

The Effects of Aging on Health Literacy



Aging is a process that occurs in a unique manner with each individual. It is a multi-dimensional process in which the individual's functional and health status are influenced by a variety of genetic, environmental, and cultural factors. These factors, in turn, can result in physical, psychological, and social changes.

The changes associated with aging may affect learning. Health care professionals should adapt educational approaches to meet the health teaching needs of the elderly. Teaching the elderly may be viewed by some health professionals as a futile

task; more of a formality than of actual benefit to the patient.

What is the aging process and what is its effect on learning?

The health professional's personal beliefs and attitudes about being old and a lack of understanding of the elderly and their ability to learn can be a barrier to effective education for the older patient. Myths often attached to aging, such as being senile, resistant to change, and unproductive, foster a stereotype. In truth, there is no one description capable of depicting the elderly and there are large differences in the normal aging process among individuals. Many elderly do not experience extreme adverse effects of the biological, psychological and social aspects of aging. Instead, they remain physically fit and exhibit continued social and psychological abilities.

➤ Physical Changes

Physically or biologically the elderly individual is subject to genetic and environmental factors that determine the onset, course, direction and sequence of aging processes. Degenerative changes can occur where the ability to see, hear, feel, and react may be involved. Spatial orientation, mobility, and motor coordination may decline. Work rate, which reflects the output of several body systems, is diminished.



➤ Psychological Changes

The psychological aspect of aging is related to the person's capacity to adapt. Mood, Attitude, self-concept, and personality may all be affected. Losses in old age

are many. There may be loss of former roles and status; loss of spouse, family and friends; a decline in economic security; and loss of familiar surroundings. These changes may result in poor self-esteem, depression, and a lack of self-satisfaction. It is extremely important to assess each elderly person in light of losses they may be experiencing, the effect upon him or her, and their ability to cope with these losses. Loss of self-esteem does not negate the ability or readiness of the individual to learn. However, strengthening a person's self-esteem by highlighting accomplishments and abilities is an important way to enhance a person's readiness to learn. Safety and security needs are of primary concern for the elderly in a crisis. Unless these needs are met, the older person cannot attend to health teaching.

➤ **Cognitive Changes**

Changes may occur in perception and memory; thinking, learning, and problem solving. Older adults have a reduced processing speed, are more easily distracted, and have a reduced "working memory." Working memory is the ability to both process, and remember new information at the same time. Executive function, that is, the ability to plan, may also be diminished in older adults¹.

➤ **Social and Cultural Changes**

Social change and cultural factors affect one's view of him- or herself as a competent individual. Independence is an important aim for the majority of elderly persons, regardless of their health status. It is an expression of self-respect and pride. The elderly will seek out situations that help them strive for independence. Teaching them self-management skills contributes to the desire.

Culturally appropriate care is as important for older adults as it is for younger patients. Be sure to be aware of language barriers and use a translator as needed. Cultural customs or habits, including those involving race, gender, nationality, and religion, may also affect learning^{2,3}.



Approval of others is a common goal of all adults. Social acceptance for the elderly is closely related to society's prevailing notions about being old. Because of stereotypes, the elderly may be forced to deal with detrimental changes in roles with the family, community and work. A sense of isolation and frustration may occur upon retirement when he or she is faced with a decline in socioeconomic status and the stereotypic notion of being senile, unproductive, rigid, and tranquil.

An elderly person's ability to cope with self-change is closely tied to health care and teaching. If the older person views himself as having gained a wealth of experience and wisdom throughout life, teaching can build on these experiences in a positive manner. Ways to adapt to the inevitable changes that occur with aging

can be explored. A less well-adapted person, however, will need to clarify unrealistic goals and self- demands before teaching begins.

What is the scope of the problem?



Over 77 million adults in the United States have health literacy skills that are basic or below-basic². While this lack of skills makes navigating the health care system difficult, it is even more difficult for older adults, who must seek out health care more often. The older American population is forecasted to reach 71 million by 2030, and is the fastest growing segment of the population in the United States². Estimates show that 45% of adults age 65 and older read at the lowest reading level⁴. Additionally, older adults tend to have fewer years of schooling and their reading skills decrease as their age increases.

A low level of health literacy can have serious implications for the health status of older adults. The older population experiences higher levels of chronic illnesses. Inadequate health literacy is associated with lower levels of self-management skills for patients who have chronic diseases such as diabetes, hypertension, and cardiovascular problems⁵. Poor health literacy skills are also correlated with a higher mortality rate, particularly from cardiovascular disease⁵.

Who is the older adult learner?

Knowing your learner is the key to successful teaching! The learner in this instance is the older adult and there are some basic considerations about teaching adults as opposed to teaching the very young that need to be addressed.

➤ Self-Concept

The self-concept of the adult learner is that of a mature, independent person capable of self-direction and who is a doer and producer in society. Adults see themselves as making their own decisions and taking responsibility for the consequences of these decisions. They desire respect and want to be treated as a unique being.

☐ Implications for Teaching:

As teachers of adults we need to acknowledge their desire to articulate their own needs, make choices, and to gain respect for managing their own lives. A psychological climate must be created that communicates acceptance, respect, and support. Help the person feel comfortable in taking chances and encourage expression of thoughts and ideas without fear of embarrassment.

Adults are motivated to learn when they realize that they have a need to learn. Help the learner articulate that felt need. Because adults wish to keep control of

their lives, including those aspects of learning, involve them in the entire educational process. This includes determining what, how and when they want to learn, as well as evaluating if they have acquired the necessary knowledge and skills for self-care.

➤ **Life Experiences**

An elderly person has been exposed to a vast variety of life experiences and has accumulated a great deal of knowledge in his or her lifetime. This growing reservoir of life's experiences is a rich resource for learning and should be acknowledged by others as relevant. An adult's experiences become his or her self-identity, therefore, positive feelings of support and recognition result when these experiences are recognized by others. If the experiences are minimized, the person may feel rejected. Negative past experiences may pose barriers to learning and need to be identified and resolved. For example, previous bad experiences with schooling and classes as a child, may result in a person's feeling that he is not very smart and therefore cannot learn.

☐ **Implications for Teaching:**

In order to tap into an adult's experiences, a variety of experiential teaching techniques should be used. Techniques such as skill-practice exercises, simulations, role play, case method, contracts, critical incidents, self-report diary, real-world situations for problem solving, and group discussions are effective in showing the adult how to apply what they have learned to a real situation they may encounter.

New learning becomes more relevant and meaningful to the adult when it is related to his or her past experiences. New self-management skills should be adapted to the patient's normal routines and life-style, so that the skills take on meaning. A group of adults that share their experiences with others with similar problems improves the problem-solving process.

➤ **Readiness to Learn**

Readiness to learn must exist before effective teaching can be done. The person's attitudes and reactions to a threat to his well-being are determined largely by previous experiences and perceptions with illness, infirmity, disease and other factors that contribute to loss of control and self-esteem. Learning readiness is strongly influenced by a person's social roles and developmental tasks. Some of the social roles and developmental tasks in later adulthood include:

- ✓ adjusting to decreasing physical strength and health
- ✓ adjusting to retirement and reduced income



- ✓ adjusting to the death of a spouse and other family members
- ✓ establishing an explicit affiliation with one's age group
- ✓ meeting social and civic obligations
- ✓ establishing satisfactory physical living arrangements

☐ **Implications for Teaching:**

These life event changes should be recognized. Teachable moments occur when learning is in step with these tasks and roles. Learning that is related to a person's ability to succeed with these tasks and roles are most effective. Readiness to learn and problem-solving abilities are enhanced when teaching approaches such as role-play and grouping adults with similar roles are used.



➤ **Problem or Goal Oriented**

Adult learners have a different time perspective from youth. They are particularly motivated to learn when a problem arises or at a time of crisis, i.e., they are problem-oriented. They see learning as a way to help them immediately deal with these problems and they learn best when things are seen as useful and relevant to carrying out their responsibilities.

☐ **Implications for Teaching:**

When teaching adults, focus on behaviors (how to do . . .), but limit your teaching to the minimum essentials for “survival” or the “must know versus the nice to know” information and skills. Give the patients practical answers to their problems and help them to immediately apply the new knowledge through hands-on-practice and problem-solving sessions. Acquiring information about the disease process is not the primary focus, unless the patient wants that information and needs to know it to fully understand self-care.

What to teach should be prioritized by immediacy of needs. If patients do not know what potential problems they may face, propose problems they may have and encourage them to think through their concerns and how they would handle the situation. This “rehearsal” gives them confidence that they will react properly if a similar situation or problem arises.

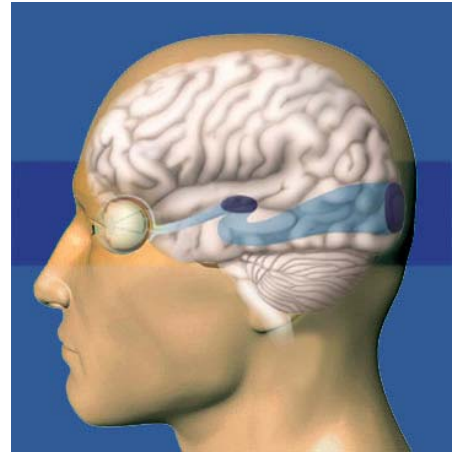
In summary, the elderly patient who has seen evidence of regard for his feelings, experiences, and self-concept; who is urged to express his own needs; who receives clear explanations about how to manage his problems and who is assisted to apply this information immediately, is more likely to learn behaviors that are deemed important.

What are potential barriers to teaching the older adult?

There are a number of potential barriers, which need to be considered when teaching the older adult, so that the patient can more successfully realize his learning potential. These factors include: vision changes, hearing changes, intellectual ability, short term memory loss, motivation, anxiety, and rigidity and cautiousness.

Vision Changes

Vision is affected by aging in various ways. Over one half of severe visual impairments in the population occur in individuals who are 65 or older. Additionally, legal blindness is prevalent in this age group. Glaucoma, cataracts, and macular degeneration in the retina account for many of these visual problems. Elderly patients who have decreased visual acuity may exhibit behaviors such as squinting, relying on touch, and being withdrawn or reluctant to communicate.



Range of clear vision narrows and attention is limited to a narrower scope. The pupil of the eye admits 50% less light for a person of 50 than for someone who is 20. Longer reaction time is required for change of focus. As the lens yellows with age, it filters out blue, green, and violet colors. The following are some suggestions to help teach an elderly patient with decreased vision.

❑ Implications for Teaching:

- ✓ Always speak to the patient and identify yourself when entering the room.
- ✓ Use touch more frequently.
- ✓ Position yourself close to the patient during interactions
- ✓ Face the patient directly when speaking, speak clearly, and avoid speaking too rapidly.
- ✓ Ensure that there is good lighting with no glare.
- ✓ Give verbal explanations since the patient may have few, if any, visual cues as reference.
- ✓ Use other forms of sensory stimulation, such as touch, sound, and smell.
- ✓ Substitute or reduce reading demands by using tapes, CD's, models, etc.

- ✓ Make materials easier to see by considering the lettering size, thickness, style, spacing, contrast, and whether it is upper or lower case.

- ✓ Use the largest possible letter size that is still compatible with the material. Thicker letters are



easier to read. Don't become so size conscious, however, that you substitute the use of all capital letters. **Materials are easier to read when upper and lower case letters are used.** This also holds true for headings and subheadings.

- ✓ A 12 point type should be used as a minimum and preferably use a 14 point when writing for the elderly.

- ✓ For optimum contrast and better visibility use dark ink on light paper. Black ink on white or yellow is the easiest to read. Avoid coordinated color schemes such as brown ink on tan paper. When colors are used, choose as much contrast as possible. Avoid giving each letter or word a different color.

Use	Do Not Use
contrast	contrast
contrast	contrast
solid color	multicolor

- ✓ Select a letter style that adds clarity to your message. Plain, medium, and bold letters in familiar styles are easily read. Avoid decorator letters styles such as Old English, thin condensed letters, outline, designer letters or calligraphy. Avoid script and orator type styles and don't use a variety of type in one piece of material.

Use	Do Not Use
plain letters	<i>OLDE ENGLISH</i>
medium	thin/condensed
Bold	outline
<i>clear hand letters</i>	<i>Calligraphy</i>
familiar styles	Designer letters

- ✓ Spacing helps the eye in coding and encoding messages. A lot of white space is essential. Be sure to double space lines.

➤ **Hearing Changes**

Hearing loss in the elderly is primarily caused by atrophy of the structures of the inner ear and the cells in the spinal ganglion. Hearing loss for higher frequencies occurs first. Patients who are suffering from hearing loss are likely to exhibit certain behaviors. Be alert for patients who lean closer to the speaker, cup their ear, position their head so that the good ear is near the speaker, ask for things to be repeated, answer questions inappropriately, have blank looks, are inattentive, or have a shorter attention span.

Once you have identified a hearing loss you can **help to maintain or strengthen communication links** by following some of these suggestions:

❑ Implications for Teaching:

- ✓ Touch the patient so he or she is aware of your presence before you attempt to speak.
- ✓ Keep your face visible to the patient and do not cover your mouth with your hands.
- ✓ Have the patient look at you while you are talking.
- ✓ Keep yourself positioned on the same level as the patient.
- ✓ Be certain that the windows or lights are behind the patient so a glare will not occur when he or she looks at you.
- ✓ Do not shout. Enunciate clearly and slowly in a low pitched voice. Speak towards the ear which seems to have the most hearing.
- ✓ Use shorter sentences and repeat or rephrase important areas of instruction. If necessary, write or draw the information.
- ✓ Use gestures or objects to clarify what you are saying.
- ✓ Eliminate distractions or extraneous noise before teaching.
- ✓ Do not change the topic abruptly.
- ✓ Ask the patient to restate instructions or other information in their own words.
- ✓ If the patient is fatigued or in pain, he or she will understand less.

➤ Intellectual Ability

Intellectual ability does not decline with aging; it only changes. The intelligence that we absorb during our lives such as vocabulary, reasoning and ability to evaluate past experiences increases with age. The older person learns faster than the younger person if learning requires information acquired in the past. Exploring past experiences, using concrete examples and asking patients what they want to learn builds on this ability.

The capacity to perceive relationships or think in abstract terms decreases in the elderly. This change results in older patients needing more time to think through and absorb new information. However, individual learning sessions need to be no longer than 10-15 minutes in order to avoid fatigue. Break down information into small units when teaching a list of things, explain each element separately, and describe their relationship to the patient's problem.

At times, older people may still be thinking of new information previously discussed as the health provider moves on to the next topic. To decrease confusion, use examples and give the patient time to explore each concept in its entirety and to ask questions.

Evidence suggests that a great deal of age-related deficits in performance may be related to **interference effects**. This concept means that people do not learn well or retain information because of confusing similarities or discrepancies between previously learned and new material.⁶

Established habits and preconceived ideas also interfere with learning. For example, if a medication is to be kept in a cool dry place and it is recommended that it not be kept in the bathroom, the established habit of storing medicines in the medicine cabinet interferes with this new information. Likewise, the patient may have a preconceived idea that a cool area means inside the refrigerator, which may cause a problem if the medicine should not be refrigerated. Following are some suggestions for decreasing the effects of interference:

❑ Implications for Teaching:

- ✓ Allow patients to set their own pace of learning. Supply written materials to read or make equipment available for the patient to practice at his or her convenience.
- ✓ Make whatever is to be learned as meaningful and relevant to the patient as possible.
- ✓ Use audiovisual materials to strengthen associations.
- ✓ Reduce the number of alternative responses and complexity of the cues given to the patient.
- ✓ Before introducing new material, find out what material previously learned can be recalled.

➤ Short-Term Memory Loss

Elderly people sometimes suffer memory loss. They may easily remember things in the past, but may have difficulty with short-term memory. Since signals come from the five senses, involve as many of these senses as possible during a learning session so the message is reinforced for processing. **Consistency in vocabulary** helps speed up word processing. For instance, use only one term such as "diet" rather than a variety of terms such as "meal plan, diet modification, or diet prescription."

There is a specific limitation to the amount of new information a person can remember. As the volume of information increases, the amount forgotten, number of mistakes and confusion rises. **No more than 3 to 5 points** should be made during an instructional session.

The **use of cues in visual presentation** is helpful to the aged learner with short-term memory



impairment. Cuing techniques are simply devices that give emphasis to the information you want your patient to know. Attention getters include underlining words, using bold letters, enlarging detail, and using arrows to depict sequence.

The use of redundant or multiple cuing reinforces the message and is extremely useful in helping the elderly improve memory and learning. This simply means **repeating a concept in different ways and through different sensory channels**. For example, a patient could view a videotape on how to administer insulin so he is receiving the message verbally and visually. To further increase understanding, ask the patient to repeat the steps with a hands-on experience. A handout as a reference after the practice session helps reinforce the message and learning.

Devise ways to reinforce instruction or prod the memory. For example, list the steps of a procedure and post it for easy reference. Link new information to a well-known past experience. For instance, when teaching the signs and symptoms of infection, ask the patient to recall symptoms experienced in the past with an infected wound. Facilitate memory of major points by reviewing these points from previous teaching at each stage of the instruction. Also, write a summary of major points presented to reinforce assimilation.



In order for words or information to be stored, they have to be hooked up or linked together with other words or information. This linking, called “chunking,” must take place in a context meaningful to the patient. Suppose a patient reads the following information about diet: “Alcoholic ingestion superimposed upon inadequate dietary intake can precipitate acute hypoglycemia.” Unless the elderly patient uses this level of vocabulary and can link these words to previous learning, the memory is lost. If the message read “Don’t drink beer, wine, or booze on an empty stomach because it causes low blood sugar,” it would be communicated in a context with meaning and in terms of an expected behavior.

Having cues given ahead of time on what is coming next increases memory. Presenting a general overview or summary of what the instruction involves before it actually begins (**advanced organizer**), enables the aging patient to better understand what the instruction is for, how it will be done, and what will be expected of him or her in the process. This is also called “framing the message.”

Use of an advanced organizer is shown in the following series of statements. “Today I’m going to show you how to test your blood sugar at home. It requires using a glucometer and taking a drop of blood that the meter reads. You will then record the information of a record sheet that I will give you. I will go over this procedure with you and then you can practice it while I’m here to help you.” These statements provide the patient with key information about what is going to happen and what his role will be in the process. Advanced organizers are also a useful way to ask for feedback or a return demonstration. It helps the patient jog his memory by

cuing for faster access to information. Additional suggestions for organizing new information to facilitate learning for the elderly are listed below.

❑ **Implications for Teaching:**

- ✓ Provide adequate time for instruction.
- ✓ Proceed from teaching simple or familiar tasks to more complex or unfamiliar tasks.
- ✓ Focus and maintain attention a single well-defined bit of information.
- ✓ Repeat essential information.
- ✓ Emphasize learning tasks that require abilities less likely to decline, such as verbal abilities. Match learning tasks to learning abilities and de-emphasize tasks that require abstract processing.
- ✓ Emphasize desired actions, not actions that the patient should avoid. Do not mix positive and negative information.

➤ **Motivation and Anxiety**

In the context of teaching and learning, motivation refers to having a positive attitude, interest, or incentive toward assimilating certain behaviors. Motivation may be influenced by a number of factors.



In the early phases of adaptation to the crisis of an illness when the patient is unable to face reality, he is usually too anxious to learn and retain information. Anxiety, tension and heightened pressure to learn in a short time frame interfere with the elderly patient's ability to learn. Instruction on new information or skills immediately before discharge will cause a great deal of anxiety. Teaching becomes essential later in the adaptation process so that resolution and acceptance of the illness occurs.

Rigidity involves the inability to go from one familiar activity to another without difficulty and the inability to adjust to new and unfamiliar events and surroundings.⁶ An overall resistance to change and intolerance occurs. Anxiety, sensory impairment, lack of formal education, and lack of self-confidence are factors that contribute to rigidity and cautiousness. These factors may cause the elderly to sacrifice speed for the sake of accuracy. New activities and use of unfamiliar terminology may be threatening to an individual, which contributes to anxiety and lack of confidence about making a response. When this occurs alter the situation rather than trying to change the person.

❑ **Implications for Teaching:**

Preparing to Teach

- ✓ Mild anxiety and awareness of a need to learn are highly motivating in nature. Set goals that are realistic in light of the patient's condition.

Successfully attaining short-term goals generates motivation! If expectations are beyond a patient's capabilities, however, frustration and a decrease in motivation will result.

- ✓ Asking the patient what and how they want to learn can enhance motivation. The elderly will brush aside anything not considered useful.
- ✓ Use terms that are compatible with the patient's ability to comprehend.
- ✓ Compensate for sensory deficits and determine the primary causes of anxiety.

During Teaching

- ✓ Encourage active participation in the educational process by creating opportunities that allow personal experiences and problem-solving abilities to provide individual solutions. For example, after giving a patient the list of discharge medications, frequency for taking them and any special considerations, encourage him to set up a personal timetable based on normal daily activities.
- ✓ Explore the patient's feelings and attitudes about what is happening to him or her and discuss the present situation in the context of previous experiences.
- ✓ An elderly patient's performance will improve if he is allowed to proceed at his own rate of learning.

Giving Feedback

- ✓ Emphasize and build upon the strengths of the individual rather than on physical and mental deficits. Stress what they can do for themselves. Give honest praise and help them feel a sense of confidence and pride in each accomplishment, however small.
- ✓ Provide verbal and non-verbal feedback to make the patient aware of his progress. Smiles and other positive expressions with touch and gestures often add an extra dimension to a phrase such as "you have been injecting the orange so well during practice, Mrs. Smith that I think you're ready to try injecting yourself." This type of learning requires a great deal of trial and error and practice does make perfect.



Summary:

During the past several years, we have all experienced how the changes in health care reimbursement have directly affected the delivery of health care to our elders. Due to a shortened length of hospital stay, patients go home sicker and needing more complex care, so there is less time to adequately prepare them and caregivers in self-management skills. There is an increase in the frail elderly who seek treatment later and are discharged earlier.

This environment contributes to feelings of misunderstanding and loss of control among the elderly. Receiving health care, whether in the hospital or in an outpatient setting, in general is a new experience compared to the traditional care patients may have experienced in the past. They perceive hurried professionals, less personal care, and a rapid pace in everything that happens to them. Many times they feel they are not ready to go home when they are discharged from the hospital.

These changes in the health care delivery system challenge us to develop creative ways for teaching the elderly that best meets their needs and to do this in an efficient and cost effective manner. The concepts and techniques discussed provide the foundation for teaching the elderly in an environment of limited resources. Patient education services for the elderly such as pre-admission, discharge, and health promotion programs; peer teaching; day care; care-giver programs, need to be provided if we are going to meet the challenge of teaching the older patient in this changing health care environment.

References

1. U.S. Department of Health & Human Services (2007). *Quick Guide to Health Literacy and Older Adults: Cognitive Challenges*. Retrieved November 5, 2007 from <http://www.health.gov/communication/literacy/olderadults/cognitive.htm>
2. U.S. Department of Health & Human Services (2007). *Quick Guide to Health Literacy and Older Adults: Health Literacy and Older Adults*. Retrieved November 5, 2007 from <http://www.health.gov/communication/literacy/olderadults/literacy.htm>
3. U.S. Department of Health & Human Services (2007). *Quick Guide to Health Literacy and Older Adults: Strengths of Older Adults*. Retrieved November 5, 2007 from <http://www.health.gov/communication/literacy/olderadults/strengths.htm>
4. Baker, D.W., Gazmararian, J.A., Sudano, J., & Patterson, M. (2000). The association between age and health literacy among elderly persons. *Journal of Gerontology: Social Sciences*, 55B(6), S368-S374.
5. Baker, D.W., Wolf, M.S., Feinglass, J., Thompson, J.A., Gazmararian, J.A., & Huang, J. (2007). Health literacy and mortality among elderly persons. *Archives of Internal Medicine*, 167(14), 1506-1509.
6. Bowling B. Effective Patient Education Techniques for Use with the Aging Patient. (1981) Center for Learning Resources, College of Allied Health Professions and The Multidisciplinary Center for Gerontology, University of Kentucky, Lexington, KY. Administration on Aging Grant # 90-AT-2097/01.