

Factors influencing the health literacy among undergraduates in China : a review

Pengying YUE^{1,2}, Suppiah NACHIAPPAN³

1. Infrastructure University Kuala Lumpur (IUKL), De Centrum 43000, Malaysia

2. Xi'an Innovation College of Yan'an University, Xi'an 710100, China

3. Sultan Idris Education University, Tanjong Malim 35900, Malaysia

Abstract: As the COVID-19 pandemic has led the learning needs of college students to the health field, health literacy gradually becomes a key factor in healthy behaviors and health-related decision-making. However, little is known about the influencing factors of health literacy among undergraduates. Thus, the aim of this study was to review the status quo, assessment tools, and influencing factors of health literacy in undergraduates. **Methods:** We conducted a comprehensive search in several databases, including PubMed, China National Knowledge Infrastructure, CNKI, Wanfang Database, VIP Database, Google Scholar, and Chinese Science and Technology Journal Database between January 2000 and January 2024. **Results:** The articles included in this review were all cross-sectional studies. National Health Literacy Survey Questionnaire for Residents was the most commonly used measurement for health literacy in undergraduates. The level of health literacy in undergraduates was not high, which was associated with a variable of factors. From an individual's perspective, knowledge and health awareness were the most significant factors. **Conclusion:** The study has identified the influencing factors of health literacy among undergraduates, including gender, grade, domicile place, major, knowledge and health awareness, parental education level and occupation, good social network and social support.

Key words: undergraduates; health literacy; the influencing factors

1 Introduction

College students are a special group, and their health status cannot be reflected by incidence rate and mortality. Their health status is reflected by smoking, drinking and irregular diet [1]. Due to increased stress and irregular lifestyles, the physical health of college students is worrying.

Health literacy not only has a direct impact on a healthy lifestyle, but also has an impact on a healthy lifestyle through the mediating role of self-management and the chain mediating role of self-efficacy and self-management [2]. There are also studies indicating that low to moderate levels of health literacy among college students are associated with poor health conditions.

On the one hand, as human resources reserve for the future development of the country, college students are an important group for spreading health concepts and leading healthy lifestyles. The improvement of their health literacy level plays an important role in improving their own health status, promoting healthy family lifestyles, and cultivating healthy lifestyles and behaviors for the next generation. Health literacy is the foundation of lifelong learning for college students[3].

In short, maintaining one's own health is crucial for personal development, family and social development [4].

On the other hand, college students should consciously master health knowledge, have the ability to correctly judge common health problems, develop a good awareness of maintaining health and civilized and healthy lifestyle, improve health literacy, and strive to become reliable successors and qualified builders of socialism with comprehensive development of morality, intelligence, physical fitness, aesthetics, and labor. This is of great significance for achieving the sustainable development of the Chinese nation.

Therefore, studying the influencing factors of health literacy among college students is of great significance for improving their level of health literacy and promoting their healthy development.

2 Materials and methods

The reviewer conducted a comprehensive search in several databases, including PubMed, China National Knowledge Infrastructure, CNKI, Wanfang Database, VIP Database, Google Scholar, and Chinese Science and Technology Journal Database.

Considering that health literacy was a concept developed in the early 1990s, in the 2000s, research has begun to explore health literacy from a broader perspective, including dimensions such as critical health literacy and media health literacy, we searched the relevant literature published from January 2000 to January 2024. The following combinations of MeSH terms and free terms were used: (undergraduates) OR (university students) OR (college students) explode all trees and (Health literacy).

The following criteria were used to include related articles:

(1) 18 years old \leq undergraduates \leq 25 years old. (2) original studies. Studies were excluded if (1) not related to the research topic; (2) the study was a meta-analysis, abstract, systematic review, case report, conference report, qualitative research, or intervention study; (3) written in a language other than English and Chinese.

YPY completed data extraction. The extracted data included the first author, year, study design, study population, health literacy measure, health literacy status, results, and influencing factors. The results of the included research were summarized using descriptive and narrative syntheses. We did not conduct a meta-analysis because of the heterogeneity of studies included.

3 Results and discussions

3.1 Status quo of health literacy among university students

The results of Chen's 2021 study on health literacy among college students nationwide are shown in Table 1 [5].

Table 1. The current situation of Chinese university students' health literacy (%)

District	Sample size	Health literacy
Shanghai	2,084	66.7
Shandong Province	1,460	64.4
Nanchong	1,481	51.1
Jiangxi Province	7,560	40.4
Hebei Province	4,599	36.6
Wuhan	821	33.0
Zhenzhou	1,042	24.9
Henan Province	645	22.3
Hubei Province	1,170	13.7

Jilin	1,700	10.8
Jiangsu Province	1,538	10.7
Bengbu	2,565	8.9
Guangzhou	2,150	8.8
Lanzhou	1,660	7.1
Shannxi Province	827	6.9
Ganzhou	1,132	5.2

Tang Lili et al. (2019) conducted a survey on the current status of health literacy among medical students in Gansu Province, and the results showed that only 5.7% of medical students in Gansu Province possess environmental health literacy. Several studies have also found that college students exhibit low to moderate levels of health literacy [6-11].

3.2 Influencing factors

In this review, The influencing factors focus on individual characteristics, family, school, social environment, and other aspects.

According to the existing research results, age, nationality, registered residence, professional background, etc., are all factors that affect college students' health literacy [12]. These include aspects such as individual knowledge and awareness, behavioral habits, social networks, educational background, etc [13]. Scholars have proposed that the main factors affecting the health literacy of college students are grade, ethnicity, and educational background. There are also research results indicating that the health literacy level of students in first tier universities is higher than that in second tier and third tier universities. The higher the school category, the higher the health literacy level of students; College students who have taken health education courses and value health education have a higher awareness rate of health knowledge; College students majoring in science and engineering, literature and history, and arts and sports have a lower awareness of health knowledge, while medical majors have a higher level of health literacy; Self evaluated academic performance is a factor influencing the health literacy of college students [14][15]. There are also studies indicating that the overall level of health literacy among college students is higher for males than females, which may be due to males paying more attention to this information, actively obtaining information, and possessing higher practical and operational skills [16].

There are also studies that have found a positive correlation between parental education and the level of health literacy among college students. College students with parental education at or below junior high school have a lower awareness of health knowledge [17]. The study also found that students whose fathers are employees of other institutions, enterprises, and individuals have higher levels of health literacy than students whose fathers are civil servants. Related studies also indicate that college students with higher family income, higher monthly living expenses, higher education levels of parents, better school performance, and better self rated health status have higher health information literacy [18]. The family environment has a significant impact on the health literacy of college students in terms of dietary habits, exercise habits, and mental health, and has a profound impact on the overall development of college students [19].

And the new media access is becoming more popular among students to gain health knowledge. A good social network and social support network can also provide information, resources, and emotional support, promoting the development of health literacy. As the main body of health information acquisition behavior, college students are constantly living in the social environment, and any behavior is inseparable from the social environment. Social and individual factors will have an impact on the behavior of college students [20].

The education and learning experience that college students receive in school will directly affect their knowledge level [21][22]. Scholars have found that college students who receive health education and focus on health education have a higher awareness rate of health knowledge [23]. The higher the school category, grade level and medical major, the higher the level of health literacy of students. There is still a lot of room for improvement in the health literacy level of college students. To utilize campus resources, targeted health education should be carried out to improve the health literacy level of students.

4 Measurement of health literacy

The research on health literacy measurement tools in China can be divided into local development and Han based design sources. There are two types of foreign scales. The former goal is to promote health and provide health education, such as *Citizen Health Literacy 66 Articles*; other health literacy measurement tools mainly include translating existing tools from abroad to verify their effectiveness, or making improvements. In early 2008, the Ministry of Health of China issued the *Basic Knowledge and Skills of Chinese Citizens' Health Literacy (Trial)*. This is the first government announcement released in the field of health education in China, and the only government document in the world that defines citizen health literacy. The citizen's health literacy defined in the announcement includes three aspects: basic knowledge and concepts, healthy lifestyle and behavior, and basic skills, with a total of 66 items. This also highlights the country's emphasis on the overall health literacy of citizens, and is very conducive to promoting scholars to actively study the health literacy of Chinese citizens.

In order to understand the level of health literacy among Chinese residents, based on the research results and work experience of health literacy at home and abroad, the National Health Commission organized experts to write the "Chinese Residents Health Literacy Survey Questionnaire". The 2016 "Chinese Residents Health Literacy Questionnaire" was based on health literacy as its connotation and *66 Health Literacy Measures* as its evaluation content. According to the knowledge belief behavior theory, a Chinese health literacy evaluation index system was constructed, using the Depli method and expert centralized evaluation method. The weights of each dimension are determined, and the evaluation index system is divided into three primary dimensions: basic knowledge and concepts, healthy lifestyle and behavior, and basic skills; six secondary dimensions: scientific health concept, prevention of infectious diseases, prevention of chronic diseases, safety and first aid, basic medical care and health information; 20 tertiary dimensions: understanding of health, knowledge of physiological hygiene, knowledge of infectious diseases, etc [24]. The survey questionnaire on health literacy among Chinese residents is commonly used in China. At present, there is no specialized evaluation system for the health literacy survey of college students in China. Many researchers refer to the "Chinese Resident Health Literacy Survey Questionnaire" and make some revisions based on it to investigate the health literacy level of college students. The most commonly used survey on the health literacy of college students is the "National Household Health Literacy Survey Questionnaire" compiled by China Health Education Center [25].

5 Conclusion

This review has shown that the health literacy of undergraduates is not very high and influenced by various factors. Factors summarized are divided into internal and external factors. The level of health knowledge and awareness of health issues among college students have a significant impact on their health literacy. The family environment also has a significant impact on the health literacy of college students, but it is also influenced by external factors such as school and social environment. Therefore, families, schools, and society should work together to provide support and resources to promote the comprehensive improvement of health literacy among college students.

Acknowledgments

Thanks to my supervisors Dr. Suppiah and Dr. Sha for their guidance and assistance in the process of writing the paper.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Liu D, Ju WJ, Li T, et al. 2022. The impact of anxiety and depression among college students on their health risk behaviors. *Journal of Harbin Medical University*, 56(02): 182-187.
- [2] Li JX, Li HP, Zhou MK. 2023. The mediating effect of health literacy on self-efficacy and self-management of 600 college students. *Chinese School Physicians*, 37 (5): 332-335.
- [3] Wang C, Duan ZG. 2020. Exploration of health education action for college students based on the construction of healthy China. *Chinese Journal of Medical Education*, 40 (4): 5.
- [4] Chen QY, Wang HL, Lu H, et al. 2021. The current situation of Chinese college students' health literacy and its influencing factors. *Science and Technology Information*, 19 (36): 159-162+184.
- [5] Chen WL, Zhang CG, Wang X, et al. 2020. A cross-sectional study on the relationship between health literacy and health promoting lifestyle among residents in Xuhui District, Shanghai. *Fudan University Journal of Medical Sciences*, 47 (1): 101-105+127.
- [6] Yuan XQ. 2019. Research on the current situation of health literacy among college students in two provinces and its relationship with health behavior and health status. (Master's Thesis) China Center for Disease Control and Prevention.
- [7] Hao ZX, Tang R, Xia F. 2021. Analysis of health literacy level and influencing factors among college students in Jilin Province. *University: Social Sciences*, 3: 140-141.
- [8] Guo Y, Jiang D, Dong J, et al. 2023. A study on the comparison and enhancement of health literacy of college students in Guangdong Province in 2020 and 2022. *SHS Web of Conferences*, 155: 01002.
- [9] Jing WZ, Huang ZY, Liu QY, et al. 2016. Analysis of knowledge and influencing factors related to health literacy among college students. *School Health in China*, 37 (6): 859-862.
- [10] Zhang NX. 2018. Investigation and analysis of health information literacy among medical college students. *China's Health Industry*, 15 (6): 166-167.
- [11] Xue WS, Wang XY, Xu QY. 2023. Research on health action strategies for medical students in universities under the background of healthy China. *Advances in Education*, 13, 2514.
- [12] Zu GH. 2009. The concept and basic connotation of basic health literacy of Chinese citizens. *Anhui Journal of Preventive Medicine*, 15 (1): 73-75.
- [13] Liu R, Xu SJ. 2023. The impact of perceived stress on electronic health literacy among college students: the mediating role of psychological resilience. *Journal of Jining Medical College*, 46 (3): 174-178.
- [14] Wu WJ, Li HW, Zheng Q. 2017. Research progress on students' health literacy in the context of healthy China. *Sports Science and Technology Literature Bulletin*, 25 (12): 174-176.
- [15] Jiang F, Zhang JT, Qiao JG, et al. 2021. A survey on the current situation of health literacy among college students in the new era and analysis of influencing factors: taking a comprehensive university in Henan as an example. *Health Medicine Research and Practice*, 18 (6): 1-7.
- [16] Zhu LK, Chen R. 2018. Survey and analysis of the health literacy level of college students in a certain university in Jiangxi. *2018 Academic Seminar and Paper Presentation on "Sports Risk and Injury Prevention and Control Techniques" in Ordinary Universities*, 123-124.

- [17] Cai LM. 2019. Exploration of the relationship between health literacy and health status of college students. Master's Thesis, Zhejiang University, 5: 332-335.
- [18] Zhang X, Li YL. 2020. Health information literacy: conceptual analysis and related research progress. *Journal of Literature and Data*, 2 (2): 078-088.
- [19] Ren CF. 2014. The impact and countermeasures of family education on the mental health status of college students. *Journal of Shenyang Normal University (Social Sciences Edition)*, 38 (1): 146-148.
- [20] Zhang JJ, Zhong M, Chen ZX. 2023. Research on the correlation between electronic health literacy and health behavior among college students in Guangzhou. *China Public Health Management*, 4: 497-501.
- [21] Gao WM, Pu X. 2022. Survey and analysis of health literacy among students of a medical college in Yunnan Province. *Journal of Kunming Medical University/Kunming Yike Daxue Xuebao*, 43 (2).
- [22] Tao M, Zhu ZL, Xu R, et al. 2022. Analysis of the current situation and influencing factors of health literacy among medical college students. *Journal of Bengbu Medical College*, 47 (4): 533-536.
- [23] Zhou WW, Luo CH, Fan CX, et al. 2014. Analysis of the current situation and influencing factors of health literacy among college students in Guangzhou. *Chinese Journal of Disease Control and Prevention*, 18 (7): 654-658.
- [24] Xin J, Anonymous, Zong Z. 2016. Interpretation of "Chinese Citizen Health Literacy - Basic Knowledge and Skills (2015 Edition)". *Middle Aged and Elderly Care*, 8: 24-28.
- [25] Zhou CW. 2019. A study on the long term mechanism construction of sunshine sports activities at Central South University under the background of "Healthy China". Master's thesis, Hunan University of Technology.