

Increasing Health Literacy in China to Combat Noncommunicable Diseases

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Summary

Health literacy involves knowledge, motivation, and competence to access, understand, appraise, and apply health information to make judgments and make decisions every day to maintain or improve quality of life. It is of great importance to the health and wellbeing of individuals, families, and society and plays a crucial role in noncommunicable disease (NCD) prevention and control. Recognizing that health literacy is a public health challenge in China, the Chinese government has been making great effort to address this issue. This paper presented a general overview of health literacy status in China with a focus on NCDs, described China's challenges and practices in improving health literacy, and provided suggestions to decision makers, practitioners, and researchers to address the needs of health literacy in China.

THE ROLE OF HEALTH LITERACY IN NCD PREVENTION AND CONTROL

Noncommunicable diseases (NCDs), including heart disease, stroke, cancer, diabetes, chronic lung disease, and other chronic conditions, are of long duration and demand continuous management and lifelong maintenance of healthy lifestyles, which requires people to grasp sophisticated concepts and possess self-management skills (1). Health literacy plays a crucial role in NCD prevention and control (1). It involves knowledge, motivation, and competence to access, understand, appraise, and apply health information to make judgements and make decisions every day to maintain or improve quality of life (2). Health literacy not only brings individual benefits, such as improved knowledge, self-management skills, compliance with prescribed actions, greater autonomy, and personal empowerment in health related decision-making, and better health outcomes, but also yields community and social benefits like increasing the

participation of the community in population health programs, improving community empowerment, and enhancing the capacity to address social and economic determinants of health (2).

HEALTH LITERACY IS A PUBLIC HEALTH CHALLENGE IN CHINA

The health literacy among the Chinese population is still at a low level and has disparities between regions and groups (3–4). Results from the National Health Literacy Surveillance among Chinese residents aged 15–69 years old showed that the proportion of people with basic health literacy was 19.17% in 2019 and 22.73% for NCD health literacy was higher in urban areas than rural ones (24.81% *vs.* 15.67%), highest in the eastern region than central and western regions (24.60%, 16.31%, and 14.30%, respectively), and higher in younger people and people with higher levels of education (3–4). A survey among students in years 7–9 from secondary schools in Beijing in 2015 found that the proportion of students with low health literacy varied by health literacy assessment tools and ranged from 29.0% to 45.5% (5).

A survey among diabetic patients in Beijing Municipality, Ningbo City, and Xiamen City in 2012 showed that 73.7% of the patients were classified as having poor health literacy (6). A survey among acute ischemic stroke patients at time of discharge in Hubei in 2014 showed that about 31.2% of the patients did not know what ischemic stroke was; 20.3% did not realize they needed immediate medical attention after onset; 50% did not know the warning signs of stroke; over 40% were not aware of the risk factors of the condition such as hypertension, hyperlipidemia, diabetes, and smoking; and over 20% had no idea that they need long-term medication and strict control of blood pressure, blood lipids, and blood sugar (7).

Health literacy is influenced by a number of personal, societal, and environmental determinants like age, gender, socioeconomic status, education, culture,

and societal systems, and can be improved through education and health system improvement (2). Although the health literacy in China has been improving (4), there are many challenges that need to be addressed:

Low levels of education and unequal socioeconomic development

About 30% of the Chinese population aged 6 years old and above had only primary school educations or no schooling in 2018, and the education level of females was lower than males (8). In rural and western regions of China, the economic level and education level were relatively low, health services and health education resources were insufficient, and access to health information was also deficient, leading to the significant disparities in health literacy compared with more developed areas (3).

Inadequate education service at clinical settings

Healthcare institutions are an important setting for people to acquire health knowledge and develop health literacy. Delivering free health education service to all residents by primary healthcare institutions composed an important part in the national essential public health services since 2009 (9). However, compared with abundant health education campaigns aimed towards the public, education services at clinical settings were inadequate. Barriers to health education delivery included defects in health education design, inadequate capacity in primary healthcare sectors to provide health education, residents' poor cooperation, weak health system, etc. (9). Another concern is poor health literacy of healthcare providers themselves. Results from the national health literacy survey in 2012 showed that only about 30% of the healthcare providers possessed basic health literacy and was lower in males (27.34%), rural areas (22.42%), and western regions (27.70%) (10).

Unreliable health information disseminated through the internet

The rise of internet based technologies has facilitated the dissemination of and easy access to health information. However, the quality of health information disseminated through the internet has been a concern as a lot of distorted health information exists on the internet, which imposes a challenge to

individuals that need to scrutinize health information. This ability to properly discern accurate information is fairly difficult for most people, and disinformation also presents a challenge to the government and the industry on how to regulate the dissemination of health information through the internet.

Insufficient research in health literacy

Research on health literacy started late in China and is still in its infancy. Current research mainly focuses on the description of health literacy status and analysis of influencing factors from a public health perspective. Research on health literacy theory, development of assessment instruments, high quality intervention and evaluation, and research in clinical settings are still insufficient (11).

STRATEGIES AND MEASURES

Recognizing health literacy is a public health challenge in China. The Chinese government has made great effort in improving the health literacy of the people by developing and implementing a series of specific policies and actions, especially since the late 2000s, such as defining and disseminating the basic health knowledge and skills, monitoring the health literacy status of the people, and implementing national action plans for promoting health literacy. Improving health literacy has been positioned as a strategic goal in the Healthy China 2030 blueprint and is a special initiative in the Healthy China Initiative (2019–2030) (12) where it is integrated into almost every other initiative.

The major outcome indices and initiatives relevant to healthy literacy proposed in the Healthy China Initiative (2019–2030) are listed in Table 1 and Table 2, respectively. Generally, the initiatives present an integrated and comprehensive strategy for improving health literacy by covering a variety of contexts (communities, healthcare institutions, and schools), populations (general people, NCD patients, healthcare workers, children, and the elderly), and content including NCDs and related risk factors. In addition, they provide strategies for individuals, families, governments, and the overall society to develop a linked, multi-sectoral effort to improve health literacy. Some strategies and measures are outlined here that the governments and the society need to do to improve health literacy:

- 1) Strengthen health information development,

TABLE 1. Major outcome indices relevant to healthy literacy proposed in Healthy China Initiative (2019–2030).

Indices	Target date	
	2022	2030
1. Overall health literacy level (%) (proportion of people with basic health literacy)	≥22	≥30
2. NCDs health literacy level (%)	≥20	≥30
3. Nutrition knowledge awareness rate (%)	10% higher than 2019	10% higher than 2022
4. Mental health literacy level (%)	20	30
5. Environmental health literacy level (%)	≥15	≥25

TABLE 2. Examples of strategies and measures to improve health literacy in Healthy China Initiative (2019–2030).

Initiative	Strategies and measures
Health Literacy Initiative	
Health information development, dissemination, and supervision	1) Establish national and provincial expert libraries and resource libraries on health literacy improvement and conduct activities. 2) Build multimedia mechanisms for the release and dissemination of health information and strengthen guidance and supervision. 3) Apply new media such as WeChat, Weibo, and short videos and promote internet-technology-based precision delivery of health information.
Health education in healthcare services	1) Health professionals should have a good understanding about the health information that needs to be delivered to the patients, and actively provide health guidance to the patients. 2) Healthcare institutions should provide lectures and consultation services for community residents and patients. 3) Develop health education prescriptions and other materials. 4) Improve the contents of training courses and teaching materials for general practitioners and specialists and significantly improve family doctors' knowledge and skills necessary for health promotion and education. 5) Establish incentive and evaluation mechanisms to encourage health institutions and healthcare providers to engage in health promotion and education.
Engagement of social forces	1) Mobilize social forces to join health literacy improvement by encouraging them to organize various forms of health education activities for the public and provide training to organizations. 2) All communities and workplaces should organize health communication activities such as health lectures for the residents and employees. 3) Improve health literacy for people living in poor areas.
Technologies and tools	Develop and promote technologies and tools, especially encouraging the application of artificial intelligence and wearable devices in health management to improve self-management ability of the public.
Health promotion programs/campaigns	Establish Health Promotion County (or districts), carry out the Healthy China Campaign and the National Healthy Lifestyle Initiative.
Health literacy in other initiatives	
Healthy diet initiatives	1) Strengthen guidance to food enterprises about nutrition label knowledge and guide consumers to read nutrition labels correctly. 2) Add mandatory labeling of sugar, encourage enterprises to become “low sugar” or “no sugar”, and actively promote the use of “front of package labeling (FOP)” information on food packaging to help consumers quickly choose healthy food.
Tobacco control initiatives	1) Promote a smoke-free culture, e.g. smoke-free weddings and smoke-free families. 2) Improve the content and form of health warnings on cigarette packaging.
Health promotion initiatives in schools	1) Set up health courses, teaching knowledge about health behavior and lifestyle, disease prevention and control, adolescent health, etc. 2) Provide various forms of health education for students and parents. 3) Train and cultivate health education teachers.
Health promotion initiatives for the elderly	Provide educational activities and trainings for the elderly about fitness, disease prevention, treatment, rehabilitation, and health emergency skills for self-rescue and mutual aid etc.

dissemination, and supervision to ensure the quality and accessibility of health information, such as by establishing national and provincial expert libraries and resource libraries, applying multimedia to release and disseminate health information, and strengthening supervision of the quality of health information.

2) Mobilize social forces to join health literacy improvement, by encouraging them to organize health education activities and trainings, and requiring all communities and workplaces to organize health communication activities such as health lectures for residents and employees.

3) Develop and promote technologies and tools, especially encouraging the application of artificial intelligence and wearable devices in health management to improve the self-management ability of the public.

4) Strengthen health education in healthcare services by emphasizing the responsibility of healthcare institutions in providing health education to the patients and community residents. For example, health professionals should be trained to gain knowledge and skills necessary for health promotion and education and actively provide health guidance to the patients.

5) Strengthen health education in schools, such as by setting up health courses, providing various forms of health education for students and parents, and training and cultivating health education teachers.

6) Improve health literacy among particular populations, such as by providing educational activities and training for the elderly and strengthening the health literacy promotion for people living in poor areas.

7) Implement health promotion programs/campaigns, such as by establishing Health Promotion County work, conducting the Healthy China Campaign and the National Healthy Lifestyle Initiative, and promoting smoke-free culture.

8) Improve the content and form of health warnings on cigarette packages, teach consumers to read nutrition labels, add mandatory labeling of sugar, and promote the use of “front of package labeling (FOP)” information on food packaging to help consumers quickly choose healthy food.

SUGGESTIONS FOR IMPROVING HEALTH LITERACY IN CHINA

“Healthy China 2030” has put forward goals and strategies to improve health literacy in China. Here are some suggestions for decision makers, practitioners, and researchers when pursuing this work:

1) It should be understood that improving health literacy is not only about improving skills of the patients or the public through education, but also improving health information and removing literacy-related barriers to health services, like reducing the complexity of health information, enhancing health professionals skills in health education, etc., about examining organizational and system-wide norms, policies, and regulations that influence the actions and resources of those seeking assistance and of those

providing services (13).

2) Special attention and effort should be given to people with lower health literacy that are vulnerable to serious health disparities, such as rural residents, migrants from rural areas, elderly people, and people with low socioeconomic status. Specific strategies, programs, and research should be developed to address their barriers and needs in improving health literacy that demand the development of cross-sectoral, cross-disciplinary collaboration and the engagement of the community.

3) For patient education at clinical settings, health professionals should be sensitive to the patient’s health literacy level, and a rapid health literacy assessment is necessary for delivering tailored health education with suitable communication strategies. Effective educational and support models, such as peer-to-peer education and group care programs for chronic disease management, could be integrated within daily practice (1).

4) To support evidence-based health literacy practices, the joint development of a research plan on health literacy by public health workers, clinicians, and health literacy/education experts should be performed to identify the current gaps and outline the most needed areas of research in China.

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REFERENCES

1. Poursalami I, Nimmon L, Rootman I, Fitzgerald MJ. Health literacy and chronic disease management: drawing from expert knowledge to set an agenda. *Health Promot Int* 2017;32(4):743–54. <http://dx.doi.org/10.1093/heapro/daw003>.
2. Sørensen K, van den Broucke S, Fullam J, Doyle G, Pelikan J, Slonska Z, et al. Health literacy and public health: a systematic review and integration of definitions and models. *BMC Public Health* 2012;12:80. <http://dx.doi.org/10.1186/1471-2458-12-80>.
3. Liu YY, Li YH, Li L, Nie XQ, Zhang G, Shi MF, et al. Study on chronic diseases literacy and its influencing factors in China from 2012 to 2017. *Chin J Health Educ* 2019;35(11):967–72. <http://dx.doi.org/10.16168/j.cnki.issn.1002-9982.2019.11.002>. (In Chinese).
4. National Health Commission. The national health literacy level rose to 19.17% in 2019. <http://www.nhc.gov.cn/xcs/s3582/202004/df8d7c>

- 746e664ad783d1c1cf5ce849d5.shtml. [2020-8-4]. (In Chinese).
5. Guo SJ, Yu XM, Davis E, Armstrong R, Riggs E, Naccarella L. Adolescent health literacy in Beijing and Melbourne: a cross-cultural comparison. *Int J Environ Res Public Health* 2020;17(4):1242. <http://dx.doi.org/10.3390/ijerph17041242>.
 6. Zeng QQ, Jiang Y, Yuan YF, Wen XQ, Sun YH, Tian D, et al. Association of health literacy with health management among diabetics. *Chin J Prev Med* 2014;48(8):715 – 9. <http://dx.doi.org/10.3760/cma.j.issn.0253-9624.2014.08.013>. (In Chinese).
 7. Wang MD, Wang Y, Mao L, Xia YP, He QW, Lu ZX, et al. Acute stroke patients' knowledge of stroke at discharge in China: a cross-sectional study. *Trop Med Int Health* 2018;23(11):1200 – 6. <http://dx.doi.org/10.1111/tmi.13148>.
 8. National Bureau of Statistics. China statistical yearbook 2019. Beijing: China Statistics Press. 2019. <http://book.kongfz.com/12690/1524179392/>. (In Chinese).
 9. Zhang R, Chen Y, Liu SL, Liang SX, Wang G, Li L, et al. Progress of equalizing basic public health services in Southwest China--- health education delivery in primary healthcare sectors. *BMC Health Serv Res* 2020;20:247. <http://dx.doi.org/10.1186/s12913-020-05120-w>.
 10. Lu Y, Li YH, Nie XQ, Li L, Huang XG. Health literacy and its influence factors among Chinese medical staff in 2012. *Chin J Health Educ* 2015;31(2):134 – 7. <http://dx.doi.org/10.16168/j.cnki.issn.1002-9982.2015.02.009>. (In Chinese).
 11. Pan QY, Ouyang YM. Research progress of domestic health literacy. *Chin J Med Manage Sci* 2017;7(3): 67 – 72. http://qikan.cqvip.com/Qikan/Article/Detail?id=672009023&fromQikan_Search_Index. (In Chinese).
 12. Healthy China Action Promotion Committee. Healthy China initiative (2019–2030). <http://www.nhc.gov.cn/guihuaxxs/s3585u/201907/e9275fb95d5b4295be8308415d4cd1b2.shtml>. [2020-08-10]. (In Chinese).
 13. Rudd RE. Health literacy: insights and issues. IOS Press. 2017;60 – 78. <http://dx.doi.org/10.3233/978-1-61499-790-0-60>. [2020-08-10].