

CHAPTER 3

Theories of Aging

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(Competency 1, 19)

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

Human needs theory

Immunomodulation

Lipofuscin

Maslow

Melatonin

Mitochondria

Nonstochastic theories of aging

Reactive oxygen species

Senescence

Stochastic theories of aging

Telomerase

Telomere

From the beginning of time, 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 may contribute to answering these questions is a first step toward understanding the mystery of aging.

Complex physiological, social, economic, and psychological challenges often present themselves as we age. Declining health and cognitive or physical functioning may necessitate moving to supportive care environments that drain financial resources. Losing friends or loved ones, grappling with the meaning of life, maintaining quality of life in the face of increasing disability, adapting to retirement and contemplating death are just a few of the challenges that aging adults face.

Theories that are validated through research can guide nurses in helping elderly patients navigate the changes they experience. 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 a person throughout a lifetime of aging" (Haight, Barba, Tesh, & Courts, 2002, p. 14).

Sociologists, psychologists, biologists, and more recently nurses have proposed varying theories about the aging process. The purpose of this chapter is to review the chronological development of aging theories, describe

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.

what evidence supports or refutes these theories and discuss their application to nursing practice. CINAHL, the National Library of Medicine, the Web of Science, PsycINFO, Science in Context, and Sociological Abstracts databases were reviewed to assess the support for and clinical application of these theories.

Psychosocial Theories of Aging

The earliest theories on aging came from the psychosocial disciplines (see [Table 3-1](#)). These theories focus on changes in behavior, personality, and attitude as we age. The authors propose that aging is a lifelong process characterized by transitions. Psychological theories relate these transitions to personality or ego development and the accompanying challenges associated with various life stages. They speak to how mental processes, emotions, attitudes, motivation, and personality influence adaptation to physical and social demands.

Sociological theorists consider how changing roles, relationships, and status within a culture or society impact an older adult's ability to adapt. They assert that societal norms can affect how individuals perceive and enact their role within a community. How living through key events such as the Vietnam War or civil rights eras affects aging is an important component of sociological theories of aging.

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.



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

Activity theory suggests that remaining involved and engaged is a needed ingredient to a satisfying late life. Others disagree with Havighurst and Albrecht's perspective, arguing that Activity Theory fails to consider that choices are often limited by physical capabilities, finances, and access to social resources (Birren & Schroots, 2001). Maddox (1963) suggests a more optimistic view; that leisure time in retirement presents new opportunities for community service that may be more consistent with physical, economic, and resource limitations. A second criticism of Activity Theory is the unproven assertion that staying active necessarily delays the onset of the negative effects of aging. Furthermore, Birren and Schroots assert that roles assumed by older adults are highly influenced by societal expectations so that older adults may be limited in what activities they can choose.

Despite these criticisms, Activity Theory's central theme—that remaining active in old age is desirable—is supported by most researchers. Lemon and colleagues found a direct relationship between being active and life satisfaction among older adults (Lemon, Bengston, & Peterson, 1972). They also observed that older adults viewed the quality of activity to be more important than the quantity.

Other investigators suggested that the type of activity matters. Activities that connected people socially, such as meeting friends for lunch or pursuing hobbies through group activities were more likely to improve life satisfaction than formal or solitary activities (Longino & Kart, 1982). Harlow and Cantor (1996) agreed that the social component was important. In their study, sharing tasks was an important predictor of life satisfaction, particularly among retirees. Schroots (1996) proposed that successful aging means being able to do things despite limitations. These studies suggest 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) asserted that aging is characterized by gradual disengagement from society and relationships. The authors contended that this separation is desired by society and older adults, and that it serves to maintain social equilibrium. Cumming and Henry proposed that by disengaging, older adults are freed from social responsibilities and gain time for internal reflection, while the transition of responsibility from old to young maintains a continuously functioning society unaffected by lost members. The outcome of disengagement is a new equilibrium that is ideally satisfying to both the individual and society.

Challengers of Disengagement Theory argue that the emphasis on social withdrawal is inconsistent with what appears to be a key element of life satisfaction: being engaged in meaningful relationships and activities

Sociological Theories of Aging

Activity Theory

Havighurst and Albrecht (1953) proposed one of the first aging theories by studying a group of adults. They concluded that society expects retirees to remain active in their communities. Havighurst and Albrecht published the Activity Theory in 1963, which states that staying occupied and involved is necessary to having a satisfying late-life (Havighurst, Neugarten, & Tobin, 1963; see **Figure 3-1**). Havighurst and Albrecht (1953) did not, however explain what sorts of activity are linked to life satisfaction but clearly believed that activity was associated with psychological health. They suggested that being active helps to prolong middle age and thus delay the adverse effects of old age.

Others disagree with Havighurst and Albrecht's perspective, arguing that Activity Theory fails to con-

(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) reported 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.

In support of Disengagement Theory, Adams developed an instrument to measure change in activity among older adults (Adams, 2004). The author reported, "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). Several authors also agree with Cumming and Henry's assertion that a fit between societal needs and older adult activity is necessary (Back, 1980; Birren & Schroots, 2001; Riley, Johnson, & Foner, 1972). One example of the restrictions society can pose on older adult activity is the Social Security laws that reduce payment to older adults who make more than a set income. As life expectancy increases however, 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 to work part-time in a new field. Others are actively engaged in a variety of volunteer projects that 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) theorized that older adults form a unique subculture within society to defend against society's negative attitude toward aging and the accompanying loss of status. As in disengagement theory, Rose contended that older adults prefer to interact among themselves. He suggested that social status is determined more by health and mobility than occupation, education, or income; therefore older adults have a social disadvantage regarding status and associated respect because of the functional decline that accompanies aging.

Research to support or refute Rose's Subculture Theory is lacking. The growing number of older adults in developed countries around the world however necessitates greater attention to the needs of this age group and challenge the sociological theorists' 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 societal resources. The emphasis on whether society's or older adults' needs take precedence is beginning to shift in favor of older adults. In summary, McMullin (2000) argued that sociological theories need to more clearly address the diversity among older adults as well as the disparity versus younger age groups.

Continuity Theory

In the late 1960s, Havighurst and colleagues recognized that neither activity, subculture nor disengagement theories fully explained successful aging (Havighurst, Neugarten, & Tobin, 1968). Borrowing from psychology, they created Continuity Theory, which hypothesizes that personality influences the roles we choose and how we enact them. This in turn influences satisfaction with living. Continuity Theory suggests that personality is well developed by the time we reach old age and tends to remain consistent throughout our lives.

Havighurst and associates (1963) identified four personality types from 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.

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. Respondents included 2,564 adults aged 55–89 years (mean age 64 years). 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.

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 Vieillessement*, 31(1), 13.

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, he proposed 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. The authors suggest that identifying a person's personality type provides clues as to an older adult will adjust to changes in health, environment, or socioeconomic conditions, and in what activities he or she will engage. Continuity Theory was the first sociological theory to acknowledge that responses to aging differ among individuals.

Several studies support Continuity Theory. Troll and Skaff (1997) asked older adults how they thought they had changed over the years. Almost all respondents thought they were still essentially the same person. Responders who believed they had stable personalities over time tended to have a more positive affect. In another study, Efklides, Kalaitzidou, and Chankin, (2003) investigated the effects of demographics, health status, attitude, and adaptation to old age on perceived quality of life. A positive attitude about adaptation to old age were associated with better perceptions about quality of life in this Greek sample (Efklides et al., 2003). Agahi, Ahacic, and Parker (2006) 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 (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, they observed that age cohorts are influenced by the historical context in which they live and can vary across generations. People born in the same cohort have similar experiences, ideologies, orientations, attitudes, and values as well as expectations regarding the timing of life transitions such as retirement and life expectancy (Riley, 1994). Age Stratification Theory highlighted the importance of cohorts and the associated socioeconomic and political impact on how individuals age (Marshall, 1996).

Several authors support the Age Stratification Theory. Uhlenburg (1996) used Age Stratification Theory to define the societal needs of specific aging cohorts. Yin and Lai (1983) explained the varied status among older adults based on cohort differences. Cohorts were also found to affect outcomes in residential settings with mixed versus homogenous groups (Hagestad & Dannefer, 2002; Uhlenberg, 2000).

Person-Environment-Fit Theory

Following the broader view of aging that emerged in the 1970s, another shift occurred in the early 1980s that blended existing theories from different disciplines. Lawton's (1982) Person-Environment-Fit Theory proposed that capacity to function in one's environment is an important aspect of successful aging, and that function is affected by ego strength, motor skills, biologic health, cognitive capacity, and sensori-perceptual capacity, as well as external conditions imposed by the environment. Functional capacity influences an older adult's ability to adapt to his or her environment. Those individuals functioning at lower levels can tolerate fewer environmental demands.

Lawton's (1982) theory helps us think about the fit between the environment and an older adult's ability to function. It can help nurses identify needed modifications in their homes or in residential settings. Several authors lend support to this theory. Wahl (2001) developed six models to explain relationships between aging and the environment, home, institution, and relocation decision making using Lawton's theory. 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.

Gerotranscendence Theory

One of the newest sociological 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 its idea that social disengagement is a necessary and natural development. Rather, Tornstam asserted that activity and participation must be the result of one's own choices and that control over one's life in all situations is essential for successful adaptation to aging.

Gerotranscendence has been tested in several studies. Schroots (2003) used this theory to investigate how people manage their lives, cope with transformations and react to affective-positive and negative life events. Wadensten

(2002) used the Theory of Gerotranscendence to develop guidelines for the care of older adults living in a nursing home. Her results suggest that the guidelines may be useful for facilitating the process of gerotranscendence among 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.

Maslow asserted that failure to grow leads to feelings of failure, depression, and the perception that life is meaningless.

Since its inception, Maslow's theory has been applied to varied age groups in many disciplines. Ebersole, Hess, and Luggen (2004) suggested that the tasks of aging described by several theorists (Havighurst, 1972; Peck, 1968) are linked to the basic needs described in Maslow's model. Jones and Miesen (1992) used Maslow's hierarchy to present a model for the nursing care of elderly persons in residential settings.

Theory of Individualism

Jung's Theory of Individualism, like Maslow's theory is not specific to aging. Jung (1960) proposed that our personality develops over a lifetime and is composed of an ego or self-identity that has a personal and collective unconsciousness. Personal unconsciousness is the private feelings and perceptions surrounding important persons or life events. The collective unconscious is shared by all persons. It contains latent memories about human origin. The collective unconscious is the foundation of personality on which the personal unconsciousness and ego are built. Jung's theory says that people tend to view life through either their own "lens" (introverts) or the lens of others (extroverts).

As individuals age, they begin to reflect on their beliefs and life accomplishments. According to Jung, one ages successfully when he or she accepts the past, adapts to physical decline, and copes with the loss of significant others. Neugarten (1968) supported Jung's theory by asserting that introspection 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 his colleagues Erikson's theory, Stages of Personality Development focuses on personality development. According to Erikson (1963), personality develops in eight sequential stages. Each stage has a life task at which we may succeed at or fail. During the final stage, "ego integrity versus despair" individuals search for the meaning of their lives and evaluate their accomplishments. Satisfaction leads to integrity, while dissatisfaction creates a sense of despair. In later years, Erikson and colleagues suggested that older adults face additional challenges or life tasks including physical and mental decline, accepting the care of others and detaching from life (Erikson, Erikson, & Kivnick, 1986). Peck (1968) expanded Erikson's definition of "integrity versus despair" to include three other challenges: creating a meaningful life after retirement, dealing with an "empty nest" as children move away, and contemplating the inevitability of death.

Erikson's theory is widely employed in the behavioral sciences. In nursing, Erikson's model is often used as a framework to examine 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 positive or negative outcome that may result from Erikson's developmental stage, "integrity versus despair." In another study, Holm and colleagues examined the value of storytelling among dementia patients. Investigators told stories linked to Erikson's developmental stages to stimulate sharing among the participants. The authors reported that these stages were clearly evident in the experiences related by the participants (Holm, Lepp, & Ringsberg, 2005).

CLINICAL TIP

Nurses can help older adults identify meaningful experiences in their lives and thereby help prevent feelings of despair that may arise with advanced age.

Life-Course (Life Span Development) Theory

In the 1980s, behavioral psychology theorists shifted from personality development as the basis for understanding aging to the concept "life course," in which life, although unique to each individual, is divided into stages with predictable patterns (Back, 1980). Most theorists up to this point had focused primarily on childhood; for example Erikson's devotes only one of eight stages to adults over 65 years (1963). An emphasis on adulthood corresponded to an aging demographic, the emergence of gerontology as a specialty, and the availability of data from longitudinal studies that began during the 1920s and 1930s (Baltes, 1987). Life-course Theory is concerned with understanding age group norms and their characteristics.

Life-course theories encompass aspects of psychological theories such as tasks during different stages of personality development with sociological tenets regarding the interconnectedness of individuals and society. The central theme of life course is that life occurs in stages that are structured according to one's roles, relationships, internal values, and goals. Goal achievement is linked to life satisfaction but people's goals are limited by external factors. Individuals adapt to changing 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 changes may require revising one's beliefs to be consistent with society's expectations.

The life-course perspective 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. He asserted that individuals learn to cope with the functional losses of aging through the processes of selection, optimization, and compensation. Aging individuals adjust activities and roles as limitations present themselves; at the same time, they choose those activities and roles that are most satisfying (optimization). Coping with illness and functional decline may lead to greater or lesser risk of mortality. Ideally, 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 the more recent life-course paradigm (Baltes, 1987; Caspi, 1987; Caspi & Elder, 1986; Quick & Moen, 1998; Schroots, 2003). In an ongoing longitudinal study called "Life-Course Dynamics," Schroots' examined behavior in a longitudinal study about behavior across the life course. He observed that life structure tended to be consistent over time but influenced by life events and experiences. He further proposed that aging and development are ongoing, lifelong processes that are intertwined (Schroots, 2012). To further explain the interaction of structure and experiences, other theorists use life-course

theory to explain how historical events and retirement conditions influence behavior as we age. They argued that the influence of social change on life course is intertwined with individual factors (Caspi, 1987; Quick & Moen, 1988).

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 have demonstrated that mitochondrially targeted antioxidant treatments may decrease the adverse effects of Parkinson's Disease, Alzheimer's disease, and cardiovascular disease (Smith & Murphy, 2011).

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 (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.

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).

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,

BOX 3-2 Exogenous Sources of Free Radicals

Tobacco smoke	Organic solvents	Ozone
Pesticides	Radiation	Selected medications

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 adrenocorticotrophic 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 apoptose. 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. Grossman and Porth (2014) 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 reproductive organ tumors. This would correspond well with Zuevo's (2015) research that the neuroendocrine system impacts aging by decreasing heart rate variability and other physiological processes that would impact the "normal" regulatory feedback mechanisms. Additionally, Takahashi and colleagues (2012) describe the concept of neuroplasticity, which refers to changes in neural connections in the brain that may increase as humans age. Thus, neurological changes occurring secondary to trauma, inflammation, and other neurological events may be reversible with the aging brain given that the brain has the ability to restructure itself.

Immunologic/Autoimmune Theory

This theory was proposed almost 50 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 due to the thymus gland shrinking to 15% of its capacity, altered lymphocyte function, and decreased cell mediated and humoral immune response (Grossman & Porth, 2014). 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, hence, increased autoimmune disorders are diagnosed in old age.

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

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.

rheumatoid arthritis. Older adults are more prone to infection such as wound and respiratory infections, as well as to 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. 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 is significant. 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.

Implications for Nursing

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. Nurses can learn from these theories to help minimize the challenges of aging by connecting older adults to resources. These may include an occupational therapist that can help families adapt a home environment to that it is safe for an older adult to "age in place," suggesting visiting

nurse or physical therapy visits to help manage chronic illnesses such as heart failure or diabetes, or to optimize physical functioning, or to enlist a pharmacist to evaluate how medication regimens may be causing side effects that adversely affect functioning. Dealing with loss of friends, spouse, and other important relationships can lead to isolation and depression. Connecting older adults to their communities through senior centers, online groups like “Meetup” or “Road Scholar,” adult education programs, or volunteer groups can help them explore new passions and develop new relationships. Others may benefit from counseling with a mental health provider or religious leader (see **Case Study 3-1**).

Biological and psychosocial theories however, lack the specificity and holistic perspective needed to fully guide the nursing care of older adults. Nurse theorists have attempted to address this gap by building upon past theories of

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.

aging. 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 older adults. 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 needed to develop more situation-specific theories of aging to guide practice (Bergland & Kirkevold, 2001; Haight et al., 2002; Miller, 1990; Putnam, 2002). Two newer theories, Functional Consequences (Miller, 1990) and the Theory of Thriving (Haight et al., 2002), 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 for older adults with physical impairment and disability (Miller, 1990). Miller asserted that aging adults experience environmental and biopsychosocial consequences that impact their functioning. The nurse’s role is to assess age-related changes and accompanying risk factors, and to design interventions that minimize age-associated disability. The goal is to maximize functioning in ways that improve patient safety and quality of life (Miller, 1990).

Functional Consequences Theory assumes that quality of life, functional capacity and dependency are connected and that positive consequences are possible despite age-related limitations. Miller’s theory (1990) applies to high as well as low functioning older adults. Her theory defines the focus of nursing interventions in varied settings (inpatient, outpatient, acute, or long-term care); thus, her theory can be used in many contexts. The interventions include other healthcare providers, older adults and significant others, so this theory is patient centered as well as interprofessional in scope. Miller’s theory has been 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 however to determine the utility of the functional consequences theory in other settings.

Theory of Thriving

The theory of thriving (Haight et al., 2002) was developed to explain the experience of nursing home residents. 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 added malnutrition, physical and cognitive dysfunction, and depression as major attributes (Braun, Wykle, & Cowling, 1988). Newbern and Krowchuk (1994) suggested that difficulty with social relationships (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) were related to a failure to thrive. Haight and colleagues (2002) proposed

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.

that the environment is an important contributor to how people age. They asserted that people thrive when they are in harmony with their environment and personal relationships and fail to thrive when there is discord. This theory has helped bring together elements of earlier aging theorists in ways that make it accessible for nursing practice.

CLINICAL TIP

The theory of thriving in older adults living in nursing homes is often compared to failure to thrive seen in neglected infants.

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, a person's perception about how well he or she has aged is fundamentally connected to believing that one's life has meaning and purpose; thus, spirituality is a central ingredient of Flood's theory. Flood proposed that:

- aging is a progressive process adaptation,
- aging may be successful or unsuccessful, depending upon a person's ability to cope,
- successful aging is influenced by a person's choices, and
- aging people experience changes, which uniquely characterize their beliefs and perspectives in ways that differ from those of younger adults (Flood, 2006).

According to this theory, aging successfully means remaining physically, psychologically, and socially engaged in meaningful ways that are individually defined. Achieving a comfortable acceptance of impending death is also a hallmark of successful aging.

Ji, Ling, and McCarthy (2014) have used Flood's Theory of Successful Aging in several studies. They concluded that transcendence or finding a sense of meaning and well-being was the main predictor of life satisfaction. Relationships, creativity, contemplation, introspection, and spirituality are all important elements of transcendence.

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.

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.

CLINICAL TIP

One theory of aging does not explain all that is observed in the aging process. This is why using a variety of theories is often preferred.

Summary

Nursing theories of thriving and functionality contribute to our understanding of aging; however, neither encompass 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 framework to guide nursing practice and has been validated by some authors; however additional studies are needed to confirm this theory.

Given the diversity of older adults living in independent, assisted, and residential care settings, much can be learned 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

BOX 3-4 Recommended Reading

Azinet. (2003–2014). Resources on aging information: How do we age? Retrieved from <http://www.azinet.com/aging/>

Bragg, E. J., Warshaw, G. A., van der Willik, O., Meganathan, K., Weber, D. Cornwall, D. et al.

(2011). Paul B. Beeson career development awards in aging research and United States medical schools aging and geriatric medical programs. *Journal of American Geriatric Society*, 59(9), 1730–1738.

- 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 has many dimensions that have been explained by multiple theoretical perspectives. Collectively, these theories reveal that aging is a complex phenomenon still 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 view aging holistically and contribute to the literature in ways that help confirm, develop or refute these theories. Ultimately theories that can predict patient outcomes hold the greatest promise for guiding nursing practice in ways that help each individual patient age successfully.

Clinical Reasoning 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 [increased exercise, low fat & low sodium diet, and low stress living] 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 weakened 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 seventh or eighth 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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