Health Literacy

Implications for Teaching the Adult Patient

Abstract

Health literacy—the “ability to read, understand and use health information to make appropriate healthcare decisions”—was brought to national attention in April 2004 when the Institute of Medicine and the Agency for Healthcare Quality and Research published reports linking low health literacy with negative patient outcomes. Harvey Fineberg commented in the Institute of Medicine report, Health Literacy, a Prescription to End Confusion: “Health literacy, enabling patients to understand and to act in their own interest remains a neglected final path to high quality healthcare.”

This article defines health literacy, describes the scope of the problem, identifies affected patient groups, and offers interventions to maximize patient understanding during the teaching process.

Lisa Bass is Infusion Nurse Specialist at Home Health VNA, Lawrence, Mass.

The author has no conflict of interest.

Address correspondence to: Lisa Bass, HHVNA, 360 Merrimack Street, Building 9, Lawrence, MA 01843.

(e-mail: bass@homehealthfoundation.org).

SCOPE OF THE PROBLEM

The National Adult Literacy Survey, first conducted in 1992, was repeated in 2003 (results have not yet been published). The 1992 findings were a cause for concern:

All these problems, not knowing how to read, it feels like being blind, ignorant, not being able to understand, explain or ask people. . . . I feel really bad, that I am not worth anything.

Low health literacy affects approximately 90 million Americans. Studies have demonstrated that 48% of all Americans have limited literacy skills. Additionally, 46% of Americans are functionally illiterate when dealing with the healthcare system. The impact of low health literacy on the healthcare system is considerable.

The American Medical Association estimates that the cost of treating patients with low health literacy is approximately 50 to 73 billion dollars per year. Patients who cannot understand healthcare instructions have a harder time adhering to healthcare regimens and accessing needed healthcare services. Richard Carmona, Surgeon General of the United States, wrote: “Health literacy can save lives, save money, and improve the health and well-being of millions of Americans.”

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More than 1 in 5 adult Americans (21%) read at or below the 5th-grade level.
An additional 25% are considered marginally literate.
More than 90 million Americans are affected by low literacy.

Reading levels do not correspond with school grade achieved. A person may be a high school graduate, yet have only a 6th-grade reading level. Figure 1 shows the percentages for the reading abilities and literacy levels of adult Americans.

Low literacy affects individuals of all socioeconomic levels. Native-born white Americans comprise the majority of those who have low levels of literacy. In addition, among the population studied, 50% of Hispanics, 40% of African Americans, and 33% of Asians had low literacy levels. Non-English speakers or individuals who speak English as their second language are similarly affected.

The study results for low health literacy are similarly alarming. A 1995 study conducted by Williams, Parker, and Baker assessed 2659 adults seeking care in emergency departments and found that the majority of patients were unable to understand the instructions they were given at discharge. The findings showed that 46% could not understand instructions to take medication on an empty stomach, and 26% could not tell the time for their next appointment after looking at the discharge paperwork.

In April 2004, the Agency for Healthcare Quality and Research released an evidence report comparing literacy and health outcomes. The Agency concluded that “low literacy as measured by poor reading skills is associated with a range of adverse health outcomes.” Researchers report that limited literacy has a negative impact on health, is a causative factor in rehospitalizations, and may play a part in nonadherence to medication and treatment regimens. Patients who have low health literacy tend not to use preventive health services. A study performed in a large urban center found that 22% of participants did not know the purpose of a mammogram.

Several studies examined the impact of low health literacy on patients’ ability to understand printed information. Strieff reported that 54% of study participants could not understand patient education materials available to them. Additionally, 25% of the texts were at such a high reading level that no participant could understand them. Nitzke found that patient education materials were at the 9th or 10th grade level, whereas the study participants read at a 6th grade level or lower. Other studies of educational materials came to the same conclusions.

Low health literacy and low literacy affects all ages and social classes. However, the elderly and low-income Americans are disproportionately affected. In a study of Medicare enrollees ages 65 years and older, more than one half were found to have low health literacy. The National Academy on an Aging Society studied the impact of literacy and the use of healthcare services. The study results demonstrated that persons with low health literacy averaged 6% more hospital visits, visited the doctor at a higher rate, and used more hospital services than those with higher literacy skills. These studies are of particular concern because the elderly frequently have multiple disease processes and complex medication regimens.

Although “health literacy” and “literacy” share a common thread of understanding, the two terms should not be used interchangeably. The Office of Disease Prevention and Health Promotion in their Healthy People 2010 initiative defined health literacy as “the degree to which individuals have the capacity to obtain, process, and understand basic healthcare information and services needed to make appropriate healthcare decisions.”

**REVIEW OF THE LITERATURE**

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**HEALTH LITERACY AND LITERACY**

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The National Literacy Act Study identified five levels of literacy, with each level requiring more reading and comprehension skills. For example, individuals with level 1 literacy skills would be able to sign their name on a form, whereas a those with level 5 literacy would be able to draw conclusions from an op-ed column in a newspaper. Table 1 illustrates the levels of literacy and examples of the tasks required for each level.

The tasks described in Table 1 have special significance because most medical forms are written at level 5, and the majority of the population has a literacy level between levels 2 and 3.

<table>
<thead>
<tr>
<th>Level</th>
<th>Task</th>
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<tbody>
<tr>
<td>1</td>
<td>Sign name on form.</td>
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<tr>
<td>2</td>
<td>Locate gross pay on pay stub.</td>
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<tr>
<td>3</td>
<td>Read bar graph.</td>
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<tr>
<td>4</td>
<td>Read bus schedule.</td>
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<tr>
<td>5</td>
<td>Understand newspaper article.</td>
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Infusion nurses in all practice areas need to be aware of the low health literacy problem. As patients are being asked to assume responsibility for more of their care, and as medical technology becomes more complex, healthcare practitioners need to ensure that the patient understands what is being taught.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has specific standards that address patient education. The 2004 JCAHO Standard for Home Care and Hospitals states that “the patient receives education and training specific to the patient’s needs and as appropriate to the care and services provided.”

One element of this standard includes assessment of learning needs, cultural and religious beliefs, emotional barriers, desire and motivation to learn, physical or cognitive limitations, and barriers to communication (PC 6.10). Other elements include providing education appropriate to the patient’s abilities, presenting the content in an understandable manner, ensuring that the method of teaching accommodates various learning styles, and evaluating comprehension (PC 6.30).

The Infusion Nursing Standards of Practice states: “It is the infusion nurse’s responsibility to educate the patient and caregiver about the prescribed therapy.”

Criteria to meet this standard include informing the patient in clear and concise terminology of all aspects of therapy, demonstrating care, and providing verbal or written instructions that are individualized to the patient’s cognitive abilities, with both the patient and caregiver demonstrating understanding and ability to perform the procedures.

In 1998, the United States government passed the Plain Language Initiative. This initiative directs all government agencies to print all consumer literature in plain and simple language. The Americans with Disabilities Act has implications for patient education. It prohibits discrimination against qualified individuals with physical or mental disabilities including speech, hearing, vision, and cognitive impairments. This Act requires that education materials be tailored to the person’s disability.

How do these regulations affect the way nurses teach, and more importantly, the way they verify patient understanding? Nurses should be aware that patients with low health literacy frequently deny that they do not understand for fear of being regarded as uneducated. Low literacy and low health literacy carry a stigma of shame and secretiveness. A study performed by the Center for Health Care Practices found that 64% of the participants with low literacy did not tell their spouses they could not read, and 14% told no one.

Individuals with low literacy are not of low intelligence. Patients can develop elaborate coping mechanisms to hide the fact that they cannot read or understand what is being taught, yet still function in their everyday life. Examples of coping strategies include having the nurse read a form because they forgot their glasses, or asking permission to take the form home so they can read it over later. Some persons state that they understand everything they were just taught, or blindly sign a permission form because they do not want to “bother” the doctor or nurses.

To instruct patients effectively, infusion nurses must recognize the characteristics of the adult learner. Malcolm Knowles was the first to identify the distinct differences between the learning patterns of children and those of adults. His theory of andragogy identified the characteristics of the adult learner:

**CHARACTERISTICS OF THE ADULT LEARNER**

To instruct patients effectively, infusion nurses must recognize the characteristics of the adult learner. Malcolm Knowles was the first to identify the distinct differences between the learning patterns of children and those of adults. His theory of andragogy identified the characteristics of the adult learner:
• **Adults are autonomous and self-directed.** The nurse must involve the adult in the development of the teaching plan. Additionally, the nurse should act as a facilitator rather than an instructor, allowing the patient to direct the pace of the learning.

• **Adults bring a set of life experiences and knowledge to any learning experience.** These experiences need to be incorporated into the teaching plan. However, the patient’s experiences also may have resulted in preconceived opinions and biases. For example, a person whose relative had a negative experience with infusion therapy may not be willing to learn. An example of bias would be a patient who feels that handwashing is unnecessary, and thus may be unwilling to learn or demonstrate the task.

• **Adults are goal oriented.** The nurse needs to assess the patient’s goals at admission and incorporate these goals into the teaching plan.

• **Adults are relevancy oriented.** An adult must know the reason why something is being taught. A nurse teaching aseptic technique must teach not only the task, but also the reasons why aseptic technique is important.

• **Adults need to be shown respect.** The nurse needs to treat the patient as an equal. “Speaking down” to the patient or treating the patient as inferior will cause the patient to become resistant not only to the subject matter being taught, but to the instructor as well.

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**FACTORS AFFECTING LEARNING ABILITY**

Decreased health literacy is only one factor that influences how a patient learns. Cultural and community influences may also play a large role in how a patient learns. The nurse should interview the patient to determine the client’s health beliefs and consider the use of folk or herbal remedies. Healers or nontraditional medical practitioners also may play a part in a patient’s recovery. Does the patient’s culture dictate that the oldest man (or woman) in the family make all medical decisions? The nurse should identify the person who is responsible for making healthcare decisions, whether it be the patient, his or her spouse, or the eldest in their family or community group, and include that person in the patient teaching process to maximize learning. The customs of a particular culture also should be examined to determine what beliefs are held, whether they be the use of folk medicines or certain beliefs about what causes illness, so that the teaching session will have relevance for the patient.

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**TABLE 2**

Factors Affecting Learning Ability

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<thead>
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<th>Factors</th>
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<tr>
<td>Stress</td>
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<tr>
<td>Illness</td>
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<tr>
<td>Age</td>
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<tr>
<td>Cultural and community influences</td>
</tr>
<tr>
<td>Language barriers</td>
</tr>
<tr>
<td>Physical limitations</td>
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<td>Educational background</td>
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Age also influences patient learning. The elderly may have visual or auditory losses because of aging, as well as short-term memory loss. Repeated reinforcement of previously taught materials may be necessary.

Stressors in a patient’s life also can inhibit learning. A patient with newly diagnosed cancer may not be able to absorb a large amount of information. He or she will want to learn only what is relevant at the moment. Loss of a loved one or a child’s illness also can affect the patient’s ability to learn because of emotional stress.

The nurse should determine whether the patient has any physical limitations such as visual, auditory, tactile, or dexterity conditions. This will allow the nurse to use education aids tailored to the patient’s disability.

If a patient is non-English speaking, or has limited skills in English, use of a medical interpreter at the place of work, or use of a translation service such as Language Line is extremely beneficial for enhancing patient understanding. The nurse needs to be careful when using family members to translate medical instructions because they may not clearly understand the information that the nurse is trying to teach.

For patients with visual or auditory impairments, teaching materials must be tailored to a more usable format. Audiocassettes, Braille, and large print materials all are useful for patients with visual impairments. For patients with auditory impairments, closed captioning, pictographs, and interpretation of services in American Sign Language can be used to enhance a patient’s learning.  

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**GUIDELINES FOR PATIENT TEACHING**

As infusion therapy becomes more complex, nurses must be aware of the impact that health literacy has on obtaining positive outcomes. Patients are surrounded with information from the time they are admitted to the hospital. A patient faced with the prospect of performing infusion therapy at home may
be overwhelmed. The nurse must use interventions that allow the patient to have a positive learning experience, and to complete his or her course of therapy with no complications.

A thorough assessment of the patient should be performed before development of a teaching plan. The purpose of this assessment is to determine a patient’s ability and readiness to learn. Stressors and barriers to learning should be identified. Has the patient’s condition been newly diagnosed? The patient should be asked what he or she feels is the most relevant, and teaching should focus on that first. The nurse should inquire about past learning experiences. What did the patient find the most or least helpful? This information should be used to tailor the teaching strategies.

Once the learning needs assessment has been completed and the teaching goals have been established, the nurse can now begin the teaching session. A comfortable spot for teaching should be established. The teaching area should be quiet and free from distractions. The patient should be encouraged to ask questions, and the teaching should be stopped if the patient does not understand what is being taught.

Breaking the learning sessions into small sections also can facilitate learning. A 15- to 20-minute teaching session is sufficient for most tasks.

In the development of teaching materials, the use of pictographs or photographs along with simple language instructions can prove to be most effective. A good example of this type of teaching tool is the Infusion Nurses Society’s Infusion Therapy and You Patient Education Workbook and Work Mat.26 In addition, the pump manufacturers as well as the infusion therapy providers have easy-to-understand instructions for patient instruction.

When instructing the patient, the nurse should try to use terms the patient will understand. Instead of using a term such as “injection cap,” the nurse should substitute the color of the cap on the end of the catheter. Colors often help a patient identify clamps, caps, and buttons. As a caution, patients should be discouraged from identifying medications or flushes by color. If the manufacturer changes the color of the medication, the patient could administer the wrong medication.

Labeling the containers with large initials (eg, S for saline and H for heparin) also may aid the patient with low health literacy in identifying which medication to use.

Mnemonics such as SASH (saline, administer med, saline, heparin) also can help the patient perform the infusion correctly. A demonstration, followed by a return demonstration on the part of the patient can help the nurse identify areas that require additional instruction.

Medical jargon or abbreviations should be avoided. Medical personnel have a language all their own. As a result, patients may misinterpret what they are being asked. For example, during a physical examination and history, one patient denied having angina. At the end of the visit, the patient asked the physician what he could do for his chest pains.3

Simple terms should be used when describing a condition. Instead of “exacerbation,” the term “worse” can be used. “Bruise” can be substituted for “hematoma.”

Web sites that offer help in plain and simple language are listed in the health literacy resources section at the end of this article.

For teaching materials, plain and simple language documents are preferred. Persons of all literacy levels want information that is understandable and takes little time to decipher. It is a myth that individuals with high literacy will be insulted if given a brochure printed in plain and simple language.

Teaching materials should be printed clearly with ample space between each item to be taught. The use of bulleted lists also is helpful.

The example shown in Figure 2 illustrates the point. Compare the two instructions and determine which would be the more user friendly.

Patients with low literacy and those with extremely limited literacy skills can be taught with the use of nonprinted materials, such as pictographs and diagrams. In addition, videotapes and audiotapes can enhance learning.27

Once the teaching session has ended, the nurse should verify whether the patient understands what has been taught. To verify whether the patient understands the instructions given, the patient should not be asked, “Do you understand?” The patient may just say “yes,” even if he or she is overwhelmed. The best method is to use a teach-back method. The patient should be directed to demonstrate the task that has just been taught, with gentle cues when necessary. The nurse should not “blame” the patient or question the patient’s ability if he or she cannot learn. Instead, the nurse should work with the patient, asking what he or she does not understand, always willing to change teaching strategies if necessary.

When teaching about medications, instead of asking, “Do you take your medications every morning?” the nurse should say, “We are going to see what pills you take. Can you tell me what this pill is for and when do you take it?”

One final point must be made about adult education. Edwina McConnell wrote: “Learners recall 10% of what they write, 20% of what they hear, 30% of what they see, 50% of what they hear and write, and 80% of what they say and do.”28

● PRINTED MATERIALS AND DETERMINING READABILITY

There are many tests available to determine the reading level of materials. The most frequently used tests for readability are those that analyze the number of multisyllabic
The battery in the infusion pump must be changed every 72 hours. To change the battery, remove the cover, insert the battery, match the positive and negative poles, replace the cover, and resume the infusion.

**BATTERY CHANGE**

- Change the battery every 3 days.
- Slide the battery cover off the back of the pump.
- Take out the old battery.
- Put in the new battery.
- Be sure the + and - signs on the battery match the ones on the pump.
- Put the cover back on.
- Press “start.”

**FIGURE 2.** Directions for changing the infusion pump battery.

words as well as the number of sentences. One of the simplest to use is the SMOG readability formula. With SMOG, the readability level is determined by counting the number of multisyllabic words in the first 10, middle 10, and last 10 sentences in a document. The number is then compared with a table, and the reading level is determined. The higher the grade level, the less suitable the material is for a person with low literacy. Ideally, all instructional material should be at a fifth-grade level or lower.

The Fry Readability formula is slightly more complicated, in that the reviewer must select three 100-word passages in a document. Both the number of sentences and the number of syllables are counted. The average of each is computed, and the resulting answers are compared to a graph to determine the readability level.

The Suitability Assessment of Materials (SAM) not only encompasses reading level, but has 22 factors that are scored regarding suitability. A score of 70 to 100 is superior; a score of 40 to 69 is adequate; and a score of 0 to 39 is not suitable. The SAM is especially useful for evaluating materials to be used for instruction.

There also are tests to determine a patient’s literacy level. These tests require more time for completion, and patients may not want to participate for fear of being labeled ignorant. The Wide Range Achievement Test (WRAT), the Rapid Estimate of Adult Literacy in Medicine, (REALM), and the Cloze test all are examples of literacy and comprehension tests.

**HEALTH LITERACY RESOURCES**

**Books**


**GLOSSARY OF TERMS**

- **Androgogy**: teaching of the adult learner
- **Comprehension**: all elements of a teaching process for deriving understanding
- **Fluency**: ability to read and speak with speed and ease
- **Health literacy**: the degree to which individuals have the capacity to obtain, process, and understand basic healthcare information and services needed to make appropriate healthcare decisions
- **Literacy**: the ability to read, write, and speak English at levels of proficiency necessary to function on the job and in society
- **Literacy level**: level of literacy achieved, with each level requiring more cognitive skills
- **Reading level**: grade level of reading competency achieved, with each grade increasing in complexity
- **SMOG, Fry**: tests to determine reading level
- **WRAT, REALM, Cloze**: tests for determining literacy level

**CONCLUSION**

Health literacy is a problem that has been identified across all areas of healthcare. More research is needed not only on health literacy, but also on patient education. Understanding the impact of health literacy on patient outcomes will assist healthcare professionals in the development of effective patient educational materials.

Web-based Resources
Center for Health Care Strategies. Provides fact sheets on health literacy. Available at: http://www.chcs.org.
National Center for the Study of Adult Learning and Literacy. Run by the Harvard School of Public health. This site is for health and educational professionals interested in health literacy. Available at: http://www.hsph.harvard.edu/healthliteracy.
Plain Language Action Network. This federal Web site offers information and tools for developing plain language materials. Available at: http://www.plainlanguage.gov.
University of Utah, Health Sciences Center. Patient education. Substitute word list. Offers a list of simple words to substitute for the more technical terms. Available at: http://www.med.utah.edu/pated/authors/substitute2.html.

Videotapes
AMA Foundation. Health Literacy: Help Your Patients Understand. A program that provides a videotape, CD-ROM, which illustrates patients with low health literacy and interventions to increase understanding. Order from AMA Foundation. Kits can be purchased on an individual basis for $35 through AMA Press by calling 800-621-8335. (If you are calling, please mention AMA Press Item #0P221002.)
Health Literacy Studies. In Plain Language. The video/DVD is available at a cost of $10.00, which covers duplication and mailing charges. If you want to order a copy of In Plain Language, please email ncsall@worlded.org or call (617) 482-9485 Ext. 535.

Interpreter Services
Language Line. Over-the-phone interpreters and translation service. Available at: www.languageline.com

Infusion Therapy

References