

Health Literacy: Implications for Case Managers

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Health literacy is a dynamic concept with varying health implications. Because basic literacy lays the foundation for levels of health literacy proficiency, its relevance ranges from the individual level to the societal level. Age and education are some essential markers to investigate, but while the current status of health literacy is critical data for case managers to include in their line of work, it is important to explore the conceptualization of health literacy. Although with a young history, health literacy has undergone notable changes and continues in a state of fluidity. Case managers are urged to recognize the implications of health literacy and adopt meaningful measures in order to promote successful outcomes.

Nearly nine out of ten Americans have difficulties understanding health information, including materials encountered regularly through healthcare providers and the media (Kutner, Greenberg, Jib, & Paulsen, 2006). Compounded with rising health care costs and growing caregiving burdens, case managers must assess health literacy levels of the population. Services provided to clients can be better tailored once this information is readily available and accessible. Receiving the appropriate resources enable clients to make informed choices. The potential quality of care received can, thereby, increase and case managers can establish a framework upon which comprehension skills play a significant role in how medical and rehabilitation goals will be met.

In the late 1980's, efforts to capture literacy rates across the United States began. However, in 1993, the Department of Education administered the National Adult Literacy Survey (NALS), targeted at gauging literary aptitude of American adults. The findings of this survey illuminated health literacy as a real and pressing issue. Based on the NALS data, approximately 90 million individuals nationwide were lacking appropriate reading and writing skills (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993). These results urged medical practitioners and related personnel to utilize a measurement that would evaluate literacy within a healthcare context. A significant portion of the American population underperformed on the NALS, so concerns grew that similar barriers could potentially exist when making medical decisions for themselves and their dependents. Therefore, in 2003, a section was added to the NALS to address health literacy concerns (Kutner, Greenberg, & Jin, 2007).

Finding a standardized definition of a novel concept such as health literacy is a challenge, because it draws upon various perspectives and meanings. The Institute of Medicine (IOM) provides the most employed definition. The IOM defines health literacy as "[...] the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Ratzan & Parker, 2004). An ideal template for assessing health literacy within a case management perspective is a model centered upon decision-making. Therefore, McCormack's (2010) description that health literacy is "[...] the degree to which individuals can obtain, process, understand, and communication about health related information needed to make informed health decisions."

Health literacy is especially important to consider for persons with disabilities who often make choices that can affect their quality of life. It is imperative to ensure that decisions are made with sufficient knowledge and understanding to mitigate negative health outcomes. Studies have found that in addition to below-average health statuses, health illiteracy exacerbates the costs of medical care and treatment (Baker, Parker, Williams, Clark, & Nurss, 1997; Kalichman & Rompa, 2000). The Centers for Medicare and Medicaid Services (2011), reported that 2008 estimates of medical errors in the United States was nearly \$17 billion. Implications for healthcare providers include effective modes of communication, comprising of both verbal and written mediums (Murphy & Dunn, 2010). Health literacy has the capacity to enhance quality of life and be cost effective. Improving health literacy can reduce adverse events from misinformation and misunderstanding from occurring, em-

power individuals to manage their health, and encourage them to navigate the healthcare system confidently, which all leads to greater financial efficiency.

The Measurement of Health Literacy

As stated previously, health literacy draws upon various perspectives and meanings; therefore, many instruments have been created to measure this concept. The two most commonly used instruments are the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Test of Functional Health Literacy in Adults (TOFHLA). Few other prevalent instruments are the Newest Vital Sign, BRIEF Screening Tool, and the Health Literacy Skill Instruments. All of these instruments will be further discussed in this section.

Rapid Estimate of Adult Literacy in Medicine, Long and Short Form (REALM). Developed after the results of the NALS were published, the Rapid Estimate of Adult Literacy in Medicine (REALM) was created to assess an individual's health literacy in the clinical setting. The long form asks patients to pronounce as many words possible from 66 words (Davis, et al., 1991). As one of the most commonly used health literacy instruments, it provides the clinician an idea of the patient's reading level (Shea, Beers, McDonald, Quistberg, Ravenell, & Asche, 2004). In addition, the instrument is easily administered, and takes about two to three minutes per patient. The instrument exhibits strong concurrent validity with literacy measurements such as the Wide Range Achievement Test-Revised ($r=0.88$, $p<0.001$), the Slosson Oral Reading Test-Revised ($r=0.96$, $p<0.001$) and test-retest reliability ($r=0.99$, $P<0.001$) (Collins, Currie, Bakken S, Vawdrey, & Stone, 2012).

In 2003, a shortened version of the REALM, or the REALM-R was developed (Bass, Wilson, & Griffith, 2003). With only eight words, the instrument can be administered in less than two minutes. The authors eliminated words that may have been insensitive, cause embarrassment, or incite bias that affects the results of the screening. For example, the patient may hesitate to say the word "incest" when they are capable of pronouncing it. Hence, the results may show a lower literacy level. After consulting with other medical providers, the final eight words are: osteoporosis, allergic, anemia, jaundice, directed, colitis, constipation, and fatigued. The authors found that the REALM-R had a positive, strong correlation with the WRAT-R, a shortened literacy instrument meant to measure reading, spelling and math (Wide Range Achievement Test-Revised) (Bass, Wilson, & Griffith, 2003).

Test of Functional Health Literacy in Adults, Long and Short Form (TOFHLA). Parker, Baker,

Williams, and Nurss (1995) felt the current instruments (i.e., WRAT-R and REALM?) used at the time were insufficient in measuring an individual's functional health literacy. The authors believed that an individual's literacy is tied to their ability to read, write, and use of computational skills for daily, common encounters. The WRAT-R was created to assign a grade level to a participant, but the relationship between grade level and functional health literacy had not been established (Jastak & Wilkinson, 1984; Parker, Baker, Williams, & Nurss, 1995). While the REALM can identify patients with low reading ability, it does not address numeracy, or the ability to read and understand quantitative information.

The issues with the WRAT-R and the REALM served as an impetus for the creation of the TOFHLA. The TOFHLA consists of two parts: comprehension and numeracy. The reading comprehension section utilizes the Cloze procedure, which removes every fifth and seventh word in a written paragraph by a health literacy expert. Patients are to select the correct word from a list of four choices. Using hospital materials such as patient education brochures and registration forms, the passage was constructed to mimic what patients would encounter in a clinical setting (Parker, Baker, Williams, & Nurss, 1995). The numeracy portion of the TOFHLA contains 17 items. These items require patients to read and process directions for prescription medication, keeping appointments, and financial information. Actual hospital materials such as prescription labels and hospital forms were used to compose the items.

Parker, Baker, Williams and Nurss (1995) found the TOFHLA correlated with the WRAT-R and REALM very highly, so this assessment was deemed a valid and reliable measure of health literacy. Not only has it been used in many studies and clinical settings, it is used to compare against other measures designed to quantify health literacy (Weiss, et al., 2005; Haun, Nolan-Dodd, Varnes, Graham-Pol, Rienzo, & Donaldson, 2009). In 1999, the instrument was revisited and shortened. The TOFHLA originally had 17 numeracy items and three prose passages, but it was condensed to four numeracy items and two prose passages, which significantly reduced the administration time from 22 minutes to 12 (Baker, Williams, Parker, Gasmararian, & Nurss, 1999). Showing good reliability and validity, the S-TOFHLA is widely used in a multitude of studies (Collins, Currie, Bakken S, Vawdrey, & Stone, 2012; Baker, Gazmararian, Sudano, & Patterson, 2000).

The Newest Vital Sign (NVS). The Newest Vital Sign was created by investigators who believed the TOFHLA was too long and the REALM was too limited to be administered in a clinical setting. The (NVS) was created to be an alternative, rapid literacy assessment. Based on feedback from patients and inter-

views, the instrument consists of six questions. Patients are given an ice cream nutrition label, and asked to use the label to answer the questions (Weiss, et al., 2005). Psychometric analyses show the NVS has high internal consistency and criterion validity, and suggests it is more sensitive than the TOFHLA in detecting individuals with marginal health literacy. The six questions address both reading or auditory comprehension and numeracy. Taking less than three minutes to administer, many studies use the NVS to assess health literacy (Stocks, et al., 2009; Powers, Trinh, & Bosworth, 2010).

Brief Health Literacy Screening Tool (BRIEF). The BRIEF Screening Tool was created as an alternative health literacy measure, because the REALM and S-TOFHLA can have long administration times or cause patients to be embarrassed (Davis, et al., 1991; Chew, Bradley, & Boyko, 2004). The tool is a four-item instrument that asks patients to rate their perceived health literacy. The BRIEF addresses reading comprehension of medical forms and auditory health information, and takes less than two minutes to administer. The screening tool has shown to be highly correlated with the REALM and S-TOFHLA (Haun, et al., 2009).

Health Literacy Skills Instrument (HLSI). Recognizing the limitations of the existing health literacy assessments, the Health Literacy Skills Instrument (HLSI) was constructed to measure health literacy more comprehensively. More specifically, this assessment examines oral and skills utilized for online health information (McCormack, et al., 2010). The instrument underwent rigorous pilot testing and demonstrated good reliability and construct validity. The authors argued that the HLSI was most like the NAAL, as it requires individuals to answer questions and perform tasks that are very similar to what they would face every day. Asking patients about their ability to use print and non-print resources reflect the changing resources individuals use for health information. There is a short form of the instrument, reducing the number of questions from 25 items to 10 items (Bann, McCormack, Berkman, & Squiers, 2012). Showing high correlation with its longer counterpart and also with the S-TOFHLA, the HLSI-SF is believed to assess health literacy in a changing world.

Measurement Challenges of Health Literacy

The biggest challenge of health literacy is the sheer ambiguity of the construct. Its multi-facet nature makes it difficult to define and measure. Furthermore, its true impact on our health care system is unknown. Nonetheless, these instruments are a great starting point in trying to understand health literacy from the patient's standpoint. By incorporating these instruments into part of the care plan, case managers

will be able to address the client's quality of life and perhaps even lessen the caregiver's burden. Case managers should consider the best assessment for the client, which should include a person's reading comprehension skills, health information seeking skills, health knowledge, his or her ability to apply the information to make a decision, and the materials or information person encounters daily (Baker, 2006). Having this information will facilitate the case manager's ability to gauge the amount of attention a consumer needs in assisting with the management of his or her health and/or rehabilitation.

Another challenge we must consider is the pervasiveness of the Internet and its ease of use. The impact of the Internet on health information and health outcomes is fairly unknown. In a changing world, individuals encounter health information in many contexts outside of the clinician's office. Individuals with disabilities and their caregivers are using the Internet for a multitude of reasons, including social support and health information (Harrysson, Svensk, & Johansson, 2004; Hauber, Vesmarovich, & Dufour, 2002; Bradley & Poppen, 2003). Currently, there is one instrument available to measure an individual's eHealth literacy, the eHEALS. An 8-item instrument, it measures an individual's perception of their ability to navigate the Internet to find the appropriate health information to make health decisions (Norman & Skinner, 2006). As its validity and reliability has not been assessed on an adult population in the United States, case managers should use restraint when interpreting its results (van der Vaart, et al., 2011; Mitsutake, Shibata, Ishii, Okazaki, & Oka, 2011).

Conclusion

As low health literacy is related with many poor health outcomes including increased hospitalizations, lower uptakes of preventive care, lower rates of medication adherence, poorer health status and higher mortality, case managers should start considering health literacy as one of their consumer's most important vital signs (Agency for Healthcare Research and Quality, 2011). Health literacy has been a construct in the shadows, but alas, is now one of the most important indicators of our health care system. Case managers should be familiar with the various instruments to measure health literacy, as they all address different domains (e.g. comprehension, numeracy) that make up the construct. A clearer understanding of a patient's health literacy level will allow case managers to help their clients in a more efficient manner and to ensure that the client's needs are addressed.

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