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Understanding and Responding to Health Literacy as a Social Determinant of Health

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Abstract

Evidence of a social gradient in health literacy has been found in all reported national population surveys. Health literacy is a midstream determinant of health but not a panacea for addressing health inequities created by the maldistribution of opportunity and resources. It is possible to optimize the contribution health literacy makes in mediating the causes and effects of established social determinants of health. Existing interventions demonstrate the feasibility of improving health literacy among higher-risk populations, but research remains underdeveloped and effects on health inequity are largely untested. Future health literacy intervention research should focus on (a) improving the quality of health communication that reaches a diversity of populations, especially by improving frontline professional skills and support; (b) enabling people to develop transferable skills in accessing, understanding, analyzing, and applying health information; and (c) ensuring that priority is proportionate to need by reaching and engaging the population groups who are disproportionately affected by low health literacy.

SOCIAL DETERMINANTS OF HEALTH: DISPARITIES, INEQUALITIES, AND INEQUITY

The modern-day origins of public health have emerged from a sophisticated understanding of the impact of social and environmental conditions on health. Health status is determined fundamentally by the conditions in which we are born, grow, live, and age. These conditions include our physical environment, access to education, adequate housing, employment, and income, sometimes referred to as the social determinants of health (18, 33). These social determinants are considered alongside individual characteristics (genetics) and behaviors as the main proximal determinants of variations in personal health (19, 72). Most analyses also include access to health care as an independent determinant (25, 38, 48) and, more recently, access to digital technology as a determinant of health (54).

Improvements in life expectancy in the past century have generally had more to do with improvements to the social determinants than with medical therapies, though both are important. The continuing significance of the social determinants of health has been strongly illustrated through the work, published in 2008 (18), of the World Health Organization (WHO) Commission on the Social Determinants of Health and the interconnectedness of the United Nations Sustainable Development Goals adopted in 2015 (<https://sdgs.un.org/>).

Though it is consistently observable, the causal relationship between social conditions and health outcomes is contested, often on a political and/or ideological basis. It follows that the most effective way to respond to these differences in health outcomes between groups is also contested (22). Countries use distinct terms to describe observable differences in health status between population groups. For example, in the United States, “health disparity” is used most to refer to observed poorer health among different social, racial, and ethnic groups (11). In other countries, terms such as “inequalities in health” and “health inequity” are used to describe these differences (1).

The language matters: It reflects underlying beliefs either directly or indirectly. Terms like “disparities” and “inequalities” are relatively neutral descriptive terms that correctly report on observable differences. By contrast, “health inequity” is a more value-laden term that implies a lack of fairness and social justice (48). Where observable differences are viewed more neutrally, public health responses tend to focus more on targeted interventions for identifiable risk groups and vulnerable populations. Where the focus is more on equity and social justice, greater attention tends to be given to maldistribution of opportunity and actions that address social and economic conditions that drive maldistribution. Neither conceptualization is inherently right, and both forms of response are useful in public health.

In this review, we look at the position of health literacy both as a potential social determinant of health and as a part of the public health response to addressing health inequities, taking into consideration the different forms of response indicated above. In this regard, we examine health literacy as both a “risk” and as a personal and community “asset” (44). We give attention to what has been learned to date from practical interventions to address the effects of poor health literacy in populations and the potential impact on health inequity. We recommend future priorities for health literacy research and practice.

COMING TO TERMS WITH THE TERMINOLOGY: LITERACY, HEALTH, AND HEALTH LITERACY

Literacy

Literacy is a complex and contested concept. The Organisation for Economic Co-operation and Development (OECD) defines literacy as “the ability to understand, evaluate, use, and engage

with written texts to participate in society, achieve one's goals, and develop one's knowledge and potential" (47, p. 20). It has two distinctive domains: task-based and skills-based (41). Task-based literacy focuses on the extent to which a person can perform key literacy tasks such as reading a basic text and writing a simple statement. Skill-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). Numeracy can be considered in a similar way.

Societies around the world place great value on achieving high levels of "literacy" in their populations (58). The focus, in these instances, is not so much on the ability of individuals to demonstrate that they can perform literacy and numeracy tasks, but much more in terms of what literacy enables us to do. Literacy skills enable people to better develop their knowledge and improve their potential to achieve personal goals. It also enables individuals to participate more fully in society and the economy (14).

Literacy and Health

Value is placed on achieving higher rates and levels of literacy in a population because it is associated both directly and indirectly with a range of health outcomes. Low literacy is often associated with established social determinants of health, for example employment status and lifetime income. The WHO Commission on the Social Determinants of Health identified the "critical importance of education for health equity" in both lower- and higher-income countries (18, p. 56). More directly, people with poor literacy also tend to be less responsive to traditional health education messages, are less likely to use disease prevention services, and are less able to successfully manage chronic disease (6, 21).

Literacy is not a fixed asset. It can be improved through education and is specific to both content and context. Individuals vary in their ability to learn and will respond in diverse ways to different forms of communication and media. Although the possession of generic literacy skills in reading, writing, and understanding text improves an individual's ability to access, understand, and act on new information, these skills do not guarantee that a person can consistently apply them in situations requiring specific content knowledge or in unfamiliar settings. In different settings, more specialized knowledge and skills may be required. This understanding of the dynamic nature of literacy has led to the recognition of different specialist literacies, such as financial, science, or digital literacy. This distinction reflects the fact that individuals have varying capacity to apply their general literacy skills in different contexts. From this perspective, health literacy may be considered one of many domains of literacy.

Health Literacy

Numerous definitions of health literacy exist (27, 62). While there are important differences in emphasis, almost all definitions have the same core elements, which describe the literacy and numeracy skills that enable individuals to obtain, understand, appraise, and use information to make decisions and take actions that will have an impact on health status. As is the case in general literacy, health literacy comprises an observable set of skills that will vary from individual to individual.

Over the past decade, understanding has improved among practitioners and researchers of the impact of the context in which people are required to use their health literacy skills and capabilities. Even a person with a high level of observable health literacy skills may experience real challenges in applying those skills in an unfamiliar environment (such as a hospital) or in interacting with a person (such as a doctor) whom they find intimidating (7).

Parker & Ratzan have proposed a health literacy framework that makes explicit the extent to which health literacy is mediated by the situational demands and complexities that are placed on people (51). Here health literacy can be understood as the application of personal skills that are mediated by the environment in which these skills are to be applied. If health literacy is understood as an observable set of skills, this approach necessarily focuses intervention efforts on improving individuals' skills and capacities through educational intervention. Recognizing the impact of situational demands and complexities also focuses attention on simplifying communication and reducing the complexities of the health systems that people must navigate. Both represent important methods for addressing the challenges posed by poor health literacy in the health system and in the wider community (46).

Functional, Interactive, and Critical Health Literacy

As is the case in general literacy and numeracy, differences in personal skills have been categorized as functional, interactive, and critical health literacy (43). Such a classification has the advantage of signaling the impact that skill-level differences 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 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 that are directed to clearly defined goals and specific contexts, such as medication adherence, participation in prevention activities, and some behavioral change.

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 to engage in interactions with others to extend the information available and make decisions. Individuals with these higher-level skills are better able to discriminate between different sources of information and to respond to health communication and education that are more interactive and accessible through structured communication channels (for example, school health education, mobile apps, interactive websites).

Critical health literacy describes the most advanced literacy skills that can be applied to critically analyze information from a wide range of sources and information relating to a greater range of health determinants. Individuals with these most advanced skills can obtain and use information to exert greater control over life events and situations that have an impact on health. Application of these skills may include appraisal of information about personal health risks; understanding of the social, economic, and environmental determinants of health; and collective organizing and action (for example, by engaging in organized advocacy/lobbying on social and environmental health issues) (16). This type of health literacy can be more obviously linked to population benefit alongside individual-level benefits.

The concept of functional health literacy aligns more closely to the immediate and necessary goals of clinical care and some public health priorities. In this context, health literacy is a commonly used term to describe a set of individual literacy capacities that act as a mediating factor in health and clinical decision making (4). Low or inadequate health literacy may be seen as a relatively stable patient characteristic, a risk that needs to be managed in the process of providing clinical care (44). The implications of this risk are that clinicians need to modify their communication with patients in response to lower levels of health literacy and, where possible, reduce the organizational demands and complexity faced by patients in a clinical environment. In such circumstances, people need the knowledge and skills required to achieve outcomes that are determined primarily by those providing health care. Community health education can also be similarly

task based and goal directed, promoting improved knowledge and specific behavior changes. This focus on individual behaviors rather than on the social and contextual determinants of health and inequity is common in both clinical and public health practice and has been referred to as “lifestyle drift,” whereby upstream social determinants of health inequalities are reconfigured downstream in ways that give precedence to individual behavior change (35, p. S517).

The concepts of interactive and critical health literacy connect more closely to contemporary models of health promotion and health consumer engagement. 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 (36, 44, 53). Through this focus on transferable skills development, shared decision making, and empowerment, the concept of health literacy can be connected more readily to the social determinants of health. Developing transferable skills, supporting critical thinking about the determinants of health, and empowering people to act require a fundamentally different approach to health communication methods and content. Achieving such outcomes requires the use of more interactive and adaptable communication methods (to incorporate consumer preferences and enable the development of skills in shared decision making) and a significant widening of content (to include the social determinants of health and to support the development of skills in social mobilization and consumer advocacy). This approach stands in marked contrast to many established communication models based on changing specific knowledge, attitudes and behaviors. Rethinking health communication in this way can have a transformative influence on the purpose and methodologies of modern health and patient education. This potential is discussed further below.

IS HEALTH LITERACY A SOCIAL DETERMINANT OF HEALTH?

As indicated earlier, a strong and consistent relationship exists between literacy and health outcomes. The relationship between health literacy and the social determinants of health is less studied and less well understood.

Health Literacy as an Independent Determinant of Health

The most substantial examination of the relationship between health literacy and health outcomes has come from work undertaken as a part of the European Health Literacy Survey (HLS-EU) (61, 63). The HLS-EU is the most comprehensive international study of population prevalence of health literacy. Undertaken in 2011 in eight European countries, it has provided a rich data set that supports examination of the relationship between health literacy and a wide range of social and demographic characteristics, and it allows for international comparative study. Pelikan and colleagues have systematically examined the data to investigate whether health literacy is an independent determinant of health, a mediating variable between other determinants and health, or a variable moderating the effects of other determinants on health (52).

In this analysis, Pelikan et al. (61) compared “comprehensive” health literacy (measured by HLS-EU) (63) with “functional” health literacy using the Newest Vital Sign measure (NVS) (71) and used a single question on self-assessed health as a dependent variable. Following exhaustive analysis, investigators concluded that comprehensive health literacy as measured by the HLS-EU impacts health mostly as a direct determinant and that only some of its impact takes place by moderation or mediation of other determinants of health. The same relationships were not observed when only the more limited NVS measure was used for analysis.

The study found some commonalities when evaluating this relationship in different countries, but the strength of the association varied considerably. The authors noted that these variations

were anticipated “for a comprehensive health literacy concept that is seen as content and context specific” (52) but were difficult to interpret without further understanding of the social characteristics of the countries and their health systems.

The findings provide some, albeit limited, evidence that for populations in eight European countries comprehensive health literacy is a “relevant, independent, direct determinant of self-assessed health” (52, p. 65). This effect was observed independently of other demographic and socioeconomic indicators.

Health Literacy as a Mediating Determinant of Health

Since Pelikan et al. (52) was published, an excellent review by Stormacq and colleagues examined in closer detail the mediating relationship among socioeconomic status, health literacy, and different health outcomes (64). Their review drew on 16 papers and built on earlier reviews by Paasche-Orlow (49) and Mantwill (32). Both prior reviews considered socioeconomic and sociodemographic (racial and gender-related) characteristics that were associated with poor health literacy. Both provided important theoretical insights into the existence of the relationship, but neither fully examined the nature of the relationship. Stormacq’s paper confirmed that some established social determinants have an impact on individual and population health literacy. People with higher levels of educational attainment, better jobs, and higher income tend to have better access to health information and better access to resources with which to act on this information (64).

An important distinguishing feature of the Stormacq paper is its focus on the potential mediating role of health literacy. Understanding in greater detail the nature of this observable relationship is important for considering what might be done in response. The review indicates that poor social and economic conditions are consistently associated with poorer health literacy in populations. The strongest association is, not surprisingly, found between educational attainment and health literacy. Income, occupation, and race/ethnicity were also consistently associated with health literacy. These findings are consistent with previous reviews (32, 49).

Stormacq and colleagues (64) go further in proposing a “partial mediating role” for health literacy in the relationship between social and economic determinants and observed health outcomes. Specifically, the authors indicate that health literacy mediates the association between socioeconomic status and specific health outcomes, health-related behaviors, and access to and use of health services (64). Following this hypothesis, they propose that improved health literacy can potentially alleviate the effect of certain underlying socioeconomic determinants that contribute to health disparities.

This relationship suggests that health literacy may be a variable influencing the relationship between poor social and economic conditions and subsequent poor health outcomes that is more immediately amenable to change than are other social and economic conditions. The authors conclude that strengthening health literacy in the population and making health services more accessible to people with low health literacy may be a practical strategy to reduce disparities and promote greater equity in health.

These findings, together with those of Pelikan and others (22, 31, 37, 55) who have examined the relationship between health literacy and the social determinants of health, indicate that the relationship is quite complex. In addition to following a social gradient, health literacy is also likely distributed through family and social networks (23).

Studies that report on this relationship have acknowledged significant methodological challenges associated with measurement (including, in particular, the measurement of health literacy) and the limitations of cross-sectional surveys. Research and debate will continue over the nature

and strength of the relationship between health literacy and other social determinants. One fact remains clear: All reported national population surveys have provided consistent evidence of a social gradient in health literacy associated with other indicators of social and economic disadvantage (32, 49, 61). Both Pelikan and Stormacq argue that health literacy is a potentially modifiable influence on the social determinants of health that could contribute to improvements in health disparities and potentially offer a midstream intervention to address health inequity.

As a final word on this issue, Stormacq and colleagues (64, p. e14) make the point that “interventions that aim to increase health literacy or that take people’s low health literacy into account will not lift people from disadvantaged socioeconomic conditions, but can be considered as a ‘midstream’ strategy to reduce the impact of ‘upstream’ socioeconomic determinants on ‘downstream’ disparities in health.” While there is undoubtedly some scope to improve health equity through interventions that address low health literacy, and help to develop critical health literacy in populations, this approach should not be regarded as a substitute for the need to tackle the root causes of inequity (“the causes of the causes”) (12, 34, 35) and the need to address underlying inequities in the distribution of power, resources, and opportunity.

THE SCOPE TO IMPROVE HEALTH LITERACY IN POPULATIONS

Although the volume of published research on health literacy continues to grow rapidly, the proportion of research reporting on interventions to address health literacy remains stubbornly low. The past 20 years has seen only modest growth in the number of studies that describe practical approaches to addressing health literacy in different clinical and community populations (5, 6, 21, 26, 45, 59, 70).

The categorization of functional, interactive, and critical health literacy provides a framework for reviewing interventions to address health literacy. Improving functional health literacy—developing specific skills to manage prescribed activities—is often required to meet the immediate and necessary goals of clinical care and some public health priorities (4). In such circumstances, people need the knowledge and skills required to achieve outcomes that are determined primarily by those providing health care or those pursuing public health goals. By contrast, helping people develop interactive and critical health literacy requires the development of transferable skills, a commitment to shared decision making, and autonomy. These transferable skills, which include obtaining, understanding, interpreting, and acting on health information, enable people to engage and make health decisions in a range of contexts. Developing these transferable skills offers a greater opportunity to optimize the contribution that health literacy makes in mediating the causes and effects of health inequity when compared with the more functional skills needed to manage prescribed activities.

Improvements in health literacy can be assessed by measuring changes to both the specific skills required by an individual at a point of decision making and the more generic transferable skills that enable well-informed and more autonomous health decision making. Differences in communication methods, media, and content will result in different learning outcomes and associated behavioral and health outcomes. Recognizing that individual responses to information and education will be moderated by the environment in which they occur has also led to interventions and related research that focus on reducing the situational demands and complexities experienced by patients and the public in their attempts to obtain, understand and use health information (51). This has included attention to health professional education, as well as interventions to reduce the organizational complexity faced by people using health services or seeking health information (10, 39).

Interventions in Health Care Settings

With some exceptions, most published interventions have focused on improving communication with patients in clinical settings, with a goal of supporting task-directed, functional health literacy. Low or inadequate health literacy is viewed as a risk, and interventions are intended to mitigate the effects of low health literacy on patients' (and their carers') ability to respond correctly to advice and instructions relating to their health care; the goal is to help patients more successfully manage common clinical challenges such as medication adherence, self-management of chronic conditions, and hospital discharge instructions. As the number of reported intervention studies has increased, several helpful reviews have been published (26, 59, 70). Taken as a whole, these reviews 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 other mixed-strategy interventions and that improved comprehension leads to better patient outcomes and enhanced health system use.

The reviews referred to above, and the individual projects on which they draw, provide practical, clear, and consistent guidance on how to reduce the literacy demands of written materials, for example by using pictograms and other devices for more effective communication (59) along with practical techniques to improve face-to-face communication, including "teach-back" (26). Teach-back is a widely used communication technique to confirm that the clinician has explained to a patient what is important and has explained it in a manner that the patient understands. Patient understanding is confirmed when the patient explains it back in their own words to the clinician. The reviews have also identified different communication formats (e.g., illustrated text, spoken animations) that are most useful for adults with lower health literacy (70). Some studies did address the needs of social groups who are at high risk and may have had a positively disproportionate impact on these groups. However, as this evidence grows, the argument for adopting universal precautions has progressively strengthened. Health literacy universal precautions are defined as the steps that practices take when they assume that all patients may have difficulty comprehending health information and accessing health care in health communication (13).

The evidence from these studies has demonstrated that interventions to improve communication with patients, and with their carers who are in contact with the health care professionals, result in improved patient safety and health care quality. The best available evidence demonstrates the need to put into universal practice what we already know to be effective, while continuing to investigate new and alternative approaches to health communication. This endeavor includes continued attention to providing information and delivering content in a format that is tailored to the individual needs of patients, including and especially the use of digital platforms for some patients (60).

Despite evident progress, the constraints on patient communication experienced by many frontline health care professionals (with regard to limitations on time, on communication resources, and in organizational policies) often mean that more effective communication materials and methods (such as teach-back) are difficult to use in practice. The current challenge is less about what to do and more about how to get effective practice systematically established in everyday clinical care.

Education and Training of Frontline Professionals

In response to the need for additional training, an increasing number of programs have been designed to develop the health literacy-related skills of frontline health care professionals both in initial education and as a part of continuing professional development. Reviews of published papers on health literacy programs for practicing health professionals (mostly from the United

States) found that a variety of health literacy curricula had been developed (17, 28). Unsurprisingly, few health literacy programs for health professionals have published evaluations (17).

Similar initiatives can be found in education for health care professionals in training. In a systematic review evaluating the impact of health literacy training for a wide range of health profession students, Saunders et al. reported overwhelmingly positive results, including increases in students' knowledge and self-rated abilities and confidence levels (56). The past decade may be viewed as largely experimental, but the learning from these experiences needs to be consolidated and normalized within standard health professional curricula and continuing professional development.

Reducing the Complexity of Health Care Organizations

Alongside efforts to improve the communication skills of health care professionals, increasing attention has been given to interventions designed to reduce more directly the organizational complexity of health systems. The characteristics of health care organizations that facilitate navigation and use of health care are referred to as organizational health literacy (OHL). Emerging research on OHL explores the characteristics of health-literate organizations as well as the barriers in health organizations that hinder successful navigation, understanding, and use of health information and services by patients and the public (10, 50). A range of models and practical strategies have been proposed to help create health-literate organizations that reduce the demands and complexities faced by people who engage with those organizations and health professionals (e.g., 10, 24, 67). The “ten attributes of a health literate organisation” are the most well-known of these models (10). However, they have been criticized as being high level, broad, difficult to implement, and not resulting in evidence of effective interventions (30). A recent review by Meggetto and colleagues (39) was undertaken to understand how and why the operationalization of OHL contributed to changes in OHL and why interventions were more effective in some contexts than others. They found that the implementation sequence matters. Executive leadership that demonstrates commitment to health literacy, has a workforce skilled in OHL practice, and integrates health literacy interventions into existing practices should be implemented first (39). The realization of these attributes provides the context and climate for implementing other attributes of health-literate organizations.

While some health literacy interventions in health care settings undoubtedly aim to develop health literacy skills that have an application beyond patients' immediate needs, most reported studies understandably focus on the development and application of specific skills with immediate functionality, recognizing that poor health literacy is a risk to effective clinical care. While these interventions may produce an impact on inequities in health, it is incidental rather than a central feature of their design and implementation. At present, there is little evidence of clinical health literacy interventions being purposefully used as midstream interventions intended to address inequities in health.

Interventions with Community Populations

Reports on health literacy interventions with community (nonclinical) populations are not yet as common in the published literature as those for clinical populations. Two reviews have attempted to summarize the current state of knowledge, lessons learned, and future directions (5, 45). These reviews offer useful guidance on current practice and future directions for research and practice.

Both reviews identified that people can access information about their health from several different sources, including health professionals, conventional media, and family and social groups.

People are increasingly using the Internet and mobile apps to access health information (29), which has required the development of different, contextual skills to obtain, understand, and use health information, sometimes referred to as digital health literacy (8). The use of digital media to obtain health information is currently more common among people who are young, educated, and wealthy (9, 60).

Unlike in the past, obtaining access to health information is much less of a problem for most people. The challenge is often in identifying trustworthy and reliable sources of information. The Internet and social media have made it easier to access not only quality health information, but also information and opinions that are inaccurate, deliberately misleading, and/or driven by commercial motive. A review of online health information and misinformation by Swire-Thompson & Lazer in 2020 recognized that the quality of online information is problematic (66). The reviewers suggest dual strategies of first improving the quality and accessibility of the online information ecosystem and, second, assisting the general population in effectively navigating to trustworthy sources of information. The authors identify some examples of interventions that incorporate these eHealth literacy skills (66), and other examples are emerging especially in Europe (20).

The review by Nutbeam & Muscat (46) highlights a danger of conflating traditional health education interventions, based on a long-established knowledge, attitude, and practice (KAP) framework, with interventions designed to improve health literacy, arguing that such interventions do not always reflect the skills-directed methods and learning theories that are required to develop interactive and critical health literacy (46). The authors also argue that the use of proxy measures that are limited to knowledge improvement may present a risk that “health literacy” is being used as a convenient, contemporary label to describe more traditional task-directed health education interventions, in itself a form of lifestyle drift.

Taken as a whole, these reviews provide consistent evidence of the feasibility and potential effectiveness of health literacy interventions conducted with communities and within community settings. While there is undoubtedly some rebranding of traditional knowledge-based health education, a growing body of evidence indicates that it is possible for frontline professionals in health and education to work with community groups to develop transferable health literacy skills. These skills may have immediate application and may enable individuals and communities to engage in more interactive and critical ways with information about their health from different sources and in a wide variety of situations. This form of intervention to improve critical health literacy may offer the greatest potential to optimize the midstream impact of health literacy on the social determinants of health. Much more work is clearly needed to develop replicable interventions, improved measurement of health literacy, and robust evaluation methodologies.

CONCLUDING REMARKS: IMPROVING HEALTH LITERACY TO ADDRESS INEQUITY IN HEALTH

The evidence presented in this review demonstrates the feasibility of implementing interventions to improve health literacy in clinical and community populations. Several interventions were designed and delivered to meet the needs of higher-risk populations, demonstrating the feasibility of tailoring interventions to address specific risk and need. Most of these interventions reflected a conceptualization of (low) health literacy as a risk that could be better managed through successful intervention. Relatively few were directed toward the development of more generic, transferable skills (health literacy as a personal and community asset). These skills and capacities ultimately enable people to exert greater control over their health and the factors that shape health (43). As such, the potential for improved health literacy to serve as a mediating/moderating mechanism to address social determinants remains underdeveloped and largely untested.

Targeting high-risk populations is a well-established response to identifiable disadvantage in defined communities (65). On its own, targeting high-risk populations can be considered a necessary but insufficient response to underlying inequities in the distribution of power, resources, and opportunity. In addition to implementing interventions targeting defined risk groups, more systematic responses are required that would support the improvement of health literacy differentially across the social gradient; this concept is often referred to as proportionate universalism (15). Such an approach is based on providing universally accessible health services and resources (including access to/engagement with health information) with a scale and intensity that are proportionate to the level of disadvantage. Put simply, health literacy interventions should be accessible, clear, understandable, and usable for everyone in the population, but focused in particular on reaching and engaging the population groups disproportionately affected by low health literacy. This goal is subtly but significantly different from adopting universal precautions.

In response to improved understanding of the importance of health literacy as a potentially modifiable influence on clinical quality and safety, and on the social determinants of health, countries as diverse as the United States, China, Germany, Scotland, and Australia have adopted national strategies and plans to improve health literacy in their populations (2, 40, 42, 57, 68, 69). Each of these existing national policies and strategies has different origins and processes that reflect the diverse political and health system contexts in which they have been developed. The responses of governments have ranged from structured guidelines and standards for health care organizations, such as in Australia (3), to practical actions [such as the specified demonstration projects identified in the China strategy (40)] through to more aspirational statements, such as those reflected in the US strategy (69). All recognize the importance of professional education in improving the quality of health communications within the health care system. Most countries' responses present health literacy as a universal challenge (applying to all patients and/or communities), and some also identify groups who are higher priorities for health literacy improvement. None explicitly (or implicitly) embrace the principles of proportionate universalism.

The very existence of these national health literacy policies and national strategies indicates that governments in different parts of the world have recognized the need to respond to the personal and societal challenges represented by inadequate health literacy in populations. There are many positives in these current examples: the public acknowledgment of the challenge to improve health literacy, the priority given to the health system, and the stimulus to improve the education and training of frontline staff in the health system (and beyond). That said, there is significant variability in the link between resources for specific strategies and actions, in the systems for monitoring progress, and in accountability for progress (68).

This lack of specificity undoubtedly reflects uncertainties about the most effective approaches to addressing health literacy in populations (rather than individual patients). In turn, these uncertainties reflect deficiencies in the volume, quality, and consistency of current evidence to support the choice of various actions and priorities. The low availability of evidence from interventional research remains a concern. Without focused attention, this paucity of evidence may pose a risk to the long-term commitment of governments to improve health literacy in populations.

This observation has implications for future research, intervention, and policy development. Health literacy is not a panacea for health inequities that are created largely by the maldistribution of opportunity, resources, and power. But it is possible to optimize the contribution it makes in both mediating the causes and effects of inequity and empowering people to exert greater control over the determinants of health. The research and intervention testing reflected in this review provide a substantial platform for future development. The progress achieved in understanding how to improve health literacy among clinical populations at risk needs to be matched by a progressive change in the balance of interventions in three critical forms.

First, current intervention focus remains mostly on the person (e.g., improving knowledge, achieving compliance or behavior change). For the future, far more attention needs to be given to improving the quality and source of communication. These improvements can be carried out by developing frontline professional skills and support, to improve the quality of communication and enable meaningful public and patient engagement, and by modifying the context in which health communication occurs, ensuring that frontline health, education, and community professionals have resources and system and cultural supports to improve communication. Equivalent attention needs to be given to the quality of digital media communication.

Second, the purpose of communication needs to be oriented toward enabling more people to develop transferable skills for accessing, understanding, and applying health information rather than simply focusing on meeting immediate goals. Improving skills in accessing trustworthy information through digital media needs to form a part of this change in response. Communication content needs to be adjusted to enable a better understanding of the broad range of determinants of health, both personal and societal.

Third, while the principle of universal precautions remains important, priority should be proportionate to need: Our focus has to be on reaching and engaging the population groups disproportionately affected by low health literacy (15, 34, 65). Establishing a concerted, international effort toward developing and evaluating critical health literacy interventions that are proportionate to the needs of priority populations is an important next step for this field of research and practice. The development of this evidence base will contribute to optimizing the contribution that improved health literacy can make in mediating the causes of inequity in health and improving health outcomes for all.

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LITERATURE CITED

1. Anderson L, Um S-G. 2016. *International review of health equity strategies*. Rep., Wellesley Inst. Health Quality Ontario, Ontario. <https://www.wellesleyinstitute.com/wp-content/uploads/2016/07/International-Review-of-Health-Equity-Strategies.pdf>
2. Aus. Comm. Saf. Qual. Health Care. 2014. *National statement on health literacy: taking action to improve safety and quality*. Statement, Aus. Comm. Saf. Qual. Health Care, Sydney. <https://www.safetyandquality.gov.au/publications-and-resources/resource-library/national-statement-health-literacy-taking-action-improve-safety-and-quality>
3. Aus. Comm. Saf. Qual. Health Care. 2019. Partnering with consumers. *The NSQHS Standards*. <https://www.safetyandquality.gov.au/standards/nsqhs-standards/partnering-consumers-standard>
4. Baker DW. 2006. The meaning and the measure of health literacy. *J. Gen. Intern. Med.* 21:878–83
5. Baur C, Martinez LM, Tchangalova N, Rubin D. 2018. Appendix C: a review and report of community-based health literacy interventions. In *Community-Based Health Literacy Interventions: Proceedings of a Workshop*. Washington, DC: Natl. Acad. Press

6. Berkman N, Sheridan S, Donahue K, Halpern D, Crotty K. 2011. Low health literacy and health outcomes: an updated systematic review. *Ann. Intern. Med.* 155:97–107
7. Berry LL, Danaher TS, Beckham D, Awdish RLA, Mate KS. 2017. When patients and their families feel like hostages to health care. *Mayo Clin. Proc.* 92:1373–81
8. Bittlingmayer UH, Dadaczynski K, Sahrai D, van den Broucke S, Okan O. 2020. [Digital health literacy—conceptual contextualization, measurement, and promotion]. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitschutz* 63:176–84
9. Bol N, Helberger N, Weert JCM. 2018. Differences in mobile health app use: a source of new digital inequalities? *Inf. Soc.* 34:183–93
10. Brach C, Keller D, Hernandez LM, Baur C, Parker R, et al. 2012. *Ten attributes of health literate organizations*. Discuss. Pap., Inst. Med., Washington, DC. https://nam.edu/wp-content/uploads/2015/06/BPH_Ten_HLit_Attributes.pdf
11. Braveman P. 2014. What are health disparities and health equity? We need to be clear. *Public Health Rep.* 129:5–8
12. Braveman P, Gottlieb L. 2014. The social determinants of health: It's time to consider the causes of the causes. *Public Health Rep.* 129(Suppl. 2):19–31
13. Brega AG, Barnard J, Mabachi NM, Weiss BD, DeWalt DA, et al. 2015. *AHRQ Health Literacy Universal Precautions Toolkit*. Publ. 15-0023-EF. Rockville, MD: Agency Healthc. Res. Qual.
14. Cameron J, Cameron S. 2007. *The economic benefits of increased literacy*. Backgr. Pap. 2006/ED/EFA/MRT/PI/19, UN Educ. Sci. Cult. Organ. (UNESCO), Paris
15. Carey G, Crammond B, De Leeuw E. 2015. Towards health equity: a framework for the application of proportionate universalism. *Int. J. Equity Health* 14:81
16. Chinn D. 2011. Critical health literacy: a review and critical analysis. *Soc. Sci. Med.* 73:60–67
17. Coleman C. 2011. Teaching health care professionals about health literacy: a review of the literature. *Nurs. Outlook* 59:70–78
18. Comm. Soc. Determ. Health. 2008. *Closing the gap in a generation: health equity through action on the social determinants of health*. Final Rep., World Health Organ., Geneva. <https://www.who.int/social-determinants/thecommission/finalreport/en/>
19. Dahlgren G, Whitehead M, WHO (World Health Organ.) Reg. Off. Eur. 2006. *Levelling up (part 2): a discussion paper on European strategies for tackling social inequities in health*. Discuss. Pap., WHO Reg. Off. Eur., Copenhagen. <https://apps.who.int/iris/handle/10665/107791>
20. Del Giudice P. 2017. The IC-Health project: improving digital health literacy in Europe: Pietro Del Giudice. *Eur. J. Public Health* 27:ckx187.065
21. Dewalt DA, Berkman ND, Sheridan S, Lohr KN, Pignone MP. 2004. Literacy and health outcomes: a systematic review of the literature. *J. Gen. Intern. Med.* 19:1228–39
22. Diez Roux AV. 2012. Conceptual approaches to the study of health disparities. *Annu. Rev. Public Health* 33:41–58
23. Edwards M, Wood F, Davies M, Edwards A. 2015. ‘Distributed health literacy’: longitudinal qualitative analysis of the roles of health literacy mediators and social networks of people living with a long term health condition. *Health Expect.* 18:1180–93
24. Farmanova E, Bonneville L, Bouchard L. 2018. Organizational health literacy: review of theories, frameworks, guides, and implementation issues. *Inquiry* 55:46958018757848
25. Goddard M. 2009. Access to health care services—an English policy perspective. *Health Econ. Policy Law* 4:195–208
26. Ha Dinh TT, Bonner A, Clark R, Ramsbotham J, Hines S. 2016. The effectiveness of the teach-back method on adherence and self-management in health education for people with chronic disease: a systematic review. *JBI Database Syst. Rev. Implement. Rep.* 14:210–47
27. Inst. Med. Comm. Health Literacy, Nielsen-Bohlman L, Panzer AM, Kindig DA, eds. 2004. *Health Literacy: A Prescription to End Confusion*. Washington, DC: Natl. Acad. Press. <https://pubmed.ncbi.nlm.nih.gov/25009856/>
28. Kaper MS, Sixsmith J, Koot JAR, Meijering LB, van Twillert S, et al. 2018. Developing and pilot testing a comprehensive health literacy communication training for health professionals in three European countries. *Patient Educ. Couns.* 101:152–58

29. Liobikiėnė G, Bernatoniėnė J. 2018. The determinants of access to information on the Internet and knowledge of health related topics in European countries. *Health Policy* 122:1348–55
30. Lloyd JE, Song HJ, Dennis SM, Dunbar N, Harris E, Harris MF. 2018. A paucity of strategies for developing health literate organisations: a systematic review. *PLOS ONE* 13:e0195018
31. Mackenbach JP. 2012. The persistence of health inequalities in modern welfare states: the explanation of a paradox. *Soc. Sci. Med.* 75:761–69
32. Mantwill S, Monestel-Umaña S, Schulz P. 2015. The relationship between health literacy and health disparities: a systematic review. *PLOS ONE* 10:e0145455
33. Marmot M. 2005. Social determinants of health inequalities. *Lancet* 365:1099–104
34. Marmot M. 2007. Achieving health equity: from root causes to fair outcomes. *Lancet* 370:1153–63
35. Marmot M, Allen JJ. 2014. Social determinants of health equity. *Am. J. Public Health* 104(Suppl. 4):S517–19
36. Mårtensson L, Hensing G. 2012. Health literacy—a heterogeneous phenomenon: a literature review. *Scand. J. Caring Sci.* 26:151–60
37. Matsumoto M, Nakayama K. 2017. Development of the health literacy on social determinants of health questionnaire in Japanese adults. *BMC Public Health* 17:30
38. McGibbon E, Etowa J, McPherson C. 2008. Health-care access as a social determinant of health. *Can. Nurse* 104:22–27
39. Meggetto E, Kent F, Ward B, Keleher H. 2020. Factors influencing implementation of organizational health literacy: a realist review. *J. Health Organ. Manag.* <https://doi.org/10.1108/JHOM-06-2019-0167>. In press
40. Ministr. Health People’s Repub. China. 2008. *National Plan of Health Literacy Promotion Initiatives for Chinese Citizens 2008–2010*. Rep., Ministr. Health People’s Repub. China, Beijing
41. NCES (Nat. Cent. Educ. Stat.). 2003. Definition of literacy. *National Assessment of Adult Literacy*. https://nces.ed.gov/NAAL/fr_definition.asp
42. NHS Scotland. 2014. *Making it easy—a health literacy action plan for Scotland*. Rep., Scottish Gov., Edinburgh
43. Nutbeam D. 2000. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promot. Int.* 15:259–67
44. Nutbeam D. 2008. The evolving concept of health literacy. *Soc. Sci. Med.* 67:2072–78
45. Nutbeam D, McGill B, Premkumar P. 2018. Improving health literacy in community populations: a review of progress. *Health Promot. Int.* 33:901–11
46. Nutbeam D, Muscat DM. 2020. Advancing health literacy interventions. In *Health Literacy in Clinical Practice and Public Health: New Initiatives and Lessons Learned at the Intersection With Other Disciplines*, ed. RA Logan, ER Siegel, pp. 115–27. Amsterdam: IOS Press
47. OECD. 2012. *Literacy, Numeracy and Problem Solving in Technology-Rich Environments: Framework for the OECD Survey of Adult Skills*. Paris: OECD Publ.
48. Off. Dis. Prev. Health Promot. 2020. Disparities. *Healthy People 2020*. <https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities>
49. Paasche-Orlow MK, Parker RM, Gazmararian JA, Nielsen-Bohlman LT, Rudd RR. 2005. The prevalence of limited health literacy. *J. Gen. Intern. Med.* 20:175–84
50. Palumbo R. 2016. Designing health-literate health care organization: a literature review. *Health Serv. Manag. Res.* 29(3):79–87
51. Parker R, Ratzan SC. 2010. Health literacy: a second decade of distinction for Americans. *J. Health Commun.* 15:20–33
52. Pelikan JM, Ganahl K, Roethlin F. 2018. Health literacy as a determinant, mediator and/or moderator of health: empirical models using the European Health Literacy Survey Data Set. *Glob. Health Prom.* 25:55–66
53. Pleasant A, Kuruvilla S. 2008. A tale of two health literacies: public health and clinical approaches to health literacy. *Health Promot. Int.* 23:152–59
54. Rice L, Sara R. 2019. Updating the determinants of health model in the Information Age. *Health Promot. Int.* 34:1241–49

55. Rowlands G, Shaw A, Jaswal S, Smith S, Harpham T. 2017. Health literacy and the social determinants of health: a qualitative model from adult learners. *Health Promot. Int.* 32:130–38
56. Saunders C, Palesy D, Lewis J. 2019. Systematic review and conceptual framework for health literacy training in health professions education. *Health Prof. Educ.* 5:13–29
57. Schaeffer D, Hurrelmann K, Bauer U, Kolpatzik K, eds. 2018. *National Action Plan Health Literacy. Promoting health literacy in Germany.* Rep., KomPart, Berlin. <http://www.hlca-consortium.de/wp-content/uploads/2018/06/National-Action-Plan-Health-Literacy.pdf>
58. Schleicher A. 2018. *Program for International Students Assessment: Insights and interpretation.* Rep., OECD, Paris
59. Sheridan SL, Halpern DJ, Viera AJ, Berkman ND, Donahue KE, Crotty K. 2011. Interventions for individuals with low health literacy: a systematic review. *J. Health Commun.* 16:30–54
60. Smith B, Magnani JW. 2019. New technologies, new disparities: the intersection of electronic health and digital health literacy. *Int. J. Cardiol.* 292:280–82
61. Sørensen K, Pelikan JM, Röthlin F, Ganahl K, Slonska Z, et al. 2015. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *Eur. J. Public Health* 25:1053–58
62. Sørensen K, Van den Broucke S, Fullam J, Doyle G, Pelikan J, et al. 2012. Health literacy and public health: a systematic review and integration of definitions and models. *BMC Public Health* 12:80
63. Sørensen K, Van den Broucke S, Pelikan JM, Fullam J, Doyle G, et al. 2013. Measuring health literacy in populations: illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC Public Health* 13:948
64. Stormacq C, Van den Broucke S, Wosinski J. 2019. Does health literacy mediate the relationship between socioeconomic status and health disparities? Integrative review. *Health Promot. Int.* 34:e1-17
65. Stormacq C, Wosinski J, Boillat E, Van den Broucke S. 2020. Effects of health literacy interventions on health-related outcomes in socioeconomically disadvantaged adults living in the community: a systematic review. *JBI Evidence Synth.* 18:1389–469
66. Swire-Thompson B, Lazer D. 2020. Public health and online misinformation: challenges and recommendations. *Annu. Rev. Public Health* 41:433–51
67. Trezona A, Dodson S, Osborne RH. 2017. Development of the organisational health literacy responsiveness (Org-HLR) framework in collaboration with health and social services professionals. *BMC Health Serv. Res.* 17:513
68. Trezona A, Rowlands G, Nutbeam D. 2018. Progress in implementing national policies and strategies for health literacy—What have we learned so far? *Int. J. Environ. Res. Public Health* 15:1554
69. US DHHS (Dep. Health Hum Serv.), Off. Dis. Prev. Health Promot. 2010. National Action Plan to Improve Health Literacy. *Health.gov.* <https://health.gov/our-work/health-literacy/national-action-plan-improve-health-literacy>
70. Visscher BB, Steunenberg B, Heijmans M, Hofstede JM, Devillé W, et al. 2018. Evidence on the effectiveness of health literacy interventions in the EU: a systematic review. *BMC Public Health* 18:1414
71. Weiss BD, Mays MZ, Martz W, Castro KM, DeWalt DA, et al. 2005. Quick assessment of literacy in primary care: the newest vital sign. *Ann. Fam. Med.* 3:514–22
72. Whitehead M. 1991. The concepts and principles of equity and health. *Health Promot. Int.* 6:217–28