A Concept Analysis of Individualized Aging

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doi: 10.5480/12-1053.1

Abstract

AIM This analysis sought to define the concept of individualized aging.

BACKGROUND The growing older adult population and shortage of health professionals with adequate knowledge of their specialized needs will strain the health care system. The National League for Nursing’s Advancing Care Excellence for Seniors (ACES) project has addressed this challenge. The ACES framework identifies three unique concepts integral to delivering high quality care. Clarification of these concepts is needed for educational and research purposes.

METHOD Rogers and Knall’s evolutionary method of concept analysis was used.

RESULTS The analysis identified two antecedents (past experiences and biological aging processes), three attributes (heterogeneity, living with age-related changes and multiple chronic conditions, and risk for complications), and two consequences (complexity of care over time and variability in health outcomes).

CONCLUSION Knowledge of the antecedents, attributes, and consequences of individualized aging will allow health care providers to improve the care of older adults.

The rapidly aging older adult population (those ages 65 years and older) combined with a lack of health care providers who possess the necessary knowledge, skills, and attitudes (Institute of Medicine [IOM], 2008) to provide high quality care to this population is a concerning challenge that the profession of nursing must address (Berman et al., 2005; Gilje, Lacey, & Moore, 2007; Ironside, Tagliareni, McLaughlin, King, & Mengel, 2010). Nurses represent the largest segment of health care providers in the country and assume crucial roles in the care and management of both healthy and ill older adults. As the older-adult population grows, nurses will be expected to advance their roles and responsibilities in caring for these patients in a variety of settings, from home to hospital, as well as from assisted living to long-term care (IOM, 2011).

BACKGROUND

In the past several years, significant efforts have been made to improve the quality of gerontological nursing content in nursing education programs at both the pre-licensure level (American Association of Colleges of Nursing [AACN], 2010; National League for Nursing [NLN], 2011), and at the graduate level (National Council of State Boards of Nursing, 2008). The John A. Hartford Foundation (JAHF) has been a generous supporter of efforts aimed at improving gerontological nursing education and research, and several of its funded initiatives (Building Academic Geriatric Nursing Capacity Program — now called the National Hartford Centers of Gerontological Nursing Excellence — and the Hartford Institute for Geriatric Nursing) have led to significant increases in faculty with expertise in gerontological nursing and programs of research aimed at improving the care of older adults (Franklin et al., 2011). The JAHF also partnered with the AACN to create the Recommended Baccalaureate Competencies and Curricular Guidelines for the Nursing Care of Older Adults (2010) as a supplement to The Essentials of Baccalaureate Education for Professional Nursing Practice.

An NLN vision statement, Caring for Older Adults (2011), describes the NLN’s vision for transforming nursing education to enhance the knowledge, skills, and attitudes of graduate nurses caring for older adults.

In 2007, the NLN, in collaboration with the Community College of Philadelphia and funded by the Independence Foundation, the JAHF, Laerdal Medical, and, since 2012, the Hearst Foundations, began developing the Advancing Care Excellence for Seniors (ACES) project and the ACES framework to improve the care of older adults (Tagliareni, Cline, Mengel, McLaughlin, & King, 2012).

The ACES framework, designed for use in pre-licensure nursing education programs, is also applicable to graduate nursing programs and other health care disciplines. The framework has three primary components that interact synergistically to improve the quality
of care for older adults: essential knowledge domains, essential nursing actions, and learning environment.

The NLN ACES framework’s essential knowledge domains (individualized aging, complexity of care, and vulnerability during transitions) may be unfamiliar to nurse clinicians, educators, and researchers. Although these basic concepts are commonly found in the health sciences literature, their precise definitions and descriptions within the NLN ACES framework are unique. Explication of these concepts will advance the use of the ACES framework, improve gerontological nursing education, and facilitate the design of research aimed at improving the quality of care for older adults.

Individualized aging is a concept not currently used or defined in the literature. However, it is well established that high quality care must be individualized so that each patient receives treatments appropriate to his or her needs and desires, based on the best available evidence to ensure optimal outcomes. Individualized aging synthesizes concepts of individualization of care as well as biological and social theories related to the aging process. By using concept analysis, this article will define and clarify the NLN ACES framework essential knowledge domain concept of individualized aging.

**METHOD**

The evolutionary method of concept analysis (Rogers & Knafl, 2000) focuses on the concept’s contextual and temporal nature, which is appropriate to this analysis given the rapid technological advances in health care and society that have prolonged and improved the quality of life for older adults beyond what was possible even two decades ago. The goal of concept analysis (Rogers & Knafl) is to identify a set of attributes that “constitute a real definition” (p. 91), making it possible to identify situations that can be appropriately characterized by the concept.

**Sample**

Two approaches were used to identify the relevant literature. The first approach was designed to identify current information on biological and psychosocial theories of aging. Four nursing textbooks, two published in 2010 and two in 2012, were examined to identify the most commonly described theories of aging. The second approach focused on identifying literature on the concept of individualized care from the fields of nursing, medicine, and social work. Because the ACES project began in 2007, the electronic databases of PubMed®, CINAHL®, and Web of Science™ were searched from the years 2007 through 2012. Inclusion criteria included publication in an English-language, peer-reviewed journal. Exclusion criteria included editorials, published abstracts, and commentaries. To systematically search the literature, the term “individualized care” was combined with “older adult(s),” “geriatric(s),” “elderly,” and “aging.”

A total of 334 articles were identified in the initial search. Review of the abstracts for duplicate articles and for inclusion and exclusion criteria reduced the final analytic sample to 146 articles. Twenty percent of the total population of articles, or at least 30 articles, whichever is greater, provides a sample of adequate size to conduct an analysis (Rogers & Knafl, 2000). Therefore, 30 of the 146 articles were selected for inclusion in this analysis.

**Data Analysis**

Individualized aging is a compound concept, meaning that each word in the concept has meaning. Analysis proceeded first by analyzing data on current theories of aging and was followed by reviewing the sample of scientific articles for data on individualized care. Many articles did not forthrightly define the concept of individualized care; rather, aspects of the concept were inferred in the articles’ introductions as a finding or result, or in discussion sections. Rogers and Knafl (2000) indicate that the absence of a definition is common and recommend looking for statements on characteristics of the concept while keeping in mind how the concept is used in practice. They also recommend that researchers “look for all statements that provide a clue to how the author defines the concept” (p. 91). Data elements of current theories of aging and data elements from each article were extracted into a Table for inductive analysis, a key component of the evolutionary method of concept analysis (Rogers & Knafl), to identify the attributes, antecedents, and consequences of the concept being analyzed.

**FINDINGS**

Analysis of the data revealed two antecedents, three defining attributes, and two consequences (see Figure). Specific textual data from the sample articles were used as examples of each of the attributes, antecedents, and consequences discussed.

**Antecedents**

Antecedents are phenomena or events that occur prior to the concept (Rogers & Knafl, 2000), but are an integral part of it. The two antecedents identified as preceding the concept of individualized aging were past experiences and biological aging processes.

**PAST EXPERIENCES**

Older adults’ past experiences influence their beliefs, attitudes, expectations, and interactions with the health care system and health care professionals. Psychological and sociological theories of aging (e.g., activity, disengagement, gerotranscendence, age stratification) help explain the impact of past experiences on older adults and subsequently on the process of aging. The activity theory (Havighurst, 1961) suggests that older adults’ continued engagement with society through activities they enjoyed in middle age promotes both psychosocial and physical well-being. Older adults viewed through this theoretical lens might be more likely to have increased functional ability and to want more aggressive treatment options for illness and injury even if the prognosis is potentially poor, as with some types of cancer.

Disengagement theory (Cumming & Henry, 1961) posits that as people age they gradually disengage from society to make room for younger people to take over the primary responsibilities of society, thereby maintaining societal equilibrium. Older adults viewed through this theoretical lens might be more likely to have less functional ability and to not choose aggressive treatment options.
Gerotranscendence (Tornstam, 1994) theory also predicts a natural disengagement from society, but holds that this is positive, because older adults can then focus on metaphysical needs and introspection.

Another theory, age stratification (Riley, Johnson, & Foner, 1972), looks at older adults as cohorts of similar-age individuals creating varying strata within society. These strata or cohorts share common past experiences, such as living through World War II or the civil rights era, that shape their views and expectations as well as society’s views and expectations of them. The current stratum of baby boomers in the United States may bring significant changes to how the country’s health care system functions as a result of their past experiences. This generation of older adults is expected to have better health and therefore longer lives and to be better educated, more connected to society, and more personally involved in health care decisions than any previous cohort.

**Biological Aging Processes** All living organisms experience cellular degradation and decline that lead to death (Eliopoulos, 2010; Maulk, 2010; Miller, 2012; Touhy & Jett, 2012). The rate and effects of decline are different for each individual. Several theories hypothesize the underlying mechanisms of cellular decline based on knowledge and examination of the organism’s genetic makeup and cellular activities. For example, the neuroendocrine and immunological theories of aging posit that the diminished abilities of these body systems contribute to biological aging (Fabris, 1991). Loss of the neuroendocrine system’s ability to release hormones secreted by various endocrine glands contributes to cells’ inability to function normally, leading to cellular and organ decline — thereby influencing the aging process. It is also theorized that impaired immunological processes contribute to the aging process and lead to increased disease in older adults (Swain & Nikolich-Zugich, 2009).

The free radical theory of aging posits that highly unstable and reactive molecules, called free radicals, damage cells (Harman, 1956). Although the body has protective mechanisms against these molecules, their effectiveness declines over time and the cellular damage accumulates, contributing to the aging process. Biological decline appears to be part of the aging process; however, each individual’s rate of decline, based on factors identified in current biological theories of aging, impacts the individual aging process. Biological decline is intricately linked to each individual’s past experiences, creating a unique process. Past experiences also interact synergistically with individualized biological decline processes, leading to an individualized aging process.

**Attributes**

There are three attributes of individualized aging: heterogeneity, living with age-related changes and multiple chronic conditions, and increased risk of complications.
changes and chronic conditions, and increased risk for complications.

**Heterogeneity** The first attribute of individualized aging is the recognition that the older adult population in the United States is extremely heterogeneous — diverse — in many different ways. The reviewed articles (see Table) frequently discussed this heterogeneity in physiological variables, cultural preferences, racial/ethnic disparities, and response to illness. For example, Studenski and colleagues (2011) found that gait speed and life expectancy vary widely among older adults. Gait speed can range from 0.04 m/s to 1.4 m/s and life expectancy for those 70 years old varies between 7 and 23 years for men and 10 and 33 years for women, and there is an association between gait speed and life expectancy. The heterogeneity seen in older adults’ life expectancy creates a need to consider this reality when individualizing treatment plans (Studenski et al.). This is also significant because quality of life is increased when treatment plans are individualized (Parsons, Rouse, Robinson, Sheridan, & Connolly, 2012).

Heterogeneity is also seen in the desire of older adults of differing racial or ethnic groups to discuss health care prognoses with their providers and the view “that a doctor should not make assumptions based on ethnicity” (Ahalt et al., 2012, p. 572), emphasizing their desire to be viewed as individuals even within a specific cultural or ethnic group. Older adults’ cultural and ethnic backgrounds can also affect how they age and interpret past experiences. Szanton and colleagues (2011) focused on improving older African Americans’ ability to age in place in recognition of their increased rates of disease and disability as well as their lower socioeconomic status (SES) compared to their white counterparts. Heterogeneity of SES is an important component of older adults’ past experiences that impacts how they age.

The American Geriatric Society (AGS) emphasizes that “older adults with multimorbidity are heterogeneous in terms of illness severity, functional status, prognosis, personal priorities, and risk of adverse events even when diagnosed with the same pattern of conditions” (2012b, p. 1957). The literature identifies the need for changes in care guidelines in at least two areas — diabetes (Germino, 2011; Ligthelm, Kaiser, Vora, & Yale, 2012) and renal disease (Bowling & O’Hare, 2012; Campbell & O’Hare, 2008; Tamura, Tan, & O’Hare, 2012) — due to the heterogeneous nature of older adults. Standardized treatments (for, e.g., diabetes and renal care) applied without consideration of the diverse and unique needs of older adults may not be appropriate and may contribute to poor outcomes and diminished quality of life.

Many older adults with adequate functional status and social support live long, productive lives. Age alone should not determine treatment plans; rather, each older adult’s functional status, social situation, and health status should be considered because they all contribute to the likelihood of older adults living healthy, productive lives.

**Living with Age-Related Changes and Chronic Conditions** A second attribute of individualized aging is the reality that older adults live with multiple age-related physiological changes and multiple chronic conditions. “One of the greatest challenges in geriatrics is the provision of optimal care for older adults with multiple chronic conditions, or ‘multimorbidity’” (AGS, 2012b, p. 1957). Older adults experience normal age-related changes, such as those in pharmacokinetics and pharmacodynamics (Planton & Edlund, 2009), renal function (Bowling & O’Hare, 2012), and vision and hearing, and “often experience progressive decline in everyday function” (Lorenz et al., 2012, p. 468). They also age and live with a variety of disease-related chronic conditions such as diabetes (Germino, 2011; Ligthelm et al., 2012) and chronic kidney disease (Bowling & O’Hare, 2012; Campbell & O’Hare, 2008). Age-related changes and disease-related chronic conditions can significantly impact the lives of older adults, for example, by affecting the ability to ambulate; as previously mentioned, gait speed has been associated with life expectancy (Studenski et al., 2011).

Regardless of whether the chronic condition is a normal age-related change or the result of a disease process, older adults must adapt and live with these changes; in turn, providers and health care systems must learn to adapt and care for older adults living with multiple chronic conditions (AGS, 2012b). This adaptation should incorporate an understanding that disease-oriented approaches to care may not be the best approach for optimal care (Bowling and O’Hare, 2012; Tamura et al., 2012), and that deviation from clinical practice guidelines (Ligthelm et al., 2012; Maynard, O’Malley, & Kirsh, 2008) and specialized care units may be needed to deliver high quality care.

The challenges of caring for older adults with multiple chronic conditions has led to
the development of specialized care models designed to address their needs. The Acute Care for the Elderly (ACE) unit (Krall et al., 2012) is one model, while another is the Geriatric Resources for Assessment and Care of Elders (GRACE) (Bielaszka-DuVernay, 2011). The GRACE model is an integrated care model aimed at improving care for vulnerable elders who “suffer from a cluster of chronic conditions — for instance, hypertension, heart failure, and diabetes — and a large number contend with geriatric conditions such as depression, cognitive impairment, and physical limitations” (Bielaszka-DuVernay, p. 432).

The ACE unit and GRACE care model address older adults’ chronic conditions at the system level, whereas the AGS’s “Guiding Principles for the Care of Older Adults with Multimorbidity: An Approach for Clinicians” focuses on individual provider interactions and adaptations (2012a). This document recommends a number of strategies to improve the care of these patients, such as including them in decisions about treatment options when treatment for one condition may impact another condition. This strategy allows the patient to prioritize care based on personal preferences, cultural beliefs, and expectations. The health care system and providers need to emphasize using effective care strategies that prevent unnecessary adverse events and poor outcomes, as well as facilitate patient and caregiver involvement.

INCREASED RISK FOR COMPLICATIONS The third attribute of individualized aging is older adults’ increased risk for complications. This attribute is closely linked to the second attribute, age-related changes and multiple chronic conditions. Examples of potential risks older adults face include polypharmacy and suboptimal medication use (AGS, 2012a; Plarton & Edlund, 2009), untreated or inadequate pain treatment (Curtiss, 2010); cancer (Balducci, Colloca, Cesari, & Gambassi, 2010), falls and falls with injury (Clyburn & Heydemann, 2011; Lakatos et al., 2009; Nitz et al., 2011), malnutrition (Feldblum, German, Castel, Harman-Boehm, & Shahar, 2011), microvascular complications and hypoglycemia (Germino, 2011; Ligthelm et al., 2012), hypotension (Maynard et al., 2008); iatrogenic complications (Krall et al., 2012), and complications from chronic kidney disease, such as cardiovascular events (Campbell & O’Hare, 2008).

Older adults are at increased risk for hypoglycemia, which can lead to “death and significant morbidity from seizures, comas, falls, fractures, and poor quality of life” (Ligthelm et al., 2012, p. 1565). Proper management of the risk for hypoglycemia can minimize the risk and decrease the possibility of adverse events. Similarly, adverse events from polypharmacy and suboptimal medication use, falls, diabetes and renal cardiovascular complications, iatrogenic complications, and a variety of other risk-related complications can be mitigated with skillful management by providers and a health care system that supports individualized care of older adults.

CONSEQUENCES This analysis identified two consequences resulting from the concept of individualized aging: complexity of care over time and variable health outcomes. Consequences are contextual factors that occur as a result of the concept.

Complexity of Care Over Time Aging is a process unique to each individual that occurs over time. As people age, their care becomes increasingly complex. Older adults are generally categorized in the health care literature as those individuals 65 years or older (Clyburn & Heydemann, 2011; Germino, 2011; Lewis, Griffith, Pignone, & Golin, 2009; Ligthelm et al., 2012; Wang et al., 2012). Yet older adults often live for decades past the age of 65. Over those ensuing decades, the aging process continues and is continually being influenced by personal experiences and biological processes. This leads to additional normal age-related changes and potentially to new or worsening chronic diseases. Epidemic exacerbations of existing chronic diseases increase the complexity of an individual’s care, as does the development of a new chronic disease, with the resultant potential for increasing the number of medications the person takes. As a person ages and develops more chronic diseases, additional medications are prescribed, leading to polypharmacy (administration of more than five medications) and complex medication regimens (Plarton & Edlund, 2009).

Variable Health Outcomes The second consequence of individualized aging is variable health outcomes. The heterogeneity of older adults, influenced by their past experiences and biological aging processes, contributes to variability in health outcomes. Variability in outcomes is also influenced by health care providers’ ability to adapt to the unique needs of older adults, as well as older adults’ interpretation of their health based on their past experiences, which influences how they access care and utilize support services and therefore significantly impacts their health outcomes.

An example of the complexity of the aging process (past experiences, biological decline, multiple chronic conditions, heterogeneity, and risk for complications) contributing to the variability of outcomes is visible in the use and application of clinical practice guidelines or protocols, which may lead to poor physiological and psychosocial outcomes if the unique heterogeneous needs and preferences of patients (AGS, 2012a) are not taken into consideration. Treatment strategies should be based on individualized plans of care that take into account the unique aspects of each older adult (Wang et al., 2012).

Two common diseases that are prevalent in the older adult population, diabetes (Germino, 2011; Ligthelm et al., 2012) and chronic renal disease (Bowling & O’Hare, 2012; Tamura et al., 2012), have well-established protocols, but those protocols may not be appropriate for every older adult. For example, the American Association of Clinical Endocrinologists recommends a hemoglobin A1c (HbA1c) of 6.5
percent or less for generally healthy adults (Handelsman et al., 2011), whereas the International Association of Gerontology and Geriatrics, the European Diabetes Working Party for Older People, and the International Task Force of Experts in Diabetes (Sinclair et al., 2012) recommend an HbA1c of between 7.0 and 7.5 percent for those over 70 years old.

Bowling and O’Hare (2012) contend that disease-oriented approaches to the care of older adults with chronic renal disease are not individualized enough to accommodate patients’ comorbidities, preferences, and unique situations. Strict adherence to disease-oriented approaches may “carry more potential for harm than benefit if these [treatment strategies] fail to capture patient goals and preferences” (Bowling & O’Hare, p. 301). Some clinical practice guidelines may be appropriate—for example, the Beers criteria—but deviation from those guidelines may be appropriate after careful consideration of the individual older adult’s needs, preferences, and comorbidities (Planton & Edlund, 2009). Others have examined the relationship of age to lung cancer treatment (Wang et al., 2012) and screening for colon cancer (Lewis et al., 2009) and recommended individualized treatments as the best approach for optimal outcomes.

Another reason for health care providers to consider deviation from or adaptation of clinical practice guidelines and protocols is the lack of older adults with multiple comorbidities enrolled in the studies that are used to develop the guidelines (AGS, 2012b; Campbell & O’Hare, 2008; Cheng & Nayar, 2009). Without older adults in the studies, their findings and recommendations may not support the best outcomes for these individuals.

Related Concepts
A related concept found in the literature was patient-centered care. Patient-centered care has been championed since the release of the IOM Crossing the Quality Chasm report (2001). Although patient-centered care is important to the overall quality of care, it is different from the concept of individualized aging. Patient-centered care focuses on: a) ensuring that the health care system and providers focus on the needs of patients and their families or caregivers, and b) that providers not force care on patients, but rather collaborate with them on making care decisions based on the patients’ personal beliefs, preferences, and desires. Individualized aging is a more granular concept that defines the process of aging from an individual perspective, but does not define how the health care system or providers should interact and collaborate with patients.

The concept of individualized aging provides additional knowledge of how patient-centered care should be delivered. Patient-centered care for older adults should encompass the attributes of individualized aging. For example, recognition that the older adult population is heterogeneous, lives with multiple chronic conditions, and is at risk for adverse events and complications if care is not individualized is essential to the delivery of high quality care.

Definition of the Concept
Individualized aging is the complex interplay of past experiences and biological processes occurring within the heterogeneous population of older adults who live with multiple age-related changes and chronic conditions, putting them at risk for health care complications, adverse events, and poor outcomes. Individualized aging increases the complexity of care over time, which creates the potential for variable health outcomes that extends until death. Each older adult, due to unique circumstances related to his or her past experiences and biological aging processes, interprets and responds to aging in different ways, creating the full range of human responses to aging, chronic conditions, and risks for complications. On one end of the continuum are older adults with multiple chronic health conditions, limited social supports, and poor health outcomes, while at the other end are older adults with few chronic conditions, strong social supports, and good health outcomes. The range of possibilities along that continuum is as diverse as the older-adult population itself.

DISCUSSION
Individualized aging is an important concept for health care providers and students to understand. Past experiences and the psychological and sociological theories that help explain aging processes are important for shaping how older adults view the world around them. Essential to understanding the concept of individualized aging is recognition that the concept is not a measure or indicator of quality of life. Rather, the antecedents and attributes that define the concept provide the foundation for how each older adult interprets the aging process, thereby determining his or her overall quality of life. For example, cultural heterogeneity and past experiences affect how people live with and view age-related changes and chronic conditions, creating the range of human responses and experiences seen each day in health care settings. Each older adult’s unique life experiences and interpretations of those experiences combine with their biological aging processes, interactions with the health care system, and availability of support services to influence their perception of their quality of life.

There are limitations to any concept analysis. This concept was structured around the health sciences literature, and therefore the antecedents, attributes, and consequences of individualized aging are connected to this particular context and time period. Also, the concepts of chronic disease and risk may evolve over time; therefore, future scholarly work should continue to define and clarify these concepts. Review of the literature in the humanities may have identified different attributes of aging, perhaps even sagacity. Future analyses of the concept from different contextual perspectives, such as from a humanities perspective, would broaden the understanding of the individual aging process.
CONCLUSION
This article defines a unique and important new concept to improve care of older adults: individualized aging. The antecedents of individualized aging — past experiences and biological aging processes — significantly impact older adults’ lives and shape the core attributes of the concept. By focusing on the core attributes identified in this analysis — heterogeneity, living with age-related changes and chronic conditions, and increased risk for complications — health care providers will be able to improve the care of older adults. Recognition of the complexity of the care continuum will facilitate creation of systems that are proactive rather than reactive. Finally, rather than simply adhering to standardized guidelines and protocols that may not serve the patient’s best interests, providers with an awareness of the core attributes of individualized aging will be able to make collaborative decisions with the patient, family, and other health care providers. Such decision will be based on the unique needs and preferences of each older adult to achieve the optimal health outcome.

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KEY WORDS
Gerontological nursing — Education — Quality of Health Care

REFERENCES


