

Health Literacy

By helping them to understand health information, physicians can improve glaucoma patients' visual outcomes and quality of life as well as lessen the burden on the US health care system.

BY EYDIE MILLER-ELLIS, MD

In no other subspecialty of ophthalmology is communication between the patient and physician more important than in glaucoma. Adherence to a medical regimen requires that patients understand the instructions and administer their eye drops on a consistent schedule. They must also understand the consequences of noncompliance. Thus, ensuring health literacy among patients is of paramount importance.

WHAT THE STATISTICS MEAN

The Institute of Medicine defines *health literacy* as the ability to obtain, process, and understand basic health information and services needed to make appropriate health decisions and to follow instructions for treatment.¹ The National Adult Literacy Survey² found that approximately 44 million Americans were functionally illiterate and that another 50 million had marginal literacy skills. Assuming that basic literacy is a prerequisite for health literacy, at least 90 million Americans, approximately one-third of the population, are disadvantaged in the health care system. Their inability to understand the nuances of their illness is a leading cause of health disparities.³

The National Assessment of Adult Literacy (NAAL) survey,⁴ completed in 2003, reported that only 13% of the US population had proficient health literacy skills, while 53% had intermediate, 22% basic, and 14% had below basic skills. To put this information in context, individuals who are proficient can read and understand most textual and numerical information in a health care encounter. For example, they can read a complex document to define a medical term or identify which legal documents pertain to a given health-related situation. People with intermediate skills have some difficulty dealing with complicated text and documents, but they can determine the healthy weight based on body mass index or identify at what time to take medications relative to meals based on a prescription label. A person with basic skills can read and understand a short explanatory pamphlet and give two reasons why someone without symptoms should be screened for a given disease. An individual with below basic skills can spot an appointment date on a

card or identify how often someone should have a specific medical test based on the information in a pamphlet.³

Even individuals with adequate-to-good literacy skills may find the health care labyrinth difficult to navigate. Understanding health information requires more than basic reading literacy to interpret instructions and use that information to make a decision. With medical advances, the number of potential treatments increases as well as the need for patients to keep up with a complex medical regimen. Several studies have found that the average consent form and patient-education brochure are written at a tenth-grade reading level. It is recommended that they be written at an eighth-grade reading level to facilitate patients' comprehension.³

Conversely, high-level professionals may suffer from information overload. Greater access to health information on the Internet may confuse these patients, because they are not capable of appropriately prioritizing their findings. Too much information can be as destructive as too little, especially if a patient decides to alter his or her treatment regimen based on this independent research.

The problem with poor health literacy is that it leads to suboptimal outcomes. Poor health literacy is a stronger predictor of a person's health than age, income, employment status, educational level, or race.⁵ With glaucoma, this translates into visual impairment. If one extrapolates the results found with other chronic diseases such as asthma and diabetes, poor health literacy correlates with poor outcomes due to patients' decreased awareness of preventive health measures and their limited ability to follow self-care instructions to manage their disease. The problem grows because many glaucoma patients have other chronic health issues. It becomes a financial strain on the health system due to errors in medication leading to increased hospitalizations, overuse of the emergency department, and a greater severity of illness and the resulting disability.^{1,3-5}

POPULATIONS AT RISK

Based on the NAAL,⁴ certain segments of the population are at greater risk of the aforementioned problems

due to basic or below basic health literacy scores. The elderly, members of lower socioeconomic groups, Medicare and Medicaid recipients (half read below the fifth-grade level), the uninsured, individuals who did not complete high school, minority and immigrant populations, and people with chronic mental and/or physical conditions have lower levels of literacy.^{1,3} Several studies of glaucoma patients demonstrate this problem.

Muir and associates⁶ looked at 197 patients with open-angle glaucoma at the Duke Eye Center in Durham, North Carolina, and administered the Rapid Assessment of Adult Literacy in Medicine test. Of the 146 who reported completing high school, 39% read at or below the eighth-grade level. Pharmacy refill data found a positive relationship between health literacy scores and the number of refills obtained, with patients who had reading skills above the ninth-grade level filling their prescriptions more frequently over a 6-month period than those who read at or below the eighth-grade level. These findings are similar to those of the NAAL, in which 39% of surveyed high school graduates had only basic and 13% had below basic reading skills.

In a related study, Muir and colleagues⁷ assessed the relationship between health literacy and vision-related quality of life using the National Eye Institute's 25-item Vision Function Questionnaire. The univariate analysis showed a relationship with worse visual acuity and visual field score; thus, patients who lost vision from glaucoma had a lower vision-related quality of life. On the other hand, health literacy was only loosely associated in the univariate analysis and unrelated in the multivariate analysis. There was an association, however, with increased dependency. This loss of autonomy can result from both poor vision and needing support to administer eye drops.

Juzych and associates⁸ looked at 204 glaucoma patients at the Kresge Eye Institute in Detroit. On the Test of Functional Health Literacy in Adults, 50% had poor functional health literacy. This group had a lower income and educational level than the higher-literacy group. They also exhibited lower compliance with prescribed medical therapy, had a poorer understanding of glaucoma, and missed more appointments. As a result, they experienced worse visual field loss on presentation and worse field loss on follow-up examinations.

The populations at highest risk for glaucoma in the United States are African Americans and Hispanics. Based on the aforementioned surveys, these populations also have low health literacy. Improving communication with patients is essential to addressing health disparities. The process starts with the physician.

HOW TO HELP

The American Medical Association's publication *Health Literacy and Patient Safety: Help Patients Understand*³ sug-

gests six steps physicians can take to improve interpersonal communication with patients:

1. Slow down. Communication can be improved by speaking slowly and by spending a small amount of additional time with each patient.
2. Use plain, nonmedical language.
3. Show or draw pictures. Visual images can improve the patient's recall of information.
4. Limit the amount of information provided—and repeat it.
5. Use the "teach-back" technique. Confirm that patients understand by asking them to repeat back instructions.
6. Create a shame-free environment. Encourage questions.

Other things physicians can do is ask questions that begin with "how" or "what" and avoid closed-ended questions with yes or no answers. When talking to patients, it is advisable to organize the information so that the most important points stand out and then to write down the salient points and the eye drop medication schedule. Practitioners serving a multilingual population should have brochures available in multiple languages. Another tip is to offer assistance with the completion of forms.^{9,10}

By doing his or her part, each physician can improve health literacy and the quality of the health care delivery system. □

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1. Committee on Health Literacy, Institute of Medicine. Neilson-Bohman LN, Panzer AM, Kindig DA, eds. *Health Literacy: a Prescription to End Confusion*. Washington, DC: The National Academies Press; 2004.
2. Kirsch I, Jungeblut A, Jenkins L, Kolstad A. *Adult literacy in America: a First Look at the Findings of the National Adult Literacy Survey*. Washington, DC: National Center for Education Statistics, US Department of Education; 1993.
3. Weiss BD. *Removing Barriers to Better, Safer Care—Health Literacy and Patient Safety: Help Patients Understand. A Manual for Clinicians*. 2nd Ed. Chicago, IL: American Medical Association Foundation and American Medical Association; 2007.
4. Kutner M, Greenberg E, Jin Y, Paulsen C. The health literacy of America's adults: results from the 2003 National Assessment of Adult Literacy. US Department of Education. National Center for Education Statistics Publication No. 2006-483; September 2006.
5. Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, American Medical Association. Health literacy: Report of the Council on Scientific Affairs. *JAMA*. 1999;281:552-557.
6. Muir KW, Santiago-Turla C, Stinnett SS, et al. Health literacy and adherence to glaucoma therapy. *Am J Ophthalmol*. 2006;142:223-226.
7. Muir KW, Santiago-Turla C, Stinnett SS, et al. Health literacy and vision-related quality of life. *Br J Ophthalmol*. 2008;92:779-782.
8. Juzych MS, Randhawa S, Shukairy A, et al. Functional health literacy in patients with glaucoma in urban settings. *Arch Ophthalmol*. 2008;126:718-724.
9. Healthy People 2010. Chapter 11—health communication. <http://www.healthypeople.gov/document/html/volume1/11healthcom.htm>. Accessed July 20, 2010.
10. Glassman P. Health Literacy. National Network of Libraries of Medicine. <http://nnlm.gov/outreach/consumer/hlthlit.html>. Updated January 5, 2010. Accessed July 20, 2010.