Commentary

Recommendations for Advancing Health Literacy Measurement

LAUREN MCCORMACK
RTI International, Research Triangle Park, North Carolina, USA

JOLIE HAUN
HSR&D and RR&D Center of Excellence, Veteran’s Administration, James A. Haley VA Hospital, and College of Public Health, University of South Florida, Tampa, Florida, USA

KRISTINE SØRENSEN
Department of International Health, Research School of Primary Care and Public Health (CAPHRI), Maastricht University, Maastricht, The Netherlands

MELISSA VALERIO
Department of Health Promotion and Behavioral Sciences, School of Public Health, University of Texas, San Antonio, Texas, USA

Health literacy has become a national priority in the United States. Although less is known about the rate, outcomes, and costs associated with health literacy globally relative to the United States, the subject has received increasing attention internationally as well. Definitions, conceptual models, and health literacy measures have proliferated in recent years, and consensus does not exist regarding which of these to use. This article offers the following 5 recommendations for setting a research agenda to advance the science of health literacy measurement: (a) develop a comprehensive unified conceptual framework, (b) leverage the measurement knowledge the field has gained thus far, (c) empirically test frameworks and measures using robust research methods, (d) use a tiered approach to measuring health literacy, and (e) advocate for ongoing research and dissemination. These recommendations seek to ensure clarity, rigor, and transparency as part of a systematic approach to health literacy measurement. Once these steps are taken, the field of health literacy can move forward more effectively.

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Address correspondence to Lauren A. McCormack, RTI International, 3040 Cornwallis Road, P.O. Box 12194, Research Triangle Park, NC 27709, USA. E-mail: Lmac@rti.org
The Institute of Medicine (Nielsen-Bohlman, Panzer, & Kindig, 2004) and Healthy People 2010 (U.S. Department of Health and Human Services, 2000) identified health literacy as a national priority and a critical component of improving access to care and health care outcomes and reducing health and health care disparities. A recent international review suggests that health literacy has raised international concern at social, scientific, and governmental levels (Pleasant, 2012).

The number of definitions of health literacy that currently exist contributes to the lack of a gold standard measure (Berkman, Davis, & McCormack, 2010). The definition put forth by Ratzan and Parker (2000) is commonly used in the United States, but the sheer number of different definitions is evidence that broad consensus does not exist. Greater acceptance of a single comprehensive definition would provide a foundation for identifying specific constructs of health literacy that can be operationalized. If consensus around a single definition is not possible, then researchers and practitioners should be transparent in which definition they are using.

Health literacy is a multidimensional construct. Some conceptual models focus on particular components of health literacy, and others identify the individual- and system-level factors that influence a person’s level of health literacy and the pathways that link health literacy to health outcomes (Sørensen et al., 2012). Hence, the conceptual frameworks and models guiding the field vary in terms of whether they identify health literacy as a predisposing factor, a moderator or a mediator, or a health-related outcome.

Some models present health literacy as an individual-level trait that is moderated (i.e., affected by) predisposing or environmental factors; other models place mediators (i.e., factors that influence the relationship) between health literacy and health outcomes (Squiers, Peinado, Berkman, Boudewyns, & McCormack, 2012). A few conceptual frameworks of health literacy take into account the broader context in which an individual lives and external influences on health literacy-related skills. Some conceptual models focus on the specific populations, whereas others address the general public.

Conceptual models that guide much of the work in health literacy include those developed by Baker (2006) and Paasche-Orlow and Wolf (2007). Baker (2006) focused on the influence of health-related information presented in written and verbal formats and proposed that an individual’s health literacy affects the use and acceptance of health information when managing his or her health and acquiring health care. Other frameworks focus on identifying the literacy-related skills (e.g., communication, using health insurance) necessary for navigating the health care system, specifically taking into account the health care system’s demands and how these demands affect health outcomes, including self-management.

More than 35 measures of health literacy exist (McCormack, Haun, Valerio, & Sørensen, 2012). The different measures of health literacy have led to a range of prevalence estimates in nonclinical and clinical settings resulting in inconsistencies and confusion. It is time to (a) develop a shared understanding of the full definition of health literacy; (b) create a conceptual model that accounts for individual-, group-, and population-level characteristics and influencing attributes to guide the validation of a health literacy measure; and (c) develop or identify measures that link the definition and conceptual model and operationalize both.

**A Research Agenda for Measuring Health Literacy**

Building on the foundation and work of experts in the field, advancing health literacy heretofore requires a widespread commitment to a more systematic approach.
We outline five elements of a research agenda to promote health literacy measurement at various levels:

1. Develop a unified conceptual framework to guide efforts
2. Continue with measurement development based on assessment of the knowledge the field has accrued to date
3. Empirically test frameworks and measures using robust research methods
4. Employ a tiered approach to measuring and improving health literacy
5. Advocate for ongoing research and dissemination.

The overall goal—inherent in these recommendations—is to improve health literacy measurement using a systematic approach that provides clarity, rigor, and transparency.

First, conceptual clarity about the health literacy as a construct is needed to help understand how it relates to other factors. How do we operationalize the definition of health literacy and how does this feed into a conceptual framework? How does health literacy overlap and how is it distinct from related constructs such as socioeconomic status and cultural considerations? What are appropriate moderating and mediating variables in the health literacy pathway?

Culture and socioeconomic status are different constructs than health literacy but can also mediate the relationship between health literacy and health outcomes. Conflating health literacy with constructs such as culture and socioeconomic status—all of which are complex—adds confusion. Other factors can mediate the relationship between health literacy and health outcomes including health status, attitudes, emotions, motivation, and self-efficacy, which are further affected by ecological influences or moderators (e.g., culture, social support, community health resources, the media, and access to health care resources; see Squiers et al., 2012, for additional information about potential mediators in a health literacy conceptual framework). Health system moderators such as the demand of the health related stimuli (e.g., a brochure, a prescription drug label, or a conversation with a doctor) frequently interact with an individual's health literacy skills, thereby moderating one's ability to comprehend a message (Squiers et al., 2011).

We recommend thoroughly evaluating and integrating existing definitions and frameworks as exemplified by Sørensen and colleagues (2012). This integration should help foster more of a shared consensus within the field about what concepts belong in the framework and how to operationalize them. We need to expand on previous efforts to develop a health literacy pathway model that outlines the attributes, characteristics, and influencing factors. Identifying and delineating the specific elements in the model is critical as is testing a priori hypotheses about relationships between variables. Health literacy can be used in some cases as an intervening variable (mediator) between individual factors and health outcomes and other times as an outcome itself. Concurrence about an overarching conceptual framework among leading experts in this field will help move use toward more universally accepted measures; it will minimize measurement error and help to explain the source of existing variation in diverse contexts with diverse populations over time.

Second, researchers should build on what we have learned from existing measures, capitalizing on their strengths and overcoming their limitations. We propose prioritizing the development of objective or performance-based measures, which can then be used as a basis for the development and validation of self-reported measures. We also
advocate for focusing on general versus disease specific measures at this point. To the extent possible, researchers and practitioners should collaborate in professional forums to develop large-scale efforts for a comprehensive measurement design.

If effectively implemented, our second recommendation should guide our third recommendation, to empirically test frameworks and measures using robust research methods, large sample sizes, and population-level data. More research is needed to measure health literacy in individuals over time and to quantify the relationships between health literacy and health outcomes. Robust methods include using proper research protocols, psychometric analysis and multilevel modeling techniques, and adequate documentation and reporting so that analyses can be replicated (see Table 1).

Longitudinal evaluation is sorely needed to move the field forward. It enables us to evaluate both the reliability (including test–retest) and validity of measures. Measurement validity can be further established by developing and evaluating interventions that specifically test conceptual frameworks using longitudinal data collection and path analyses. We recommend that researchers field more than one measure of health literacy in each study and compare the results so we can learn more about how they perform (Haun, Luther, Dodd, & Donaldson, 2012). Interdisciplinary teams that include subject matter experts, social scientists, psychometricians, and clinicians are needed for measure development studies. Such teams are needed to tackle one of the most challenging issues related to measurement, which is the development of sound cutpoints and classifications schemes for categories of health literacy (e.g., “below basic,” “basic,” and “above basic”).

Fourth, we recommend that health literacy be measured at four levels: (a) the individual/person level, (b) intervention group level, (c) patient population/health care system level, and (d) population level. Population level monitoring in the US has been sporadic. The U.S. Department of Education has measured health literacy at the national level using the National Assessment of Adult Literacy, but the periodicity is limited and the measure is not publicly available. A comparative study was conducted among several European countries measuring self-reported health literacy in 2011 (HLS-EU Consortium, 2012), but no worldwide assessment data exist. Readily available surveillance assessments would allow for international cross-comparisons as health literacy continues to emerge as a critical social factor around the world.

Assessment at the individual level is necessary to evaluate individuals’ skills largely within the context of public health and the clinical environment to inform health and health care decision making. This concept also holds true for larger groups of individuals and patients who participate in clinical and health literacy-related interventions, in which these skills can affect one’s ability to participate in such research.

Table 1. Recommendations for robust research methods in health literacy measurement

| Robust research methods |
|-------------------------|
| 1. Use random samples drawn from large populations that are as representative as possible. Avoid convenience samples. |
| 2. Collect data using multiple modalities (e.g., mail, telephone, web-based). |
| 3. Use multiple measures of health literacy in a single study. |
| 4. Conduct longitudinal data analyses. Use multilevel modeling to test relationships between variables. |
| 5. Assess multiple forms of reliability and validity. |
Although different from measuring an individual’s health literacy, the level of complexity of reading and resource materials should also be considered when implementing interventions that involve health information, decision making, and functional health literacy-related skills. This approach will support the alignment between the sample’s health literacy skills and the materials being used to implement the intervention within a given context. When employing surveillance efforts at the health system level, it is also critical to consider the health care system literacy (Brach et al., 2012). We contend all of these efforts are needed on an ongoing and consistent basis.

Last, health literacy researchers need to advocate for ongoing research, disseminate findings, and promote collaboration. An open-source inventory such as the Grid Enabled Measures (GEM; https://www.gem-beta.org/Public/Home.aspx), which houses numerous social science survey-based measures, could be leveraged to share information. We recommend cataloguing characteristics of the measures and performance data. Finally, because health literacy is clearly recognized as an interdisciplinary concept, health literacy advocates will benefit the field through sharing their work with related disciplines.

Policy Implications

In the past decade, the field of health literacy has risen to the forefront of the U.S. policy agenda because of its relationship with health care access and disparities and health-related outcomes. To effectively monitor health literacy over time, examine its relationships with key variables, and promote stability across studies, more widely accepted measures—that reflect health literacy and not literacy—are needed. Moreover, resources are needed to facilitate progress in the field. In the meantime, researchers continue to apply for funding using a wide array of measures, which undermines the goals of our recommendations.

Health literacy is also emerging as a global issue among international scientific and political communities (Pleasant, 2012), and measurement of health literacy in populations has been carried out in some European countries (HLS-EU Consortium, 2012). As this issue continues to demand a response, national surveillance and international comparative analysis is not possible. Although some may view simply monitoring prevalence of health literacy as unnecessary, we argue that is a necessary step for responding to national priorities related to improving access to care and health related outcomes and reducing health care disparities.

The field of health literacy measurement has a solid foundation on which to build. However, the proliferation of measures in recent years is hampering progress and posing dire consequences for research and development. We need to come to consensus on the essential elements of the construct of health literacy and a comprehensive conceptual model to guide future efforts in health literacy measurement design and validation.

Challenges and gaps must be addressed with respect to measurement and the need to take a collaborative stakeholder approach to strategically move forward. Once a unified approach to measurement is established, community, health care setting, and national- and international-level surveillance will be a major contribution to this field. Policy, research, and practice must align around a more shared vision. Without this multitiered approach, progress will continue to stall. Addressing the lack of rigorously developed and widely accepted measures is necessary for implementing national policy into practice and supporting emerging global priorities.
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