Health Literacy, Health Numeracy, and Diabetes Care

Preface

Marjorie Cypress, PhD, C-ANP, CDE, Guest Editor

It has been 14 years since Doak et al.\(^1\) published their book, *Teaching Patients with Low Literacy Skills*. However, the tendency to think about literacy in terms of limited reading and writing skills, as well as educational background, age, type of employment, and income, misses the point of health literacy.

Health literacy is important because of its effect on health care and health outcomes. Health literacy is often related to health numeracy, or the ability to understand and use numbers in daily self-care activities. People may be able to read words, but if there is no attention to organization, layout, and design, their ability to comprehend words and numbers and apply that information to health situations can be limited.

Unfortunately, attempts to create sound bites during short office visits can often result in misleading and difficult-to-understand statements. Patient safety is at the heart of health literacy and numeracy because people must understand enough to weigh risks and benefits, ask appropriate questions, and make health-related decisions for themselves and perhaps for others. Patient safety also includes being able to read medication labels, take drugs safely, and access health care services and preventive health care resources.

Health literacy is of concern because it affects our health care system. According to the National Academy on an Aging Society,\(^5\) those with limited health literacy skills have longer hospital stays and use substantially more hospital resources than adults with higher health literacy skills. It is estimated that low health literacy skills increase annual health care expenditures by $73 billion. Low health literacy and numeracy have huge effects on both individual and societal health, including financial health.

As you will read in this *Diabetes Spectrum* From Research to Practice section, it is difficult to predict who has health literacy and numeracy problems. The Agency for Healthcare Research and Quality\(^7\) recommends that we follow “health literacy universal precautions,” since we do not always know which patients have limited health literacy.

That agency commissioned a Health Literacy Universal Precautions Toolkit developed by DeWalt et al.\(^4\) for use in adult and pediatric practices. Another helpful resource is the Newest Vital Sign, developed by Weiss et al.\(^5\) as an easy screening tool for primary care physicians. It consists of a nutrition label that is shown and six questions that are read to patients. In addition, the U.S. Department of Health and Human Services has just released its National Action Plan to Improve Health Literacy.\(^6\) The plan is based on the principles that everyone has the right to health information that can help them make informed decisions and that health services should be delivered in ways that can be understandable and beneficial to health, longevity, and quality of life. The report lists seven goals and suggests strategies that will improve health literacy. These include the development and dissemination of health and safety information that supports decision-making, expansion of efforts to provide adult education, and increased basic research to improve health literacy that can be accessible to all. Additional resources in health literacy and numeracy can be found in Table 1.
Effective diabetes self-management requires mastery of complex knowledge and skills. With the advent of new medications, patients with diabetes may be taking four or more different medications just for their diabetes, not counting the antihypertensive and antihyperlipidemic agents that many providers prescribe. Figuring out how much medication to take and when can be a daunting experience for many patients. For example, some medications are taken before, during, or after meals. Some medications must be injected within a specific time frame to be effective. In addition, determining appropriate insulin doses may require tracking the amount of carbohydrate consumed at meals and using fairly elaborate calculations and computations involving insulin-to-carbohydrate ratios and insulin sensitivity factors based on individualized target blood glucose levels. It is no wonder that many patients are confused. Add to that problems with health literacy and numeracy and studies that remind us that all patients, regardless of literacy, forget ~ 50% of what is discussed during a medical office visit. One study showed that only 41% of all patients with diabetes, regardless of their literacy or numeracy level, could accurately calculate an insulin dose based on blood glucose level and carbohydrates.6

Diabetes health literacy and numeracy has recently come to the forefront as a major problem. The three articles in this issue address this topic in different ways. The article by Andrea Wallace, PhD, APRN-BC ADM, (p. 220) defines the terms health literacy and health numeracy, provides an overview and scope of the problem, presents several instruments used for assessing populations, and offers specific techniques that have been shown to improve communication and comprehension.

Erin Van Scoyoc, MD, MPH, and Darren A. DeWalt, MD, MPH, (p. 228) then provide a systematic review of the literature regarding interventions designed to improve outcomes among patients with diabetes and propose a conceptual model to help explain how literacy may be related to health outcomes. Although it would seem that interventions designed to improve health literacy and numeracy skills would improve health outcomes, the literature is inconsistent. Their article reminds us that much work still needs to be done, particularly in the areas of diabetes and other chronic diseases.

Finally, Richard O. White, MD, MSCI, and his colleagues (p. 238) report on their intensive research program on health literacy and numeracy in diabetes. This team and several others have focused their research specifically on addressing this problem to improve behavior and glycemic control. They relate what they have learned through assessing and intervening with a specifically designed curriculum and tools for people with diabetes who have low health literacy and low numeracy skills.

Curiously, much of the work on health literacy has been physician-driven. Diabetes educators are frequently the professionals who translate provider recommendations for patients and teach essential self-management behaviors. Many of us may be overlooking this very important skill that could easily make the difference between success and failure in managing glucose levels.

I recently helped develop a low-literacy patient education pamphlet on pre-diabetes. I worked with a literacy expert who took what we had developed and held several focus groups in both English and Spanish. The results were very interesting. Despite the participation of focus group members in diabetes education programs and our careful editing, there remained among participants confusion regarding glucose numbers and standards, who should be tested, what the symbol “>” meant, as well as recommendations that the Spanish word dietetico be replaced with nutricionista.

Unless we ask, we will hold onto our inaccurate assumptions and fail in our efforts to help our patients. It behooves us as educators to screen our patients for their health literacy and numeracy abilities. These articles provide information and strategies we can use in our everyday practice and should serve to enlighten us and stimulate our creativity as we work with patients. Our ultimate goal is to improve clinical and behavioral outcomes and our patients’ quality of life by helping them actively participate in their care. This can only be accomplished if the information we think we are providing is accurately and clearly understood and appropriately acted upon. I hope you find these articles

Table 1. Health Literacy Resources

<table>
<thead>
<tr>
<th>General Information</th>
<th>Information About Writing Your Own Low-Literacy Materials</th>
<th>Available Low-Literacy Materials</th>
<th>Vanderbilt University Numeracy Materials</th>
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fascinating and helpful as you begin addressing diabetes health literacy and numeracy in your own practice.

References


