

Review

Health Literacy: An Important Issue for Communicating Health Information to Patients

Barry D. Weiss

Department of Family and Community
Medicine, University of Arizona College of
Medicine, Arizona, U.S.A.

Key Words

illiteracy;
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“Health literacy” refers to an individual’s ability to read, understand, and use the information necessary to obtain adequate health care. Because so much health-related information is provided to patients in written form, some degree of health literacy is essential. A review of the international medical and education literature was conducted to identify research on health literacy. Limited health literacy is a widespread problem in both non-industrialized and industrialized nations, and it is mostly related to deficient reading skills. Deficient reading skills are most prevalent among those with a limited educational background, but considerable research shows that limited reading skills exist even among those who have completed a formal education. Risk factors for limited literacy include poverty, membership in an ethnic minority group, advanced age, and other sociodemographic characteristics. Limited health literacy is highly associated with poor health status, and literacy skills more accurately predict health status than education level, income, ethnic background, or any other sociodemographic variable. Individuals with limited literacy have higher rates of illness and more hospitalizations than individuals with more well-developed reading skills. Considerable effort has been directed at creating special health education materials for communicating with patients who have limited reading skills, but there is minimal evidence that these interventions have any effect on the health status of these individuals. In conclusion, poor health literacy is a common problem with important implications for health status. Limited data are available about how to best address the needs of patients with limited literacy skills.

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Health literacy” refers to an individual’s ability to read, understand, and use the information necessary to obtain adequate health care.^{1,2} Because so much health-related information is provided to patients in written form, some degree of health literacy is necessary for a variety of tasks in the health care system. Examples of these tasks are shown in Table 1. Individuals without the necessary degree of health literacy are unable to carry out activities such as following

instructions regarding medication and treatment, filling out insurance forms, or reading and understanding informed patient education forms and consent documents for surgery or participation in research projects.^{3,4}

While many patients with poor health literacy have limited knowledge about health concepts, in most cases the problem of poor health literacy is related to a deficiency in the ability to read. Some times

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Correspondence to: Barry D. Weiss, MD, Department of Family and Community Medicine, University of Arizona College of Medicine, 1450, North Cherry, Tucson, AZ 85719, U.S.A. Fax: +1-520-626-4064; E-mail: bdweiss@u.arizona.edu

Table 1. Examples of tasks for which health literacy skills are necessary

Administrative Tasks
Scheduling appointments
Filling out insurance forms
Following signs to find the appropriate clinic or hospital department
Reading and understanding consent forms for surgery or research projects
Clinical Tasks
Explaining medical history to a physician
Understanding and following instructions regarding medication and treatment
Understanding and following instructions regarding post-operative care
Understanding and following instructions regarding preparation for diagnostic tests

this limited reading ability is an educational deficit resulting from never having attended school. In other situations, limited reading ability may be the result of social and cultural factors, in that an individual may have grown up in a social milieu in which learning to read was not a normal expectation.⁵ In still other situations, in individuals may have learning disabilities that hampered their ability to acquire functional reading skills.⁶

It is important to emphasize, however, that many individuals with limited reading skills have attended school and even completed a formal education. In fact, many individuals that have finished a full formal education still have major deficits in their reading skills completion of a certain number of years of formal education does not predict an individual's ability to read. In the United States, for example, more than one quarter of high school graduates do not have high-school level English-language reading skills.⁷ Thus, a count of an individual's years of formal education provides information only about how many years an individual attended school; it does not indicate what the individual learned in school.

Regardless of the cause, poor reading skills are common around the world, and they are surprisingly prevalent in many industrialized nations. Poor reading skills are also a strong risk factor for poor health outcomes.

The Prevalence of Low-Literacy

It is difficult to make precise comparisons between the literacy rates of different nations because each country defines and reports literacy rates differently. Nonetheless, several organizations publish estimates of education and literacy rates around the world. These organizations include international agencies, such as the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and country-specific agencies such as the Taiwan Ministry of Education, the United States Department of Education, and others. The data provided by these organizations, while relying heavily on data that use different criteria to define literacy, nonetheless provide useful information about literacy rates in various countries, including those of the Pacific Rim. UNESCO-reported literacy rates for other Pacific Rim nations are shown in Table 2.⁸

In Taiwan, the most recent estimates indicate that 94 per cent of the adult population is literate, with men having higher literacy rates than women. About 35

Table 2. UNESCO-reported literacy rates in representative pacific rim nations - 2000

Country	Estimated literacy rate (%) among adults >15 years of age	
	Male	Female
Australia	>97%	>97%
Canada	>97%	>97%
China (People's Republic)	92	76
Hong Kong	96	91
Indonesia	92	82
Japan	>97%	>97%
New Zealand	>97%	>97%
Korea (Republic of)	99	94
Malaysia	91	83
Mexico	93	89
Philippines	95	95
Singapore	96	88
Taiwan	See text	See text
United States	See text	See text
Viet Nam	95	91

UNESCO defines literate persons as individuals who can read with understanding and write a short simple about their everyday lives. A person who can only read but not write, or can write but not read, is not considered to be literate.⁸

percent of the population complete some form of higher education, while virtually all members of the population complete elementary education and nearly all complete a secondary education.⁹⁻¹¹ UNESCO reports the United States to have a high literacy rate (97%), but these data define literacy by the percentage of the adult population that can read and write a simple sentence. In contrast, the US National Adult Literacy Survey (NALS), conducted by the US Department of Education in 1992, revealed that while nearly all of the US population can read and write a sentence, more than a quarter of the population has only marginal reading skills.⁷ Individuals with such limited reading skills are, for practical purposes, functionally illiterate and unable to effectively participate in society activities. Surveys like the NALS, which provide a more detailed look at literacy and reading skills of a population and demonstrate that UNESCO data do not provide complete information about literacy, are not available (or not in wide dissemination) for most countries of the world.

Risk Factors for Low Literacy

On a world wide basis, low literacy is most prevalent in countries with limited economic and industrial development. Other risk factors for limited literacy including poverty, female gender, political upheaval, and lack of education. The lowest literacy rates reported by UNESCO are among women in the non-industrialized African nations of Burkina Faso and Niger, where female literacy rates are as low as 10-15 percent.

In more industrialized nations, similar risk factors have been identified. Limited literacy skills are most prevalent among individuals that are poor, members of ethnic minority populations, unemployed, lack education, or have other markers of low socioeconomic status. In industrialized nations that receive large numbers of immigrants from less-developed countries, low literacy is often prevalent among those immigrant populations.

Age is another recently recognized risk factor for poor literacy skills. Several studies indicate that limited

reading skills are particularly prevalent in geriatric populations - including those that have been well educated - and this creates significant problems in communicating health information to older persons.¹² The reasons why many older individuals have limited reading skills are uncertain. Proposed explanations include the development of subtle cognitive decline with advancing age (ie, subclinical dementia), chronic illness that affects cognitive function, and a "trophy" phenomenon in which individuals who acquired reading skills in childhood stop using them over time and experience a gradual disuse-related deterioration in their ability to read. More research is needed to determine why limited literacy is so common among older individuals.

Low Literacy and Health Status

Why is literacy important to health care providers? The reason is that numerous studies have demonstrated literacy to be a strong predictor - perhaps the single strongest predictor - of health status, both on a population level and for individual members of populations.

Non-industrialized nations

Researchers have known for years that in non-industrialized nations, low-literacy is a strong predictor of population health status, infectious disease rates, and infant and maternal mortality rates (Fig. 1).^{13,14} The relationship between infant mortality and maternal literacy is so strong that some experts have suggested that it is causal, leading to calls for improved maternal literacy as a means to improve the health status of infants and children.¹⁵ In fact, studies published in the 1980s provided evidence that improvements in population literacy are associated with improvements in markers of health status, such as higher childhood vaccination rates,¹⁶ improved community hygiene and sanitation programs,¹⁷ and increased use of family planning services.¹⁸

Industrialized nations

Research from the United States published in the

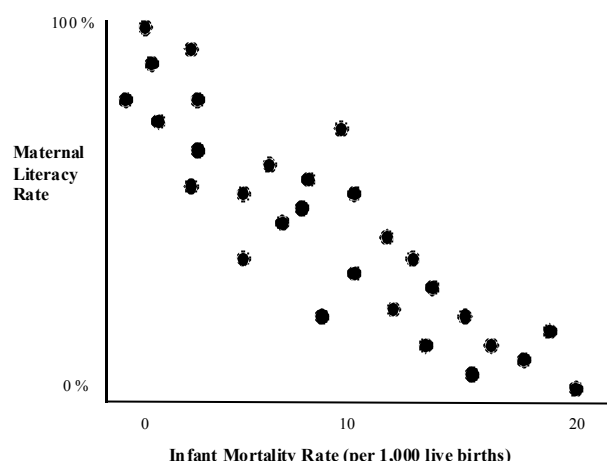


Fig. 1. Figure shows a schematic representation of the relationship between maternal literacy rates and infant mortality rates in nations around the world, as reported by UNICEF.¹⁴

1990s has shown that literacy is also a strong correlate of health status in industrialized nations. For example, several studies have demonstrated that better literacy is associated with improved health knowledge and disease self-management skills for chronic illnesses such as hypertension, diabetes, and asthma.^{19,20} Interestingly, statistical analyses of data from these studies have shown that when education level and other sociodemographic variables are taken into consideration, literacy level is the single strongest correlate of health knowledge and disease management skills.

Poor literacy skills are also associated with poorer health outcomes. When measured with standard health-status assessment instruments such as the Sickness Impact Profile,²¹ individuals with low-literacy skills have poorer overall physical and psychological health than individuals with more-advanced reading skills (Fig. 2).²² Individuals with low literacy also have poorer self-reported health status,²³ and they are more likely to be hospitalized and to require emergency room services.^{24,25} It should be emphasized again that these relationships between literacy and health status persist even when potentially confounding socioeconomic co-variables are taken into consideration. In fact, most studies in which multivariable analyses have been conducted found poor literacy to be a stronger predictor of health status than education,

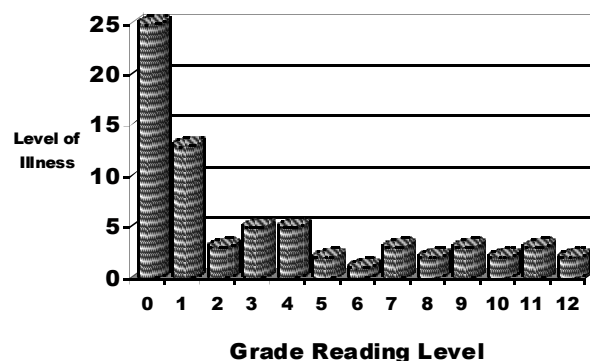


Fig. 2. The level of illness measured with the Sickness-Impact Profile²¹ is higher among adult education participants that read at low-grade levels than among those with more advanced reading skills. Data from Weiss, *et al.*²²

income, unemployment, and ethnic group.

What to Do About Poor Health Literacy

Because limited literacy is associated with poorer health knowledge and health status and higher use of medical services, efforts have been undertaken to address the needs of populations with limited literacy. The efforts have included preparation of health education materials, consent forms, and other informational items in forms that require limited reading skills for comprehension. Examples include special handouts with simplified text, non-written materials like audiotapes and videotapes, and interactive computer-based materials, all in an attempt to provide patients with health education without the need for high-level reading skills.²⁶⁻²⁸ Considerable emphasis has been placed on the development and preparation of such materials, as well as on communicating with patients verbally.²⁹

Limited research is available, however, to support the benefit of using these special health education materials. The available research indicates that patients with limited literacy skills prefer simpler educational materials and they find them easier to use. There is also some evidence that patients retain more medical information after using these materials—at least in the short term—but there is also evidence to the contrary.

For example, one study showed that immunization rates improved with the use of low-literacy education materials,³⁰ while another showed no change in parents' understanding about childhood immunizations after using such materials.³¹

There is no evidence, however, that using such special health education materials has any effect on more important longer-term outcomes like health status, disease morbidity rates, or use of health services. More research is needed to determine the best way to communicate with individuals who have limited health literacy.

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