Health literacy as a population strategy for health promotion

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Objective: To provide an overview of the key concepts, and issues of definition and measurement in health literacy, before considering approaches to improving health literacy in populations, and the implications for policy and practice.

Contents: Health literacy describes the possession of literacy skills that are required to make health-related decisions in a variety of different environments (home, community, health clinic). These skills vary from individual to individual, and poor health literacy has been consistently associated with adverse health outcomes. Health literacy can be improved through effective communication and education, and is moderated by the environment in which communication occurs. In clinical settings, research has consistently shown that low health literacy can be successfully identified, and can be improved through effective patient education to deliver better health outcomes. In the wider community, improving health literacy requires more than the transmission of new information, it also involves the development of empowering personal skills that enable participation in a range of actions that can protect and improve health. New communication technologies provide both challenges and opportunities for health education.

Conclusion: More personalised forms of communication, and active educational outreach will best support the goal of promoting greater independence in health decision-making. This requires more sophisticated understanding of the potential of education to strengthen both personal and community action to improve health. The use of relevant theories and models can provide important guidance on content, sequencing and delivery of health and patient education programs.

Key words: Health literacy, patient education, health education, consumer health information

Introduction:

The past 25 years has seen extraordinary growth in interest in health literacy. Governments in Europe, Australia, the United States and China among others have developed national strategies and targets to improve health literacy in their populations. A search in the scientific literature on the term “health literacy” in most publication databases shows negligible publications in the 1990s, rising steeply to many hundreds of papers published annually on the subject in the past few years. This growth in interest has been underpinned by debate about the definition and measurement of health literacy, numerous studies that have investigated the relationship between health literacy and a wide range of health and social outcomes, and increasingly, investment in policy and programs to improve health literacy in populations. This paper provides an overview of the key concepts, and issues of definition and measure-
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ment, before considering approaches to improving health literacy in populations, and the implications for policy and practice in health promotion and disease prevention by different stakeholders.

The reasons for this rapid expansion in interest are not hard to understand. It has been long established that low literacy in a population is associated both directly and indirectly with a range of poor health outcomes. Indirectly, low literacy is often linked to poor socio-economic circumstances, and this in turn is associated with adverse effects on health that are independent of other risk factors. The WHO Commission on the Social Determinants of Health identified literacy as having a “central role” in determining inequities in health in both rich and poor countries (WHO). Research conducted mainly over the past 20 years has also clarified the relationship between low literacy levels and declining use of available health information and services. This is observable in relation to responsiveness to health education, the use of disease prevention services, and in poor self-management of chronic disease.

Concepts of literacy and health literacy:

Literacy is generally understood as having two distinct components—those that are task-based, and those that are skills-based. It can be measured in absolute terms by distinguishing between those who can perform the tasks of reading and writing basic text and those who cannot, and in relative terms by assessing the skill differences between those who are able to perform relatively challenging literacy tasks and those who are not able to do so. These distinctions can also apply to numeracy skills. Individuals with higher levels of general literacy (high level skills in reading, writing and understanding text) are more able to apply their skills in situations requiring specific content knowledge, or in new and unfamiliar contexts.

Literacy is not a fixed asset. It can be improved through education, and is both content and context specific. Although the possession of generic literacy skills in reading, writing and understanding text improves the ability of an individual to access, understand and act on new information, it is no guarantee that a person can consistently apply their skills in situations requiring specific content knowledge, or in unfamiliar settings. In this context, more specialist knowledge and more specific skills may be required. This understanding of the dynamic nature of literacy has led to the recognition of different specialist “literacies”, such as financial literacy, science literacy or media literacy. This distinction reflects the fact that individuals have varying capacity to apply their general literacy skills in different contexts.

In this context, health literacy may be considered one of many domains of literacy. Health literacy can be described as the possession of literacy skills (reading and writing) and the ability to perform knowledge-based literacy tasks (acquiring, understanding and using health information) that are required to make health-related decisions in a variety of different environments (home, community, health clinic). Health literacy is also generally understood to include equivalent skills in numeracy. It has been defined and conceptualised in multiple ways, but is ultimately based on an observable set of skills that will vary from individual to individual. Importantly, these skills can be developed and improved through effective communication and education.

These differences in skills have been categorised as functional, interactive and critical health literacy. Such a classification is derived from mainstream literacy studies and has the advantage of signaling the impact that differences in skill lev-
els may have on health-related decisions and actions. *Functional health literacy* describes basic level 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 range of prescribed activities. Individuals with these basic health literacy skills are generally able to respond well to education and communication based on factual information on health risks, and on how to use the health system. Such communication mostly has limited goals. Generally such activities will result in individual benefit, but may be directed towards population benefit (for example by promoting participation in immunization and screening programs). Typically such approaches do not invite interactive communication, and may not foster the development of transferable skills and greater autonomy in health-related decision-making.

*Interactive health literacy* describes more advanced literacy skills that enable individuals to extract health information and derive meaning from different forms of communication, to apply new information to changing circumstances, and engage in interactions with others to extend the information available and make decisions. Individuals with these more advanced health literacy skills are well-positioned to respond to education and communication that is focused on the development of personal skills and improved personal capacity to act independently on knowledge, and strategies designed to improve motivation and self-confidence to act on information obtained. This type of health education is generally more interactive and often delivered through more structured educational settings (for example, school health education, well-designed interactive web-sites). As the description implies, these literacy skills also enable a higher level and more successful interaction with different sources of information, including for example, more productive interaction with clinicians providing advice.

*Critical health literacy* describes the most advanced literacy skills which can be applied to critically analyse information from a wide range of sources, and information relating to a greater range of health determinants, and to use this information to exert greater control over life events and situations that impact on health. This may include not only information on personal health risks, but also on the social, economic and environmental determinants of health. This type of health literacy can be more obviously linked to population benefit, alongside benefits to the individual.

This classification of health literacy helps to distinguish between the different skills that progressively enable greater autonomy in decision-making, as well as engagement in a wider range of health actions that extend from personal behaviours to social action that addresses the underlying determinants of health. As with general literacy, differences between individuals will be observable based on exposure to different forms of information (content and media), and self-confidence to respond to health communications—usually described as *self-efficacy*. As with all health education, individual responses to information and education will be moderated by the environment in which they occur.

Such a categorisation also helps to distinguish between communication and education that are task-based—designed to develop specific skills to manage prescribed activities (medication adherence, behaviour change), and interventions that are skills based—designed to develop generic, transferable skills that equip people to make a
range of more autonomous decisions relating to their health, and to adapt to changing circumstances.

The concepts of interactive and critical health literacy connect closely to modern concepts of health promotion. In this case, health literacy has been viewed as a personal and population asset offering a route to greater autonomy and control over health decision-making\(^{10-12}\). It is though this focus on skills development and empowerment that the concept of health literacy has the potential to have a distinctive influence on the purpose and methodologies of health education and communication.

Greater attention has also been given to better understanding the impact of the context in which people are required to use their health literacy skills and capabilities. Health literacy is mediated by the situational demands and complexities that are placed on people. Obtaining nutritional information from a food label is a quite different experience from receiving complex, jargon-laden instructions on how to manage diabetes, and quite different again from receiving information on childbirth at an ante-natal clinic. Even a person with high level health literacy may experience real challenges in applying those skills in an environment (like a hospital), or in interacting with a person (like a doctor) that they find unfamiliar and intimidating. This has led to much greater attention being given to ways of reducing the situational demands and complexity in which a person is making a health decision. A range of models and practical strategies have been proposed to help create “health literate organisations” that are implementing practical strategies to reduce the environmental demands on people engaging with those organisations. These strategies range from modification of the language in used in various forms of communication through to changes in the organisation and management of health services.

Figure 1 (adapted from a model proposed by Parker\(^\text{13}\)) provides a summary of this dynamic relationship to define health literacy as a product of \textit{personal skills} and \textit{situational demands}. This model also helps to illustrate how observable differences in health literacy emerge as a consequence of variable exposure to different health information content and media that are designed to improve personal skills and ability; and that these skills are subsequently moderated by the environment in which a person applies their literacy skills.

Conceptualizing health literacy in this way, by recognizing the goal of empowerment through the development of interactive and critical health literacy skills, has important implications for the scope of the content of health education and communication. It follows that health education to improve

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Figure 1 Health literacy is determined by personal skills and environmental context (community, school, clinic)
people’s knowledge, understanding and capacity to act, can not only be directed at changing personal lifestyle or improving compliance with prescribed disease 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 confident interactions with health care providers, and the ability to navigate or negotiate effectively in the health care system.

Health literacy measurement:

Given the continuing discussion about the definition of health literacy reflected above, 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 is proving to be very challenging. 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.

Several simple measures of functional 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. These measures were designed and are most useful as screening tools in clinical practice, but are generally insufficient to measure the relative differences in cognitive skills and their application as described above.

Currently work is underway in several countries to develop and adapt existing measurement tools for health literacy that can be applied to population studies, can discriminate between relative differences in health literacy, and importantly, can be used to assess change in individuals and populations following intervention. More sophisticated (and complex) tools are emerging.

All of these tools are enabling more sophisticated analysis of the determinants and consequences of lower health literacy, and are enabling us to understand the overall scale of the problem, and unequal distribution of low health literacy in populations, as well as offering the basis for the evaluation of interventions to improve health literacy.

Improving health literacy in clinical settings

A high proportion of research into health literacy has focused on the development of effective interventions for use in clinical practice. There are compelling reasons for this in health care systems where there is need for more effective prevention, a commitment to patient centred care, and greater than ever dependence on patient self-management of chronic conditions. We now understand better than ever that there is a strong social gradient in the population, with lower levels of health literacy much more common among the socially and economically disadvantaged. In summary, those with greatest need are generally least able to respond to the demands of the health care system.

The challenges are obvious. 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 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 NCDs such as diabetes and heart disease, and related clinical risks such as hypertension, elevated cholesterol, or obesity.

The effects of poor health literacy can be mitigated by improving both the quality of health communications, and greater sensitivity among health professionals to the potential impact of low literacy on individuals and in populations (improving skills and reducing organisational demands and complexity). Such responses can be observed in a range of adaptations to traditional patient and population health education methods in print, broadcast and electronic communication, as well as improved interpersonal communication between clinicians and their patients. Despite evident progress, the constraints on patient education in a clinical setting often mean that the educational methods used are more functional, and less likely to enable interactive communication, nor support a high level of autonomy in decision-making.

There are a growing number of examples of different approaches to patient education that are intended to improve functional health literacy and related clinical outcomes. The great majority of these studies are using the health literacy concept to better understand the likely response of patients to clinical advice and instruction, the impact on compliance, and longer-term success in disease management. In this context, low health literacy is understood as a risk to successful clinical care. By using the screening instruments described earlier (such as REALM, NVS), clinicians can quickly and practically identify individuals with poor health literacy and modify their communications accordingly.

An excellent review including mainly this type of intervention reports on the outcomes of 38 intervention studies\textsuperscript{22}. This provides broadly consistent evidence that comprehension of health information and advice among individuals with low health literacy can be improved through modifications to communication, and that intensive mixed-strategy interventions (for example combining adapted communications with behavioural skills coaching) produces improved health outcomes including reduced reported disease severity, unplanned emergency department visits and hospitalizations. The authors concluded that there have been “significant advances in the field of health literacy research” since an earlier 2005 review\textsuperscript{23}.

This review highlights common features of successful interventions including mixed strategy and high intensity communications, the use of theory, pilot testing, an emphasis on skill building, and delivery by a health professional. It also emphasises the use Teach-Back methodologies that have been shown to be effective in other literacy interventions\textsuperscript{24}. Teach-Back typically involves asking a client to explain in their own words the information or advice they have been given to demonstrate their understanding of the important information. Importantly, it places the onus on service providers to confirm they have communicated information effectively. Teach-Back has been reported to be effective in a range of contexts including emergency department discharge, outpatient management, and obtaining informed patient consent. It has been used to educate, assess learning and improve recollection of health information. It may also help health services improve client satisfaction and meet their expectations.

**Health literacy within a population strategy for health promotion:**

Formally organised education is the main route to improved literacy in populations. It follows that
organised and structured health education will improve health literacy in individuals and populations. Health education is most likely to improve health literacy when the messaging and delivery are tailored to the specific needs of individuals and populations across their life course.

Figure 2 provides a logic model for health promotion that illustrates the relationship between health education and health literacy, and the place of health education and health literacy in the wider context of a range of potential interventions for health promotion and disease prevention\(^{25,26}\). At the end-stage of interventions are health and social outcomes, usually expressed in terms of reduced mortality, morbidity, and disability and may also incorporate social goals related to greater equity in outcomes.

Intermediate outcomes in the model represent the most immediate determinants of these health and social outcomes. Personal behaviours such as smoking or physical activity may increase or decrease the risk of disease, and are summarised as healthy lifestyles in the model. Healthy environments consist of the environmental, economic, and social conditions that can both impact directly on health, as well as support healthy lifestyles – for example by making it more or less easy for an individual to smoke, adopt a healthy diet or engage in physical activity. Access to, and appropriate use of health services are acknowledged as important determinants of health status, and are represented as effective health services in this model.

Health promotion outcomes represent those personal, social, and structural factors that can be modified in order to change the determinants of health (i.e. intermediate health outcomes). These outcomes also represent the most immediate tar-

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**Figure 2** Logic model for prevention planning
get of planned health promotion activities. Within this level of the model, *health literacy* refers (as above) to the literacy, cognitive and social skills which enable individuals to access, understand, and use information to promote and maintain good health – typically the outcome of health education activities. *Social action and influence* describes the results of efforts to enhance the actions and control of social groups over the determinants of health. These may also be influenced by health education and communication, as well as other forms of community development. *Healthy public policy and organisational practices* are the result of efforts to overcome structural barriers to health – typically the outcome of political advocacy and lobbying which may lead to environmental, organisational, policy, regulation and/or legislative change. Success in the introduction of tobacco control legislation in many countries represents a contemporary example of an outcome from effective public health advocacy.

The most effective health promotion and disease prevention programs consist of interventions targeted at all three of the factors identified as health promotion outcomes above. For example a program to promote healthy eating might consist of health education directed to individuals about basic food groups, to develop practical skills in food preparation and selection, alongside community and policy actions to improve access to healthier food choices through supply-side intervention. These could include for example efforts to improve the food choices available in school and worksite canteens, and interventions with food retailers to improve the supply and promotion of healthier food choices.

This logic model also provides the bridge between an intervention (described as health promotion actions) and the goal of an intervention (modification of the determinants of health). These *health promotion outcomes* are the bridge between what we do and what we are trying to achieve in health promotion interventions. These health promotion actions in the model include health education and communication, organised efforts to mobilise people’s collective energy, resources, skills towards the improvement of health, and government actions that promote health.

Use of this model places health education into the wider context of health promotion, and importantly, positions health literacy as a key outcome from health education. The arrows in the model illustrate potential relationships. There is the obvious linear relationship that links health education, health literacy and health behaviour. But other relationships can also be planned and observed. Health education can also be directed towards the development of relevant interpersonal and social skills. 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 changing personal behaviours, 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. The results are not only improved health outcomes but also a wider range of options and opportunities for health.

Health education has been an essential component of action to promote health and prevent disease for more than a century. Many campaigns have been and continue to be characterised by their emphasis on the transmission of information, often based upon a relatively simplistic understanding of the relationship between communication and behaviour change. Over time, it has
become clear that campaigns which focussed only on goal directed transmission of information – developing functional health literacy were not achieving the results which had been expected in terms of their impact on health behaviour. In addition, where health education programs have been found to effective, these successes have been most observable among the most literate and economically advantaged in the community. Higher levels of education and literacy, personal skills and economic opportunity significantly improve the capacity of people to receive and respond to health messages communicated through traditional media.

As a tool for health promotion and disease prevention, health education has been considerably strengthened by the development of a new generation of more sophisticated, theory-informed interventions over more recent decades\textsuperscript{27}. These theories are not only focussed on the transmission of information (though this remains important) but also the development of personal and social skills that support behaviour change and maintenance. These programs focus on the social context of behavioural decisions, and on helping people to develop personal and social skills required to make positive health behaviour choices. Several theories of behaviour change have helped to identify and explain the complex relationships between knowledge, beliefs, and perceived social norms, and provide practical guidance on the content of health education programs to promote improve interactive and critical health literacy, and support behavioural change in a given set of circumstances.

These theories and models provide important guidance on content, sequencing and delivery of health education programs, emphasizing:

- The importance of knowledge and beliefs about health. All models imply a central role for

health education, and refer to individual knowledge about health. They emphasise the importance of personalising health information, and stressing the short-term consequences of behaviours such that communication is more immediately relevant to an individual.

- The importance of self-efficacy: the belief in one’s competency to take action. Health education that enables the development of health literacy skills and self-confidence through personal observation, supervised practice and repetition, is vital to sustainable success.

- The importance of perceived social norms and social influences related to the value an individual places on social approval or acceptance by different social groups. The influence of social role models, family and peer groups is emphasised here. Using role models in health education, and peer to peer communication is highlighted.

- The importance of recognising that individuals in a population may be at different stages of change at any one time. The sequencing and targeting of health education messages to the right person at the right time.

- Limitations to interventions which do not adequately take account of socio-economic and environmental conditions which significantly shape access to services and resources.

- The importance of shaping or changing the environment or people’s perception of the environment as an important element of health education, targeting social norms.

Access to a wider range of communication tools and methodologies that have evolved with the development of the internet and mobile communications have both broadened the repertoire of health communication and education, and made it more complicated\textsuperscript{29}. Many people have a far wider
range of communication channels open to them. This enables access to a wide variety of sources of information and opens opportunities for more personalised and tailored health communication. It also means that those wishing to communicate health messages are entering a more crowded marketplace for attention, and challenges health consumers to discriminate between different sources of information. There are increasingly sophisticated online health education programs that are targeted to specific populations and capable of a high level of personalisation. These generally make good use of the theoretical models described earlier to guide content and sequencing of messages. There are a growing number of eHealth and mHealth programs that are addressing specific risks, and/or disease management strategies for non-communicable disease.

Despite this evident progress, interventions which have relied simply on communication and education have struggled to achieve substantial and sustainable results in terms of behaviour change, and have made little impact in terms of closing the gap in health status between different social and economic groups in society. Health education remains a crucially important tool in public health, but the evidence from numerous studies highlight how emphasis has to shift away from promoting simple compliance with pre-determined behavioural goals, to the development of a set of empowering personal skills that enable engagement in a range of actions that can protect and improve health. The growing interest in the concept of health literacy has emerged from this more sophisticated understanding of health education.

To date there are relatively few reported interventions that incorporate the concepts of health literacy described above. A recent review found few studies that were actively using the concept of health literacy in their design and evaluation. Those identified in the review covered a range of settings, including online programs, adult education, school and a supermarket-based multimedia program. All included education or communication strategies designed to develop functional health literacy skills directed towards specific improvements in knowledge and understanding, and most were also directed towards pre-defined behavioural responses. Most had elements that were compatible with the development of interactive and/or critical health literacy skills. Educational methods varied considerably from formal classes, home visiting and study circles, through multimedia and eHealth/online interventions.

The interventions focused on the needs of specific population groups throughout the life-course (parents, adult learners, older people), and addressed a range of topical health issues including food choices, physical activity and parenting. Most were also targeted at populations and in settings that have a higher proportion of individuals with lower health literacy. Although this review found few reported studies, it did highlight a pipeline of studies underway that indicate a growing base of evidence that will enable us to better understand how to organize and deliver more effective population interventions in the future.

Overall, the authors report that the concept and rhetoric relating to health literacy has excited the interest of public health researchers, practitioners and policy makers, but that this interest has not yet been converted into substantive advances in public health interventions.

Concluding remarks:

This overview shows that improving health literacy involves more than the transmission of health information, although that remains a funda-
mental 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 in populations 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.

It is not difficult to understand why health literacy has become a subject of wide interest in the past decade. For researchers interested in health and disease causality, health literacy offers a convenient and logical summary definition of a pre-existing condition/risk that can be used to understand and explain variation in health and disease outcomes. There is a substantial and growing literature that confirms the importance of the concept in clinical practice and public health. For those interested in the evaluation of information, education and communication (IEC) interventions, health literacy has long been proposed as a useful outcome measure.\(^\text{20}\).

For clinicians, work over many years, mainly in the USA, has established health literacy as an identifiable and manageable risk in clinical care, of particular importance in the management of long-term and complex conditions that depend upon successful patient engagement and management. For public health practitioners, health literacy is conceptually attractive in its fit with contemporary health promotion, understood as a personal “asset” that can be developed through educational and other interventions to support greater personal and community control over a range of determinants of health.\(^\text{10}\). For policy-makers, health literacy has the attraction of being a sufficiently flexible concept to be used to support a full spectrum of policy positions.

All of this attention is undoubtedly supporting advances in our knowledge and understanding of the concept, its relative importance as a health determinant, its measurement, and its potential for use to guide clinical practice, public health and public policy. However, the academic interest and attractive rhetoric surrounding health literacy needs to be tested more often and more systematically through intervention experimentation in a wide range of populations using valid and reliable measurement tools.

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**Conflicts of interest**
The author has no conflicts of interest to declare.

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