Chapter 1

Introduction

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Demographics

There are currently 39.6 million Americans older than age 65; most are women (Administration on Aging [AOA], 2010). In another 20 years it is expected that about one fifth of all Americans (72.1 million) will be older than age 65 and by 2050, the number of elders living in this country will likely double (AOA, 2009; Vincent & Velkoff, 2010). This seemingly sudden onset of older citizens is related to the aging of the “baby boomers”. The “boomers” were born between 1946 and 1964 and are a racially and ethnically diverse population that includes healthy elders, as well as elders with a variety of co-morbidities and disabilities. Many are foreign born; some are Vietnam War veterans. Many are still working (AOA, 2011).

Older adults are the fastest growing cohort in the US and though these elders often describe themselves as being in good health, they frequently have many co-morbid disorders, such as hypertension, arthritis, or hyperlipidemia. Almost one-third (30%) live alone (AOA, 2011). Some are dependent on Social Security for income, but some have private or government pensions or carefully saved for their retirement (AOA, 2011).

The average income for older females was $15,282 in 2009; for men $25,877 that same year (AOA, 2011).

Other countries are experiencing a similar change in aging demographics. In some of these countries, the life expectancy, especially of women, is longer than in the US (Federal Interagency Forum on Age-Related Statistics, 2010). It has been known for some time that women lived longer than men worldwide, but this, too, is changing as life expectancy for men is projected to improve in the future (Vincent & Velkoff, 2010).

Persons between age 55 and 75 are thought of as “young old” while those over age 75 are considered “old old”. Some elders are referred to as “frail elders”. Frail elders are more dependent, because they are less able to care for themselves and perform their own activities of daily living (ADLs). Frail elders are often older than 75 years of age, though illness and comorbidity can cause frailty in any age cohort.

Patients over age 65 represent more than one third of all hospital admissions and more than half of all hospital days (CDC, 2007). Men and women in the US have similar health care disorders, though the percentages for each disorder are quite different.

Heart disease, malignancy, and cerebrovascular disease are the top three causes of death for all elders (Xu et al., 2009).

Theories of aging

There are numerous theories about aging. Some are biologic or programmed theories that address physiological changes that occur over time (Jin, 2010). Biologic theories suggest that aging is programmed in some way. It could be built in senescence or a gradual decrease in gene or immunologic function (Jin, 2010). Wear and tear theory is an example of damage theory, another biologic theory of aging. In wear and tear theory, it is proposed that over time, cells fatigue and eventually cannot function appropriately. This theory can explain some aging changes (e.g., degenerative bone disorders) and is another example that considers aging a preprogrammed rather than random process.

Other common theories associated with aging include psychological and sociological theories. Psychosocial theories are primarily concerned with explaining human personality and behavior. Erikson, a developmental theorist, described human stages of development that ranged from infancy to old age. In Erikson's theory, at each stage of development there are specific tasks that individuals must master. Infants learn to trust themselves and others, while at the opposite end of the life spectrum, elders prepare for the end of life by reviewing one's life - the achievements and disappointments. This theory is commonly considered when planning end of life care, but a different theory (Activity Theory) encourages active, healthy engaged elders (Roy & Russell, 2005). There are many other psychosociological theories of aging. Some theorize that our personalities really do not change as we age (i.e., the Continuity theory) while other theorists describe how roles and activities change as we age (i.e., Disengagement theory) (Roy & Russell, 2005).

No one theory addresses the complexity of aging, as growing older involves physiologic changes as well as personality and attitude changes. For nurses, understanding the interplay of these theories is very important because it helps understand the many changes that occur with aging.

Healthy aging

Healthy aging is dependent on many factors. Genetics and lifestyle play a significant role, but people who had fewer acute and chronic illnesses over their lifetime may also be healthier as they age. Other factors that contribute to healthy aging include:
• Ideal weight for height
• Normal blood pressure, blood sugar, and cholesterol
• Daily exercise
  • 10,000 steps per day or 30 minutes a day
  • Weight training twice weekly to strengthen abdomen, back, chest, arms, shoulders, hip and leg muscles
• Balance training each day
• Low fat, low cholesterol, low calorie diet, that includes:
  • lean meats
  • fruits, fiber, and vegetables
  • adequate calcium and vitamin D
  • 1 glass red wine per day
• Fewer medications
• Smoking cessation
• Stress reduction
  • Breathing exercises
  • Meditation
  • Yoga
• Socialization

Many of the elements associated with healthy aging are appropriate for elderly patients. Adults older than age 65 still need exercise, but the physician always needs to determine if an older patient is healthy enough for exercise. In general, if a person over age 65 is healthy and has no limiting health disorders, physical exercise guidelines continue to recommend 150 minutes of moderate intensity exercise (e.g., brisk walking) each week and exercise that strengthens muscles twice weekly (CDC, 2011). Even for frail elders exercise can be beneficial. Researchers learned that exercise in these patients improves well being, sleep, decreases pain, increases mobility and helps prevent falls (Heath & Stuart, 2002).

It is also never too late for people to learn about healthier foods, and it is never too late to begin an exercise regimen. The Nurses’ Health Study and other research studies provided evidence that proper diet and exercise at any age are beneficial, maintaining telomere length on chromosomes and increasing cellular lifespan as well as decreasing the risk of physical or cognitive problems (Baer et al., 2011; Hu et al., 2003).

In addition to the healthy behaviors described above, there are other components of healthy or successful aging. Socialization or engagement in life and a positive outlook on life impact quality of life and possibly cognition. Elders themselves describe the importance of being adaptable to aging changes and losses as they grow older.

### Normal aging changes

Numerous issues affect aging and not all are physiologic. Financial concerns, family stressors, and the loss of family and friends are important considerations
that impact all of us. Some physiologic changes do occur over time despite proper diet and exercise, in most, if not all, body systems. These changes are linear, occurring over time and starting around age 45. In addition, co-morbid disorders and illness can impact aging significantly in some people. Though not all changes affect all elders, common changes associated with normal aging include:

- Decreased body water
- Increased body weight
- Homeostasis easily affected by illness
- Temperature regulation impacted over time
- Gait changes especially after age 80 may be multifactorial
  - Increased double stance time; decreased gait speed
- Cellular changes
  - Diminished cell mediated immunity
  - Decreased number of receptors and diminished receptor sensitivity impact medication pharmacodynamics
- Skin: initial aging changes are seen in skin changes
  - Epidermis thins, becomes dryer and less elastic
  - Decreased subcutaneous fat
  - Sweat glands, blood vessels, melanocytes, and nerve cells decrease in number
  - Absorption of topical medications is more rapid
- Head, ears, eyes, nose, throat (HEENT)
  - Visual and hearing changes
  - Decreased thirst
  - Diminished sense of smell and taste
- Cardiac
  - Cardiac and arterial muscle stiffening results in some cardiac enlargement, hypertension
  - Decreased baroreceptor sensitivity
  - Decreased cardiac output affects blood flow to all organs and can affect medication absorption, distribution, first pass effect, biotransformation, and elimination
- Respiratory
  - Possible increase in AP chest diameter
  - Decreased bronchiolar smooth muscle
  - Vital capacity decreases, residual volume increases
  - Increased risk aspiration
- Gastrointestinal
  - Atrophic gastritis
  - Decreased absorption medication/nutrients is possible.
  - Diminished esophageal motility
  - Functional changes in swallowing (usually related to medications or neurological disorder)
  - Decreased hepatic blood flow
- Genitourinary
  - Decreased blood flow can cause decreased glomerular filtration and tubular secretion; diminished creatinine clearance.
● Decreased number of nephrons
● Diminished bladder capacity
● Prostate enlargement
● Incontinence
● Musculoskeletal
  ● Decreased muscle mass and strength
  ● Increased bone loss
● Neurological
  ● Brain atrophy
  ● Increased fragility of blood vessels
  ● Neurodegenerative changes include decreased nerve impulse conduction
  ● Decreased cerebral blood flow
  ● Decreased proprioception (spacial awareness).

**Impact of hospitalization on older adults**

Older adults are at increased risk for injury when hospitalized for any reason. Some risks are related to aging changes (e.g., organ changes that increase the risk for pharmacodynamic or pharmacokinetic drug interactions). Other risks are related to the hospital environment and/or social isolation. For nurses, a primary goal for this population is patient safety. Particular concerns for elders include:

● Adverse drug reactions
● Alteration in mobility
● Alteration in skin integrity (i.e., pressure ulcers)
● Anxiety
● Cognitive changes: delirium, unmasking of dementia
● Constipation
● Deconditioning
● Depression
● Falls
● Fluid and electrolytes disorders (e.g., dehydration, fluid overload)
● Functional changes
● Iatrogenic injury
● Incontinence
● Malnutrition
● Nosocomial infections

**Ageism**

Ageism or age discrimination is rampant in the United States. In a culture that worships youth and beauty, older adults are often portrayed as helpless or demented, a characterization that is far from the truth. Many older adults continue to be successful, contributing members of society. They range from
grandparents caring for their grandchildren to successful businessmen and women. Although in many societies elders were valued for their prestige and wisdom, ageism has likely always existed in one form or another. Like other types of discrimination, there are different facets to ageism. Age discrimination can be witnessed in many forms: abuse, neglect, prejudice and injustice in the workplace and, unfortunately in healthcare. Healthcare providers may not realize that they are discriminating against elders, but decreased healthcare screenings and preventative care are common examples of elderly discrimination.

Health literacy

Many patients do not understand health information. For some patients, health literacy is compromised because of language or poor reading or writing skills. However, even well-educated people may not understand the language that we as healthcare providers speak. If we think about the language that doctors and nurses use everyday (e.g., NPO, PICC line, angiocath, etc.) it is no wonder our patients do not understand us. For patients over age 60 and for other vulnerable populations, health literacy is an acute problem. According to The National Patient Safety Foundation:

- Health literacy skill affects health status more than age, income, ethnicity, or race.
- 20% of Americans read at the 5th grade level.
- Most health care education information is written at the 10th grade level.
- 66% of patients over age 60 have negligible literacy skills.
- 50% of patients take medications incorrectly because of medical misunderstanding.
- Low health literacy increases hospitalizations by 50%.
- For patients with low health literacy, healthcare costs are four times higher than for patients with high health literacy.

Health literacy in US elders is less than in any other age group in this country. It takes older patients longer to understand health care information and their understanding decreases with age (Federal Interagency Forum on Age-Related Statistics, 2010). Additionally, older adults may have cognitive deficits and functional changes that prevent them from navigating the health care system successfully. Yet, older patients usually have more health problems, see more doctors, and take more medications. For elders whose primary language is not English, the concern about their health literacy is increased. Unfortunately, it is sometimes difficult to determine health literacy. Patients may feel uncomfortable asking providers for more information about their instructions and healthcare providers may be embarrassed to ask questions that help assess health literacy.

Nurses are the primary caregivers in hospitals and other health care facilities. Nurses also teach patients about illness and health, thus have an opportunity to assess patient literacy and work with other health care
providers to create patient education tools and improve patient understanding of their health. In addition, patients often feel more comfortable with nurses and rely on nurses to interpret physician information.

To effectively educate patients, nurses need to determine each patient’s health literacy as part of the nursing assessment. Older patients may not be able to assess their literacy accurately and asking patients their highest level of education may not be helpful because of the cognitive changes that occur with aging (Safeer & Keenan, 2005).

Varied assessment tools are available, but the Rapid Estimate of Adult Literacy in Medicine (http://www.ahrq.gov/populations/sahlsatool.htm) is effective and simple to use, plus quick and easy to use (Safeer & Keenan, 2005). Other suggestions to improve patient understanding include:

- Take time to establish a relationship with the patient (and/or family):
  - Be respectful and attentive.
  - Do not allow prejudice to interfere with the nurse–patient relationship.
- Sit opposite the patient and make eye contact.
- Begin the encounter by explaining what you are about to do.
- Limit distractions and focus on the patient.
- Assess patient health literacy skills.
- Use simple language and pictures.
- Provide small amounts of information at a time.
- Encourage patient to ask questions and participate.
- Have the patient “Teach back” to evaluate understanding.
- Provide written information at 3rd grade level and include pictures:
  - Microsoft Word Auto-Summarize and Readability will simplify language (Pugliese & Janowski, 2009).
- For patients who speak a language other than English, written instructions (with pictures) should be provided in the patient’s primary language.

References


Further reading
