Discussion paper on promoting, measuring and implementing health literacy: Implications for policy and practice in non-communicable disease prevention and control

WHO GCM/NCD Working Group 3.3 2017

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Introduction

The past 25 years has seen extraordinary growth in interest in health literacy. Governments in Europe, 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 surge 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 exceptional interest has also prompted debate about the relationship between health literacy and well-established health education.

This paper provides an overview of the key concepts and the state of the science and has been prepared as a part of the work program to support governments in the implementation of the WHO Global NCD Action Plan 2013–2020. It examines key concepts, and issues of definition and measurement, before considering approaches to improving health literacy in populations, and the implications for policy and practice in non-communicable disease (NCD) prevention and control by different stakeholders.

Literacy, education and health

Literacy is a widely used term, but a complex and commonly misunderstood concept. After many decades of study, debate continues as to its definition, measurement and practical importance. In the context of this continuing debate, literacy is generally understood as having two distinct domains – those that are task-based, and those that are skills-based. Task-based literacy describes the extent to which a person can perform functional literacy tasks such as read a basic text and write a simple statement. Skills-based literacy focuses on the knowledge and skills an adult must possess in order to perform these tasks. These skills range from basic, word-level skills (such as recognizing words), to higher level skills (such as drawing appropriate inferences from continuous text) (NAAL 2003).

It follows that literacy can be measured in absolute terms by distinguishing between those who can read and write basic text (functional literacy) and those who cannot (illiterate),
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.

Poor literacy skills among adults are surprisingly common even in the most economically developed countries. Estimates of the proportion of the population in individual Organisation for Economic Co-operation and Development (OECD) countries lacking functional literacy skills range from 30-60% (OECD 2005). In many developing countries these figures are far higher.

Functional literacy is important. It is through these skills of reading and writing that those who are literate are able to participate more fully in society, both economically and socially, and are able to access information, understand their world, and exert a higher degree of control over everyday life. For these reasons, literacy levels in a population are seen as an important measure of social and economic development.

The field of literacy studies has continuing debate about different types or levels of literacy and their practical relevance in everyday life. One approach to classification simply identifies types of literacy not as measures of achievement in reading and writing, but more in terms of what it is that literacy enables us to do. For example *functional literacy* is used as a term to describe sufficient basic skills in reading and writing that enable an individual to function effectively in a range of everyday situations. *Interactive literacy* describes more advanced cognitive and literacy skills which, together with social skills, can be used to successfully interact with society and the economy, to extract a range of information from a variety of sources, derive meaning from different forms of communication, and to apply new information to changing circumstances. *Critical literacy* describes the most advanced cognitive skills which, together with social skills can be applied to critically analyse information, engage with society, and to use this information to exert greater control over life events and situations.

This classification is by no means the only way in which literacy is defined and categorised, but offers a meaningful connection between different literacy levels and the practical application of skills in reading and writing in everyday life. Importantly, such a classification indicates that the different levels of literacy progressively allow for greater autonomy in decision-making and greater capacity to engage in social and economic activities. Progression between levels is not only dependent upon cognitive development, but also exposure to different information (communication content), different forms of learning (communication methods), and personal response to such communication – self-efficacy in relation to defined issues. Analysis of literacy through this lens provides some guidance on both content and the types of education and communication required to support improvements in literacy among individuals and populations.
Not surprisingly, 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, 2008). Data from many developed nations show a 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 non-communicable diseases (NCDs) (Berkman et al, 2011). For these reasons, improving access to education and achieving high levels of literacy in a population is not only a key sustainable development goal in its own right, but will also produce substantial public health benefits.

Literacy is not a fixed asset. It 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 has led to the recognition of different specialist “literacies”, such as financial literacy, science literacy or media literacy. Health literacy can be considered in this context as the possession of the specific literacy skills that are required to make health related decisions in a variety of different environments (Nutbeam 2009).

Responding to low levels of literacy in a population involves improving access to effective, structured educational programs, most commonly delivered through school education, or through education for adults in different settings. The past decade has also seen significant growth in the use of electronic and online media for education. Developing more specialist literacies, including health literacy, may involve education and communication activities both within and outside of these more formal, generic educational programs. The WHO Commission Report concludes that “removing the numerous barriers to achievement of primary education will be a crucial part of action on the social determinants of health” (WHO, 2008).

Key points:

- Literacy is generally understood as having two distinct domains that allow measurement in absolute terms by distinguishing between those who can read and write 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.

- Literacy is not a fixed asset. It is both content and context specific.
- Low literacy in a population is associated with a range of poor health outcomes of relevance to NCD prevention and management. Those with lower levels of literacy are less responsive to health education, the use of disease prevention services, and less able to successfully self-manage non-communicable diseases (NCDs).
- Improving access to education and achieving high levels of literacy in a population is not only a key sustainable development goal in its own right, but will also produce substantial public health benefits.

**Defining and measuring health literacy**

**Defining Health Literacy:** *Health* literacy can be described as the possession of literacy skills (reading and writing) and the ability to perform the 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 has been more formally defined and conceptualized in multiple ways (Peerson 2009; Sorensen et al 2012) to describe the literacy skills which enable people to obtain, understand and use health information (Nutbeam 1998a, Nutbeam 2000, Institute of Medicine 2004). These are an observable set of skills that will vary from individual to individual, and can be developed and improved through conscious educational intervention.

The concept of health literacy has also developed in two distinctive settings – in clinical care where low health literacy is 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 2012). Like general literacy, health literacy is also content and context specific. A person’s ability to access health information and their motivation and skills to use information is greatly influenced by their age and stage in life, and the context in which information might be applied.

WHO has adopted a definition of health literacy that reflects a health promotion orientation, as follows:
Health literacy represents 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 good health.

The WHO definition goes on to say:

Health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Thus, health literacy means more than being able to read pamphlets and make appointments. By improving people’s access to health information, and their capacity to use it effectively, health literacy is critical to empowerment (Nutbeam 1998a).

The definition adopted by WHO aligns health literacy more closely with an understanding that literacy is not simply a set of functional capabilities - it comprises a set of skills that enable people to participate more fully in society, and to exert a higher degree of control over everyday events. The ability to read and write (functional literacy) is a foundation for health literacy on which a range of complementary skills can be built.

These differences in skills have been categorised in different ways, but the most commonly used form reflects the categorisation of literacy described above as functional, interactive and critical health literacy (Nutbeam 2000).

Functional health literacy describes the possession of literacy skills sufficient to acquire and act on information on defined health risks and recommended health services use, and compliance with recommended health and disease management strategies. This reflects the outcome of some forms of health education, and typical patient education in a clinical setting that is based on the communication of 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 skills development and autonomy in health-related decision-making.

Interactive health literacy describes the possession of literacy skills required to extract, understand and discriminate between health information from different sources, and to apply new information to changing circumstances. This reflects the outcome to health education focused on the development of personal skills and improved personal capacity to act independently on knowledge, and 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 of interaction with different sources of information, including with clinicians providing advice.

**Critical health literacy** describes the most advanced cognitive skills which, together with social skills can be applied to critically analyse health information from a variety of sources, and to use this information to exert greater control over both personal health decisions and wider influences on those decisions. Within this paradigm, health education may not only involve the communication of 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.

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 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 (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.

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 (Davis, 1993; Parker 1995; Weiss, 2005). 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 (Barker 2006).

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 (Rudd, 2007; Chinn 2013; Jordan 2013; Osborne 2013; Sorensen 2013).

Different measurement tools will be required for different ages and stages in life – even if the structure of the concept remains constant. For example assessing the health literacy of students in school will require different questions compared to assessing the health literacy of older people with chronic disease. Different measures will be required to distinguish between functional, interactive and critical health literacy. For example, assessing interactive and critical literacy may require additional assessment of oral literacy and social skills such as those involved in negotiation and advocacy. Not surprisingly, some health literacy measurement tools have also been developed with more specific foci, including specialised instruments for specific populations (Chisholm 2007; Wu 2010; Giradi, 2011); health content (Renkert, 2001; Ohnishi, 2005; Ishikawa 2008; Al-Sayah, 2013; Dumenci, 2014); communication media (Norman 2006; Mitsutake 2011); and different countries (van der Vaart, 2012; Suka 2013).

All of these tools are 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.

**Key points:**

- The concept of health literacy has developed in two distinctive settings – in clinical care where low health literacy is 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.
• Health literacy can be improved through education, enabling greater autonomy in decision-making, as well as engagement in a wider range of health actions.

• Observable differences in health literacy emerge as a consequence of differential exposure to different forms of health information content, and communication media. Individual responses to information and education will be moderated by the environment in which they occur.

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

• 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.

• 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.

• Different measurement tools will be required for different ages and stages in life – even if the structure of the concept remains constant.

**Health education, health literacy and 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 1 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 comprehensive NCD prevention program (Nutbeam 1996, 1998b). At the end-stage of interventions are *health and social outcomes*, usually expressed in terms of reduced mortality, morbidity, and disability (for example associated with NCDs) 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 NCDs, 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 target 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 NCD 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 more overt political advocacy for health.

The different intervention strategies also mean that a wide range of potential measures of health promotion outcomes can to be considered as evidence of success in the short-term. Some of these are listed in the model in figure 1.
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.

**Key points:**

- Health literacy is an observable, measurable outcome from health education
- Higher levels of health literacy can support a wide range health actions to prevent and better manage NCDs, including changed personal behaviours, social actions for health, and the capability of influencing others towards healthy decisions
- 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
- Health education and improved health literacy need to be viewed in the wider context of a comprehensive and integrated set of actions to prevent and manage NCDs in populations.

**Digital Health Literacy**

Although there are important differences between regions, approximately 47% of the population is connected to the Internet (ITU 2016). In the age of technology, digital health literacy has become more prevalent and, at the same time, more necessary for the improvement of patients’ health and well-being. Digital health literacy (or eHealth literacy), is the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem (Norman 2006).

We live in a digital time, and health information—whether accurate or fallacious—is pervasive. Health information has steadily migrated to online platforms, which raises

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1 Chapter on Digital Health written by David Novillo, Special Advisor on knowledge management & digital health from PAHO and regional focal point for the WHO eHealth Program
questions about patient education (Sium 2015) and empowerment, and further emphasizes the importance of health literacy. “Information overload” calls for a need of new strategies to manage this information. (Klerings 2015) For example, a simple search about “diabetes” or “cancer” on Google may retrieve about 250 million results for “diabetes” and 575 million for “cancer.” The consumption of health information through the Internet, the search for health information, and the consultation of health sources on the Internet are mainly carried out through search engines. Eight of the 10 health-related consultations were performed on search engines like Google, Yahoo or Bing (Fox 2013); one out of 20 searches on Google is related to health (Ramaswami 2015).

This also emphasizes the importance of digital health literacy in individuals so that they may be able to discern what information to follow and which statements to ignore, what issues to bring up to their healthcare providers, and what steps to take in instances of self-care (especially in the case of chronic conditions). Pew Research Center’s Internet and American Life Project (Pew Internet) (Fox 2013) indicates that about 72% of US adult Internet users search for health information and that more than a third of them search the Internet for self-diagnosis. In the case of the European Union, 59% of people have used the Internet to search for health-related information within the last 12 months. Of these, 10% have done so once a week or more, 9% several times a month, 13% approximately once a month, and around a quarter (27%) have used the Internet less than once a month to search for health-related information (European Commission 2015).

Moreover, the increasing number of users on social media, the frequency of use, and the interaction they generate have favored health interactions, including health promotion (Gold 2011). Besides, social media offer people looking for health advice on the Internet a unique opportunity of increased credibility and personalization. The fact that advice can be obtained from social media connections provides an enhanced level of personalization and trust compared to comments that can be anonymously shared on Internet forums (Burton 2012).

In this context, social media (such as Facebook, Twitter, etc.) play a key role in health literacy in terms of the cost-effective use that information and communication technologies offer to health, particularly within the frameworks of education, knowledge and research. Social media have a highly significant impact on health promotion and allow rapid and easy access to clinically useful information to millions of users. It is suggested that social media have the potential to offer health education in a safe and effective way if privacy issues are addressed. These platforms are growing fast, which allows them to be used for the rapid dissemination of educational information (Gill 2013).

This is leading to a new situation for the patient: a state of misinformation, uncertainty, distress, or even a tendency toward self-diagnosis and/or self-treatment and changes in
doctor-patient communication, where patients go to visit their doctor with certain, accurate, or misleading information about their situation and diagnosis, and where some of them even want to contact their physician through means other than a face-to-face visit (Ahmad 2006).

This new scenario requires readaptation to changes regarding the roles and the ways in which health information is delivered. In a setting where the access to information is essential for both health professionals and citizens, it will be relevant to analyze the role of health institutions. Health institutions play a key role in facilitating reliable and trustworthy health information within a context in which anyone can post health-related information.

In a scenario characterized by the need of training on how to have access to the best possible information, and where search engines play a key role in the access to information, it will be important to specifically know – in connection to national health authorities – whether health information offered is easily available for the population, whether this information is well-ranked in search engines, and whether this content is disseminated through social media.

Key points:

- Digital health literacy (or eHealth literacy), is the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem.
- Eight of the 10 health-related consultations on health information were performed on search engines like Google, Yahoo or Bing and one out of 20 searches on Google is related to health.
- The increasing number of users on social media, the frequency of use, and the interaction they generate have favored health interactions, including health promotion.
- Health institutions play a key role in facilitating reliable and trustworthy health information within a context in which anyone can post health-related information.

Improving health literacy for NCD prevention through effective health education

As referred to above, the concept of health literacy has developed in two distinctive settings – in clinical care where poor health literacy is recognized as a risk factor for poor health and poor compliance with health care advice; and in public/community health where health literacy is more commonly viewed as a personal and population asset offering greater autonomy and control over health decision-making. Both conceptualizations have relevance to NCD prevention and management.
Public health education: Health education has been an essential component of action to promote health and prevent disease for more than a century. Campaigns to promote maternal and child health, to prevent communicable disease, and to promote immunisation and other preventive health services have a long history. In many countries, health education directed towards these goals remains a fundamental tool in the promotion of health and prevention of disease. Over the past 40 years this experience in health campaigning has been directed towards the prevention of non-communicable disease by promoting healthy lifestyles. 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 NCD prevention, health education has been considerably strengthened by the development of a new generation of more sophisticated, theory-informed interventions over more recent decades (Nutbeam et al 2010; Suggs et al 2015)). 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. They include Bandura’s social cognitive theory, and the trans-theoretical model originally proposed by Prochaska and DiClimente (Bandura 2011; Prochaska et al, 2015). 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. This type of program was pioneered through the NCD prevention programs of the 1980s and 90s such as the Stanford, North Karelia (Finland), and Minnesota Heart programs and Heartbeat Wales in the UK. 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.

During the same period, social marketing has evolved as a technique for influencing social norms and behaviours in populations. Social marketing is particularly useful because it encourages creative approaches to the analysis of issues and the development of health education and communication programs, especially in relation to the development of channels for communication and messages. For example, social marketing has encouraged us to look outside typical analyses of populations (e.g. age, sex, social class) in order to define consumer groups based on their media consumption or family structure. Social marketing has supported experimentation with the use of a wide repertoire of different intervention methods including mass communication, sponsorship of events, and competitions, all of which have been effectively used for health promotion. Social marketing also supports a strong consumer focus in the development and delivery of programs. As a consequence, health education programs have evolved in their sophistication, reach and relevance to a wider range of groups in populations.
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 (Vishwanath et al, 2015). 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 (Watkins, Xie, 2014; Urrea 2015).

Despite this evident progress, interventions which have relied simply on communication and education have struggled to achieve substantial and sustainable results in terms of NCD risk 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 process. If achieving health literacy as defined by WHO is to be a goal, some re-discovery of the importance of health education needs to occur, together with a significant widening of the content and methods used. This poses a real challenge for contemporary health education and the type of Information/Education/Communication programs which are widely supported by donor agencies - many of which are directed only towards achieving functional health literacy as described above.

**Patient education in clinical practice:** Effective clinical practice will facilitate both improved prevention and better management of NCDs once present (Coulter 2007). 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 participation in screening programs and/or 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. 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 the public and health care providers. Despite evident progress, the constraints on patient education 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 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.

In an excellent review including mainly this type of intervention reports on the outcomes of 38 intervention studies (Sheridan et al 2011). They provide 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 (Pignone et al, 2005).

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. They also emphasise the use of simplified text and teach-back methodologies that have been shown to be effective in other literacy interventions (Snow, 2002). The review also identified some studies where interventions may have different effects on those with low and high health literacy (Greene et al., 2008; Peters et al., 2007).

Although the review did include a small number of community based populations, the interventions included in the review were mostly (and appropriately) oriented towards the development of functional health literacy intended to achieve specific health outcomes
(participation in screening, understanding medicines information), rather than being overtly intended to develop interactive and critical health literacy as described above.

If achieving health literacy as defined by WHO is to be a goal, this will 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 and empowerment among the individuals and communities is to be achieved, there will need to be more sophisticated understanding of the potential of education not only to enable individual change but also to strengthen collective action for health, and efforts to ensure that the content of health communications not only focuses on personal health, but also on the social determinants of health.

Key points:

- Health literacy can best be improved through a structured educational programs or through well designed on-line/mobile learning programs.
- Community health education for NCD prevention has been considerably strengthened by the development of a new generation of more sophisticated, theory-informed interventions
- These theories 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 improve interactive and critical health literacy
- Successful interventions tend to be based on more interactive and personalized forms of communication and messaging
- 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 a more crowded marketplace for achieving impact.
- There are increasingly sophisticated online health education programs that are targeted to specific populations and capable of a high level of personalisation.
- In clinical practice, there is good evidence that comprehension of health information among individuals with low health literacy can be improved through modifications to communication, and that intensive mixed-strategy interventions produces improved health outcomes including reduced reported disease severity, unplanned emergency department visits and hospitalizations.
• There needs to be more sophisticated understanding of the potential of health education not only to enable individual change but also to strengthen collective action for health.

**Implications for Policy and Practice in NCD Prevention and management**

It is not difficult to understand why health literacy as a concept has attracted the attention of researchers, clinicians, public health practitioners and policy makers. For researchers interested in health and disease causality, health literacy offers a convenient and logical summary definition of health status/risk that can be used to understand and explain variation in health and disease outcomes. For those interested in the evaluation of information, education and communication (IEC) interventions, health literacy has long been proposed as a useful outcome measure (Nutbeam 1998b; Paasche-Orlowe 2007).

For policy-makers, health literacy has the attraction of being a sufficiently diverse concept to be used to support a full spectrum of policy positions. Improving health literacy can be represented as supporting a policy commitment to greater patient and public engagement in health decision-making - nicely summarized by the “no decision about me without me” mantra of the UK NHS; and it can also be represented as offering a structure for nationally coordinated health education campaigns such as China’s longstanding Patriotic Health Campaign, now informed and monitored by a national health literacy survey. In both these examples the concept of health literacy has been interpreted and adapted in ways that are locally relevant to clinical and public health policy and practice.

For clinicians, work over many years, mainly in the USA, has established low health literacy as an identifiable and manageable risk in clinical care, of particular importance in the management of long-term and complex conditions - including and especially NCDs - that depend upon successful patient engagement and management. Identification and successful management of the risk of low health literacy, and delivery of tailored patient education has been demonstrated to be feasible and effective in a wide variety of circumstances.

For public health practitioners, in the government and non-government sectors, health literacy has been embraced as a personal asset that can be developed through educational and other interventions to support greater personal autonomy and community control over a range of determinants of health. This fits comfortably with a more holistic understanding of the social determinants of health, and greater sophistication in the methods and content of health education necessary in a comprehensive, integrated health promotion program.

All of this attention is undoubtedly advancing our knowledge and understanding of the concept of health literacy and its relative importance as a health determinant; its
measurement; and its potential for use to guide clinical practice, public health interventions and public policy. However, the diversity of interpretations of the concept is both a strength and weakness. Whilst there is broad agreement on the basic definition of health literacy as a set of skills that enable a person to obtain, understand and use information for health, the application of the concept varies markedly from country to country, between public health and clinical care, and between government and civic society groups.

The academic interest and attractive rhetoric surrounding health literacy has led to some inflated claims relating to causality and intervention effectiveness that need to be more thoroughly tested. In particular the practical relevance of the concept needs to be tested more often and more systematically through intervention experimentation and evaluation, using well-designed and relevant measurement tools. The paucity of reported intervention studies in the rapidly growing scientific literature on health literacy should give cause for concern, and should be addressed as a matter of priority by research funding agencies, government and non-government.

This overview shows that 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 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.

Disappointingly, some governments and health funding agencies have often limited investments in health promotion to unsophisticated IEC (information, education and communication) projects. One of our challenges is to ensure that investment in health education is made into forms of communication and into educational methods that that have a sound theoretical base and are more likely to achieve the empowering personal skills that are captured in the concept of health literacy.

It is also essential to recognize that 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. Pursuing the goal of improved health literacy will thus require more overt alliances between health and education sectors in pursuing the goal of improved literacy levels in the population. This applies at local, national and international levels – emphasising, for example, the need for improved alliances between WHO and UNESCO, at an international level, and clearer understanding between agencies at the most local level (Department for Education and Skills 2006; St Leger, 2000)

Key messages

At government level:

- Health literacy has been adopted by several countries as a population measure of human capacity and development.
- Health literacy is an observable, measurable outcome from health education. It provides a well-defined bridge between a range of health/patient education inputs and NCD risks and outcomes.
- Health literacy is monitored in countries and specific populations in a variety of ways that are practical and relevant to local circumstances. These population surveys utilize either specifically designed measures, adaptations of exiting national literacy surveys or a combination of both. There is no standard measure of health literacy.
- Several countries have developed national targets to improve health literacy and/or related policies across the spectrum of health care and public health education. These targets and related policies guide both clinical and public health practice.
- This diversity of application reflects the significant variation in health profiles between and within countries, and in health content across the life course, and regional or national priorities in health and health care.
- Strategies to promote health literacy will remain closely tied to more general strategies to promote literacy, numeracy and language skills in populations, requiring alliances between health and education sectors in pursuing the goal of improved literacy levels in the population.
- Continued investment in developing the underpinning science is essential

In the health care system:

- Attention to improving health literacy in the health care system is helping to reform clinical practice, patient education and service organization.
- Several simple measures of functional health literacy provide usable screening tools for clinicians to use in everyday practice with a broad range of populations
- Greater awareness of the causes and risks of low health literacy has led to improvement to the quality of interpersonal communications in clinical care, and
more effective patient engagement in self-care and self-management, and has led to improved clinical outcomes, including better management of NCDs and associate risks.

**In public health:**

- Health literacy is directly and indirectly associated with health status in populations.
- Higher levels of health literacy in a population support a wide range health actions to prevent and better manage NCDs, including greater capacity to change personal behaviours, take social actions for health, and influencing others towards healthy decisions.
- Health literacy can best be improved through structured, theory-informed educational programs, or through similarly designed on-line learning programs.
- Successful educational interventions tend to be based on more interactive and personalized forms of communication and messaging.
- Interventions that are context and content relevant - linked to critical life stages (eg adolescence, parenthood, aging and retirement) and events (eg diagnosis of chronic disease) - are likely to be more successful in producing sustainable change.
- Civic society can explore and develop the potential of health education not only to enable individual change but also to strengthen collective action for NCD prevention.
- Health education and improved health literacy need to be viewed in the wider context of a comprehensive and integrated set of actions to prevent and manage NCDs in populations.
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