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Defining, measuring and improving health literacy

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ABSTRACT

Objective This paper provides an overview of current research and debate about the definition and measurement of health literacy, and the use of different health education methods to improve health literacy in populations.

Definition and measurement Health literacy describes a person's ability to perform knowledge-based literacy tasks (understanding and using information) that are required to make health related decisions in a variety of different situations. These cognitive and social skills are content and context specific, and are greatly influenced by a person's age and stage in life. In these circumstances, developing a "universal" population measure of health literacy has been very difficult.

Improving health literacy Health literacy can be improved through education and can be regarded as a measurable outcome to health education. As with all forms of education, significant differences in educational methods, media and content will result in different learning outcomes. Improving health literacy involves both the transmission of health information, and support to develop confidence to act on that knowledge. This will best be achieved through more personal forms of communication, and through community based educational outreach.

Conclusions Applying the concept of health literacy in this way will support more comprehensive options for health improvement, disease prevention and more successful disease self-management among individuals with established illness. However, these approaches are less well tested through systematic research than work in clinical settings and further research is needed to develop the empirical basis for the concept. (HEP. 2015; 42: 450-455.)

Key words Health literacy, health promotion, health education

Introduction

Over the past 25 years there has been an extraordinary growth in interest in health literacy. A search on the term "health literacy" in the Web of Science² database shows negligible publications in the 1990s, rising steeply to over 700 scientific papers published on the subject in 2013. This interest in health literacy is also apparent in Japan, with continuing growth in the number and range of papers being published in recent years (Ishikawa 2008; Tokuda 2009; Mitsutaki 2011; Ishikawa 2011; Suka 2013; Lai 2013).

This paper provides an overview of current research and debate about the definition and measurement of health literacy, and the use of different health education methods to improve health literacy in different populations.

Understanding literacy

To better understand the definition and measurement of health literacy it is helpful to understand the underlying concept of literacy (Nutbeam 2009)

Literacy can be defined most simply as a tangible set of skills in reading and writing. These skills range from basic, word-related skills (such as recognizing words), to higher level skills (such as understanding the meaning of continuous text) (NAAL 2003).

Literacy is important. Even the most basic literacy skills enable people to better develop their knowledge and improve their potential to achieve personal goals. Through this individuals are able to participate more fully in society and the economy. For these reasons literacy levels in a population are seen as an important measure of social and economic development.

Literacy levels in a population are also associated both directly and indirectly with a range of health outcomes. For example, people with poor literacy tend to be less responsive to health education, less likely to use disease prevention services, and to successfully manage chronic disease (Berkman 2011).

Importantly, literacy is both content and context specific. Individuals with higher levels of general literacy (high level skills in reading, writing and understanding text) may not be able to consistently apply their skills in situations requiring specific content knowledge, or in unfamiliar contexts – such as in relation to health knowledge, or in a health care environment.

Improving low levels of literacy in a population requires access to formal education for children, and providing adult literacy programs for those who need it.

Defining health literacy

Health literacy as a distinct concept has emerged from a improved understanding of *content specific literacy in a health*

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²http://apps.webofknowledge.com/UA_GeneralSearch_input.do?product=UA&search_mode=GeneralSearch&SID=T2g9vX4pEbqqjmarf5z&preferencesSaved= (Accessed January 7, 2015)

context.

Health literacy can be seen as the possession of literacy skills (reading and writing) and the ability to perform knowledge-based literacy tasks (understanding and using information) that are required to make health related decisions in a variety of different environments (home, community, health clinic).

Health literacy has been defined and conceptualized in multiple ways (Peerson 2009; Sorensen *et al.* 2012) reflecting the range of cognitive and social skills which enable people to obtain, understand and use information to enhance their health and well-being, and engage in health care decision-making (Nutbeam 1998; Nutbeam 2000; Institute of Medicine 2004). The concept has also developed in two distinctive settings – in clinical care where health literacy is most often viewed as a *risk factor* for poor health and poor compliance with health care advice; and in public/community health where health literacy can be viewed as a personal and population *asset* offering greater autonomy and control over health decision-making (Nutbeam 2008; Pleasant 2008; Martensson 2011).

For the purposes of this paper the following definition is used, based on the definition adopted by the World Health Organisation (WHO) (Nutbeam 1998):

Health literacy describes the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain health.

This definition highlights the fact that health literacy represents an observable set of cognitive and social skills that will vary from individual to individual. It also emphasises that these skills enable individuals to obtain, understand and use information to make decisions and take actions that will have an impact on their health status.

Health literacy is also content and context specific. A person's ability to access health information and their motivation to use that information is greatly influenced by their age and stage in life, and the context in which information might be applied.

For example, the way in which a person gains access to information, and understands and applies that information to health decisions will be different for a 14 year old who is receiving health education at school on tobacco, alcohol and drugs use; compared with a pregnant woman who is receiving ante-natal education in the community; compared with an older person receiving patient education following initial diagnosis with diabetes.

Health literacy can be developed and improved through organised health education and patient education. It is also possible to modify the environment in ways that make it easier for a person with low health literacy to *obtain, understand and use information in ways which promote and maintain health*. These approaches to improving health literacy are discussed further below.

Measuring health literacy

Given the continuing discussion about the definition of health literacy, it is no surprise that there has been considerable debate

about how best to measure health literacy. Developing a “universal” measure of health literacy that can be applied to diverse populations has been very challenging (Jordan 2011; Haun 2014).

Measurement tools need to be able to assess relative differences in relevant cognitive and social skills, and the ability of individuals to apply those skills to achieve health outcomes in different circumstances. These differences in skills have been categorised in different ways. In one commonly used form these differences are categorised as *functional, interactive* and *critical health literacy* (Nutbeam 2000).

Functional health literacy is a term used to describe basic health literacy skills that are sufficient for individuals to obtain relevant health information (for example on health risks, and on how to use the health system), and to be able to apply that knowledge to a limited range of prescribed activities.

Interactive health literacy describes more advanced literacy skills that enable individuals to extract information and derive meaning from different forms of communication (interpersonal, mass media), and to apply new information to changing circumstances. Such skills enable individuals both to act independently on new information, and to interact with greater confidence with information providers such as health care professionals.

Critical health literacy describes more advanced cognitive skills which, together with social skills, can be applied to critically analyse information, and to use this information to exert greater control over life events and situations.

Such a classification indicates that the different categories of health literacy progressively allow for greater autonomy in decision-making, and personal empowerment. Progression between categories is not only dependent upon cognitive development, but also exposure to different forms of information (content and media). It is also dependent upon a person's confidence to respond effectively to health communications – usually described as *self-efficacy*.

Several simple measures of health literacy have been tested, refined and validated over the past 20 years to provide short screening tools for clinicians to use in everyday practice with a broad range of populations (Davis 1993; Parker 1995; Weiss 2005). These measures are fit for use as screening tools in clinical practice, but are generally insufficient to measure the relative differences in cognitive and social skills described above.

Currently work is underway in several countries to develop and adapt existing measurement tools for health literacy, and much more sophisticated (and complex) tools are emerging (Chinn 2013; Jordan 2013; Osborne 2013; Sorensen 2013).

These offer scope to assess individual capacity to:

- gain access to health information from a variety of different sources, and to discriminate between sources of information;
- to understand and personalise health information that has been obtained; and
- to demonstrate the confidence (self-efficacy) to use relevant health information in making decisions and taking actions to benefit health.

Given some of the complexities, measurement tools of health literacy have been developed with more specific foci - even if the

structure of the concept remains constant. This includes specialised instruments for specific populations (Chisholm 2007; Wu 2010; Giradi 2011); health content (Renkert 2001; Ohnishi 2005; Ishikawa 2008; Al-Sayah 2013); communication media (Norman 2006; Mitsutake 2011); and different countries (van der Vaart 2012; Suka 2013).

All of these tools are also enabling more sophisticated analysis of the determinants and consequences of lower health literacy, and offer the basis for the evaluation of interventions to improve health literacy.

Improving Health Literacy

Health literacy can be improved through education and can be regarded as a measurable outcome to health education in the same way that measures of literacy are used as one way of assessing the success of school education.

As described above, improvements in health literacy can be measured through changes to the knowledge and skills that support greater autonomy in health decision-making. This knowledge and related skills can be developed through formal health education, or patient education that is designed to meet individual needs and circumstances. As with all forms of education, significant differences in educational methods, media and content will result in different learning outcomes and associated health outcomes.

Figure 1 (Nutbeam 2009) provides a summary logic model for improving health literacy, and better managing the consequences of low health literacy in clinical care. This is based on the work of colleagues in the US (US Institute of Medicine 2004; Baker 2006; Paasche-Orlow 2007).

The model shows how low health literacy can be identified and

appropriately managed in clinical care. It begins with assessment of relevant prior knowledge and/or individual reading literacy using a screening tool such as TOFLA, or NVS (Parker 1995; Weiss 2005) (1). It reflects the importance of the context within which health communication occurs by recognizing the potential impact of health service organization on individuals with low literacy (2). Improved service organization and clinician sensitivity can improve access to health care services, and enhance the quality of communication between patients and health care providers (3). This leaves a clinician better placed to provide patient education that is tailored to individual needs and capacities (4) that is more likely to result in improved patient capabilities (knowledge, motivation, self-confidence) to adhere to recommended clinical care (5). In turn, this leads to improved health outcomes associated with successfully implemented clinical care (6).

Figure 1 provides a good overview of how to improve *functional health literacy*, particularly in a clinical setting. It focuses on the development of literacy skills and the ability to apply these skills in everyday health decision-making. It also highlights the importance of the ways in which improved service organization can enhance the quality of communication between patients and health care providers. The restricted time available in clinical consultations will often limit communication to factual information on health risks, and on how to use medications and health care services. Patient education of this type will often be directed towards well defined outcomes - such as achieving compliance with the use of prescribed medicines. Patient education in the clinic can also contribute to the development of a wider range of knowledge and skills necessary for successful self-management of a chronic disease. However, the constraints of patient educa-

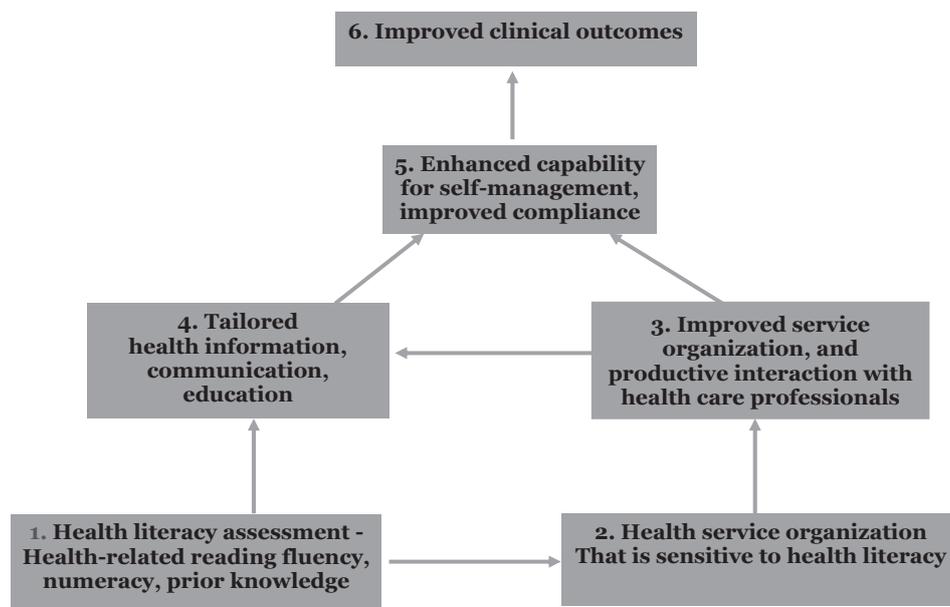


Fig. 1 Improving functional health literacy in clinical care*

* **Figure from:** Nutbeam D. The evolving concept of health literacy. Soc Sci Med 2008; 67: 2072-8.

Figure derived from: Barker D. The Meaning and Measure of Health Literacy. J Gen Intern Med 2006; 21(8): 878-83, and Paasche-Orlow MK, Wolf MS. The causal Pathway linking health literacy to health outcomes. American Journal of Health Behavior 2007; 31(Supplement 1): S19-26.

tion in a clinical setting often mean that the educational methods used do not enable interactive communication, nor support a high level of autonomy in decision-making. There are a growing number of examples of this type of patient education, particularly those intended to improve functional health literacy and related clinical outcomes (Sheridan 2011).

Improving *interactive health literacy* will require the use of different educational methods intended to develop more advanced cognitive and literacy skills. These are skills that enable a person to independently obtain relevant health information, derive meaning from that information, and apply information to personal and family health circumstances. It is often based on more interactive forms of health education that are directed towards improving self-confidence to act on information and advice received. Such an approach often requires more time, and can best be delivered in a more structured educational setting, or through well designed on-line learning programmes. Good examples can be found in many contemporary school health education programs, some dedicated adult education programmes, and in well-structured patient education programmes (St Leger 2001; Department for Education and Skills 2006; Lai 2013; Skre 2013; Perry 2014).

Improving *critical health literacy* will involve educational methods and content that support development of the most advanced cognitive and literacy skills - those that enable a person to discriminate between varying sources of information, to critically analyse its meaning and relevance, and to use information to exert greater control over a range of health determinants. Health education will be more interactive and less deterministic.

It may include the communication of information and development of skills to support a variety of health actions to address both personal and social determinants of health. Health education in this case would be directed towards improving individual and community capacity to act on these social and economic determinants of health. There are fewer examples of interventions directed at improving critical health literacy (Steckleberg 2009; Mogford 2011; Inoue 2013).

It follows that the *content* of health education should not only be directed at changing personal lifestyle or improving compliance with disease self-management strategies. Health education can also raise awareness of the social determinants of health, and be directed towards the promotion of actions which may lead to modification of these determinants. Even in relation to patient education, educational content may be broadened to include genuine options for the self-management of disease, the development of skills that enable shared decision-making with health care providers, and the ability to effectively navigate the health care system.

Expanding the content of health education in this way also has implications for the education and communication *methods*, challenging health educators to communicate in ways that draw upon personal experience, invite interaction, participation and critical analysis. Such an approach to education and communication draws on established principles in adult education that can be applied to people with low and high levels of literacy (Imel 1998).

Figure 2 builds upon the foundations of the model described

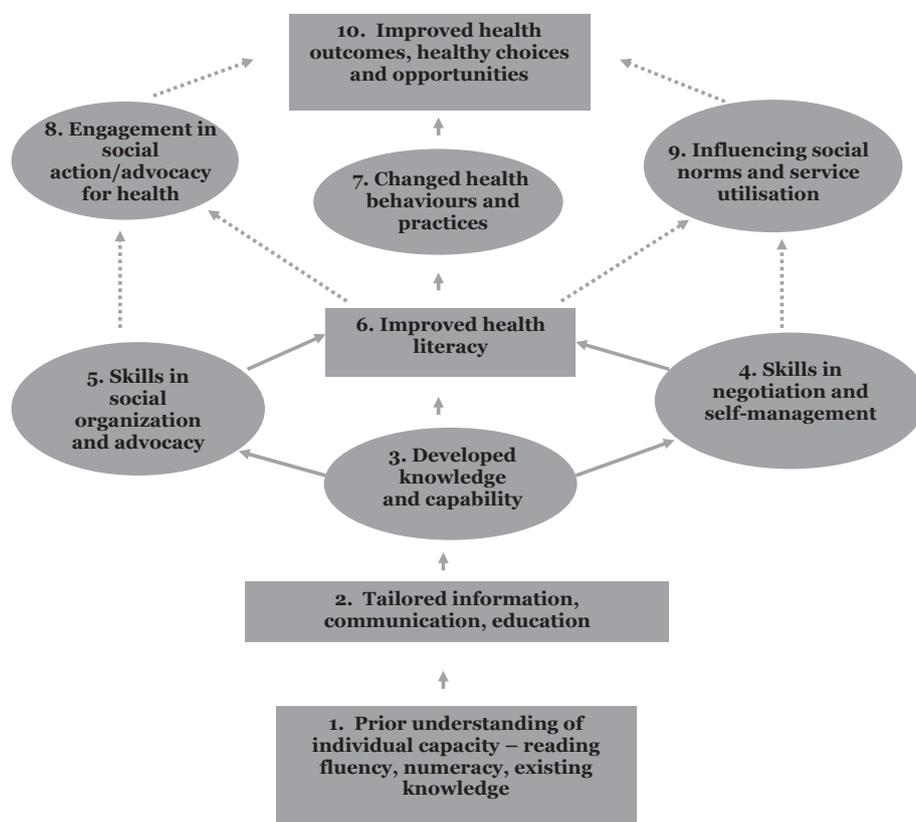


Fig. 2 Developing interactive and critical health literacy skills*

in **Figure 1**. As with **Figure 1** it commences with recognition of prior knowledge and capability (1), leading to tailored health education and communication (2). At this point the model varies significantly indicating the purpose of the health education as being directed towards the development of relevant personal knowledge and capability (3), and interpersonal and social skills (4,5). In **Figure 2** health literacy *is the outcome* of education and communication rather than a factor that may influence the outcome (6). People who have better developed health literacy will thus have skills and capabilities that enable them to engage in a range of health enhancing actions including personal behaviours (7), as well as social actions for health and the capability of influencing others towards healthy decisions such as quitting smoking, or participating in preventative screening programs (8,9). The results are not only improved health outcomes but also a wider range of options and opportunities for health (10).

Conclusions

Each of the approaches to improving health literacy described above are dependent on underlying literacy and numeracy in a population, and are context and setting specific. Individuals with undeveloped skills in reading, oral communication and numeracy will not only have less exposure to traditional health education, but also less developed skills to act upon the information received. For these reasons, strategies to promote health literacy will remain closely tied to more general strategies to promote literacy, numeracy and language skills in populations.

The different models are equally important and in combination are helping to stimulate a more sophisticated understanding of the process of health communication in both clinical and community settings. The models also highlight factors impacting on its effectiveness (Coulter and Ellins 2007; Nutbeam 2009).

Actions being taken to improve the sensitivity of clinicians and health service administrators to the effects of low literacy on health decision-making (illustrated in **Figure 1**) will help to minimize the disadvantage suffered by individuals with low literacy. This represents important progress in addressing a source of disadvantage and inequity in the health care system, and suggests that the improvements in patient education and management being achieved in the US should be migrated widely (Sheridan 2011).

Improving health literacy in the ways illustrated through **Figure 2** will require some widening of educational content and methods. Improving health literacy involves more than the transmission of health information, although that remains a fundamental task. Helping people to develop confidence to act on that knowledge and the ability to work with and support others will best be achieved through more personal forms of communication, and through community based educational outreach. If the goal of promoting greater independence in health decision-making is to be achieved, there will need to be more sophisticated understanding of the potential of education to strengthen both personal and community action to improve health. Developing health literacy in this way will support more comprehensive options for health improvement, disease prevention and for successful self-

management among individuals with established illness.

Such an approach to improving health literacy can be more broadly applied beyond of health care settings, into schools, adult learning, and community development programs. However, these approaches are less well tested through systematic research than work in a clinical setting. In the absence of better developed measures and quality research and evaluation, this more holistic model of health literacy remains a powerful idea, but not one that is yet established as practical for widespread implementation. Further research is needed to develop the empirical basis for the concept.

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