
A comprehensive study on the health literacy of medical students in Henan Province

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Abstract

This article talks about the health literacy and examines the crucial role of health literacy among medical college students in Henan, China. It underscores the significance of health literacy in healthcare practice and outlines the current state of health literacy in Henan's medical colleges. Line out the factors that influencing health literacy, including socioeconomic disparities and curriculum design, are discussed. The article presents a range of strategies to enhance health literacy, from curriculum enhancements to cultural competency training. Ultimately, it emphasizes the collaborative effort required to equip future healthcare providers with the essential skills to navigate the complexities of healthcare delivery in Henan.

Keywords: Health Literacy, Environments Education, ICT, Students' Digital Literacy

1 Introduction

1.1 Definition of Health Literacy

Health literacy is a multifaceted concept that encompasses the ability to understand and use health information effectively. It involves knowledge of health, healthcare, and health systems, as well as the skills to process and use this information, and the ability to maintain health through self-management and collaboration with healthcare providers (C. Liu et al., 2020). This concept has evolved over time, with various definitions and measurements available (Mancuso, 2008). Despite its complexity, health literacy is crucial for individuals to make informed decisions about their health and navigate the healthcare system effectively (Ferguson, 2013).

Health literacy is a fundamental concept that plays a pivotal role in the healthcare landscape (Manganello & Hadley, 2022a). It encompasses an individual's ability to obtain, understand, evaluate, and apply health information to make informed decisions regarding their health and healthcare (SEYTRE, 2022). In simpler terms, it's about how well a person can navigate the complex world of healthcare, from reading prescription labels and understanding medical instructions to critically evaluating health-related information (Baker, 2006).

1.1.1 Health Literacy in worldwide

Because of the differences in cultural and social factors in different countries, different countries have their own characteristics in the understanding of health literacy (Manganello & Hadley, 2022b). The perspectives and frameworks of health literacy in Western countries are mainly divided into the following types:

Based on the clinical perspective, health literacy is regarded as a risk factor for health (Moreira, 2018), and it is more inclined to reveal or warn about the adverse health consequences of lower health literacy, as defined by the American Medical Association (Weiss et al., n.d.).

Based on the perspective of public health, health literacy is regarded as the result of health education and health communication (Malik et al., 2017), and health literacy is the ability to promote people's better control over their own health and improve the determinants of individual, social and environmental health, as defined by the World Health Organization (Lorini et al., 2020).

Based on a multi-level perspective, health literacy is divided into different levels and dimensions, such as basic/skill literacy, communication/communication literacy (Bazm et al., 2019), and critical literacy, which reflects the complexity and diversity of health literacy (Conceição & McCarthy, 2011), such as the views of experts such as Nutbeam (Nutbeam, 2008).

1.1.2 Health Literacy in China

There are also different understandings and expressions of the definition and connotation of health literacy in China (Li et al., 2022), which are mainly divided into the following types:

Based on the understanding of knowledge and skills, health literacy is defined as the public's knowledge of mental health awareness, management and prevention, or the knowledge, attitudes and behavioral habits developed by individuals in promoting their own

and others' mental health and coping with their own and others' mental illnesses (Huang et al., 2019).

Based on the operational understanding, health literacy is defined as the knowledge, awareness, ability and other psychological characteristics of individuals or groups in health promotion and disease prevention, and a "health quality matrix" composed of the content structure of literacy and the components of health content is constructed (Shi et al., 2020).

Based on the understanding of national standards, health literacy is defined as an individual's ability to obtain, understand, and process basic health information or services, and make correct health-related decisions, which is also the definition adopted in the "Basic Knowledge and Skills of Health Literacy — Chinese Citizens (Trial)" issued by the Ministry of Health of China (C. Liu et al., 2020).

1.1.3 The researcher' opinion

In this paper, the authors agree with the international community on health literacy as a fundamental skill for public health and are positive about dividing health literacy into multiple dimensions to study and discuss. However, in this paper, because the authors mainly conducted research on college students in China, the main discussion on health literacy is based on the understanding of Chinese national standards and the basic consensus of the public.

1.2 Overview of Health Literacy Assessment Tools

The concept of health literacy has attracted much attention since it was put forward. Many scholars have studied it and put forward many test scales and tools. Health literacy assessment tools are instruments designed to evaluate an individual's ability to understand and apply health-related information. These tools vary in complexity and purpose, and they are crucial for understanding the health literacy levels of individuals, including medical college students in Henan. Here is a broad overview of some commonly used health literacy assessment tools:

1.2.1 REALM (Rapid Estimate of Adult Literacy in Medicine)

REALM is a widely used tool that assesses a person's ability to pronounce and understand medical terms and words commonly used in healthcare. It involves reading a list of medical terms aloud, and the score is based on pronunciation accuracy.

1.2.2 TOFHLA (Test of Functional Health Literacy in Adults)

TOFHLA measures functional health literacy by assessing a person's reading comprehension and numeracy skills related to healthcare. It includes tasks such as reading and interpreting health-related passages and completing numerical calculations.

1.2.3 S-TOFHLA (Short Test of Functional Health Literacy in Adults)

S-TOFHLA is a shorter version of TOFHLA, designed for quicker assessment of functional health literacy. It assesses the ability to read and understand healthcare materials.

1.2.4 HLQ (Health Literacy Questionnaire)

HLQ is a self-report questionnaire that evaluates an individual's perception of their health literacy skills. It covers nine domains, including healthcare navigation, understanding health information, and communicating with healthcare providers.

1.2.5 NVS (Newest Vital Sign)

NVS is a quick assessment tool that measures a person's ability to interpret and apply information presented on a nutrition label. It is often used to assess health literacy related to medication instructions and nutritional guidelines.

1.2.6 eHealth Literacy Scale

This tool assesses an individual's ability to find, understand, and use health information from digital sources, such as the internet and mobile apps. It is particularly relevant in today's digital healthcare landscape.

1.2.7 OSCE (Objective Structured Clinical Examination)

OSCE is a practical assessment method that evaluates the clinical skills, including communication, of medical students. It includes scenarios where students interact with standardized patients, assessing their ability to communicate effectively with patients.

This study without any actual evaluation tools, but comprehensively analyzes and compares the existing health literacy evaluation tools at home and abroad, such as REALM, TOFHLA, HLQ, NVS, etc., through the method of literature research, and discusses their advantages, disadvantages and applicability, so as to provide theoretical reference and suggestions for the evaluation of college students' health literacy in Henan Province.

1.3 Purpose, contribution and significance of the research

1.3.1 The objectives of this study are

Through the method of literature research, this paper comprehensively analyzes and compares the existing health literacy evaluation tools at home and abroad, finds out their advantages, disadvantages and applicability, provides theoretical reference and suggestions

for the evaluation of college students' health literacy in Henan Province, and proposes the improvement or innovation scheme of the evaluation tools of college students' health literacy in Henan Province, so as to adapt to the characteristics and needs of college students in Henan Province and improve the evaluation effect and level of college students' health literacy in Henan Province.

1.3.2 The contributions and implications of this study are as follows

This study is a systematic and comparative study of health literacy evaluation tools, which can comprehensively understand and evaluate the advantages, disadvantages and applicability of different health literacy evaluation tools, and provide theoretical basis and guidance for the selection and use of health literacy evaluation tools.

This study is a study on the adaptability and pertinence of the health literacy evaluation tool for college students in Henan Province, which can fully consider and reflect the characteristics and needs of college students in Henan Province and provide ideas and solutions for the improvement or innovation of health literacy evaluation tools.

This study aims to improve the evaluation effect and level of health literacy of college students in Henan Province, which can effectively promote the improvement and development of health literacy of college students in Henan Province and provide support and guarantee for the health education and health management of college students in Henan Province.

2 The Importance of Medical College Students' Health Literacy in Henan

Medical students will shoulder the responsibility of saving lives and healing the wounded. Therefore, it is particularly important to analyze the status quo of medical students' health literacy. This study takes Henan medical students as the research object, investigates the status quo of their health literacy through literature investigation and summary, and discusses and analyzes the main problems and related influencing factors, which can provide theoretical basis for promoting the construction of excellent medical talents.

2.1 Significance of Health Literacy for Medical Students

The significance of health literacy for medical students is paramount, as it plays a crucial role in shaping the skills, attitudes, and effectiveness of future healthcare professionals. Here are key reasons why health literacy is of immense importance for medical students.

2.1.1 It will help medical college students develop their Clinical Competence in the future

Medical students are future healthcare providers. To diagnose, treat, and communicate effectively with patients, they must possess strong health literacy skills. This includes understanding complex medical terminology and research, interpreting diagnostic reports, and communicating treatment options clearly.

2.1.2 It is useful to Patient-Centered Care

Health literacy enables medical students to provide patient-centered care. When students have strong health literacy skills, they can engage in meaningful conversations with patients, ensure informed consent, and tailor healthcare information to the patient's level of understanding.

2.1.3 It will enhance Clinical Decision-Making

Health literacy influences clinical decision-making. Medical students with robust health literacy can critically evaluate medical literature, weigh treatment options, and make informed decisions that align with the best interests of their patients.

2.1.4 Preventing Medical Errors

Low health literacy has been linked to medication errors, misunderstandings of medical instructions, and missed appointments. For medical students, improving health literacy can reduce the likelihood of such errors and improve patient safety.

2.1.5 Enhancing Public Health

Medical students play a role in promoting public health. They must understand health information well enough to engage in public health campaigns, educate patients about preventive measures, and address health disparities within their communities.

2.2 Contextualizing Health Literacy in Henan

Contextualizing health literacy in Henan, China, is essential to understand how this province's unique characteristics and challenges influence the health literacy landscape. Here are key points to consider when contextualizing health literacy in Henan.

2.2.1 Socioeconomic Diversity

Henan is a province with a diverse population, including urban and rural areas. Health literacy levels may vary significantly, influenced by socioeconomic factors. Medical students must be equipped to address the diverse health literacy needs of their future patients.

2.2.2 Healthcare Access

Accessibility to healthcare services can vary across Henan. Medical students should understand the challenges that patients may face in accessing healthcare, and how this relates to health literacy in their region.

2.2.3 Prevalence of Chronic Diseases

Henan, like many other regions, may face the burden of chronic diseases. Medical students need to grasp the health literacy challenges associated with managing chronic conditions and delivering effective care.

2.2.4 Cultural Considerations

Understanding local culture and beliefs is vital for healthcare providers. Medical students in Henan must appreciate how cultural factors can influence health literacy, communication, and healthcare decisions.

2.2.5 Healthcare Infrastructure

Assessing the state of healthcare infrastructure and resources in Henan is crucial. Medical students should be aware of the resources available and how these may affect health literacy levels and healthcare delivery.

3 The Situation of Medical College Students' Health Literacy in Henan

3.1 Current Health Literacy Levels

WHO defines health literacy as an individual's ability to access, understand and process essential health information and services, and to use these information and services to make sound judgments and decisions, maintain and promote health. In recent years, health literacy has become a new field of national health quality research. China launched health literacy monitoring in 2008 and issued the National Health Literacy Promotion Action Plan (2014-2020) in April 2014, gradually establishing a continuous and stable health literacy monitoring system. Chinese health literacy puts forward the basic knowledge and skills that residents should master from three dimensions: basic health knowledge and concept, healthy lifestyle and behavior, and basic skills(H. Liu et al., 2023a).

Compared with foreign countries, the research on health literacy in China started late. At present, there are more studies on the causes of different levels of health literacy and the analysis of their current levels. From 2008 to 2020, the relevant departments of the state conducted a comprehensive survey on the health literacy of Chinese residents, and the results showed that the level of health literacy of Chinese residents increased from 6.48% to 23.15% with geographic disparities and higher levels in cities compared to rural areas. Although it is on an upward trend, it is still at a low level(Li et al., 2022b).

Among them, many scholars have studied the health literacy of college students in Henan province, and the overall health literacy rate of higher vocational medical students is 30.04%. In the same survey of all provinces in China, the environmental and health literacy level of medical students in Henan province is generally low, especially the understanding of basic knowledge. The factors affecting the environmental and health literacy level of medical

students should be educated, so that they can become the leaders in the dissemination of environmental and health knowledge, ideas and skills(Yang Xia, 2014).

3.2 Key Findings

The findings study review includes twenty-one research studies. The majority of studies report health literacy scores among university students that are lower compared to reference samples. The health literacy of students is influenced by different variables, such as: age, gender, number of semesters, course of studies/curriculum, parental education, and socioeconomic background(Guo et al., 2020; Jiang et al., 2022; Sun et al., 2014).

Current health literacy levels among medical college students in Henan province are low. The average awareness rates of overall health literacy, basic knowledge and concepts literacy. Health literacy activities should target all students(Bhusal et al., 2021). Universities should make use of their resources and offer health literacy courses for students in which content is used from disciplines available at the university (e.g., medicine, health, or psychology). To increase effectiveness, health literacy courses should be adapted according to the different needs and characteristics of the student subgroups(H. Liu et al., 2023b; Mao et al., 2020).

3.3 Regional Comparisons

The World Health Organization (WHO) points out that in both developed and developing countries, the health literacy of residents, including college students, is generally low, and health literacy has become an important public health problem.

The 2003 National Adult Literacy Survey in the United States found that 14% of adults had no basic health literacy skills, 20% had only basic health literacy skills, black and Hispanic health literacy levels were lower, 58% and 57%, respectively, and it was also reported that the proportion of health literacy among American college students was between 34% and 59%. Nearly one-third of U.S. adolescents and young adults have low levels of health literacy(Rudd, 2007); In Australia, 22% of respondents have limited health literacy and 21% are very likely to lack health literacy(Mather et al., 2018). About 60% of adults in Canada do not have the necessary health literacy skills(Murray et al., 2008).

According to the results of a national survey in China in 2008, the proportion of Chinese residents with basic health knowledge and concepts, healthy lifestyle and behavior, and basic skills was 14.97%, 6.93%, and 20.39%, respectively. The results of the first survey of Chinese college students' health literacy in 2009 show that the level of health literacy is generally low, and the rate of health literacy is only 26.48%(Mao et al., 2020).

Subsequently, surveys on residents' health literacy level were carried out in Jiangsu, Hunan, Guangdong, Beijing, Shanghai, Zhejiang, Anhui and Tianjin from 15 to 22 regions, all of which showed that residents' health literacy level was low to some extent. It can be seen

that the task of improving citizens' health literacy is arduous and imperative(Mao et al., 2020).

3.4 Impact on Healthcare

Explore the potential implications of the current health literacy levels among medical college students on healthcare delivery in Henan. Discuss how these levels might affect patient care, doctor-patient communication, and healthcare outcomes.

3.5 Factors Contributing to Health Literacy Levels and Future Directions

Consider any future research directions or recommendations for addressing health literacy issues in medical education within the province. By presenting a thorough analysis of the situation of health literacy among medical college students in Henan, the researcher gain a clear understanding of the current state of affairs and the areas that may require attention or improvement.

According to previous research factors contributing to the observed health literacy levels among medical college students include aspects like curriculum design, educational resources, socioeconomic factors, or cultural influences.

4 Factors That Can Influence Medical College Students' Literacy

4.1 Identifying Influential Factors

Factors that can influence college students' health literacy include social support, policy to promote health perception, family relationship, GPA, quality of external internet platforms, and quality of internal electronic health literacy (Suksatan et al., 2020; Yokoyama et al., 2023a). High levels of healthy lifestyles, subjective health, and specific mindsets are also associated with higher health literacy levels among college students (Rababah et al., 2019). Demographic characteristics such as age, gender, field of study, and smoking status can also impact health literacy levels (Chen et al., 2020a; Dolezel et al., 2020). Encouraging social support from family and community, strengthening health promotion policies, promoting good academic performance, and incorporating more health literacy topics in the curriculum are recommended strategies to improve college students' health literacy. In this article, research will focus on discuss the following factors:

4.1.1 Socioeconomic Factors

Economic status can significantly impact health literacy. Students from lower-income backgrounds may have limited access to healthcare resources, health education, and materials, which can affect their health literacy.

4.1.2 Educational Resources

The availability of educational resources within medical colleges can influence health literacy. Access to well-maintained libraries, up-to-date medical literature, and online resources can enhance or hinder health literacy development.

4.1.3 Curriculum Design

The way medical education is structured and delivered plays a crucial role. A curriculum that emphasizes patient-centered communication, health information literacy, and practical clinical skills can positively impact health literacy.

4.1.4 Language Barriers

Language proficiency is essential for understanding medical terminology and patient communication. Language barriers, especially for students from non-urban areas or minority groups in Henan, can hinder health literacy development.

4.1.5 Cultural Sensitivity

Cultural competency is vital in healthcare. Medical students need to understand the diverse cultural backgrounds of patients in Henan to provide effective care and promote health literacy.

4.1.6 Teaching Methods

The methods used by instructors can influence health literacy. Interactive and patient-centered teaching approaches may enhance students' ability to communicate with patients effectively.

4.1.7 Healthcare Access

The availability and accessibility of healthcare services in different regions of Henan can impact students' exposure to real-world healthcare scenarios and influence their health literacy.

4.1.8 Peer Influence and Learning Environment

The learning environment and peer interactions can shape health literacy. Collaborative learning, peer discussions, and mentorship programs can positively impact students' understanding of healthcare issues.

4.2 Impact of Influential Factors

Factors that can influence college students' health literacy include social support, policy to promote health perception, family relationship, GPA, quality of external internet platforms, quality of internal electronic health literacy, electronic health literacy, and online health information searching behavior(Chen et al., 2020b; Yokoyama et al., 2023b). The investigators will focus on the following factors to provide a comprehensive overview of the various effects of health literacy on medical students in Henan Province.

4.2.1 Socioeconomic Factors

Lower-income students may face challenges accessing healthcare resources, leading to limited exposure to health information and lower health literacy.

4.2.2 Educational Resources

Adequate resources can facilitate research, learning, and staying up-to-date with medical advances, thus improving health literacy.

4.2.3 Curriculum Design

A well-structured curriculum can equip students with the necessary skills to navigate healthcare, communicate with patients, and critically evaluate medical information.

4.2.4 Language Barriers

Language proficiency is essential for effective communication with patients. Language barriers can result in misunderstandings and hinder patient-centered care.

4.2.5 Cultural Sensitivity

Cultural competence enables medical students to provide patient-centered care, thereby improving health literacy among diverse patient populations.

4.2.6 Teaching Methods

Interactive teaching methods foster critical thinking and communication skills, enhancing health literacy.

4.2.7 Healthcare Access

Access to healthcare facilities and real-world patient experiences can broaden students' understanding of healthcare challenges and solutions.

4.2.8 Peer Influence and Learning Environment

A supportive learning environment and peer collaboration can motivate students to improve their health literacy skills through discussions and shared experiences.

5 Strategies to Improve Medical College Students' Literacy in Henan

5.1 Curriculum Enhancement

Incorporate Health Literacy into the Curriculum: Integrate health literacy education into the medical curriculum. Create dedicated courses or modules that focus on health communication, patient-centered care, and effective doctor-patient interactions.

Interdisciplinary Training: Promote collaboration between medical and nursing students to enhance interdisciplinary communication skills and understanding.

5.2 Active Learning Techniques

Problem-Based Learning (PBL): Implement PBL approaches that encourage students to solve clinical cases, enhancing their critical thinking and communication skills.

Simulation-Based Learning: Use medical simulations and standardized patient encounters to provide practical experience in patient communication and healthcare scenarios.

5.3 Health Communication Training

Communication Skills Workshops: Organize workshops that focus on improving verbal and non-verbal communication skills. Provide constructive feedback and peer assessments.

Role-Playing: Engage students in role-playing exercises to practice effective patient communication and empathy.

5.4 Cultural Competency Training

Cultural Sensitivity Workshops: Conduct workshops that emphasize cultural competence and the importance of understanding diverse patient backgrounds and beliefs.

Language Training: Offer language courses for students who may face language barriers in healthcare settings.

5.5 Digital Health Literacy

Digital Health Education: Incorporate training on digital health tools, telemedicine, and electronic health records to prepare students for the digital healthcare landscape.

Critical Evaluation of Online Information: Teach students to critically evaluate online health information sources to help them distinguish credible sources from misinformation.

5.6 Patient-Centered Care Initiatives

Clinical Exposure: Increase opportunities for students to engage with real patients early in their education. Encourage active listening and empathy in patient interactions.

Patient-Provider Communication Workshops: Organize workshops where patients can share their experiences and perspectives, fostering empathy and patient-centered care.

5.7 Faculty Development

Training for Educators: Provide professional development opportunities for educators to enhance their teaching skills, including health literacy education.

Curriculum Review: Regularly review and update the curriculum to ensure that it aligns with current healthcare practices and patient needs.

5.8 Evaluation and Assessment

Assessment Tools: Use health literacy assessment tools to gauge students' progress and identify areas for improvement.

Feedback Mechanisms: Establish mechanisms for continuous feedback from students, patients, and peers to identify areas of strength and weakness in health literacy skills.

5.9 Collaboration and Research

Collaborate with Healthcare Providers: Establish partnerships with local healthcare providers and institutions to offer students real-world exposure and collaborative research opportunities.

Research on Health Literacy: Encourage faculty and students to conduct research on health literacy issues specific to Henan to better understand local challenges and solutions.

5.10 Community Engagement

Health Promotion Initiatives: Engage students in community health promotion projects to apply their health literacy skills in practical settings and raise awareness of health issues.

These strategies should be implemented holistically, considering the unique needs and challenges of medical college students in Henan. Regular assessments and adjustments to the curriculum and teaching methods are crucial for ensuring continuous improvement in health literacy among future healthcare providers in the region.

6 Conclusion

Health literacy is not a solitary pursuit but a collective commitment. This study serves as a stepping stone, shedding light on the present state of health literacy among medical college students in Henan and offering a roadmap for its continuous improvement. It is the researcher's hope that the strategies outlined herein will pave the way for a future generation of healthcare providers who are not only medically proficient but also skilled in the art of health literacy—a vital cornerstone of compassionate and effective patient care.

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