

Health Community Helps Improve National Health Literacy

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Executive summary

Health literacy refers to the ability of individuals to obtain, understand, and utilize health information and services. The monitoring of health literacy in China primarily encompasses three dimensions: knowledge, behavior, and skills, which are further delineated into six types of issues, including science-based health perspective and the prevention and control of infectious diseases, among others. Global experience has demonstrated that insufficient health literacy can adversely affect health, escalate medical costs, and even impede the implementation of public health policies. In United States, Singapore, and Finland, significant health literacy improvement has been achieved through community-based education, the use of concise language, and cross-agency coordination. For instance, thanks to community intervention, North Karelia, Finland, has seen an 85% reduction in coronary heart disease mortality. In China, the *Healthy China 2030 Strategy* lists health literacy as a key indicator. Health literacy is expected to reach 31.87% in 2024, an increase of 23.07 percentage points over 2012. Problems such as significant urban-rural disparities, insufficient health literacy among the elderly and less-educated, and rampant misinformation persist, and the rising burden of chronic diseases underscores the urgency for improving health literacy.

To understand the key areas and primary measures for improving health literacy, this study covers 3,970 persons who participate in health-focused communities and employs the national standardized questionnaire to assess the level of health literacy (a total score at or above 80 (total 100) is considered as being health literate). The assessment covers three dimensions - knowledge, behavior, and skills - as well as six types of health issues. Using the regression model, and controlling for factors such as age and education, this study analyzes the relationship between health literacy and community activity participation frequency and activity types.

This study finds that 58.16% of the respondents are health literate; more specifically, respondents are the least health literate on healthy lifestyle (54.21%) and chronic disease prevention and treatment (31.71%), and they are best literate on safety and first aid (84.89%). Those who demonstrate low levels of health literate are the elderly (47.56%), those with poor education backgrounds pheasants (27.45%) and chronic disease patients. Those who demonstrate high

levels of health literacy are those with strong education backgrounds (82.26% for those with a post-graduate degree and above) and healthcare workers (83.09%). There is a positive linkage between participating in health-focused communities and health literacy. Those who participate in health-focused community activities 3-5 times per week has a significantly higher health literacy level (61.31%) than those who never participate (47.03%). Weight management and exercise-focused communities significantly promote healthy behaviors, whereas health knowledge education communities are more effective in enhancing knowledge literacy. Controlling for factors such as age, education, and health status, the regression analysis indicates that participating in health-focused community activities remains to be a key factor affecting health literacy. The health literacy level of those who participate 3-5 times per week is 1.516 times that of those who never participate. Given the fact that other factors are hard to change, participating in health-focused community activities provides a key intervention.

Recommendations are made based on the findings of this study while considering international best practices. Firstly, build a multi-tiered health community network that integrates communities, schools, and enterprises. Establish offline communities focused on chronic disease management and exercise check-ins, and expand coverage by incorporating digital platforms. Enhance participation motivation through a points system or “Health Champion” awards. Secondly, address weak spots by focusing on cultivating healthy lifestyle and the right skills. Promote the establishment of self-management groups for chronic disease patients. By learning from the Finnish model, promote behavioral change, improve health literacy, and establish authoritative channels to debunk myths and optimize the dissemination of information. Thirdly, ensure cross-departmental collaboration to carry out digital empowerment efforts. By uniting health departments, medical institutions, and enterprises, develop a unified information platform that helps people better understand health knowledge and ensure authoritative information to reach diversified audiences.

1. Health literacy improvement: global practice and China's strategy

Health literacy refers to the ability of individuals to access and understand basic health information and services and to use such information and services to make appropriate decisions in order to maintain and promote their own health. In China, as defined by *Health Literacy of Chinese Citizens - Basic Knowledge and Skills (for Trial Implementation)*, also in line with the Knowledge-Attitude-Practice (KAP) theory in health education, health literacy includes three dimensions: basic health knowledge and concepts, healthy lifestyles and behaviors, and essential skills. Meanwhile, given China's major public health challenges, there are six types of health literacy, namely, scientific health literacy, infectious disease prevention and control literacy, chronic disease prevention and management literacy, safety and first aid literacy, basic medical literacy, and health information literacy¹. Amid global public health governance transformation, health literacy is a key topic in global health, while improving people's health literacy, as a fundamental approach to health, provides some of the most cost-effective and efficient solutions.

Health literacy is a key determinant influencing health outcomes and is closely related to both individual health and the overall burden on the healthcare system. Firstly, insufficient health literacy affects disease prevention and health decision-making, hindering residents from adopting behaviors more conducive to disease control and prevention, such as maintaining a healthy diet. For instance, European health literacy monitoring results² indicate 57% Europeans have no knowledge that antibiotics are ineffective against viruses, and the lack of knowledge leads to improper use of antibiotics, which in turn exacerbates antibiotic resistance problem. Secondly, health literacy is closely linked to proper use of medical resources. Individuals with insufficient health literacy are more likely to delay seeking medical care or, harboring unrealistic medical expectations, tend to overuse medical services, which can lead to a crisis of patient trust and increase the pressure on healthcare resources. As indicated by the above-said European monitoring data, among individuals who visit healthcare facilities more than six times a year, 58.9% have insufficient health literacy, significantly higher than the average level of 47.6%³. A systematic review reveals

1 National Health Commission of the People's Republic of China (NHC), 2024 China Residents Health Literacy Monitoring Report, <http://www.nhc.gov.cn/xcs/s3582/202501/3eb126cf09314d888b3e901ef1201ce5.shtml>

2 World Health Organization European Observatory on Health Systems and Policies, *European Health Literacy*, 2020.

3 The monitoring methods and criteria in Europe differ from those in China, thus making direct comparisons between Europe and China unfeasible.

that the additional costs associated with limited health literacy may account for 3-5% of total healthcare expenditures⁴. Thirdly, improving health literacy contributes to the effective implementation of public health policies. For instance, the effectiveness of government efforts in areas such as vaccination promotion, infectious disease prevention and control, and chronic disease management is directly influenced by the level of health literacy among the population.

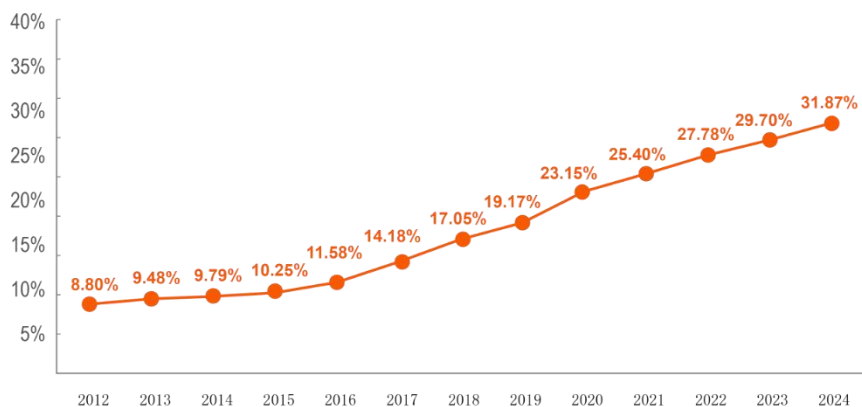
Globally, there have been numerous practices aimed at promoting health literacy, among which community support and community empowerment have shown significant potential. WHO and public health agencies worldwide have recognized the critical role of health literacy and have prioritized it as a key area for improving public health. Many countries have already achieved notable success in this regard. For instance, in the United States, the National Action Plan to Improve Health Literacy requires all federal healthcare programs utilize clear and easy-to-understand language and enhance health literacy among vulnerable populations through community education and even integration into sermon days. In Singapore, the Health Promotion Board's Health Literacy Framework promotes health education carried out by schools and communities, such as setting up interactive health literacy quizzes in elevators, assigning homework on family health education to students, and encouraging elderly groups to learn together, among others. In Europe, the European Health Literacy Alliance has developed the Health Decision-Making Compass toolkit, which promotes health literacy among residents through scenario cards. In Finland, the North Karelia Project provides a great success story. In the North Karelia region, where cardiovascular diseases were highly prevalent, a cross-sectoral organizational structure involving operational mechanism for communication and collaboration was set up in 1972 to create a supportive health environment. The "Expert Committee + Project Intervention Team" model was implemented, which included a Health Expert Committee and various project working groups. Volunteers were recruited to establish community-level "health cooperatives", working together to encourage healthy behaviors. The North Karelia model represents a role model of health literacy intervention. An evaluation after 5 years showed an 85% decrease in the mortality rate of coronary heart disease among males. The model has been promoted by the WHO.

China attaches great importance on improving national health literacy, yet greater efforts are still needed to promote health literacy education in order to achieve the goals of the Healthy China initiative. In 2016, the Central Committee of the Communist Party of China and the State Council issued the

4 Eichler K et al, *Costs of Limited Health Literacy: A Systematic Review*, *International Public Health Magazine*

Healthy China 2030 Initiative, which lists residents' health literacy as one of a total of 13 key health development indicators. In 2019, the State Council published its opinions on the implementation of the Healthy China Initiative, which regards residents' health literacy as a major indicator of the Healthy China Action Plan (2019-2030). In the same year, the Standing Committee of the Chinese National People's Congress (NPC) passed the Basic Healthcare and Health Promotion Law, which clearly states the requirement to improve citizens' health literacy. In recent years, China has seen rapid improvement of the population's health literacy. In 2024, China's health literacy score reached 31.87%, representing a 23.07% improvement over 2012 while meeting the 2030 target in advance. However, considering the practical needs for improving the population's health and the actual issues related to people's health, there is still much room for improvement. Key challenges include: uneven development between urban and rural areas and across the regions, with urban residents having significantly higher health literacy levels than rural residents, and the eastern regions surpassing the central and western regions; insufficient health literacy particularly among the elderly, those of low educational level, and people living with chronic disease; the proliferation of false health information and the chaotic and misleading dissemination of health information in the internet era affecting health-related decision-making; and still prevalent unhealthy lifestyles, such as smoking, excessive alcohol consumption, and lack of exercise, leading to increasingly serious issues of chronic non-communicable diseases.

National health literacy change (2012-2024) (%)



Data source: China Health Education Center, national residents health literacy test report over the years

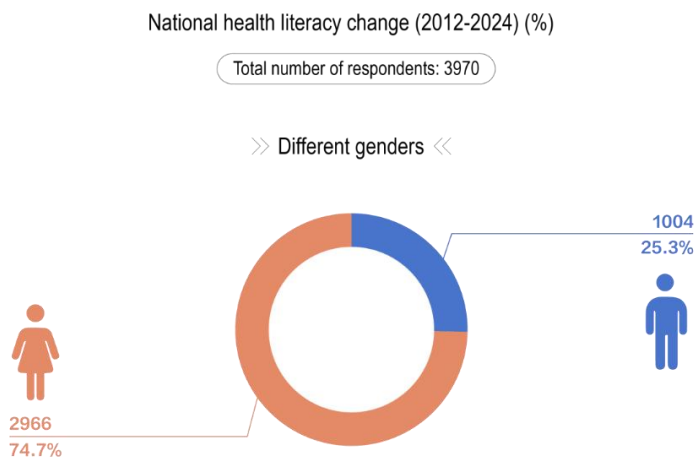
As the population ages, over 85% of the disease burden in China stems from chronic diseases. To alleviate the pressure on healthcare and caregiving resources, mitigate the imbalance between supply and demand of medical resources, promote health equity and social development, and drive the growth of the health industry,

it is essential to conduct in-depth research into the factors that influence health literacy, identify key populations and health issues for intervention, and explore feasible health literacy intervention measures, which in turn will provide valuable references for formulating more targeted health promotion strategies.

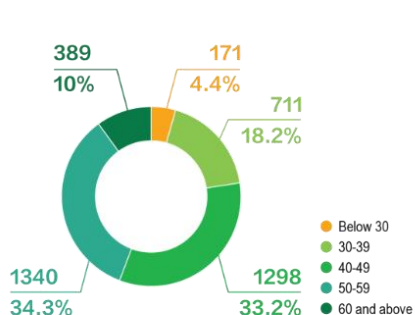
2. Health-focused communities contribute to health literacy improvement: research design

2.1 Data source and respondent sample characteristics

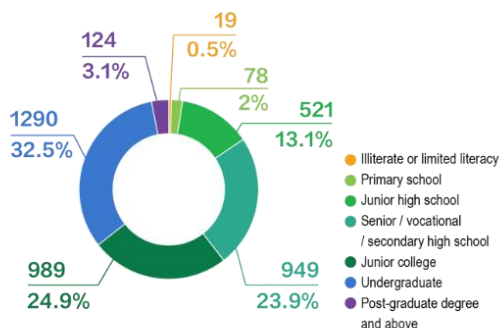
This study is done through online and offline questionnaires among health-focused communities, where the majority of the respondents have participated in activities in a health-focused community. The total number of respondents is 3,970. Characteristics of the respondents are listed as follows: females account for 74.7% of the total; people aged 40-49 and 50-59 respectively account for 33.2% and 34.3%; they generally have high education backgrounds, with those with a college degree or higher account for 60.5% of the total, a percentage higher than the national average; many are company employees or other (including retired and self-employed), accounting for 24.2% and 31.7% respectively; married individuals account for 78.3% of the total; self-rated health status is relatively good, with 23.9% of respondents saying they are in very good health and 52.9% in good health' and 30.4% report they are affected by a chronic disease. It is noted that this study is done as a non-random sampling online survey. Also, many respondents have experience in health community activities, and they tend to be more health-conscious. Therefore, their level of health literacy cannot be generalized to represent that of the general population. Nevertheless, by making internal distinctions based on different characteristics and varying degrees of community participation, it is possible to identify effective methods and key areas for promoting health literacy.



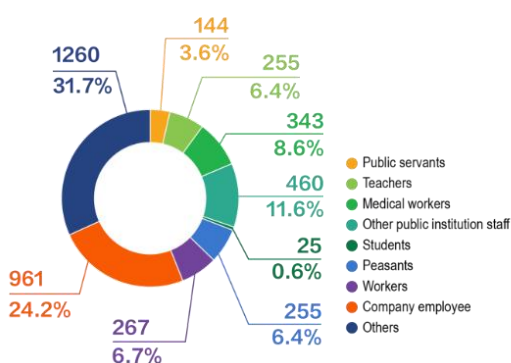
>> Age groups <<



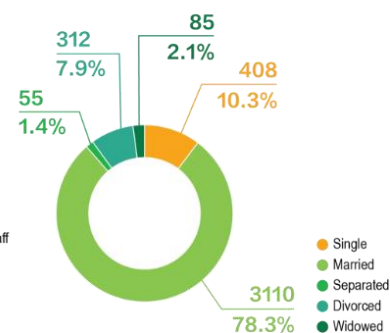
>> Educational background <<



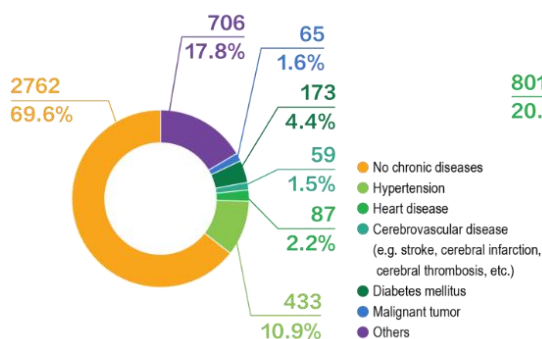
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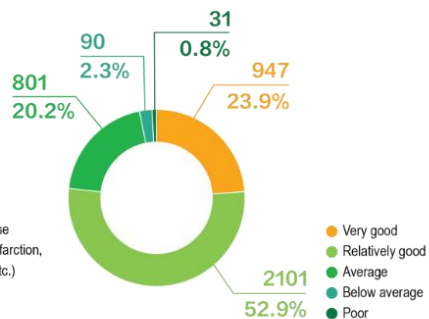
>> Marital status <<



>> Chronic diseases <<



>> Self-rated health status <<



2.2 Health literacy assessment method

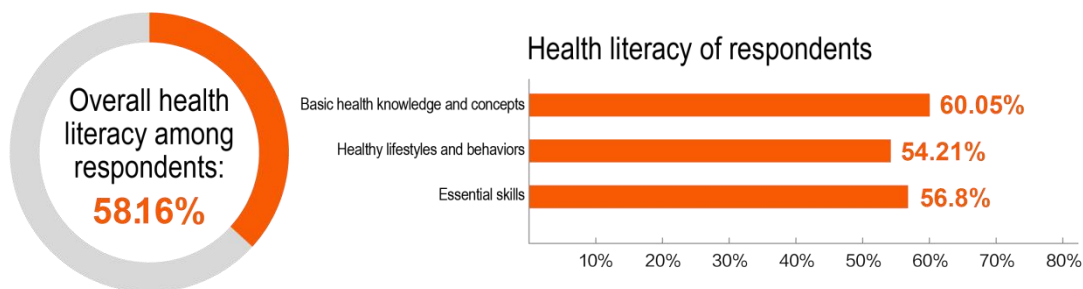
To enhance policy applicability, this study fully adopts the questionnaire and assessment methods from the National Health Literacy Monitoring Program. It includes a total of 10 true/false questions, 26 single-choice questions, 16 multiple-choice questions, and 4 scenario analysis questions. Each respondent is scored based on their responses, with 100 being the full score. If the respondent scores over 80%, he or she is deemed to be **health literate**, and the percentage of health literate respondents indicate the **health literacy level**. As mentioned above, this study considers health literacy in three dimensions and six types. The three dimensions include basic health knowledge and concepts, healthy lifestyles and behaviors, and essential skills. The six types include scientific health literacy, infectious disease prevention and control literacy, chronic disease prevention and management literacy, safety and first aid literacy, basic medical literacy, and health information literacy. When assessing if a respondent is literate on a given topic, his or her score on the questions related to the topic is compared with the total scores of the said questions. If he or she scores 80% and above on such questions, he or she is deemed literate on the topic. Such criteria apply to all six types.

3. Health-focused community contributes to health literacy improvement: key findings

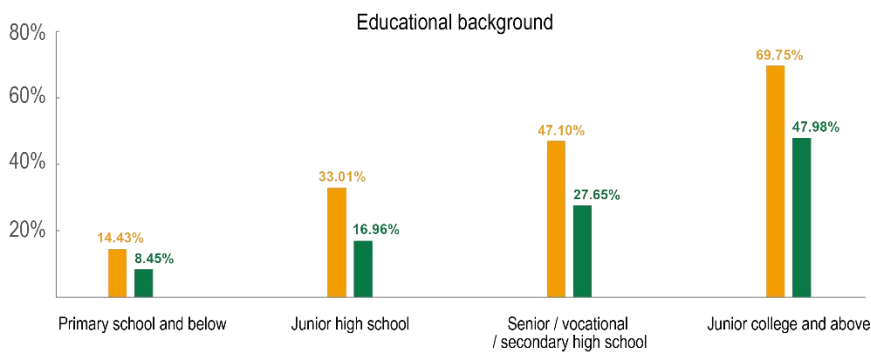
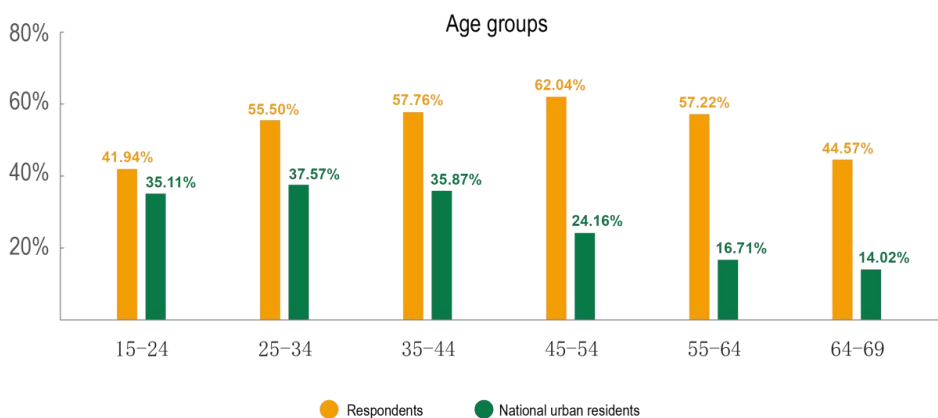
3.1 Health literacy of respondents

The respondents demonstrate generally high health literacy, but come short on healthy lifestyle, behavioral health literacy, and chronic disease prevention and management literacy. The overall health literacy among respondents reaches 58.16% - in other words, 58.16% respondents are health literate. More specifically, those literate on basic health knowledge and ideas reach 60.05%, on healthy lifestyle and behaviors 54.21%, and on basic skills 56.80%. In terms of the six types, respondents are best literate on safety and first aid (84.89%), followed by scientific health perspective (73.43%). It is noted that respondents' literacy need to be improved on communicable disease (41.54%), chronic disease (31.71%), basic healthcare (45.29%), and health information (49.52%). Literacy on chronic disease is conspicuously worse. Given the current high prevalence of chronic diseases, the challenge is severe. The results of this study is compared with those of other national monitoring studies, taking into account respondents' age and educational backgrounds. Comparison results show that the respondents of this study are more health literate than those in other monitoring studies in the same

age group and of the same educational background⁵.



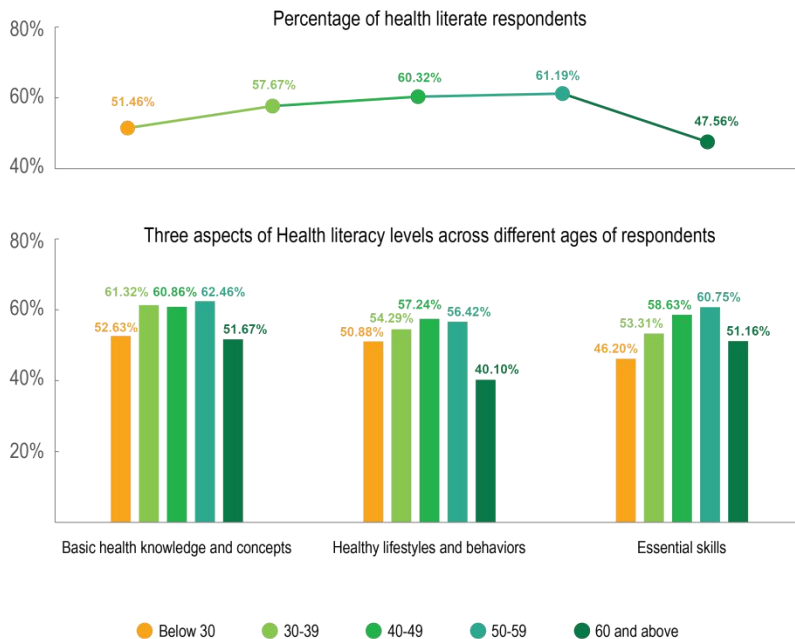
Comparison of health literacy of respondents and national urban residents



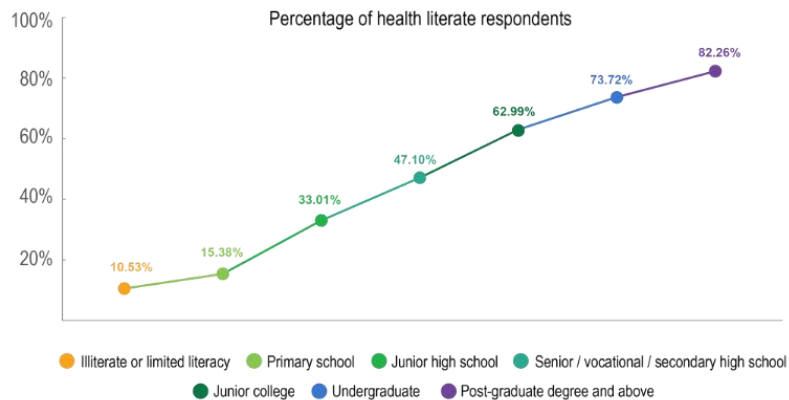
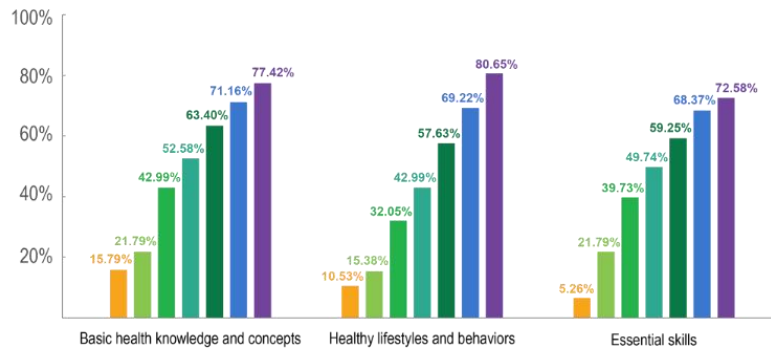
⁵ Limited to availability of demographic data. Other national monitoring study results come from Zhang Gang, Li Yinghua, Li Li, et al. Research on the Health Literacy Levels of Chinese Urban and Rural Residents and Their Influencing Factors 2021. China Health Education, 2024,40(05):387-391+400.

Young people, the elderly, individuals with lower educational attainment, and chronic disease patients are groups with lower health literacy and represent key populations requiring additional attention. In terms of health literacy levels across different age groups, individuals aged 40-49 and 50-59 exhibit the highest levels of health literacy, 60.32% and 61.19% respectively. Individuals aged 60 and above exhibit the lowest level of health literacy (47.56%). Young people aged 30 and below also exhibit low health literacy (51.46%). Educational background is positively related to health literacy. Higher education indicates higher health literacy. Those with a post-graduate degree and above are 82.26% health literate. The rule applies to all different types. Given the respondents' vocations, medical workers exhibit the highest level of health literacy (83.09%). Public servants and teachers also exhibit high levels. The least health literate are peasants (27.45%) and workers (38.20%). The health literacy level among students (44.00%) is below the average. They represent a key group of intervention. There is also a difference in health literacy based on whether individuals have chronic diseases. The group without chronic diseases has a health literacy level 7.71 percentage points higher than the group with chronic diseases.

Health literacy levels across different age groups of respondents



Health literacy levels across different educational background of respondents



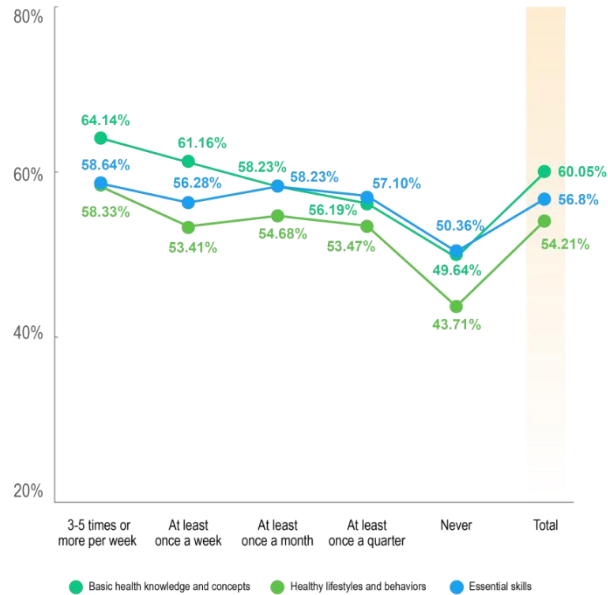
Health Literacy levels across different characteristics of respondents

		Health literacy levels in three dimensions		
Vocations	Percentage of health literate respondents	Basic health knowledge and concepts	Healthy lifestyles and behaviors	Essential skills
Medical workers	83.09%	80.47%	83.09%	71.43%
Public servants	72.92%	65.28%	68.75%	68.06%
Teachers	72.55%	69.80%	67.45%	67.45%
Other company employees	59.21%	61.19%	53.38%	58.79%
Others	57.46%	59.92%	50.71%	55.63%
Other public institution staff	56.09%	55.22%	55.87%	55.22%
Students	44.00%	52.00%	56.00%	36.00%
Workers	38.20%	47.94%	36.70%	43.82%
Peasants	27.45%	38.43%	29.41%	36.86%
Whether individuals have chronic diseases				
Yes	65.14%	64.94%	66.50%	67.00%
No	72.76%	72.65%	72.17%	71.53%
Frequency of participation in health-focused communities				
3-5 times or more per week	61.31%	64.14%	58.33%	58.64%
At least once a week	59.22%	61.16%	53.41%	56.28%
At least once a month	58.87%	58.23%	54.68%	58.23%
At least once a quarter	54.38%	56.19%	53.47%	57.10%
Never	47.03%	49.64%	43.71%	50.36%
Total	58.16%	60.05%	54.21%	56.80%

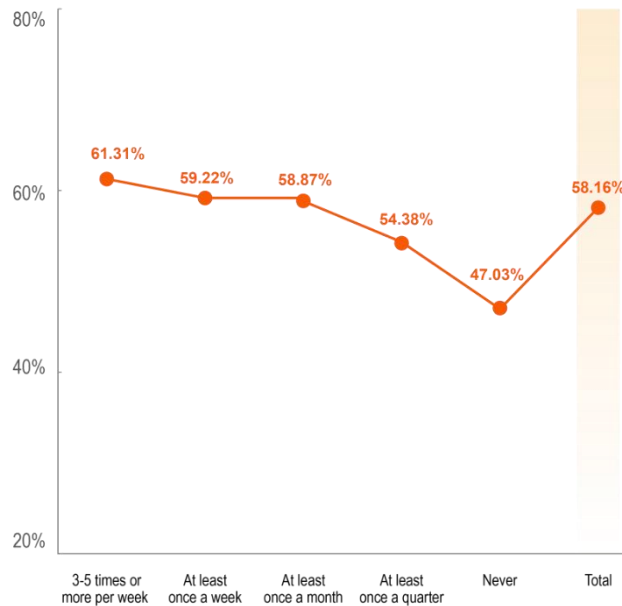
Health literacy levels across different characteristics of respondents in six types

Age groups	Scientific health literacy	Infectious disease prevention and control literacy	Chronic disease prevention and management literacy	Safety and first aid literacy	Basic medical literacy	Health information literacy
Below 30	66.08%	39.77%	25.73%	81.87%	41.52%	45.61%
30-39	70.04%	41.49%	30.52%	86.08%	43.04%	47.68%
40-49	75.35%	43.84%	30.82%	85.59%	46.46%	53.16%
50-59	77.09%	41.94%	34.63%	86.42%	48.43%	50.82%
60 and above	65.81%	33.42%	30.85%	78.66%	38.82%	40.10%
Educational background						
Illiterate or limited literacy	21.05%	0%	5.26%	31.58%	10.53%	0%
Primary school	38.46%	20.51%	16.67%	64.10%	12.82%	20.51%
Junior high school	57.77%	29.17%	24.38%	73.32%	27.83%	32.82%
Senior / vocational / secondary high school	67.65%	32.98%	26.24%	81.77%	37.51%	40.99%
Junior college	74.72%	41.56%	35.19%	86.65%	48.23%	54.80%
Undergraduate	84.57%	52.33%	36.36%	91.63%	56.51%	59.77%
Post-graduate degree and above	87.10%	66.13%	41.94%	94.35%	63.71%	62.10%
Total	73.43%	41.54%	31.71%	84.89%	45.29%	49.52%
Vocations						
Public servants	80.56%	55.56%	32.64%	87.50%	52.78%	55.56%
Teachers	82.75%	55.69%	36.86%	89.80%	56.47%	56.86%
Medical workers	88.92%	61.22%	44.61%	93.90%	71.43%	62.39%
Other public institution staff	70.87%	45.43%	29.78%	82.20%	45.22%	47.17%
Students	52.00%	36.00%	20.00%	68.00%	36.00%	32.00%
Peasants	53.73%	22.75%	21.18%	70.20%	23.14%	28.63%
Workers	62.55%	28.84%	27.34%	77.90%	33.33%	35.58%
Company employee	76.48%	40.37%	31.11%	87.50%	42.66%	50.99%
Others	71.83%	37.78%	31.51%	84.90%	44.29%	51.11%
Whether individuals have chronic diseases						
Yes	70.03%	41.31%	27.81%	82.20%	40.73%	45.53%
No	74.91%	41.64%	33.42%	86.06%	47.28%	51.27%
Frequency of participation in health-focused communities						
3-5 times or more per week	75.54%	41.51%	34.63%	84.40%	48.01%	50.76%
At least once a week	73.41%	40.78%	32.33%	84.73%	45.58%	50.16%
At least once a month	73.71%	42.26%	31.77%	88.71%	45.65%	52.74%
At least once a quarter	73.11%	44.11%	26.89%	85.50%	41.39%	50.45%
Never	66.75%	40.86%	24.47%	80.76%	38.48%	38.24%

The impact of frequency of participation in health-focused communities on the level of health literacy



The overall health literacy of the different groups participating in health-focused communities

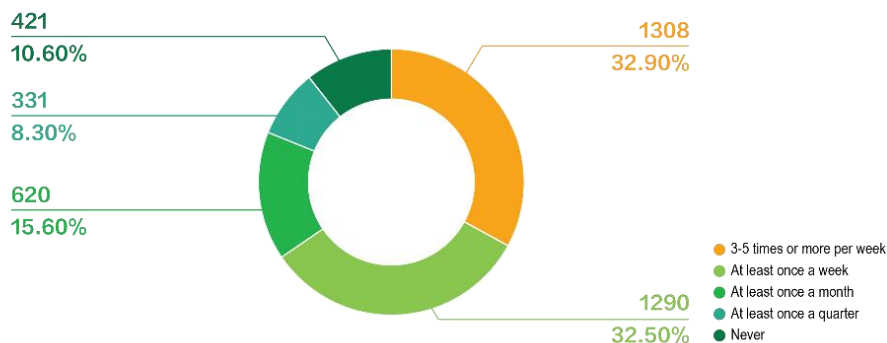


3.2 How respondents participate in community activities

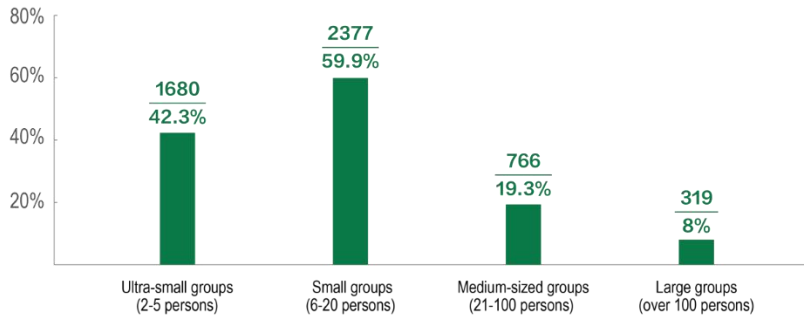
The most important purpose for participating in health-focused communities are to learn health knowledge and to cultivate a healthy lifestyle. Among the respondents, the frequency of participation in health-focused communities is relatively high, with 32.9% participating 3-5 times or more per week, and 32.5% participating at least once a week. Sizes of community activities vary, with the most common being small groups of 6-20 people. The most frequent type of activity is health education, including book clubs and study groups, accounting for 71.0%. Communities focused on weight management and other activities aimed at fostering healthy lifestyle habits also have high participation rates, reaching 56.3%. The respondents exhibit a high level of enthusiasm for learning. The primary purpose for most respondents participating in health-focused communities is to acquire new health knowledge or skills (48.6%). The second most important purpose is to cultivate a healthy lifestyle or healthy habits. When weighting the top three purposes, the leading motivations include: to learn new health knowledge or skills, to cultivate healthy lifestyle and habits, and to make new like-minded friends.

Participation in health-focused communities has been highly rewarding, with over half of the respondents reporting improvements in their physical health. Only 4.7% of respondents report that they have not achieved their intended goals, while 13.4% report results have exceeded their expectations, and 43.8% say that their goals have largely been achieved. In terms of subjective gains, the top three reported benefits include: maintaining a hobby and improving quality of life (53.8%), acquiring new knowledge (53.1%), and experiencing improvements in physical health (50.3%).

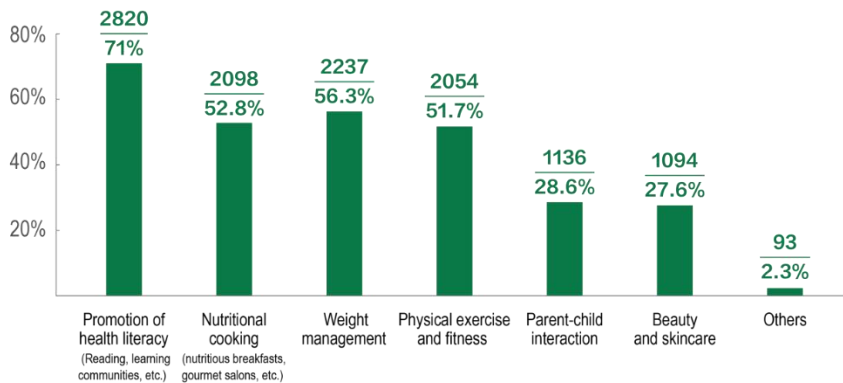
Participation in health-focused communities among respondents



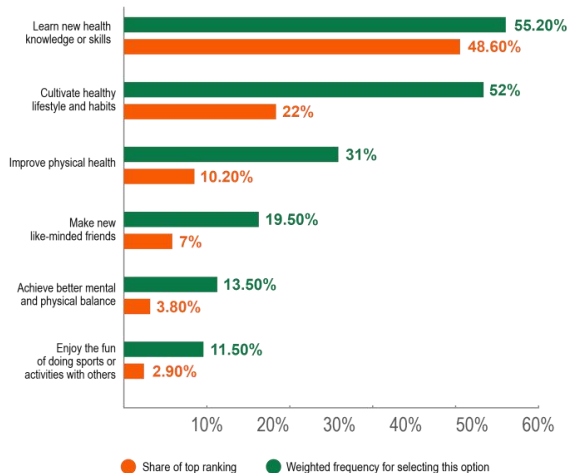
Sizes of community activities



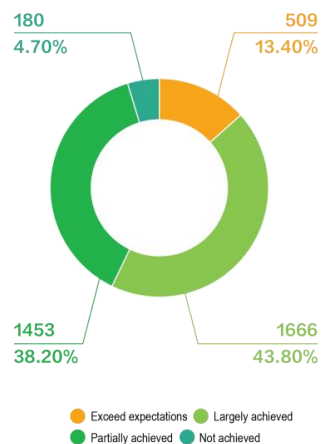
Types of health-focused communities participated by respondents



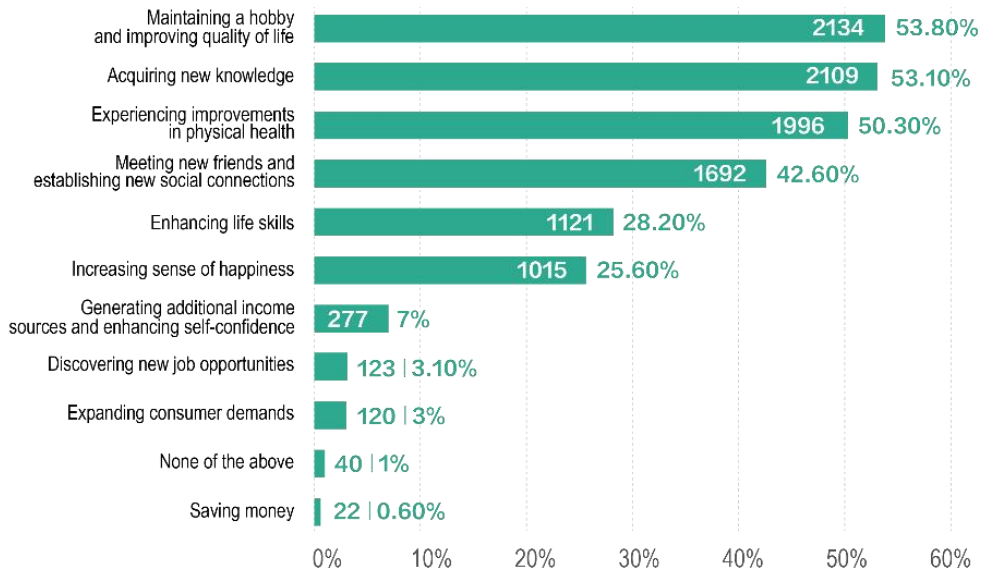
Top purposes of participating in health-focused communities



Achievement of intended goals of health-focused communities



Benefits of participation in health-focused communities for respondents



3.3 Participation in health-focused communities helps improve health literacy

There is a positive correlation between the frequency of participation in health-focused communities and the level of health literacy; the more frequently individuals engage in health-focused communities, the higher their health literacy levels. The data analysis above shows a positive correlation between the frequency of participation in community activities and the level of health literacy. Groups with higher participation frequencies generally have higher rates of meeting health literacy standards: the health literacy rate for those participating 3-5 times or more per week is 61.31%, significantly higher than the 47.03% for non-participants. Across different dimensions, literacy for basic health knowledge and concepts remains the highest. In each dimension, there is a steady upward trend as community activity participation frequency increases. The health literacy levels for those who believe that the goals of participating in health communities were exceeded or largely met are 59.7% and 65.0%, respectively, significantly higher than the level for those who feel the goals were not met (33.9%).

Health-focused communities of all types contribute to the promotion of

health literacy, with communities focused on weight management and physical exercise being particularly effective in fostering healthy lifestyle and habits. In terms of community sizes, there is no statistically significant difference in health literacy levels between different community sizes. In terms of different types of communities, weight management and fitness communities show the best results. Respondents participating in weight management communities (60.8%) have a health literacy level 6 percentage points higher than those not participating (54.8%). Respondents participating in fitness communities (60.0%) have a health literacy level 3.8 percentage points higher than those not participating (56.2%). **A community that focuses on behavioral cultivation exhibits better results in enhancing literacy on healthy lifestyle and habits.** Respondents who participate in weight management communities have a health behavior and lifestyle literacy level (57.6%) that is 7.7 percentage points higher than those who do not participate. Respondents who participate in fitness communities have a health behavior and lifestyle literacy level (56.6%) that is 4.9 percentage points higher than those who do not participate. **A community that focuses on health education exhibits better results in promoting basic health knowledge and concepts.** Respondents who participate in health education communities (62.0%) have a basic knowledge and conceptual literacy level that is 6.8 percentage points higher than those who do not participate.

After controlling for age, educational background, vocation, and health status, participation in health-focused communities remains to be a key factor that affects a person's health literacy. Through binary logistic regression analysis, the main influencing factors of health literacy are identified. The regression results show that the factors that have the biggest impact on health literacy, in order, are: educational level, occupation, age, health status, and frequency of participation in health community activities. After controlling for other factors, respondents who participate 3-5 times or more per week are 1.516 times more likely to be health literate than those who never participate. Given that other factors are difficult to change, participation in health community activities is an important intervention method, and regardless of the characteristics of the intervention subjects, participating in health community activities can enhance health literacy levels. Specifically, in terms of influencing factors for various categories of health literacy levels, after controlling for other factors, respondents who participate 3-5 times or more per week are 1.657 times more likely to be literate on basic health knowledge and concepts than those who never participate, and 1.609 times more likely to be literate on healthy behaviors and lifestyles than those who never participate. Considering that chronic disease prevention literacy is a significant shortcoming, a separate analysis was conducted. After controlling for other factors, respondents who participate 3-5 times or more per week are

1.507 times more likely to be literate on chronic disease prevention than those who never participate.

Multi-factor analysis of the main influencing factors of health literacy

Main influencing factors	Impact level			
Frequency of participation in health community activities	Health literacy	Basic health knowledge and concepts	Healthy behaviors and lifestyles	Chronic disease prevention and management
3-5 times or more per week	1.516	1.657	1.609	1.507
At least once a week	1.431	1.472	1.372	1.402
At least once a month	1.507	1.353	1.496	1.423
At least once a quarter	1.227	1.248	1.37	1.122
Never	1	1	1	1
Age groups				
Below 30	0.775	0.762	1.101	0.678
30-39	1.120	1.21	1.437	0.848
40-49	1.375	1.259	1.748	0.886
50-59	1.603	1.461	1.819	1.112
60 and above	1	1	1	1
Vocations				
Public servants	1.346	0.952	1.566	0.87
Teachers	1.277	1.153	1.442	1.031
Medical workers	2.473	2.042	3.389	1.496
Other public institution staff	0.749	0.692	1.033	0.835
Students	0.857	1.129	1.775	0.624
Peasants	0.506	0.697	0.757	0.779
Workers	0.581	0.772	0.738	0.947
Company employee	0.915	0.953	0.979	0.929
Others	1	1	1	1
Whether individuals have chronic diseases				
Yes	0.714	0.726	0.803	0.776
Educational background				
Primary school and below	0.116	0.169	0.125	0.378
Junior high school	0.267	0.400	0.328	0.610
Senior / vocational / secondary high school	0.450	0.558	0.491	0.639
Junior college and above	1	1	1	1

4. Insights and recommendations

Firstly, build a multi-level health community network and strengthen community-based health education. This study and previous research have clearly demonstrated how participating in health community activities promotes health literacy. It is advisable to leverage different settings such as schools, workplaces, and communities to cater to diverse populations. Collaborating with public service institutions like community health centers, non-profit organizations, and businesses, we can establish offline communities focused on “health education + behavioral practice”, such as chronic disease management groups, weight management groups, and check-in groups that encourage people to do more exercise. To increase outreach to younger groups, promotion through health community platforms or digital platforms can help enhance breadth and interactivity. For groups with different health goals, the roles of key individuals, enthusiasts, and volunteers should be fully utilized to form health communities, which may focus health education, behavioral interventions, or chronic disease prevention, leveraging community support. Additionally, an incentive system can be introduced, linking participation in community activities and completion of health tasks with volunteer services, or setting up “Health Champion” awards to drive group behavior change through role model effects, thereby maintaining participation motivation.

Secondly, focus on enhancing healthy behavior and health skills literacy, with particular attention paid to improving chronic disease prevention literacy, basic medical literacy, and health information literacy. Given the results of this study, it is evident that respondents are more literate on basic health knowledge and concepts than on healthy behavior and health skills, a fact that affects people’s ability to develop healthy lifestyles and individual health decision-making, and one that needs remedy. Additionally, among the six types, basic medical literacy is crucial for rational use of healthcare service to ensure optimized use of medical resources. At a time when the internet distribute complex information, the public needs the ability to filter health information and discern true from false. Health information literacy education is essential to help people identify and judge the reliability of health information, thus preventing adoption of behaviors due to false health information. Chronic disease prevention literacy involves understanding behaviors conducive to health, such as diet, exercise, and monitoring. Drawing from the North Karelia model in Finland, it is advisable to encourage the formation of self-management groups for chronic disease patients and support the development of healthy behaviors among group members.

Thirdly, strengthen cross-departmental collaboration, empower health

information dissemination through digitalization, and establish an authoritative health knowledge platform. Improving health literacy requires coordinated efforts across multiple sectors. Internationally, Europe's "Health Decision Compass" toolkit uses scenario cards to help residents understand complex medical concepts. In the United States, federal healthcare programs must use plain language to reduce misunderstandings. To enhance the authority of health information and health information literacy, it is recommended to integrate resources from the National Health Commission, the Center for Disease Control and Prevention, top-tier hospitals, and related enterprises in the health industry to develop an official information platform and a companion mobile app. This platform would provide authoritative science support queries, and include a section for debunking rumors. Other functions may include AI-powered Q&A features, dialects and colloquial expressions to help more people better understand, and voice read-out for the elderly. Also, consider working with short video platforms to launch "One-Minute Health Lessons", inviting doctors and nutritionists to explain core knowledge in simple language, etc. Plus, develop targeted, authoritative assets and core information materials for media, schools, and community audiences, so as to facilitate access to authoritative information.