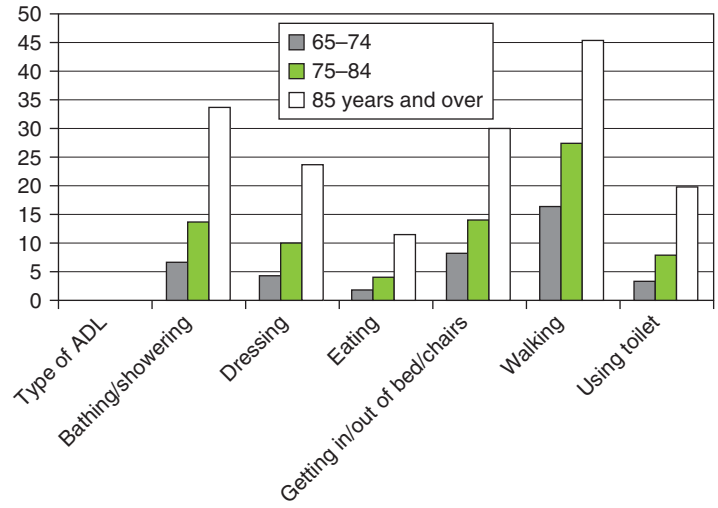

Figure 1.5 *Percent of persons with limitations in activities of daily living (ADL) by age group, 2007.*
Source: A Profile of Older Americans (2010).

As a group, the old-old and oldest-old are more in need of help compared with the young-old. With regard to gender, older men tend to be better off than older women in terms of physical health (Perls, 2004b). While women live longer than men do on average, older women are more frequently afflicted with chronic health problems, such as arthritis and osteoporosis (thinning of the bones), that restrict their mobility. Furthermore, older women are more likely than older men to live alone, so older women are apt to experience greater difficulty if they do suffer from limitations in functioning.

Education

Older adults of today have achieved higher levels of education compared to older adults in the past. Between 1970 and 2009, the proportion of older adults who completed high school increased from 28% to 78.3%. However, the percentage of older adults who completed high school varies by race and ethnic background as follows: European Americans (83.1%); Asian and Pacific Islanders (71.9%); African Americans (63.8%); and Hispanic Americans (45.9%). As of 2009, approximately 21.7% of adults aged 65+ had a bachelor's degree or more (*A Profile of Older Americans*, 2010). In the future, older adults will have even more formal education than they do today.

Economic status

People once assumed that older adults in the United States were poor. In fact, however, the economic status of older adults has improved, in part due to the Social Security system established by the federal government in 1935 that was

designed to provide a base level of economic security for retired older Americans. (Social Security is discussed further in Chapter 10.) The rate of poverty among older adults dropped from 35% in 1959 to 8.9% in 2009 (*A Profile of Older Americans*, 2010), which declined from the 9.7% poverty rate in 2008. The majority of older adults do not live in poverty and some are affluent. However, in 2009, 3.4 million people aged 65+ (8.9%) were below the poverty level (in 2009, guidelines for poverty level were $10,830 for a family of one and $14,570 for a family of two), and an additional 2.1 million older adults (5.4%) were classified as "near-poor" (income between poverty level and 125% of this level). However, there is a gender gap: In 2009, older women had a poverty rate of 10.7%, whereas older men's poverty rate was only 6.6% (*A Profile of Older Americans*, 2010). Certain groups of older adults (widows, minorities, and the very old) remain especially vulnerable to falling below the poverty level (Clark, 2006).

The future economic status of older adults holds much uncertainty. Older adults will be more educated, so depending on the state of the economy, their incomes will be higher during their working years. However, if young and middle-aged adults do not make financial plans for retirement, they may have to work to older ages than today's older adult generation did. As described in Chapter 10, working to older ages is not unreasonable because older people are healthier now than they were in the past and many jobs are less physically demanding today than they were in the past.

Geographical distribution

In 2009, more than half (56.5%) of Americans aged 65+ lived in 11 states (*A Profile of Older Americans*, 2010): California (4.1 million); Florida (3.2 million); New York (2.6 million); Texas (2.5 million); Pennsylvania (1.9 million); Illinois, Ohio, Michigan, North Carolina, New Jersey, and Georgia each had more than 1 million.

Another way to view the geographical distribution of older adults in the United States is to calculate their proportion by dividing the number of older adults (65+) by the total number of people in the state. In 2009 (*A Profile of Older Americans*, 2010), the population of 13 states consisted of 14% or more older adults: Florida (17.2%); West Virginia (15.8%); Maine (15.6%); Pennsylvania (15.4%); Iowa (14.8%); North Dakota (14.7%); Montana (14.6%); Hawaii (14.5%); South Dakota (14.5%); Vermont (14.5%); Arkansas (14.3%); Delaware (14.3%); Rhode Island (14.3%).

Relocation

There is a popular belief that once they retire, older adults pack up and move to warmer climates. In general, however, older adults are less likely than other age groups to change residences. From 2008 to 2009, only 3.4% of older adults moved compared to 13.8% of the population under the age of 65. Most older movers (62.7%) stayed in the same county and 83.7% remained in the same state. Only 16.3% of older movers relocated out of state (*A Profile of Older Americans*, 2010). Many older out-of-state movers migrate to locales with warmer climates such as Arizona, Florida, and North Carolina, but some

movement is related to a desire for less congestion and more attractive physical environments (Longino, 2003). Retired older adults who relocate are generally "sixty-something," enjoy relatively good health and are able, both physically and financially, to enjoy the recreational and social amenities in their new communities. As described more fully in Chapter 10, however, some of these retirees return to their states of origin when they enter the old-old category (75–84) and begin to experience economic and physical dependency. At that point, they want to be closer to the family members they left behind when they moved to distant retirement communities in their young-old years.

In sum, the older population in the United States is growing, and this growth is most concentrated in the oldest-old (85+) age group. Older adults are healthier, more educated, and economically better off now than in the past, but those in the oldest-old (85+) age group will probably need some extra services. Many older adults continue to live in the same location even after they retire, but a minority relocate, often to warmer climates. However, some return to their home states when they become widowed or need help from family members. As the characteristics of the older population change, demographers will undoubtedly need to reevaluate the description of this age group.

Developmental Influences and Issues

Many factors influence us over our lifetimes, and developmental investigators have divided these into three categories: **normative age-graded influences**, **normative history-graded influences**, and **nonnormative life events**. Also, two issues have been prominent in the study of development. One is the relative influence of nature versus nurture, and the other is the question of whether developmental change is quantitative or qualitative.

Influences on Development

As we develop, all of us are influenced by events that happen to almost all people at a certain age or stage of life. We are also influenced by events or the environmental climate that surrounds us. Finally, our development may be influenced by events that are unexpected and do not happen to everyone.

Normative age-graded influences

Normative age-graded influences are biological or environmental events and occurrences that are associated with chronological age. Examples of normative age-graded influences that are closely related to biology are puberty and menopause in women. Under the usual circumstances, puberty and menopause occur within certain age ranges during the course of development.

Normative age-graded influences can also be specific to the society in which people live. Many such influences have to do with socialization practices within a particular culture. Examples are the ages when most people go to school, marry, and retire from their jobs. In American society, schooling is normative for people between the ages of 5 and 18 and is becoming normative for people aged 18–22 (college) and even older. First-time marriage is normative in the 20s or 30s, and retirement is normative in the 60s.

Social age, described earlier in this chapter, is tied to the expectations a society has for its members, as is the idea of being "on time" in development. In contemporary American culture, there is greater flexibility in the age at which certain events are expected to occur. Schooling from ages 5 to 18 remains a normative age-graded influence, but it is becoming more common for adults of all ages to seek opportunities for higher education. Thus, the chronological age of college students is broader than it was in previous decades. Also, while it may still be normative for people to marry in their 20s or early 30s, more people are postponing marriage as well as childbearing to their later 30s and 40s. Retirement in the 60s (especially at the age of 65) has been a normative age-graded event, but in the future, more people may be retiring at older ages.

Normative history-graded influences

Normative history-graded influences also play a role in development. These influences can result from an event, or they can represent a more gradual evolution of societal structure. Examples of normative history-graded influences include epidemics, wars, and the state of the economy such as depression, recession, or prosperity.

Also included in the normative history-graded category are sociocultural influences such as child-rearing philosophy and practices, educational philosophy and practices, gender-role expectations, and attitudes toward sexuality and sexual behavior. Changes in these influences can be triggered by historical events such as war, disease, or the introduction of new technology. In the1940s when men were fighting in World War II, it became more acceptable for women to join the paid labor force. In the mid to late 1980s, the AIDS epidemic led to increased conservatism in attitudes toward sexual behavior. In the 1990s, computers began to revolutionize the way people communicate and obtain information. Nowadays, instead of visiting the local library or shopping mall, people simply log onto a personal computer or laptop. Cell phones have made it possible to be mobile but remain in touch, and now smartphones can be used for multiple purposes, including taking and receiving photos, getting driving and walking directions, downloading apps, and searching for almost any kind of information imaginable.

A history-graded influence of great importance for older adults is the increased availability of health care, which is largely attributable to the federal health insurance program for older adults (Medicare) initiated by the U.S. government in 1965 (see Chapter 3). In 2005, the introduction of Medicare Part D offered new insurance benefits for prescription medication (see http://www.medicare.gov).

Nonnormative life events

Development can also be influenced by nonnormative life events, which do not affect all or even most members of society. The influence of nonnormative life events is not necessarily associated with chronological age or with historical time, but nonetheless such events can play an important role in the development of an individual (Baltes & Smith, 1995). Examples of nonnormative life events include being diagnosed with a rare illness, being involved in an accident, winning the lottery, becoming divorced from one's spouse, and being either downsized or promoted at work.

Normative age-graded influences, normative history-graded influences, and nonnormative life events have been described separately but they do not exist in a vacuum. In reality, they can affect one another. Thus, history-graded influences may interact with a person's age and stage of development. For example, the history-graded influence of the Vietnam War had quite a different effect on young Americans of draftable age than it did on middle-aged and older Americans who were not sent off to fight. Those fighting the Wars in Iraq and Afghanistan are more directly affected than are those who are not in the military. The normative history-graded influence of the stock market crash of 1929 and the economic depression that followed had a direct impact on those responsible for supporting their families. It had a lasting effect on many young adolescents who were forced to drop out of school and get jobs to help support their families. For many, future work careers were shaped by this historical economic event. The computer revolution and resulting dependence of our present-day society on computer use has impacted people of various ages differently. Computers are an integral part of our modern educational system, so children and young adults of today are highly computer-literate and at ease with using computers to obtain information. Many of the jobs that will be available to young adults when they are ready to join the labor force will require them to have computer skills. In contrast, today's older adults did not use computers in school and many did not use computers at their jobs. The majority of today's older adults kept their financial records in a notebook. They were accustomed to receiving passbooks for savings accounts at their banks, they consulted a card catalogue to find books at the library, and they made purchases in small neighborhood stores that offered personal service. As described in Chapter 10, older adults can adapt to computers and are actually doing so, but unlike younger adults, they remember a time when everything was done without them.

Nonnormative life events are not, by definition, associated with age. Even so, their influence on development may depend upon the age when they occur. Winning the lottery at age 20 could have quite a different influence on development compared with winning the lottery at age 60. Divorce, which would probably be considered a nonnormative life event despite its increasing occurrence, is likely to have a very different effect if it occurs at age 25 than if it occurs at age 45 or at age 65.

Even though American society is more flexible today than it was in the past, it is still probable that an event considered a normative age-graded influence at

one stage of life would be considered nonnormative if it occurred at a time of life when it is unexpected or uncommon. Thus, retirement from the paid labor force is a normative age-graded influence at age 65 but a nonnormative life event if it occurs at age 35. Becoming a first-time father is a normative age-graded influence at age 30, but it might be considered a nonnormative life event if it occurs at age 70.

In sum, all three types of influence play a role in development both separately and together. Because of their complexity, a complete understanding of how they affect us would actually require the cooperative efforts of psychologists, sociologists, biologists, and social historians (Baltes & Smith, 1995).

Issues in the Study of Aging

Two issues have been important themes in developmental psychology and each holds special meaning for the study of aging and older adulthood. One is the relative influence of **nature and nurture** in the aging process. Another is whether any differences that exist between people of various ages can be characterized as **quantitative or qualitative differences**.

Nature and nurture

In the study of development, there is often concern with the relative influence of nature (that is, hereditary, genetic, and biological factors) and nurture (that is, environmental factors and life experience). Early controversies revolved around the question of whether human development is attributable to nature or to nurture. Most contemporary views emphasize the interaction between nature and nurture and the difficulty inherent in attributing a developmental outcome to either one or the other. In the case of older adults, nature and nurture have interacted over an extended period of time, which makes it especially difficult to disentangle the relative importance of these two sources of influence on development. The topics of longevity, biological aging, and health (covered in Chapter 3) are closely linked with the issue of nature and nurture.

As mentioned earlier, a principle that applies to almost every aspect of aging is the extensive individual variability. Why do some people remain healthy, active, and cognitively intact well into their later years, while others succumb to physical disabilities or psychological impairment relatively early in the aging process? To what extent do physical and mental disabilities have a genetic basis (nature), and to what extent are they shaped by environmental influences, lifestyle, and life experiences (nurture)?

The science of behavioral genetics is "the study of genetic and environmental factors that create behavioral differences among individuals" (Bergeman & Ong, 2007, p. 149). Developmental behavioral geneticists often compare genetically related individuals such as twins or siblings at various times to determine which aspects of their development are similar and which are different. Are there similarities between identical twins or even siblings,

especially those who have spent a large part of their lives in different environments, with regard to cognitive behavior, personality, incidence of psychopathology, physical health, and longevity? To what extent is behavior in older adulthood based solely on individual differences in biological constitution regardless of environment or lifestyle habits? These fascinating questions have no easy answers.

Quantitative and qualitative indexes

When evaluating how people in two or more age groups perform or behave, or how the same people perform or behave if they are followed over time, researchers may use measures that are either quantitative or qualitative. For example, to compare how young and older adults go about solving a problem, one researcher might use a quantitative index such as the amount of time it takes each age group to solve the problem. In contrast, another researcher might use a qualitative index, such as noting the strategy young and older adults use to solve the problem. Sometimes there is a relationship between quantitative and qualitative indexes. For example, one strategy for solving a problem might take more time than another. However, researchers who focus on quantitative measures may not include qualitative measures; similarly, researchers with a qualitative focus may not use quantitative measures.

In sum, the role of both biological and environmental influences on development, and particularly the interaction between the two, continues to be of concern to developmental investigators. Also, whether performance or behavior at various stages of development differs in quantity or in quality is of great interest to investigators of aging and older adulthood. The question of quantitative versus qualitative indexes has been a particularly prominent theme in the study of intelligence and problem solving (see Chapters 6 and 7).

Understanding Aging Box 1.1

A New Outlook on Old Age

Consider three general perspectives on the aging process. The earliest is that of *normative aging*, which focuses on behavioral functioning that would be considered normal, or average, as individuals approach or reach older adulthood. Then the idea of *successful aging* (Rowe & Kahn, 1998) was introduced, which emphasizes that, as individuals grow older, a distinction can be made between an average outcome and an ideal outcome. Thus, aging can be differentiated into what is "usual" and what is "possible" (Baltes & Baltes, 1990; Schulz & Heckhausen, 1996). According to the newest perspective, *positive aging*, derived in part from the positive psychology movement (Seligman & Csikszentmihalyi, 2000), a person can experience happiness and well-being even in the face of objective adversity. Robert Hill (2005) proposes that a positive state of mind affords people strength and resources that buffer them from the physical and psychological challenges they encounter as they grow older. He contends that the idea of positive aging is more comprehensive and potentially more inclusive than that of successful aging because it allows for the possibility a person can find meaning and experience quality of life even when there are physical and psychological limitations.

Theoretical Models

Theoretical models are valuable for organizing data on aging and older adulthood. They allow us to make sense of what might otherwise be an overwhelming mass of information. Theoretical models also guide the further study of aging and older adulthood by giving us a platform for framing questions that are important to investigate.

Two theoretical models will be revisited throughout this book: the **Selective Optimization with Compensation (SOC) Model of Aging** and the **Ecological Model of Aging**. Each model offers a framework for understanding what we know about aging and older adulthood, and each can help us identify things we still need to learn. The SOC Model focuses on the strategies aging individuals can use, whereas the Ecological Model places more emphasis on the characteristics of the environment. However, these two models complement one another in conceptualizing aging as a process of adaptation. The SOC and Ecological Models both encompass optimistic views of the aging process, although they differ in the details of how to achieve successful/positive aging.

The Selective Optimization with Compensation Model of Aging

The Selective Optimization with Compensation (SOC) Model (Baltes & Baltes, 1990) is founded on the basic assumption that individuals engage in adaptation throughout their lives (see Figure 1.6). They are capable of learning and changing and calling upon extra (reserve) capacity that they might not need to use under ordinary circumstances.

Another assumption of the SOC Model is that throughout development, individuals experience both gains and losses. However, as older adulthood is approached, the losses may outnumber the gains. In addition, with increasing age there may be a reduction in both general reserve capacity and in reserve capacity in specific domains of functioning. When losses predominate in a particular domain, it may become increasingly difficult to function at a high level.

Despite the greater proportion of losses and a reduction in reserve capacity with increasing age, all is not lost. According to the SOC Model, certain strategies can

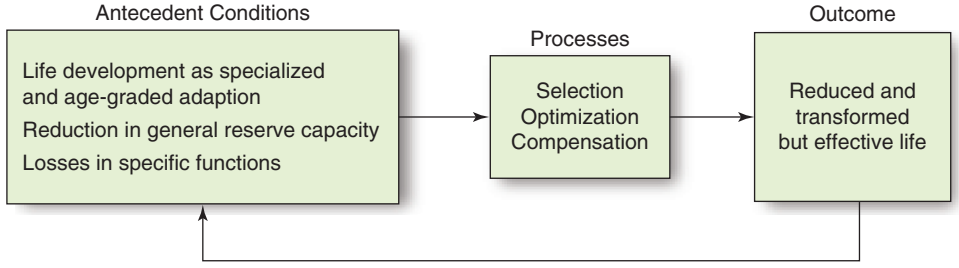

Figure 1.6 *The Ongoing Dynamics of Selective Optimization with Compensation.*
Source: Baltes & Baltes (1990).

be called into play to maximize the chances for successful aging. One strategy for adapting to loss is to concentrate efforts on domains in which a high level of functioning can be maintained. These domains can vary depending on the individual.

Selection is a strategy of concentrating efforts on domains in which effective functioning is most likely to remain high. However, it might also be necessary to revise one's expectations of functioning in some domains. Optimization is a strategy of focusing on behaviors that maximize not only the quantity but also the quality of life. Compensation refers to substituting new strategies when losses occur. For example, if memory falters, a person might compensate by keeping a list of things to remember. If visual or hearing is less sharp, a person might compensate by using glasses or a hearing aid.

The SOC Model stems from the life-span developmental perspective that Chapter 2 describes in greater detail, and it is well suited for conceptualizing how people deal with age-related changes in the sensory, perceptual, cognitive, personal, and social domains. If individuals are able to select, optimize, and compensate as they experience age-related losses in any of these domains, they have a good chance of achieving both successful and positive aging (see Baltes, 2005).

The Ecological Model of Aging

The Ecological Model (Lawton & Nahemow, 1973) is based on the premise that the interaction between a person and his or her environment results in some level of adaptation, which is measured in terms of a person's emotional (affective) well-being and behavior.

As Figure 1.7 shows, a person can be characterized in terms of competence, which can be measured by that person's physical, sensory, cognitive, and social capabilities. An environment can be defined in terms of challenge, or press, which can be measured in terms of its physical demands, as well as the level of sensory, intellectual, or social stimulation that is available. To enjoy a positive outcome (adaptation), a person's level of competence must be appropriately matched with the press of the environment in which he or she must function.

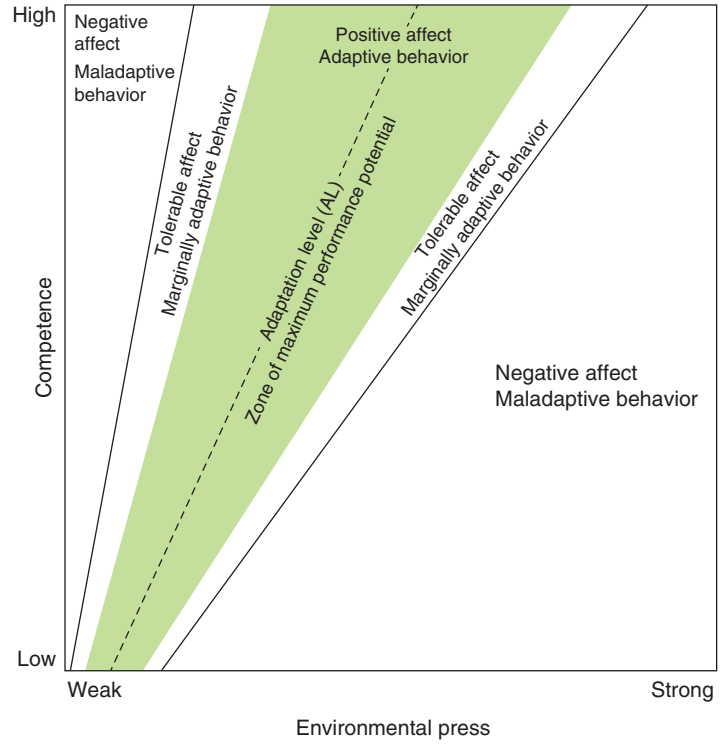

Figure 1.7 *The Ecological Model.*
Source: Lawton & Nahemow (1973).

In Figure 1.7, the dotted line bisecting the green adaptation zone represents the ideal level of adaptation, while the green areas on either side of the dotted line represent an acceptable range of positive adaptation. White areas directly to the left and right of the green zone represent zones of marginally acceptable adaptation. However, the white areas to the far left and far right represent negative affect or maladaptive behavior, which can result when environmental press is either too low or excessive.

Note that the green zone of positive adaptation is a function of both the person's level of competence and the degree of press in the environment. A person who is low in competence will adapt well in a narrow band of environments that are low in press, but many environments would be too challenging. At the same time, a small band of extremely low press environments would not offer sufficient stimulation even for the individual who is low in competence.

As a person's level of competence increases, a higher level of environmental press is needed for positive adaptation. Also, the green area broadens as a person's competence increases, illustrating that someone high in competence will adapt positively to a wider range of environmental press compared to someone low in competence. At the same time, the person high in competence would adapt poorly in a broad range of environments that offer too little press.

In the original Ecological Model (Lawton & Nahemow, 1973), the older adult was viewed as a recipient of the press exerted by the environment. Later, Lawton (1989, 1999) emphasized the transactional nature of the person–environment interaction. Thus, rather than considering the older adult as a passive responder to the environment, the older adult is viewed as capable of initiating interactions with the environment. An individual who is high in competence will be able to identify and shape resources that are potentially available in the environment. Furthermore, an individual who is low in physical competence may have sufficient cognitive and/or social competence to take advantage of environmental resources compared to the individual who is not competent cognitively or socially.

As with the SOC Model, the Ecological Model is a framework for considering successful/positive aging in many domains – physical, sensory, perceptual, cognitive, personal, and social. At the end of each chapter, we will return to the SOC and Ecological Models for a brief discussion of how they relate to the content covered.

? Questions to Consider

1. When do you think a person enters the older adult age group?
2. Describe an older adult whom you would consider to be socially young. How would this individual differ from one whose social age and chronological age are similar?
3. The SOC Model can apply to people at all ages and stages of life. Can you think of a situation in which you selected some domain of functioning and used it to compensate for another?

4. Describe an environment that you think would have the ideal amount of press for a young adult. Then describe one that would have an ideal amount of press for an older adult.

Key Points

- People have always been interested in how to slow down the aging process and extend life, but the scientific study of aging and older adulthood is more recent.
- Today there are more older adults and greater recognition that development occurs throughout the adult life span into the older adult years.
- Geriatrics is the branch of medicine specializing in the medical care and treatment of the diseases and health problems of older adults. Gerontology is the study of the biological, behavioral, and social aspects of aging from maturity to old age.
- Age can be defined chronologically (number of time units since birth), but it can also be defined biologically, functionally, psychologically, and socially.
- As adults get older, the gap between their chronological age and their subjective feelings about age widens. Middle-aged and older adults, especially women, often say they feel younger than their chronological age.
- In the United States, 65 is a common chronological marker of entry into older adulthood, but in the future this number may rise.
- Older adulthood is often segmented into three categories based on chronological age: young-old (ages 65–74), old-old (ages 75–84), and oldest-old (ages 85+). In the United States, the fastest-growing group is the oldest-old (85+) age category.
- Ageism refers to discriminatory attitudes directed toward older adults. Further investigation is needed to determine when and how ageism affects this age group.
- In the United States, baby boomers are beginning to swell the ranks of the 65+ age group and this will continue through the year 2030. At present, the largest proportion of the 65+ group is European American and there are more women than men. Older adults are healthier, more educated, and economically better off today than they were in the past.
- In the United States, the majority of older adults remain in the same geographic location even after they retire, but a small percentage relocate. Some return to their home states later if they experience loss of a spouse or health difficulties.
- Over the life span, development is affected by normative age-graded influences, normative history-graded influences, and nonnormative life events.

- Two prominent themes in the study of development are the relative influence of nature and nurture, and the question of whether developmental change is quantitative or qualitative.
- The Selective Optimization with Compensation (SOC) and Ecological Models are theoretical frameworks that will be used in this book to view what is known about aging and older adulthood. Both suggest how people can adapt to the aging process to achieve an older adulthood that is successful and positive.

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