Invitation to the Life Span
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Chapter 14 – Late Adulthood: Body and Mind

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Ageism

- A form of prejudice in which people are categorized and judged solely on the basis of their chronological age.
- Considers people as part of a category and not as individuals

Elderspeak

- A condescending way of speaking to older adults that resembles baby talk, with simple and short sentences, exaggerated emphasis, repetition, and a slower rate and a higher pitch than normal speech.
Believing the Stereotypes About Old Age

An Imagined Threat

Stereotype threat

– Anxiety about the possibility that other people have prejudiced beliefs.

– Responses to stereotype threat include dyeing hair, undergoing plastic surgery, dressing in youthful clothes, and moving quickly to look agile (or spry).
Young-Old, Old-Old, and Oldest-Old

Young-old (70%)
- Healthy, vigorous, financially secure older adults (those aged 60 to 75) who are well integrated into the lives of their families and communities.

Old-old (20%)
- Older adults (those aged 75 to 85) who suffer from physical, mental, or social deficits.

Oldest-old (10%)
- Elderly adults (those over age 85) who are dependent on others for almost everything, requiring supportive services such as nursing-home care and hospital stays.
The Elderly: Burden or Blessing?

A Pyramid Becomes a Square

Population Pyramid

– A graphic representation of population as a series of stacked bars in which each age cohort is represented by one bar, with the youngest cohort at the bottom.
The Elderly: Burden or Blessing?

Three reasons for traditional pyramidal shape

1. Far more children were born than the replacement rate
2. Before modern sanitation and nutrition, about half of all children died before age 5
3. Middle-aged people rarely survived adult diseases like cancer and heart attacks

Square

- The demographic stacks in some industrialized nations are already do not have a pyramidal shape and is almost square.
The Elderly: Burden or Blessing?

Dependence and Independence

Dependency ratio

– A calculation of the number of self-sufficient, productive adults compared with the number of dependents (children and the elderly) in a given population.

– Current dependency ratio is about 2:1 in most industrialized nations (better than it has ever been).

– Ratio could flip to 1:2 if baby-boomers live to 100 and the emerging adults are not be self-sufficient until age 25.
The Elderly: Burden or Blessing?

Caregivers or Care Receivers?

– Older people probably give more care than they receive.
– They are more likely than younger adults to vote, pray, participate in civic groups, and donate time and money to various causes as well as to their own descendants.
– Only the oldest-old need ongoing care: In the U.S. and Canada, only about 4% of the over-65 population are in nursing homes or hospitals.
A Short Time For Illness

Compression of morbidity

- A shortening of the time a person spends ill or infirm before death; accomplished by postponing illness.
- Due to improvements in lifestyle, medicine, and technological aids.
- North Americans who live to be 95 are likely to be independent almost all of those years.
Ageism and the Aging Senses

Senescence is pervasive and inevitable

– Obvious in appearance (skin gets wrinkled, bodies change shape) and the senses.
– Only 10% of people over age 65 see well without glasses.
– Taste, smell, touch, and hearing are also impaired (e.g. by age 90, the average man in North America is almost deaf, hearing only 20 percent of what he once did).
Ageism and the Aging Senses

Technology and Sensory Deficits: Technology can compensate for almost all sensory loss.

Visual problems:

– Brighter lights and bifocals or two pairs of glasses are needed.

– Cataracts, glaucoma, and macular degeneration can be avoided or mitigated if diagnosed early.

– Elaborate visual aids (canes that sense when an object is near, infrared lenses, service animals, computers that “speak” written words) allow even the legally blind to be independent.
**Table 14.1 Visual Impairments Common Among the Elderly**

- **Cataracts** involve a thickening of the lens, causing vision to become cloudy, opaque, and distorted. As early as age 50, about 10 percent of adults have such clouding, with 3 percent experiencing a partial loss of vision. By age 70, 30 percent have some visual loss because of cataracts. These losses are initially treatable with eyeglasses and then with outpatient surgery, which removes and replaces the cloudy lens.

- **Glaucoma** is devastating if not detected. About 1 percent of those in their 70s and 10 percent in their 90s have glaucoma, a buildup of fluid within the eye. The pressure that results from excess fluid damages the optic nerve, causing the visual field to narrow and ultimately causing sudden blindness. Until then, the person has no symptoms, but an ophthalmologist or optometrist can detect signs and relieve the problem with eye drops or laser surgery. Glaucoma is partly genetic; it occurs at younger ages among African Americans and people with diabetes.

- **Macular degeneration** is deterioration of the retina and is the most common cause of blindness. It affects about 1 in 25 people in their 60s and 1 in 6 over age 80. It is diagnosed early via eye exams or by noticing spotty vision (such as reading with some letters missing). Macular degeneration is progressive, becoming severe five years after it starts (Mukesh et al., 2004). Medication (ranibizumab) can restore some vision if treatment begins early enough (P. J. Rosenfeld et al., 2006).
Ageism and the Aging Senses
Ageism and the Aging Senses

Auditory problems

– Small and sensitive hearing aids are available but many people still hesitate to get aids.
– Missing out on bits of conversation cuts down on communication and precipitates many other social losses.
– Younger people tend to yell or use elderspeak, both of which are demeaning.
– Elderly people are less vulnerable to stereotype threat if they have positive interactions with the younger generations.
The Society and Sensory Loss

A passive acceptance of sensory loss increases morbidity of all kinds.

Problems:

- It is often difficult to individualize available technology.
- Ageism is inherent in the design of everything from airplane seats to shoes.
- Many disabilities would disappear if the environment were better designed.
Health and Sickness

Primary Aging

– The universal and irreversible physical changes that occur to all living creatures as they grow older.

Secondary Aging

– The specific physical illnesses or conditions that become more common with aging but result from poor health habits, genetic vulnerability, and other influences that vary from person to person.
Cardiovascular Disease (CVD)

The Cardiovascular Health Study

- Participants: More than 5,000 people over age 65 in the United States without coronary problems.
- Six years later, some participants had developed heart disease.
- The likelihood of CVD was strongly related to six risk factors (all more common with age):
  - Diabetes
  - Smoking
  - Abdominal fat
  - High blood pressure
  - Lack of exercise
  - High cholesterol
Facts about CVD

• CVD is considered secondary aging because not everyone develops it.
• No single factor (including age, hypertension, inactivity, and smoking) makes CVD inevitable.
• The links among aging, risk, and CVD are undeniable.
  – A 90-year-old is 1,000 times more likely to die of cardiovascular disease than is a 30-year-old, even if both have identical genes, social contexts, and health habits
  – Less than half those over age 65 have CVD, diabetes, or dementia but almost everyone has at least one of these three by age 90.
  – Risk factors and diseases of the aged are not distributed randomly: If a person has one risk factor, it is likely that he or she has several.
Staying Healthy

Nutrition

– Aging body becomes less efficient at digesting food and using nutrients.
– People need fewer calories as they grow older.
– A healthful diet is very important for mind and body in late adulthood.
– Some older people take drugs that affect nutrition (e.g. aspirin, antibiotics, antacids, laxatives, caffeine).
– Many elders do not drink enough (awareness of thirst is reduced and the kidneys and bladder are less efficient).
Staying Healthy

TUFTS
Food Guide Pyramid for Older Adults

CALCIUM, VITAMIN D, VITAMIN B-12 SUPPLEMENTS
Not all people need these supplements, check with your healthcare provider

USE SATURATED AND TRANS FAT, SUGAR AND SALT SPARINGLY
Saturated and Trans Fats
Added Sugar
Salt

LOW-AND NONFAT DAIRY PRODUCTS
3 OR MORE SERVINGS

DRY BEANS AND NUTS, FISH, POULTRY, LEAN MEAT, EGGS
2 OR MORE SERVINGS

BRIGHT-COLORED VEGETABLES
3 OR MORE SERVINGS

DEEP-COLORED FRUIT
2 OR MORE SERVINGS

WHOLE, ENRICHED AND FORTIFIED GRAINS AND CEREALS
6 OR MORE SERVINGS

WATER/LIQUIDS
8 OR MORE SERVINGS

f+ High-fiber choices
Choose whole grains and fortified foods such as brown rice, 100% whole-wheat bread, and bran cereals

Choose water, fruit or vegetable juice, low- and nonfat milk, or soup

For additional copies visit us on the web at http://nutrition.tufts.edu
Staying Healthy

Exercise

– Elders benefit from regular exercise.
– Older people exercise less than younger adults do.
  • Most exercise classes, team sports, and equipments are designed for the young.
  • Muscles stiffen and atrophy, making exercise more difficult.
– Movement of any kind is better than sitting still and regular exercise can compress morbidity.
– Accommodation to disability may be needed.
Staying Healthy

Drug Use

- Most people stop abusing drugs before middle age and active addicts rarely survive to old age.
- Addiction—typically to alcohol or legally prescribed medications—may begin in late adulthood.
- **Alcohol**
  - Changes in metabolism, less efficient liver functioning, and increased likelihood of living alone are risk factors for alcoholism.
  - Moderation is best: One or two glasses of wine or beer a day benefit the heart and may postpone dementia.
Living a Long Live
Maximuals and Average

Maximum life span
- The oldest possible age to which members of a species can live, under ideal circumstances. For humans, that age is approximately 122 years.

Average life expectancy
- The number of years that the average person in a particular population is likely to live.
- In the U.S. today, average life expectancy at birth is about 75 years for men and 81 years for women (It is 5 years rather than 6, see previous chapter – 12).
- Dramatic variations from nation to nation.
Anti Aging

Centenarian
– A person who has lived 100 years or more

Calorie Restriction
– The practice of limiting dietary energy intake, while still consuming sufficient quantities of vitamins, minerals, and other important nutrients, for the purpose of improving health and slowing down the aging process.
Brain Slowdown

- Senescence reduces production of neurotransmitters.
- Neural fluid decreases, myelination thins, and cerebral blood circulates more slowly.
- Speed is crucial for many aspects of cognition (e.g. memory, sensation, perception, and strategy) and may be the $g$ (conjecture) - the intellectual ability that is the foundation of all other aspects of intelligence.
Variation in Brain Efficiency

- Brain senescence varies markedly from individual to individual.
- The suggested reasons include gender, education, experience, and elders’ assessment of whether their everyday activities are restricted by their health.
- Also keeping the brain active (learning new information) can slow brain senescence.
Brain Shrinkage

- The hypothalamus, hippocampus (memory) and the prefrontal cortex (planning, inhibiting unwanted responses, and coordinating thoughts) shrink faster than some other brain areas.

- Complicated relationship among past education, current mental exercise, and intellectual functioning in late adulthood.
  - Schooling may slow the rate of brain shrinkage.
  - Good health may protect the brain more than education.
  - Education strengthens inhibition, the ability to say no or keep quiet, and this learned inhibition masks impairment when the prefrontal cortex shrinks.
Using More Parts of the Brain

Older adults use more parts of their brains to solve problems than younger adults.

Two possible explanations:

a) *Selective compensation*

– Older adults may find that using only one brain region is inadequate for complex thinking, so they automatically use more parts.

– **Intellectual output may be unimpaired**, even though the process of thinking has changed.

b) “Brain de-differentiation”: Brain stops using a focused region for each function, inhibition fails, attention wanders, and thinking becomes diffuse.
The Usual: Information Processing After Age 65

Input (Sensing)

- Some information never reaches sensory memory in older people because the senses never detect the stimuli.
- The brain automatically fills in missed sights and sounds.
  - Most older people believe they see and hear whatever is important but vital information may be distorted or lost without the person realizing it.

Elderly people’s underlying problem with sensory input may be:
1) in the brain (the input is not processed correctly)
2) in the senses (the input never reaches the brain)
3) in both
The Usual: Information Processing After Age 65

Storage (Memory)

• Stereotype threat: If older people suspect their memories are fading, **anxiety** itself impairs memory.

• Some aspects of memory remain strong throughout late adulthood while others do not.
  – For example, memory for vocabulary (semantic memory) is good, but memory for events (episodic memory) declines.
  – Source amnesia (forgetting the source of a specific fact, idea, or snippet of conversation) is common.
The Usual: Information Processing After Age 65

Working Memory (short-term memory)

- Brain slowdown reduces working memory because older individuals take longer to perceive and process the sensations they experience.

- Reduced working memory inhibits multitasking (requires screening out distractions and inhibiting irrelevant thoughts while focusing on two or more relevant tasks).
  - When older people can take their time and concentrate, their working memory seems as good as ever.
  - Concentration may crowd out other mental tasks that a younger person could do simultaneously.
Control Processes

- The part of the information-processing system that consists of methods for regulating the analysis and flow of information. Useful control processes include memory and retrieval strategies, selective attention, and rules or strategies for problem solving.

- Control processes become less effective with age.
Cognitive Output

• Gradual decline in output of primary mental abilities (e.g. verbal meaning, spatial orientation, inductive reasoning, number ability, word fluency) is normal.

Two important modifiers:

1. Health is a better predictor of cognition than age.
   - Those who will die soon (whether they are 75 or 105) may experience “terminal decline,” a faster loss of cognitive ability in the final years of their lives.
   - Those who have many more decades to live experience much less decline.

2. Training can improve cognitive ability, even for the very old.
The Impaired: Dementia

Dementia

– Irreversible loss of intellectual functioning caused by organic brain damage or disease. Dementia becomes more common with age, but it is abnormal and pathological even in the very old.

Mild Cognitive Impairment

– Affects older adults with cognitive problems who are still able to function.

– About half of them will become demented, but some stabilize with mild impairment and others regain their cognitive abilities.
# The Impaired: Dementia

## TABLE 14.2 Prevalence of Dementia Among the Elderly, by Age, United States, 2002

<table>
<thead>
<tr>
<th>Age</th>
<th>All Dementia (%)</th>
<th>Alzheimer Disease (%)</th>
<th>Vascular Dementia (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70–79</td>
<td>5</td>
<td>2.3</td>
<td>1</td>
</tr>
<tr>
<td>80–89</td>
<td>24.2</td>
<td>18.2</td>
<td>4.1</td>
</tr>
<tr>
<td>90+</td>
<td>37.4</td>
<td>29.7</td>
<td>6.2</td>
</tr>
<tr>
<td>Overall (70+)</td>
<td>13.9</td>
<td>9.7</td>
<td>2.4</td>
</tr>
</tbody>
</table>

*Source: Plassman et al., 2007.*
Alzheimer’s Disease

Alzheimer’s disease (AD) The DSM-IV-TR (2000) diagnostic category is: Dementia of the Alzheimer’s type

– The most common dementia, characterized by gradual deterioration of memory and personality and marked by the formation of plaques of beta-amyloid protein and tangles of tau protein in the brain. Also called senile dementia of the Alzheimer type
Alzheimer’s Disease (AD)

Genes involved in Alzheimer’s Disease

• AD in middle age is rare, usually caused by genes (e.g., Down syndrome), and progresses quickly.

• Most cases of AD begin much later and many genes have some impact (e.g., SORL1 and ApoE4).

• Genetic tests for AD in late adulthood are rarely used before symptoms appear because they might evoke false fear or deceptive reassurance.
Alzheimer’s Disease

Stages of Alzheimer’s Disease (There are 5 stages in all)

Beginning Stages:
- Forgetfulness
- Personality changes
- Memory loss eventually becomes dangerous (stage 3)

Final stage
- Full-time care is needed
- Communication ceases
- Identity and personality are lost
- Death comes 10 to 15 years after the first signs appear
Vascular Dementia

Vascular dementia (VaD)

– A form of dementia characterized by sporadic, and progressive, loss of intellectual functioning caused by repeated infarcts, or temporary obstructions of blood vessels, which prevent sufficient blood from reaching the brain. Also called multi-infarct dementia.
Other Dementias

Frontal lobe dementia

– A form of dementia characterized by personality changes caused by deterioration of the frontal lobes and the amygdala. Also called frontotemporal lobar degeneration.

Parkinson disease

– Does not always lead to dementia
– Starts with rigidity or tremor of the muscles as neurons that produce dopamine degenerate.
– Younger adults with Parkinson disease may avoid dementia for years; older people develop dementia sooner.
Other Dementias

Lewy body dementia

– Named after round deposits of protein (Lewy bodies) in the neuron.
– Numerous and dispersed throughout the brain.
– Motor movements and cognition are impacted.
– The main symptom is loss of inhibition.
Prevention of Impairment

- **Regular physical exercise**: Reduces the incidence of all forms of dementia by half.
- Keep the mind active
- Avoiding the pathogens that cause dementia: Testing beef for mad cow disease, using condoms to protect against HIV, treating syphilis with antibiotics.
Treatment of Dementia

Steps:
1. Taking care of the overall health of the person
2. Getting a proper diagnosis
3. Starting appropriate treatment

There is a need for professionals who are trained and dedicated, able to provide individualized medical and psychological care for the patient and the family, who shoulder most of the burden of caring for people with dementia.
The Optimal: New Cognitive Development

Erikson and Maslow

**Integrity**

- The final stage in Erikson’s model in which older people gain interest in the arts, in children, and in human experience as a whole.

**Self-actualization**

- The final stage in Maslow's hierarchy of needs, characterized by aesthetic, creative, philosophical, and spiritual understanding.
The Life Review

Life review

– An examination of one’s own part in life, which often takes the form of stories written or spoken by elderly people who want to share them with younger ones.
Wisdom

Wisdom

– An expert knowledge system dealing with the conduct and understanding of life.
– Life review, self-actualization, and integrity are considered parts of wisdom.
– Some elderly people are unusually wise.