LEARNING OBJECTIVES

At the end of this chapter, the reader will be able to:

- Identify the major theories of aging.
- Compare the similarities and differences between biological and psychosocial theories.
- Describe the process of aging using a biological and a psychosocial perspective.
- Analyze the rationale for using multiple theories of aging to describe the complex phenomenon of aging.
- Describe a general theoretical framework, taken from all of the aging theories, that will assist nurses in making clinical decisions in gerontology.

KEY TERMS

Apoptosis
Free radicals
Immunomodulation
Lipofuscin
Melatonin
Mitochondria
Nonstochastic theories of aging
Reactive oxygen species (ROS)
Senescence
Stochastic theories of aging
Telomerase
Telomere

Chapter 3

(Competency 19)

Theories of Aging

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From the beginning of time, the elusive phenomenon of preserving youth has been a topic of discussion in science, health care, technology, and everyday life. Is there anyone who would not be interested in knowing how the human organism ages? Doesn't everyone want to live a long and healthy life? There are few who would not want to see what the future holds for our bodies and minds; even more curiosity surrounds what advances have been made or will possibly be made to alter and slow the aging process. Understanding what knowledge theories of aging have generated and reviewing the validity of these findings and how they impact evolution and scientific advances is a first step toward understanding the mystery of aging. Troen (2003) suggested, "The beneficial paradox may be that the maximum lifespan potential of humans may have been achieved, in part, due to our ability to grow old" (p. 5).

Complex physiological, social, economic, and psychological challenges present themselves as we age. Older adults may face declines in health and physical functioning that may necessitate moving to supportive care environments that drain financial resources. The death of friends or loved ones, grappling with questions about the meaning of life, maintaining a satisfactory quality of life in the face of increasing disability, adapting to retirement, and contemplating death are just a few of the psychological challenges that aging adults may face. Theories that can effectively guide nursing practice with older adults must be comprehensive yet consider individual differences. Cultural, spiritual, regional, socioeconomic, educational, and environmental factors as well as health status impact older adults' perceptions and choices about their healthcare needs. According to Haight and colleagues, "a good gerontological theory integrates knowledge, tells how and why phenomena are related, leads to prediction, and provides process and understanding. In addition, a good theory must be holistic and take into account all that impacts on a person throughout a lifetime of aging" (Haight, Barba, Tesh, & Courts, 2002, p. 14).

Since the early 1950s, sociologists, psychologists, and biologists have proposed varied theories about the aging process. Although there is increased emphasis in the nursing literature on issues regarding the growing elderly population, limited work has been done to develop nursing-specific aging theories. Increasingly, there is recognition that aging is a distinct discipline that requires aging theories having an interdisciplinary perspective. A model by Alkema and Alley (2006) attempts to address this need. The purpose of this chapter is to review the chronological development of biopsychosocial aging theories, the evidence supporting or refuting these theories, and their application to nursing practice. CINAHL, the National Library of Medicine, the Web of Science, PsycINFO, and Sociological Abstracts databases were reviewed to assess support for and clinical application of the theories of aging.

TABLE 3-1 Psychosocial Theories of Aging

Theory	Description
Sociological Theories	Changing roles, relationships, status, and generational cohort impact the older adult's ability to adapt.
Activity	Remaining occupied and involved is necessary to a satisfying late life.
Disengagement	Gradual withdrawal from society and relationships serves to maintain social equilibrium and promote internal reflection.
Subculture	The elderly prefer to segregate from society in an aging subculture sharing loss of status and societal negativity regarding the aged. Health and mobility are key determinants of social status.
Continuity	Personality influences roles and life satisfaction and remains consistent throughout life. Past coping patterns recur as older adults adjust to physical, financial, and social decline and contemplate death. Identifying with one's age group, finding a residence compatible with one's limitations, and learning new roles postretirement are major tasks.
Age stratification	Society is stratified by age groups that are the basis for acquiring resources, roles, status, and deference from others. Age cohorts are influenced by their historical context and share similar experiences, beliefs, attitudes, and expectations of life course transitions.
Person-Environment-Fit	Function is affected by ego strength, mobility, health, cognition, sensory perception, and the environment. Competency changes one's ability to adapt to environmental demands.
Gerotranscendence	The elderly transform from a materialistic/rational perspective toward oneness with the universe. Successful transformation includes an outward focus, accepting impending death, substantive relationships, intergenerational connectedness, and unity with the universe.

Psychosocial Theories of Aging

The earliest theories on aging came from the psychosocial disciplines (see **Table 3-1**). Psychosocial theories attempt to explain aging in terms of behavior, personality, and attitude change. Development is viewed as a lifelong process characterized by transitions. Psychological theories are concerned with personality or ego development and the accompanying challenges associated with various life stages. How mental processes, emotions, attitudes, motivation, and personality influence adaptation to physical and social demands are central issues.

Sociological theorists consider how changing roles, relationships, and status within a culture or society impact the older adult's ability to adapt. Societal norms can affect how individuals envision their role and function within that society, and

Theory	Description
Psychological Theories	Explain aging in terms of mental processes, emotions, attitudes, motivation, and personality development that is characterized by life stage transitions.
Human needs	Five basic needs motivate human behavior in a lifelong process toward need fulfillment.
Individualism	Personality consists of an ego and personal and collective unconsciousness that views life from a personal or external perspective. Older adults search for life meaning and adapt to functional and social losses.
Stages of personality	Personality develops in eight sequential stages with corresponding life development tasks. The eighth phase, integrity versus despair, is characterized by evaluating life accomplishments; struggles include letting go, accepting care, detachment, and physical and mental decline.
Life-course/life span	Life stages are predictable and structured by roles, relationships, values, development and goals. Persons adapt to changing roles and relationships. Age-group norms and characteristics are an important part of the life course.
Selective optimization	Individuals cope with aging losses through activity/role selection, optimization, and compensation. Critical life points are morbidity, mortality, and quality of life. Selective optimization with compensation facilitates successful aging.

Notable Quotes

Grow old along with me! The best is yet to be.

—Robert Browning

thus impact role choices as well as how roles are enacted. The role of women in the United States has been redefined greatly since the 1960s. Such cohort or generational variables are a key component of sociological theories of aging.

Sociological Theories of Aging

Activity Theory

Sociological theorists have attempted to explain older adult behavior in relationship to society with such concepts as disengagement, activity, and continuity. One of the earliest theories addressing the aging process was begun by Havighurst and Albrecht in 1953 when they discussed the concept of activity engagement and positive adaptation to aging. From studying a sample of adults, they concluded that society expects retired older adults to remain active contributors. Activity theory was conceived as an actual theory in 1963 and purports that remaining occupied and involved is a necessary ingredient to a satisfying late-life (Havighurst, Neugarten, & Tobin, 1963) (see **Figure 3-1**). The authors do not qualify the activity characteristics that are most directly linked to life satisfaction. Havighurst and Albrecht associate activity with psychosocial health and suggest activity as a means to prolong middle age and delay the negative effects of old age. An assumption of this theory is that inactivity negatively impacts one's self-concept and perceived quality of life and hastens aging.

Figure 3-1 Activity theory suggests that remaining involved and engaged is a needed ingredient to a satisfying late life.

Arguments against this point of view are that it fails to consider that activity choices are often constrained by physical, economic, and social resources. Furthermore, roles assumed by older adults are highly influenced by societal expectations (Birren & Schroots, 2001). Maddox (1963) suggested, however, that leisure time presents new opportunities for activities and roles, such as community service, that may be more consistent with these limitations. A second criticism of activity theory is the unproven assertion that continued activity delays onset of the negative effects of aging.

Despite these criticisms, the central theme of activity theory—that remaining active in old age is desirable—is supported by most research. Lemon and colleagues found a direct relationship between role and activity engagement and life satisfaction among older adults (Lemon, Bengston, & Peterson, 1972). The authors also observed that the quality of activities, as perceived by older adults, is more important than the quantity. Other investigators added that informal activities such as meeting friends for lunch or pursuing hobbies through group activities are more likely to improve life satisfaction than formal or solitary activities (Longino & Kart, 1982). In a study of older Americans, participation in shared tasks was an important predictor of life satisfaction, particularly among retirees (Harlow & Cantor, 1996). According to Schroots (1996), successful aging means being capable of doing activities that are

important to the older adult despite limitations. One study, however, found that in a convenience sample of 386 older women, engaging in the social activity of shopping was not predictive of life satisfaction (Hyun-Mee & Miller, 2007). This suggests that the type of activity may be an important consideration rather than merely the frequency of engagement.

Disengagement Theory

In stark contrast to activity theorists, sociologists Cumming and Henry (1961) assert that aging is characterized by gradual disengagement from society and relationships. The authors contend that this separation is desired by society and older adults, and that it serves to maintain social equilibrium. Persons are freed from social responsibilities and gain time for internal reflection, while the transition of responsibility from old to young promotes societal functioning without interruption from lost members. Diminishing social contacts leads to further disengagement in a cyclical process that is systematic and inevitable. The outcome of disengagement, authors propose, is a new equilibrium that is ideally satisfying to both the individual and society. In support of this theory, an instrument measuring change in activity among older adults supports a tendency for less social contact among those over age 75 (Adams, 2004). The author reports, "In almost all instances, the group 75 years old and older reported a higher proportion of disengaged responses; they were particularly less invested than their younger counterparts in keeping up with hobbies, making plans for the future, making and creating things, and taking care of others" (p. 102).

The emphasis this theory places on social withdrawal has been challenged by other theorists who argue that a key element of life satisfaction among older adults appears to be engagement in meaningful relationships and activities (Baltes, 1987; Lemon et al., 1972; Neumann, 2000; Schroots, 1996). Others contend that the decision to withdraw varies across individuals and that disengagement theory fails to account for differences in sociocultural settings and environmental opportunities (Achenbaum & Bengtson, 1994; Marshall, 1996). Rapkin and Fischer (1992) found that demographic disadvantages and age-related transitions were related to a greater desire for disengagement, support, and stability. Elders who were married and healthy were more likely to report a desire for an energetic lifestyle. Cumming and Henry's notion of a necessary fit between society's needs and older adult activity is supported, however (Back, 1980; Birren & Schroots, 2001; Riley, Johnson, & Foner, 1972). Until recently, Social Security laws placed economic barriers against retirement before the mid-60s, but as years of healthy life expectancy increase, society is reframing its notions about the capability of older adults to make valuable contributions (Uhlenberg, 1992). Many adults are working past retirement age or begin part-time work in a new field. Others are actively engaged in a variety of volunteer projects that may substantially benefit their communities. The many examples of what is now termed "successful aging" are challenging the common association of aging with disease.

Subculture Theory

Unlike activity theorists, Rose (1965) viewed older adults as a unique subculture within society formed as a defensive response to society's negative attitudes and the loss of status that accompanies aging. As in disengagement theory, Rose proposed that although this subculture segregates the elderly from the rest of society, older adults prefer to interact among themselves. Rose contended that in the United States, one's degree of health and mobility is more critical in defining social status than occupation, education, or income. Older adults have a social disadvantage regarding status and associated respect because of the functional decline that accompanies aging.

Rose's theory argues for social reform. Growing numbers of older adults make it necessary to pay more attention to the needs of this age group and are challenging the prevailing view of aging as negative, undesirable, burdensome, and lacking status. Questions are beginning to be asked about whether society should be more supportive of older adults in terms of their environment, health care, work opportunities, and social resources. The emphasis on whether societal or older adults' needs take precedence is beginning to shift in favor of older adults. McMullin (2000) argued that sociological theories need to more clearly address the diversity among older adults as well as the disparity from other age groups. Research that supports or refutes Rose's theory is needed.

Continuity Theory

In the late 1960s, Havighurst and colleagues recognized that neither activity nor disengagement theories fully explain successful aging from a sociological point of view (Havighurst, Neugarten, & Tobin, 1968). Borrowing from psychology, they hypothesized that personality influences the roles one assumes, how roles are enacted, and one's satisfaction with living. They explained their new perspective in the continuity theory, also known as development theory. Continuity theory suggests that personality is well developed by the time one reaches old age and tends to remain consistent across the life span. Coping and personality patterns provide clues as to how an aging individual will adjust to changes in health, environment, or socioeconomic conditions, and what activities he or she will choose to engage in; thus, continuity theory acknowledges that individual differences produce varied responses to aging.

Havighurst and associates (1963) identified four personality types from their observations of older adults: integrated, armored-defended, passive-dependent, and unintegrated. Integrated personality types have adjusted well to aging, as evidenced by activity engagement that may be broad (reorganizers), more selective (focused), or disengaged. Armored-defended individuals tend to continue the activities and roles held during middle age, whereas passive-dependent persons are either highly dependent or exhibit disinterest in the external world. Least well-adjusted are unintegrated personality types who fail to cope with aging successfully. Havighurst (1972)

later defined adjusting to physical, financial, and social decline; contemplating death; and developing a personal and meaningful perspective on the end of life as the tasks of older adulthood (**Box 3-1**). Successful accomplishment of these tasks is evidenced by identifying with one's age group, finding a living environment that is compatible with physical functioning, and learning new societal roles postretirement.

Research suggests that self-perception of personality remains stable over time, and attitude and degree of adaptation to old age are related to life satisfaction. When older adults were asked how they thought they had changed over the years, almost all respondents thought they were still essentially the same person. Degree of continuity was related to a more positive affect in these subjects (Troll & Skaff, 1997). In another study, Efklides and colleagues investigated effects of demographics, health status, attitude, and adaptation to old age on quality of life perceptions among older adults. The authors reported that positive attitude and adaptation to old age were associated with better perceptions about quality of life in this Greek sample (Efklides, Kalaitzidou, & Chankin, 2003). Agahi, Ahacic, and Parker (2006)

BOX 3-1 Research Highlight

Aim: This study investigated the relationship between social support and psychological distress in older adults over an 8-year period.

Methods: Canadian National Population Health Survey telephone survey data from 1998 and 2007 regarding residents' health, sociodemographic status, health services utilization, predictors of health, chronic conditions, and activity restrictions were analyzed. Respondants included 2,564 adults aged 55 to 89 years (mean age 64 yeras). Bivariate autoregressive cross-lagged models were used to analyze the data. Four dimensions of social support (emotional/informational support, tangible support, positive social interactions, and affectionate support) were examined in relationship to psychological distress, defined as a nonspecific negative psychological state that includes feelings of depression and anxiety. Structural equation modeling was used to analyze relationships among the variables.

Findings: Emotional/informational support, positive social interactions, and affectionate support were directly related to psychological distress. Higher psychological distress was related to subsequently higher levels of positive social interaction and emotional/informational support. Prior affectionate support predicted later support, and prior psychological distress predicted later levels of distress.

Application to practice: Psychological distress among older adults may predict subsequent levels of social support. Implications for these findings include the need for a greater awareness of the bidirectional nature of the relationship between social support and psychological distress among those who develop programs targeting older adults.

Source: Robitaille, A., Orpana, H., & McIntosh, C. N. (2012). Reciprocal relationship between social support and psychological distress among a national sample of older adults: An autoregressive cross-lagged model. *Canadian Journal on Aging—La Revue Canadienne Du Vieillissement, 31*(1), 13.

used continuity theory to examine patterns of change in older adults' participation in leisure activities over time. Consistent with continuity as well as activity and disengagement theories, the authors found that active participation tends to decline over time, and lifelong participation patterns predict involvement later in life. Critics of continuity theory, however, caution that the social context within which one ages may be more important than personality in determining what and how roles are played (Birren & Schroots, 2001).

Age Stratification Theory

In the 1970s, sociologists began to examine the interdependence between older adults and society, recognizing that aging and society are interrelated and cause reciprocal changes to individuals, age group cohorts, and society (Riley et al., 1972). Riley and colleagues observed that society is stratified into different age categories that are the basis for acquiring resources, roles, status, and deference from others in society. In addition, age cohorts are influenced by the historical context in which they live; thus, age cohorts and corresponding roles vary across generations. People born in the same cohort have similar experiences with shared meanings, ideologies, orientations, attitudes, and values as well as expectations regarding the timing of life course transitions. Individuals in different generations have different experiences that may cause them to age in different ways (Riley, 1994).

Age stratification transitioned aging theory from a focus on the individual to a broader context that alerted gerontologists to the influence of cohort groups and the socioeconomic and political impact on how individuals age (Marshall, 1996). Uhlenburg (1996) borrowed from age stratification theory in developing a framework for understanding what social changes are needed to reduce the burden that aging cohorts place on society in terms of their care needs at different stages of later life.

Newsom and Schulz (1996) demonstrated that physical impairment is associated with fewer social contacts, less social support, depression, and lower life satisfaction. This finding suggests that social networks are an important element in how individuals age. Yin and Lai (1983) used age stratification theory to explain the changing status of older adults due to differences among cohort groups. Investigators studying age segregation versus integration in residential settings learned that outcomes were less favorable among settings with single cohort groups (Hagestad & Dannefer, 2002; Uhlenberg, 2000).

Person-Environment-Fit Theory

In addition to the broadened view of aging that emerged in the 1970s, another shift in aging theory in the early 1980s blended existing theories from different disciplines. Lawton's (1982) person-environment-fit theory introduced functional competence in relationship to the environment as a central theme. Functional competence is affected by multiple intrapersonal conditions such as ego strength,

motor skills, biologic health, cognitive capacity, and sensori-perceptual capacity, as well as external conditions posed by the environment. The degree of competency may change as one ages, affecting functional ability in relationship to environmental demands. A person's ability to meet these demands is affected by his or her level of functioning and influences the ability to adapt to the environment. Those functioning at lower levels can tolerate fewer environmental demands.

Lawton's (1982) theory is useful for exploring optimal environments for older adults with functional limitations and identifying needed modifications in older adult residential settings. Building on Lawton's work, Wahl (2001) developed six models to explain relationships between aging and the environment, home, institution, and relocation decision making. O'Connor and Vallerand (1994) used Lawton's theory to examine the relationship between long-term care residents' adjustment and their motivational style and environment. Older adults with self-determined motivational styles were better adjusted when they lived in homes that provided opportunities for freedom and choice, whereas residents with less self-determined motivational styles were better adjusted when they lived in high-constraint environments. The authors concluded that their findings supported the person-environment-fit theory of adjustment in old age.

In a more recent study, Iwarsson's (2005) findings partially supported a relationship between environmental fit and functioning. Dependence with activities of daily living (ADLs) was significantly related to activities of daily living among only the frailest older adults in his longitudinal study.

Gerotranscendence Theory

One of the newest aging theories is Tornstam's (1994) theory of gerotranscendence. This theory proposes that aging individuals undergo a cognitive transformation from a materialistic, rational perspective toward oneness with the universe. Characteristics of successful transformation include a more outward or external focus, accepting impending death without fear, an emphasis on substantive relationships, a sense of connectedness with preceding and future generations, and spiritual unity with the universe. Gerotranscendence borrows from disengagement theory but does not accept the idea that social disengagement is a necessary and natural development. Tornstam asserted that activity and participation must be the result of one's own choices, which differ from one person to another. Control over one's life in all situations is essential for the person's adaptation to aging as a whole.

Gerotranscendence has been tested in several studies. In an ongoing longitudinal study based on the principles of gerodynamics, Schroots (2003) is investigating how people manage their lives, cope with transformations, and react to affective-positive and negative life events. In nursing, Wadensten (2002) used the theory of gerotranscendence to develop guidelines for care of older adults in a nursing home. The results indicate that these guidelines may be useful for facilitating the process of gerotranscendence in nursing home residents.

Psychological Theories of Aging

Human Needs Theory

At the same time that activity theory was being developed, Maslow (1954), a psychologist, published the human needs theory. In this theory, Maslow surmised that a hierarchy of five needs motivates human behavior: physiologic, safety and security, love and belonging, self-esteem, and self-actualization. These needs are prioritized such that more basic needs like physiological functioning or safety take precedence over personal growth needs (love and belonging, self-esteem, and self-actualization). Movement is multidirectional and dynamic in a lifelong process toward need fulfillment. Self-actualization requires the freedom to express and pursue personal goals and be creative in an environment that is stimulating and challenging.

Although Maslow does not specifically address old age, it is clear that physical, economic, social, and environmental constraints can impede need fulfillment of older adults. Maslow asserted that failure to grow leads to feelings of failure, depression, and the perception that life is meaningless. Since inception, Maslow's theory has been applied to varied age groups in many disciplines. Ebersole, Hess, and Luggen (2004) linked the tasks of aging described by several theorists (Butler & Lewis, 1982; Havighurst, 1972; Peck, 1968) to the basic needs in Maslow's model. Jones and Miesen (1992) used Maslow's hierarchy to present a nursing care model for working with aged persons with specific needs in an attempt to relate all patient needs to universal, rather than exceptional, needs. The model is designed to be used by caregivers in residential settings.

Theory of Individualism

Like Maslow's theory, Jung's theory of individualism is not specific to aging. Jung (1960) proposed a lifespan view of personality development rather than attainment of basic needs. Jung defined personality as being composed of an ego or self-identity with a personal and collective unconsciousness. Personal unconsciousness is the private feelings and perceptions surrounding significant persons or life events. The collective unconscious is shared by all persons and contains latent memories of human origin. The collective unconscious is the foundation of personality on which the personal unconsciousness and ego are built. Individual personalities tend to view life primarily either through the self or through others; thus, extroverts are more concerned with the world around them, whereas introverts interpret experiences from the personal perspective. As individuals age, Jung proposed that elders engage in an "inner search" to critique their beliefs and accomplishments. According to Jung, successful aging means acceptance of the past and an ability to cope with functional decline and loss of significant others. Neugarten (1968) supported Jung's association of aging and introspection and asserts that "interiority" promotes positive inner growth. Subsequent theorists also describe introspection as a part of healthy aging (Erikson, 1963; Havighurst et al., 1968).

Stages of Personality Development Theory

Similar to other psychologists' theories at the time, Erikson's theory focuses on individual development. According to Erikson (1963), personality develops in eight sequential stages that have a corresponding life task that one may succeed at or fail to accomplish. Progression to a subsequent life stage requires that tasks at prior stages be completed successfully. Older adults experience the developmental stage known as "ego integrity versus despair." Erikson proposed that this final phase of development is characterized by evaluating one's life and accomplishments for meaning. In later years, Erikson and colleagues expanded upon his original description of integrity versus despair, noting that older adults struggle with letting go, accepting the care of others, detaching from life, and physical and mental decline (Erikson, Erikson, & Kivnick, 1986).

Several authors have expanded upon Erikson's work. Peck (1968) refined the task within Erikson's stage of ego integrity versus despair into three challenges: ego differentiation versus work role reoccupation, body transcendence versus body preoccupation, and ego transcendence versus ego preoccupation. Major issues such as meaningful life after retirement, the empty nest syndrome, dealing with the functional decline of aging, and contemplating one's mortality are consistent with Peck's conceptualization. Butler and Lewis (1982) later defined the challenges of late life as adjusting to infirmity, developing satisfaction with one's lived life, and preparing for death, mirroring those tasks described earlier by Peck.

Erikson's theory is widely employed in the behavioral sciences. In nursing, Erikson's model is often used as a framework for examining the challenges faced by different age groups. In a study of frail elderly men and women, Neumann (2000) used Erikson's theoretical framework when asking participants to discuss their perceptions about the meaning of their lives. She found that older adults who expressed higher levels of meaning and energy described a sense of connectedness, self-worth, love, and respect that was absent among participants who felt unfulfilled. This finding is consistent with the potential for positive or negative outcomes described by Erikson and colleagues (1986) in his stage of "integrity versus despair." In a qualitative study with six participants, five of whom were women, Holm and colleagues examined the value of storytelling among dementia patients. The investigators told stories linked to Erikson's developmental stages to stimulate sharing among the participants. The authors report that these stages were clearly evident among the experiences related by the participants (Holm, Lepp, & Ringsberg, 2005).

Life-Course (Life Span Development) Paradigm

In the late 1970s, the predominant theme of behavioral psychology moved toward the concept of "life course," in which life, although unique to each individual, is divided into stages with predictable patterns (Back, 1980). The significance of this shift was the inclusion of late as well as early life. Most theorists up to this point had focused primarily on childhood in their research. The substance of the life-course

paradigm drew from the work of a European psychologist in the 1930s (Bühler, 1933). This new emphasis on adulthood occurred because of a demographic shift toward increasing numbers of older adults, the emergence of gerontology as a specialty, and the availability of subjects from longitudinal studies of childhood begun during the 1920s and 1930s (Baltes, 1987).

The central concepts of the life-course perspective blend key elements in psychological theories such as life stages, tasks, and personality development with sociological concepts such as role behavior and the interrelationship between individuals and society. The central tenet of life-course is that life occurs in stages that are structured according to one's roles, relationships, internal values, and goals. Individuals may choose their goals but are limited by external constraints. Goal achievement is associated with life satisfaction (Bühler, 1933). Individuals must adapt to changed roles and relationships that occur throughout life, such as getting married, finishing school, completing military service, getting a job, and retiring (Cunningham & Brookbank, 1988). Successful adaptation to life change may necessitate revising beliefs in order to be consistent with societal expectations. The life-course paradigm is concerned with understanding age group norms and their characteristics. Since the 1970s, the work of many behavioral psychologists such as Elder, Hareven, and Jackson has emerged from the life-course perspective, which remains a dominant theme in the psychology literature today. Selective optimization with compensation, discussed in the following section, is one example of a theory that emerged from the life-course perspective.

Selective Optimization with Compensation Theory

Baltes's (1987) theory of successful aging emerged from his study of psychological processes across the lifespan and, like earlier theories, focuses on the individual. He asserts that individuals learn to cope with the functional losses of aging through processes of selection, optimization, and compensation. Aging individuals become more selective in activities and roles as limitations present themselves; at the same time, they choose those activities and roles that are most satisfying (optimization). Finally, individuals adapt by seeking alternatives when functional limits prohibit sustaining former roles or activities. As people age, they pass through critical life points related to morbidity, mortality, and quality of life. The outcome of these critical junctures may result in lower- or higher-order functioning that is associated with higher or lower risk, respectively, for mortality. Selective optimization with compensation is a positive coping process that facilitates successful aging (Baltes & Baltes, 1990).

Much of the research testing psychosocial theories centers on life-course concepts (Baltes, 1987; Caspi, 1987; Caspi & Elder, 1986; Quick & Moen, 1998; Schroots, 2003). In an ongoing longitudinal study called "Life-Course Dynamics," Shroots examines the self-organization of behavior over the course of life. He has found that life structure tends to be consistent over time and is influenced by life events and experiences. The relationship of life events to structure does change, however, as we age. In an effort to outline the temporal and situational parameters of social life,

Caspi (1987) developed a model for personality analysis using life-course concepts such as interactions among personality, age-based roles, and social transitions in a historical context. Life-course principles have also been used to examine gender differences in retirement satisfaction. Quick and Moen (1988) report that retirement quality for women is associated with good health, a continuous career, earlier retirement, and a good postretirement income.

For men, good health, an enjoyable career, low work-role prominence, preretirement planning, and retiring voluntarily impacted satisfaction. The authors concluded that a gender-sensitive life-course approach to life transitions is essential.

Caspi and Elder (1986) criticized the life-course perspective of aging because it assumes that adaptation is governed by factors beyond the immediate situation. In a small sample of women, the authors examined how social and psychological factors experienced by women in the 1930s relate to life satisfaction in their older age. They reported relationships among intellect, social activity, and life satisfaction in older, working-class women, but emotional health was a better predictor of life satisfaction among older women from higher class origins. Differences in how the Depression impacted adaptation to old age among women from distinct social classes were described. The authors concluded that the influence of social change on life course is intertwined with individual factors.

Biological Theories of Aging

The biological theories explain the physiologic processes that change with aging. In other words, how is aging manifested on the molecular level in the cells, tissues, and body systems; how does the body–mind interaction affect aging; what biochemical processes impact aging; and how do one's chromosomes impact the overall aging process? Does each system age at the same rate? Does each cell in a system age at the same rate? How does chronological age influence an individual who is experiencing a pathophysiological disease process—how does the actual disease, as well as the treatment, which might include drugs, ***immunomodulation***, surgery, or radiation, influence the organism? Several theories purport to explain aging at the molecular, cellular, organ, and system levels; however, no one predominant theory has evolved. Both genetics and environment influence the multifaceted phenomenon of aging.

Some aging theorists divide the biological theories into two categories:

1. A stochastic or statistical perspective, which identifies episodic events that happen throughout one's life that cause random cell damage and accumulate over time, thus causing aging.
2. The nonstochastic theories, which view aging as a series of predetermined events happening to all organisms in a timed framework.

Others believe aging is more likely the result of both programmed and stochastic concepts as well as allostasis, which is the process of achieving homeostasis via both

behavioral and physiological change (Carlson & Chamberlain, 2005; Miquel, 1998). For example, there are specific programmed events in the life of a cell, but cells also accumulate genetic damage to the ***mitochondria*** due to free radicals and the loss of self-replication as they age. The following discussion presents descriptions of the different theories in the stochastic and nonstochastic theory categories, and also provides studies that support the various theoretical explanations.

Stochastic Theories

Studies of animals reflect that the effects of aging are primarily due to genetic defects, development, environment, and the inborn aging process (Harman, 2006; Goldsmith, 2011). There is no set of statistics to validate that these same findings are true with human organisms. The following ***stochastic theories of aging*** are discussed in this section: free radical theory, Orgel/error theory, wear and tear theory, and connective tissue theory.

Free Radical Theory

Oxidative free radical theory postulates that aging is due to oxidative metabolism and the effects of ***free radicals***, which are the end products of oxidative metabolism. Free radicals are produced when the body uses oxygen, such as with exercise. This theory emphasizes the significance of how cells use oxygen (Hayflick, 1985). Also known as superoxides, free radicals are thought to react with proteins, lipids, deoxyribonucleic acid (DNA), and ribonucleic acid (RNA), causing cellular damage. This damage accumulates over time and is thought to accelerate aging.

Free radicals are chemical species that arise from atoms as single, unpaired electrons. Because a free radical molecule is unpaired, it is able to enter reactions with other molecules, especially along membranes and with nucleic acids. Free radicals cause:

- Extensive cellular damage to DNA, which can cause malignancy and accelerated aging due to oxidative modification of proteins that impact cell metabolism
- Lipid oxidation that damages phospholipids in cell membranes, thus affecting membrane permeability
- DNA strand breaks and base modifications that cause gene modulation

This cellular membrane damage causes other chemicals to be blocked from their regularly friendly receptor sites, thus mitigating other processes that may be crucial to cell metabolism. Mitochondrial deterioration due to oxidants causes a significant loss of cell energy and greatly decreases metabolism. Ames (2004) and Harman (1994) suggested some strategies to assist in delaying the mitochondrial decay, such as:

- Decrease calories in order to lower weight.
- Maintain a diet high in nutrients, including antioxidants.

- Avoid inflammation.
- Minimize accumulation of metals in the body that can trigger free radical reactions.

Additionally, studies are in process that demonstrate that mitochondrially targeted antioxidant treatments may decrease the adverse effects of Alzheimer's disease (Reddy, 2006).

Dufour and Larsson (2004) cite evidence of mitochondrial DNA damage accumulation and the aging process in mice. With the destruction of membrane integrity comes fluid and electrolyte loss or excess, depending on how the membrane was affected. Little by little there is more tissue deterioration. The older adult is more vulnerable to free radical damage because free radicals are attracted to cells that have transient or interrupted perfusion. Many older adults have decreased circulation because they have peripheral vascular, as well as coronary artery, disease. These diseases tend to cause heart failure that can be potentially worsened with fluid overload and electrolyte imbalance.

The majority of the evidence to support this theory is correlative in that oxidative damage increases with age. It is thought that people who limit calories, fat, and specific proteins in their diet may decrease the formation of free radicals. Roles of ***reactive oxygen species (ROS)*** are being researched in a variety of diseases such as atherosclerosis, vasospasms, cancers, trauma, stroke, asthma, arthritis, heart attack, dermatitis, retinal damage, hepatitis, and periodontitis (Lakatta, 2000; Gans, Putney, Bengtson, & Silverstein, 2009). Lee, Koo, and Min (2004) reported that antioxidant nutraceuticals are assisting in managing and, in some cases, delaying some of the manifestations of these diseases. Poon and colleagues described how two antioxidant systems (glutathione and heat shock proteins) are decreased in age-related degenerative neurological disorders (Poon, Calabrese, Scapagnini, & Butterfield, 2004). They also cited that free radical-mediated lipid peroxidation and protein oxidation affect central nervous system function. And now, for the first time, there is the possibility of investigating genetically altered animals to determine the impact of oxidative damage in aging (Bokov, Chaudhuri, & Richardson, 2004).

Examples of some sources of free radicals are listed in **Box 3-2**. In some instances, free radicals reacting with other molecules can form more free radicals, mutations, and malignancies. The free radical theory supports that as one lives, an accumulation of damage has been done to cells and, therefore, the organism ages. Grune and Davies (2001) go so far as to describe the free radical theory of aging as "the only aging theory to have stood the test of time" (p. 41). They further described how free radicals can generate cellular debris rich in lipids and proteins called lipofuscin, which older adults have more of when compared to younger adults. It is thought that ***lipofuscin***, or age pigment, is a nondegradable material that decreases lysosomal function, which in turn impacts already disabled mitochondria (Brunk & Terman, 2002). Additionally, lipofuscin is considered a threat to multiple cellular systems including the ubiquitin/proteasome pathway, which leads to cellular death (Gray & Woulfe, 2005).

BOX 3-2 Exogenous Sources of Free Radicals

Tobacco smoke	Organic solvents	Ozone
Pesticides	Radiation	Selected medications

Orgel/Error Theory

This theory suggests that, over time, cells accumulate errors in their DNA and RNA protein synthesis that cause the cells to die (Orgel, 1970). Environmental agents and randomly induced events can cause error, with ultimate cellular changes. It is well known that large amounts of X-ray radiation cause chromosomal abnormalities. Thus, this theory proposes that aging would not occur if destructive factors such as radiation did not exist and cause "errors" such as mutations and regulatory disorders.

Hayflick (1996) did not support this theory, and explained that all aged cells do not have errant proteins, nor are all cells found with errant proteins old.

Wear and Tear Theory

Over time, cumulative changes occurring in cells age and damage cellular metabolism. An example is the cell's inability to repair damaged DNA, as in the aging cell. It is known that cells in heart muscle, neurons, striated muscle, and the brain cannot replace themselves after they are destroyed by wear and tear. Researchers cite gender-specific effects of aging on adrenocorticotropic activity that are consistent with the wear and tear hypothesis of the ramifications of lifelong exposure to stress (Van Cauter, Leproult, & Kupfer, 1996). There is some speculation that excessive wear and tear caused by exercising may accelerate aging by increasing free radical production, which supports the idea that no one theory of aging incorporates all the causes of aging, but rather that a combination of factors is responsible.

Studies of people with osteoarthritis suggest that cartilage cells age over time, and this degeneration is not due solely to strenuous exercise but also to general wear and tear. The studies point out that aged cells have lost the ability to counteract mechanical, inflammatory, and other injuries due to their ***senescence*** (Aigner, Rose, Martin, & Buckwalter, 2004).

Connective Tissue Theory

This theory is also referred to as cross-link theory, and it proposes that, over time, biochemical processes create connections between structures not normally connected. Several cross-linkages occur rapidly between 30 and 50 years of age. However, no research has identified anything that could stop these cross-links from occurring. Elastin dries up and cracks with age; hence, skin with less elastin (as with the older adult) tends to be drier and wrinkled. Over time, because of decreased extracellular fluid, numerous deposits of sodium, chloride, and calcium build up

in the cardiovascular system. No clinical application studies were found to support this theory.

Nonstochastic Theories

The ***nonstochastic theories of aging*** are founded on a programmed perspective that is related to genetics or one's biological clock. Goldsmith (2004) suggests that aging is more likely to be an evolved beneficial characteristic and results from a complex structured process and not a series of random events. The following nonstochastic theories are discussed in this section: programmed theory, gene/biological clock theory, neuroendocrine theory, and immunologic/autoimmune theory.

Programmed Theory

As people age, more of their cells start to decide to commit suicide or stop dividing. The Hayflick phenomenon, or human fibroblast replicative senescence model, suggests that cells divide until they can no longer divide, whereupon the cell's infrastructure recognizes this inability to further divide and triggers the ***apoptosis*** sequence or death of the cell (Gonidakis & Longo, 2009; Sozou & Kirkwood, 2001). Therefore, it is thought that cells have a finite doubling potential and become unable to replicate after they have done so a number of times. Human cells age each time they replicate because of the shortening of the telomere. ***Telomeres*** are the most distal appendages of the chromosome arms. This theory of programmed cell death is often alluded to when the aging process is discussed. The enzyme ***telomerase***, also called a "cellular fountain of youth," allows human cells grown in the laboratory to continue to replicate long past the time they normally stop dividing. Normal human cells do not have telomerase.

It is hypothesized that some cancer, reproductive, and virus cells are not restricted, having a seemingly infinite doubling potential, and are thus immortal cell lines. This is because they have telomerase, which adds back DNA to the ends of the chromosomes. One reason for the Hayflick phenomenon may be that chromosome telomeres become reduced in length with every cell division and eventually become too short to allow further division. When telomeres are too short, the gene notes this and causes the cell to die or apoptosize. Shay and Wright (2001) suggest that telomerase-induced manipulations of telomere length are important to study to define the underlying genetic diseases and those genetic pathways that lead to cancer.

Although it is unknown what initial event triggers apoptosis, it is generally acknowledged that apoptosis is the mechanism of cell death (Thompson, 1995). Henderson (2006) reviewed how fibroblast senescence is connected to wound healing and discussed the implications of this theory for chronic wound healing. Increased cell apoptosis rates do cause organ dysfunction, and this is hypothesized to be the underlying basis of the pathophysiology of multiple organ dysfunction syndrome (MODS) (Papathanassoglou, Moynihan, & Ackerman, 2000).

Gene/Biological Clock Theory

This theory explains that each cell, or perhaps the entire organism, has a genetically programmed aging code that is stored in the organism's DNA. Slagboom and associates describe this theory as comprising genetic influences that predict physical condition, occurrence of disease, cause and age of death, and other factors that contribute to longevity (Slagboom, Bastian, Beekman, Wendendorf, & Meulenbelt, 2000).

A significant amount of research has been done on circadian rhythms and their influence on sleep, melatonin, and aging (Ahrendt, 2000; Moore, 1997; Richardson & Tate, 2000). These rhythms are defined as patterns of wakefulness and sleep that are integrated into the 24-hour solar day (Porth, 2009). The everyday rhythm of this cycle of sleep–wake intervals is part of a time-keeping framework created by an internal clock. Research has demonstrated that people who do not have exposure to time cues such as sunlight and clocks will automatically have sleep and wake cycles that include approximately 23.5 to 26.5 hours (Moore, Czeisler, & Richardson, 1983). This clock seems to be controlled by an area in the hypothalamus called the suprachiasmatic nucleus (SCN), which is located near the third ventricle and the optic chiasm. The SCN, given its anatomic location, does receive light and dark input from the retina, and demonstrates high neuronal firing during the day and low firing at night. The SCN is connected to the pituitary gland, explaining the diurnal regulation of growth hormone and cortisol. Also because of the linkage with the hypothalamus, autonomic nervous system, and brain stem reticular formation, diurnal changes in metabolism, body temperature, and heart rate and blood pressure are explained (Porth, 2009). It is thought that biological rhythms lose some rhythmicity with aging.

Melatonin is secreted by the pineal gland and is considered to be the hormone linked to sleep and wake cycles because there are large numbers of melatonin receptors in the SCN. Researchers have studied the administration of melatonin to humans and found a shift in humans' circadian rhythm similar to that caused by light (Ahrendt, 2000). The sleep–wake cycle changes with aging, producing more fragmented sleep, which is thought to be due to decreased levels of melatonin.

This theory indicates that there may be genes that trigger youth and general well-being as well as other genes that accelerate cell deterioration. Why do some people have gray hair in their late 20s and others live to be 60 or beyond before graying occurs? It is known that melanin is damaged with ultraviolet light and is the ingredient that keeps human skin resilient and unwrinkled. People who have extensive sun exposure have wrinkles earlier in life due to damage to collagen and elastin. But why, if we know that people have a programmed gene or genes that trigger aging, wouldn't we prevent the gene(s) from causing the problems they are intending to promote?

For example, hypertension, arthritis, hearing loss, and heart disease are among the most common chronic illnesses in older adults (Cobbs, Duthie, & Murphy, 1999).

Each of these diseases has a genetic component to it. So if the healthcare profession can screen people when they are younger before they develop symptoms of target organ disease due to hypertension, loss of cartilage and hearing, and aspects of systolic and diastolic dysfunction, it is possible for people to live longer without experiencing the problems connected to these chronic illnesses.

The knowledge being acquired from the genome theory is greatly impacting the possibility of being able to ward off aging and disease. Studies of tumor suppressor gene replacement, prevention of angiogenesis with tumor growth, and regulation of programmed cell death are in process (Daniel & Smythe, 2003). Parr (1997) and Haq (2003) cited that caloric restriction extends mammalian life. By restricting calories there is a decreased need for insulin exposure, which consequently decreases growth factor exposure. Both insulin and growth factor are related to mammals' genetically determined clock, controlling their life span, so there is more evidence supportive of aging being influenced by key pathways such as the insulin-like growth factor path (Haq, 2003). More and more genetic findings are being related to aging and disease, such as the significance of the apolipoprotein E gene and correlations of more or less inflammation and DNA repair to aging (Stessman et al., 2005; Christenson, Johnson, & Vaupel, 2006).

Neuroendocrine Theory

This theory describes a change in hormone secretion, such as with the releasing hormones of the hypothalamus and the stimulating hormones of the pituitary gland, which manage the thyroid, parathyroid, and adrenal glands, and how it influences the aging process. The following major hormones are involved with aging:

- Estrogen decreases the thinning of bones, and when women age, less estrogen is produced by the ovaries. As women grow older and experience menopause, adipose tissue becomes the major source of estrogen.
- Growth hormone is part of the process that increases bone and muscle strength. Growth hormone stimulates the release of insulin-like growth factor produced by the liver.
- Melatonin is produced by the pineal gland and is thought to be responsible for coordinating seasonal adaptations in the body.

There is a higher chance of excess or loss of glucocorticoids, aldosterone, androgens, triiodothyronine, thyroxine, and parathyroid hormone when the hypothalamus-pituitary-endocrine gland feedback system is altered. When the stimulating and releasing hormones of the pituitary and the hypothalamus are out of synch with the endocrine glands, an increase in disease is expected in multiple organs and systems. Of significance are the findings of Rodenbeck and Hajak (2001), who cited that, with physiological aging and also with certain psychiatric disorders, there is increased activation of the hypothalamus-pituitary-adrenal axis, which causes increased plasma cortisol levels. The increased cortisol levels can be linked with several diseases.

Holzenberger, Kappeler, and De Magalhaes Filho (2004) stated that by inactivating insulin receptors in the adipose tissue of mice, the life span of the mice increases because less insulin exposure occurs. This further supports the idea that the neuroendocrine system is connected to life span regulation. Thyagarajan and Felten (2002) suggest that as one ages, there is a loss of neuroendocrine transmitter function that is related to the cessation of reproductive cycles as well as the development of mammary and pituitary tumors.

Immunologic/Autoimmune Theory

This theory was proposed 40 years ago and describes the normal aging process of humans and animals as being related to faulty immunological function (Effros, 2004). There is a decreased immune function in the elderly. The thymus gland shrinks in size and ability to function; thymus hormone levels are decreased at the age of 30 and are undetectable by the age of 60 (Williams, 1995). Involution of the thymus gland generally occurs at about 50 years. The elderly are more susceptible to infections as well as cancers. There is a loss of T-cell differentiation, so the body incorrectly perceives old, irregular cells as foreign bodies and attacks them.

There is also an increase in certain autoantibodies such as rheumatoid factor and a loss of interleukins. Some think that this change increases the chance of the older adult developing an autoimmune disease such as rheumatoid arthritis. Concurrently, resistance to tumor cells declines as one ages (Williams, 1995). Older adults are more prone to infection such as wound and respiratory infections, as well as to nosocomial infections if they are hospitalized.

Venjatraman and Fernandes (1997) cite that active and healthy older adults who participated in endurance exercises had a significantly increased natural killer cell function that, in turn, caused increased cytokine production and enhanced T-cell function, which improves general well-being. In contrast, those not exercising see a loss of immunological function as they age. The idea that increased exercise causes new growth of muscle fibers is not new, but that it also causes an increased immunological function, sense of well-being, and level of general health is significant. It is supportive of the fact that there is a combination of factors that influence the prevention or, in some cases, the promotion of aging. Also important to note is that there should be a balance of exercising and resting because overdoing exercise can lead to injuries, and this would support the wear and tear theory of aging.

Table 3-2 summarizes the major theories of aging originating from a biological perspective. It seems that no one theory fully describes the etiology of aging. Kirkwood (2000) cited the impact that single gene mutations and various environmental interventions such as diet and stress have on aging. Of all the theories discussed in this section, it appears that the gene theory and free radical theory seem to have the most support.

TABLE 3-2 Biological Theories of Aging

Theory	Description
Stochastic Theories	Based on random events that cause cellular damage that accumulates as the organism ages.
Free radical theory	Membranes, nucleic acids, and proteins are damaged by free radicals, which causes cellular injury and aging.
Orgel/error theory	Errors in DNA and RNA synthesis occur with aging.
Wear and tear theory	Cells wear out and cannot function with aging.
Connective tissue/ cross-link theory	With aging, proteins impede metabolic processes and cause trouble with getting nutrients to cells and removing cellular waste products.
Nonstochastic Theories	Based on genetically programmed events that cause cellular damage that accelerates aging of the organism.
Programmed theory	Cells divide until they are no longer able to, and this triggers apoptosis or cell death.
Gene/biological clock theory	Cells have a genetically programmed aging code.
Neuroendocrine theory	Problems with the hypothalamus-pituitary-endocrine gland feedback system cause disease; increased insulin growth factor accelerates aging.
Immunological theory	Aging is due to faulty immunological function, which is linked to general well-being.

Implications for Nursing

For many years, nursing has incorporated psychosocial theories such as Erikson's personality development theory into its practice (Erikson, 1963). Psychological theories enlighten us about the developmental tasks and challenges faced by older adults and the importance of finding and accepting meaning in one's life. From sociologists, nursing has learned how support systems, functionality, activity and role engagement, cohorts, and societal expectations can influence adjustment to aging and life satisfaction. These broadly generalized theories, however, lack the specificity and holistic perspective needed to guide nursing care of older adults who have varied needs and come from different settings and sociocultural backgrounds (see **Case Study 3-1**).

Case Study 3-1

Mr. Ronald Dea, 64 years old, had been planning for many years to retire from his position as an accountant at a software company at his 65th birthday. Then his wife of 40 years died of lymphoma last year. He now finds that he only gets out of his house to work. He has let his racquetball membership, swimming club, and night out with his neighborhood friends slide. He finds he does not go out socially at all anymore except for visiting his two children and their families, who live out of town, when invited. He is no longer active in the Lions Club nor does he regularly attend his church where he and his wife used to be very involved.

Now he is deliberating whether to retire or not because he is aware that his work has become the only thing in his life. He is finding he does not have the energy he used to and that he is not excited about the weekend time he used to enjoy so much. He also has found he does not enjoy food shopping, so Mr. Dea generally buys his main meal at work and then snacks on crackers and cheese at night. He generally eats a donut or a bagel for breakfast. On the weekends, Mr. Dea stays in bed until noon and does not eat anything until night when he goes to the nearby fast food drive-in window to pick up fried chicken or has a pizza delivered.

He has not changed anything in his bedroom since his wife died nor removed any of his wife's belongings from the home. Mr. Dea has been delaying his regularly scheduled visits to his hematologist for management of his hemochromatosis. He has been gaining weight, approximately 14 pounds, since his wife was first diagnosed with cancer about 2.5 years ago. He has also started smoking a cigar just about every evening. It was after his nightly smoke, when he was walking up the hill in his backyard one evening, that he fell and fractured his hip.

Mr. Dea has just been discharged home from the rehabilitation center, and you are the visiting nurse assigned to him. He has planned judiciously for his retirement but has been afraid to prepare the paperwork. Mr. Dea confides in you that he wants to remain independent as long as possible. He shares his concerns with you and inquires what your opinion is of how he should proceed. One of his daughters is at his home for the next 2 weeks to assist him and is pushing him to retire and move in with her and her family.

Drawing from aging theory, what are some of the challenges you believe Mr. Dea is dealing with? What would you, given the knowledge you have learned regarding aging theories, recommend to Mr. Dea regarding retirement? Would you recommend he sell his house and move out of the town he has lived in for so many years? What other living arrangements might be conducive for Mr. Dea? Who would you suggest he and his daughter talk with regarding his everyday needs if he chooses to stay in his house during his convalescence? What are his priority needs for promoting his health? How would these be best managed? Use aging theory to support your responses.

In a quest for a theoretical framework to guide caregiving in nursing homes, Wadensten (2002) and Wadensten and Carlsson (2003) studied 17 nursing theories that were generated from the 1960s to the 1990s and found that none of the theorists discussed what aging is, nor did the theorists offer advice on how to apply their theory to caring for the older adult. Wadensten wrote that existing "nursing theories do not provide guidance on how to care for older people or on how to support them

in the developmental process of aging. There is a need to develop a nursing care model that, more than contemporary theories, takes human aging into consideration" (p. 119). Others concur that nursing needs to develop more situation-specific theories of aging to guide practice (Bergland & Kirkevold, 2001; Haight et al., 2002; Miller, 1990; Putnam, 2002). Two new theories, the functional consequences theory (Miller) and the theory of thriving (Haight et al.), are nurse-authored and attempt to address this need.

Nursing Theories of Aging

Functional Consequences Theory

Functional consequences theory (see **Table 3-3**) was developed to provide a guiding framework that would address older adults with physical impairment and disability (Miller, 1990). Miller's theory borrows from several nursing and nonnursing theories including functional health patterns; systems theory; King's (1981) conceptualization of person, health, environment, and the nurse–client transaction; Lawton's (1982) person-environment fit; and Rose and Killien's (1983) conceptual work defining risk and vulnerability. Miller asserts that aging adults experience environmental and biopsychosocial consequences that impact their functioning. The nurse's role is to assess for age-related changes and accompanying risk factors, and to design interventions directed toward risk reduction and minimizing age-associated disability. Nursing's goal is to maximize functioning and minimize dependency to improve the safety and quality of living (Miller, 1990).

Functional consequences theory assumes that quality of life is integrated with functional capacity and dependency needs, and that positive consequences are possible despite age-related limitations. In addition to those experiencing negative functional consequences, Miller (1990) applied her theory to highly functioning older adults as well as to adult caregivers. She distinguished the focus and goal of nursing interventions in varied settings (inpatient, outpatient, acute, or long-term care); thus, her theory can be used in many settings. Interventions are broadly interpreted as those of nurses, other healthcare providers, older adults, or

TABLE 3-3 Nursing Theories of Aging

Theory	Description
Functional consequences theory	Environmental and biopsychosocial consequences impact functioning. Nursing's role is risk reduction to minimize age-associated disability in order to enhance safety and quality of living.
Theory of thriving	Failure to thrive results from a discord between the individual and his or her environment or relationships. Nurses identify and modify factors that contribute to disharmony among these elements.

BOX 3-3 Web Exploration

End-of-Life Nursing Education Consortium
(http://www.aacn.nche.edu/elnec)

The core curriculum in end-of-life consists of nine content modules with a syllabus, objectives, student note-taking outlines, detailed faculty content outlines, slide copies, reference lists, and supplemental teaching materials available in hard copy and CD-ROM.

The Geriatric Nursing Education Project
(www.aacn.nche.edu/Education/Hartford)

Offers faculty development institutes, online interactive case studies, a guide for integrating gerontology into nursing curricula, and a complimentary catalog of geriatric nursing photos that may be used free of charge for print or Web-based media by schools of nursing.

Consult GeriRN
(http://consultgerirn.org/)

An evidence-based online resource for nurses in clinical and educational settings. Includes many resources on a wide variety of topics related to aging including evidence-based geriatric protocols, hospital competencies for older adults, continuing education contact hours, the "Try This" series of assessment tools, information related to common geriatric problems, and links to additional age-related agencies and references.

The John A. Hartford Foundation Institute for Geriatric Nursing
(www.hartfordign.org)

A wealth of resources including core curriculum content for educators in academic and practice settings, consisting of detailed content outlines, case studies, activities, resources, PowerPoint slides, an online gerontological nursing certification review course, research support programs, best practice guidelines, consultation services, and geriatric nursing awards.

Mather LifeWays Institute on Aging
(http://www.matherlifeways.com/re_researchandeducation.asp)

Offers programs for faculty development (Web-based), long-term care staff, and family caregivers.

National Institute on Aging
(http://newcart.niapublications.org)

Free publications about older adults for health professionals and patients.

Toolkit for Nurturing Excellence at End-of-Life Transition
(www.tneel.uic.edu/tneel.asp)

A package for palliative care education on CD-ROM that includes audio, video, graphics, PowerPoint slides, photographs, and animations of individuals and families experiencing end-of-life transitions. An evidence-based self-study course on palliative care will soon be available for the national and international nursing community.

significant others, so this theory may be useful in other healthcare disciplines. This theory was used to create an assessment tool for the early detection of hospitalized elderly patients experiencing acute confusion and to prevent further complications (Kozak-Campbell & Hughes, 1996). Additional testing is needed to determine the utility of the functional consequences theory in other settings.

Theory of Thriving

The theory of thriving (Haight et al., 2002) is based on the concept of failure to thrive and Bergland and Kirkevold's (2001) application of thriving to the experience of well-being among frail elders living in nursing homes. They discuss the concept in three contexts: an outcome of growth and development, a psychological state, and an expression of physical health state. Failure to thrive first appeared in the aging literature as a diagnosis for older adults with vague symptoms such as fatigue, cachexia, and generalized weakness (Campia, Berkman, & Fulmer, 1986). Other disciplines later defined undernutrition, physical and cognitive dysfunction, and depression as its major attributes (Braun, Wykle, & Cowling, 1988). In their concept analysis of failure to thrive, Newbern and Krowchuk (1994) identified attributes under two categories: problems in social relatedness (disconnectedness and inability to find meaning in life, give of oneself, or attach to others) and physical/cognitive dysfunction (consistent unplanned weight loss, signs of depression, and cognitive decline).

Haight and colleagues (2002) view thriving in a holistic, life-span perspective that considers the impact of environment as people age. They assert that thriving is achieved when there is harmony among a person and his or her physical environment and personal relationships. Failure to thrive is because of discord among these three elements. Nurses caring for patients can use this theory to identify factors that may impede thriving and plan interventions to address these concerns.

Notable Quotes

Some people, older people especially, tend to draw into themselves...they grow isolated. That's a big mistake! You never know when you might need other people, but you need to earn their help. You have to contribute to your community."

—Bessie Delany in *Having Our Say: The Delany Sisters' First 100 Years*, 1994, p. 89.

Theory of Successful Aging

Twenty-first century literature has focused on what it means to age well. Flood (2006) proposed that aging well is defined by the extent to which older adults adapt to the cumulative physical and functional changes they experience. Moreover, the individual's perception about how well they have aged is fundamentally connected to believing that one's life has meaning and purpose. Thus, spirituality is a central ingredient of Flood's theory. A prerequisite to applying this theory is the capacity for reflection and responsiveness to changes internally and in the environment. Flood proposed the following assumptions:

1. Aging is a progressive process of simple to increasingly complex adaptation.
2. Aging may be successful or unsuccessful, depending upon where a person is along the continuum of progression from simple to more complex and their extensive use of coping processes.
3. Successful aging is influenced by the aging person's choices.
4. Aging people experience changes, which uniquely characterize their beliefs and perspectives as different from those younger adults (Flood, 2006).

Outcomes of aging successfully, according to this theory, include remaining physically, psychologically, and socially engaged in meaningful ways that are individually defined. Achieving a comfortable acceptance of the finality of life is also considered a hallmark of successful aging. The inclusion of more interdisciplinary exercises with

Notable Quotes

I'd say one of the most important qualities to have is the ability to create jobs in you life...we all have to do it for ourselves.

—Bessie Delany in *Having Our Say: The Delany Sisters' First 100 Years*, 1994, pp. 32–33.

Notable Quotes

Positive aging means to love, to work, to learn something we did not know yesterday, and to enjoy the remaining precious moments with loved ones."

—George E. Vaillant, MD, from his book *Aging Well* (2002)

nursing, medical, and other healthcare students, such as "Healthy Aging Rounds" (Mohler, D'Huyvetter, Tomasa, O'Neill, & Fain, 2010), has demonstrated that education can improve healthcare providers' attitudes and understanding of healthy aging.

Conclusion

Nursing theories of thriving and functionality contribute to our understanding of aging; however, neither encompasses all of the holistic elements (cultural, spiritual, geographic, psychosocioeconomic, educational, environmental, and physical) of concern to nursing. Flood's theory of successful aging provides a more comprehensive theoretical framework to guide nursing practice, but it has yet to be tested in practice. Given the diversity of older adults living in independent, assisted, and residential care settings there remains much that can be useful from the theories of other disciplines. From the stochastic and programmed biological theories of aging, nurses can better manage nutrition, incontinence, sleep rhythms, immunological response, catecholamine surges, hormonal and electrolyte balance, and drug efficacy for older adults with chronic illnesses. Using psychosocial aging theories, nurses can assist both the older adult and his or her family in recognizing that the life they have lived has been one of integrity and meaning and facilitate peaceful death with dignity. Ego integrity contributes to older adults' well-being and reduces the negative psychological consequences that are often linked to chronic illness and older age. Finally, being cognizant of older adults' socioeconomic resources will assist the nurse and older adult in planning cost-effective best practices to improve symptom management and treatment outcomes.

Using knowledge gained from aging theories, nurses can:

- Help people to use their genetic makeup to prevent comorbidities
- Facilitate best practices for managing chronic illnesses
- Maximize individuals' strengths relative to maintaining independence
- Facilitate creative ways to overcome individuals' challenges
- Assist in cultivating and maintaining older adults' cognitive status and mental health

In conclusion, aging continues to be explained from multiple theoretical perspectives. Collectively, these theories reveal that aging is a complex phenomenon still much in need of research. How one ages is a result of biopsychosocial factors. Nurses can use this knowledge as they plan and implement ways to promote health care to all age groups. As in other disciplines, the state of the science on aging is rapidly improving within the nursing profession. Nursing is developing a rich body of knowledge regarding the care of older adults. Programs and materials developed by the Hartford Institute for Geriatric Nursing, the End of Life Nursing Education Consortium, the American Association of Colleges of Nursing, and the Mather Institute provide a strong foundation for developing and disseminating our current knowledge. Nursing research must continue to span all facets of gerontology so that new information will be generated for improved patient outcomes.

BOX 3-4 Recommended Reading

Azinet. (2003). Resources on aging information: How do we age?. Retrieved from http://www.azinet.com/aging/

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Critical Thinking Exercises

1. **Mrs. Smith, 72 years old and recently diagnosed with a myocardial infarction**, asks why she should take a cholesterol-lowering drug for her hyperlipidemia at her age. Why should she engage in the lifestyle changes her nurse is recommending?
2. **Your 82-year-old patient, Rodney Whitishing, has been healthy most of his life** and now is experiencing, for the second winter in a row, an extremely severe case of influenza. He has never received a flu shot as a preventive measure because he felt he was very strong and healthy. Explain how you would describe the older adult's immune system and why older adults seem to be more vulnerable to influenza.
3. **John, an 85-year-old man with emphysema**, is brought to your clinic by his family because of increasing complaints about shortness of breath. John uses oxygen at home, but states that he is afraid to walk more than a few steps or show any emotion because he will become unable to get enough air. John tells you that he feels his life is not worth living. Using the theories of aging, how might you respond to this situation?

Personal Reflections

1. Develop a philosophy of how theories of aging can support or refute the idea of categorizing people in the young-old, middle-old, and old-old classifications according to chronological age. What other characteristics could be used to categorize people as they age? Give an example of how you would perceive a relative or friend of yours who is in the sixth or seventh decade of life.
2. Comparable to infant–child development stages, generate five or six stages of development for older adults to accomplish as they complete their work stage and begin their retirement era.
3. Using theories of aging with biological, psychological, and sociological perspectives, hypothesize how these frameworks influence the older adult's development.

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