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Review article

Health literacy of students of higher educational institutions. Literature review

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Abstract

Health literacy, which encompasses knowledge, motivation, and skills for obtaining, understanding, evaluating, and applying health-related information for informed decision-making, is studied worldwide. However, health literacy remains under-researched. To address this, we examined international experiences and conducted a literature review on health literacy among higher education students. Using databases such as PubMed, Web of Science, Scopus, and Google Scholar, we conducted a review spanning 10 years, yielding 150 articles, with 44 selected for this review. Our findings indicate that the level of health literacy among students varies significantly across studies and is influenced by various demographic, socio-economic, and other factors. Age may not be a significant determinant of health literacy, as some researchers report that women exhibit higher health literacy levels compared to men. Economic status and the education level of both the student and their parents affect health literacy. Additionally, engaging in sports is associated with higher health literacy, while negative behaviors correlate with lower levels. The direction of education also impacts health literacy, and students' health-related experiences positively influence their health literacy levels. In conclusion, health literacy is influenced by various demographic and socio-economic factors and health status. Further research in this area, along with efforts to improve health literacy among youth, will be a significant step towards making healthcare accessible to all citizens, enhancing overall life activities, health levels, and quality of life for students.

Keywords: health literacy, students, health promotion, medical literacy, public health.

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Introduction

The term "health literacy" or "literacy related health" was first proposed in 1974 by Scott Simonds, a professor at the School of Public Health at the University of Michigan [1]. This term highlighted a new direction in public health and contributed to the development of programs and approaches aimed at increasing public awareness about health.

In 2012, the European Health Literacy Consortium provided a comprehensive definition of the term, stating that health literacy is linked to general literacy and implies that individuals possess the knowledge, motivation, and competence to access, understand, evaluate, and apply health-related information in daily life. This encompasses aspects of healthcare, disease prevention, and health promotion to maintain or improve quality of life across all stages [2].

Health literacy is a vital component of a healthy lifestyle and understanding one's own health, playing a crucial role in enhancing quality of life, preventing diseases, and making informed decisions during treatment. It is also a key factor in achieving one of the United Nations' Sustainable Development Goals—universal health coverage. This emphasizes the critical importance of health literacy in empowering populations by improving access to health information and the ability to use it effectively [3].

Health literacy develops throughout a person's life, starting from an early age. The health literacy of adolescents and students is a critical public health topic, as it directly impacts population health indicators [4]. This is due to the fact that fundamental cognitive, physical, and emotional development, along with the formation of health-related behaviors and competencies, occur during youth [5]. Furthermore, the level of health literacy among adolescents serves as a focal point for implementing new approaches to improving public health outcomes, making the assessment of health literacy in this population particularly relevant [6].

Health literacy, as described by the World Health Organization (WHO), is the capacity to obtain, comprehend, and utilize health-related information to make well-informed decisions that support and sustain good health in daily life. It includes essential skills for navigating healthcare systems, interpreting medical data, and participating in preventive health practices. In recent decades, with the rapid advancements in digitalization and the growing availability of information, digital health literacy has emerged as a critical area of focus. Digital health literacy encompasses the capability to effectively harness technological progress to enhance the overall efficiency of healthcare systems.

The significance of digital technologies became particularly apparent during the COVID-19 pandemic [7], as many nations began integrating digital health tools such as telemedicine and health-related mobile applications. These innovations played a key role in maintaining access to healthcare services for populations [8].

The purpose of the review: to summarize and analyze the current literature on health literacy among university students.

Materials and Methods

A comprehensive review of scientific publications was carried out using PubMed, Web of Science, and Scopus databases, along with the Google Scholar academic search engine, covering the past 10 years. The search employed the keywords "health literacy," "students," "healthcare," and "health literacy and digital literacy." A total of 150 open-access articles were identified during the search. This review incorporates 43 sources in Russian or English with well-defined conclusions. Abstracts, reports, paywalled articles, and theses were excluded from consideration.

1. *Criteria for Inclusion:*

Language: Publications available in English or Russian.

Access: Only open-access articles were included.

Content: Studies with clearly defined conclusions relevant to health literacy among university students.

Relevance: Publications focusing on health literacy, digital literacy, or healthcare-related issues within student populations.

2. *Criteria for Exclusion:*

Type of Publication: Abstracts, reports, theses, and materials not peer-reviewed.

Access Restrictions: Articles behind paywalls were excluded.

Ambiguity: Studies with unclear or inconclusive results were not considered.

Results

The results of numerous studies worldwide indicate significant variability in health literacy levels among students in developed and developing countries. For instance, according to a major study involving 996 German students, more than half of the respondents (58.5%) were found to have a limited level of health literacy [9]. Patil and co-authors report that 51% of surveyed students in American colleges demonstrated low health literacy levels [9]. Meanwhile, in developing countries, the proportion of respondents with inadequate health literacy is higher, reaching 92.7% [10]. On the other hand, in Lithuania, 67% (n=912) of respondents were found to have sufficient or excellent health literacy levels [11].

Vamos and co-authors also noted that students aged 15–24 exhibited lower levels of health literacy compared to students over 25 years old [11]. However, Vozikis A. and co-authors did not find a statistically significant relationship between age and health literacy levels among 1,526 university students [12]. Moreover, in some countries, younger students demonstrated higher health literacy levels, with a statistically significant age difference of 2.3 years between students with low and adequate health literacy ($p < 0.001$) [9].

The level of health literacy develops throughout a person's life and is an essential skill for adapting to life in society. Women, due to biological and sociocultural factors, exhibit a heightened ability to adapt to societal conditions and demonstrate higher levels of health literacy, as confirmed by numerous studies [11,13]. The results show that female students displayed higher health literacy levels compared to their male counterparts in specific areas, such as "Social Support for Health," "Navigating the Healthcare System," "Ability to Find Useful Medical Information," and "Understanding Medical Information." Vamos and co-authors note that women are better at perceiving medical information to make informed decisions [11].

An analysis of gender and health literacy levels in China and India, the world's most populous countries

with a predominance of male populations, did not reveal statistically significant differences in health literacy levels between women and men [14,15].

The Impact of the Internet on Health Literacy

Digital solutions driven by technological progress are transforming the approaches to interaction between patients and healthcare professionals, patient care delivery, as well as methods for diagnosing and treating diseases. The concept of digital health literacy includes the following aspects:

Searching for medical information: Using websites and social media platforms to access health-related information.

Utilizing digital devices: Employing tools like pedometers, fitness trackers, and similar devices to record personal health data.

Using smartphone applications: Engaging with apps designed for calorie counting, monitoring healthy sleep patterns, maintaining a menstrual calendar, and more.

Digital interaction with healthcare systems: Scheduling medical appointments online, receiving test results in electronic format, and accessing medical records digitally.

These technological solutions not only enhance the efficiency of healthcare systems but also enable individuals to take a more active role in managing their own health and well-being.

According to the study by Htay and co-authors, 90% of students actively use the internet to search for information [3]. Social media platforms have remained a popular source of information for American students since the COVID-19 pandemic. Survey results indicate that approximately 75% of students use the four main social media platforms: Facebook, Instagram, YouTube, and Twitter. However, analysis revealed that most of these students have a low level of digital health literacy, with the exception of Twitter users [9]. Chen and co-authors also note that individuals with lower health literacy levels are more likely to rely on social media and various forums, highlighting the influence of health literacy levels on the choice of medical information sources [16].

Digital health literacy is a new area in the healthcare field and is partly dependent on a region's ability to transform its healthcare systems. As a result, the population does not fully trust or understand medical information from digital sources. For example, a study by Rababah J.A. and co-authors revealed that first- through third-year students exhibited lower levels of digital health literacy in areas such as "Feeling understood and supported by healthcare providers" and "Understanding medical information" [13].

According to Patil and co-authors, for most respondents in the United States, the ease of using online resources varied between 2.48 and 3.5 on a scale ranging from "difficult" to "easy" and "very easy." About 57% of respondents noted that they found it relatively "easy" to search for, evaluate, and determine the reliability and relevance of information about coronavirus and related topics. However, during the same period, individuals with various disabilities reported a decline in their levels of digital health literacy [9].

Patil, Northfield, and co-authors conducted a survey among adolescents with type 1 diabetes on healthcare accessibility during the COVID-19 pandemic in a specific country. Respondents reported reduced accessibility and emphasized that digital solutions cannot replace personal interaction with healthcare professionals [17].

Overall, the results of these studies indicate that the Internet and social media have a significant impact on health literacy, highlighting the need to develop critical evaluation skills for online resources to ensure the accuracy and reliability of medical information [3,16,18].

Currently, health literacy is recognized as a widely accepted social determinant of health. However, health literacy is also closely linked to lifestyle and a range of demographic and social characteristics [19].

The possession of citizenship of a country.

A study conducted by Bánfai-Csonka et al. found that citizenship status among individuals residing in the country (Hungary) was a factor influencing health literacy levels, particularly among medical university students. The research reported a significant correlation between citizenship and health literacy levels ($p = 0.005$), suggesting that citizens of a country are better informed about health-related issues, as they have a deeper understanding of their national healthcare system [19].

The Interconnection Between Lifestyle, Health, and Health Literacy

The study by Svendsen et al. highlights intriguing aspects linking physical activity and health literacy levels, emphasizing the importance of lifestyle and habits for overall health and health literacy. A sedentary lifestyle is associated with an increased risk of reduced health literacy. In contrast, moderate physical activity is linked to a decreased risk of inadequate and problematic health literacy. The relationship between health literacy and Body Mass Index (BMI) underscores that obesity (BMI > 30) is associated with lower levels of health literacy, while higher health literacy levels are correlated with normal BMI and overweight status (BMI > 25).

Health literacy also shows a connection with alcohol consumption, including consistent drinking habits and the issues arising from them, further highlighting the critical role of lifestyle choices in shaping health literacy levels [20].

The study by Rababah J.A. et al. specifies that smoking status significantly affects health literacy. Non-smoking students demonstrated higher health literacy scores across most scales of the Health Literacy Questionnaire (HLQ) compared to smokers [13].

This study examined the association between health literacy and smoking habits among university students in Jordan. The findings indicated that students with limited health literacy were more likely to engage in smoking behaviors compared to those with adequate health literacy. Specifically, a single standard deviation increase in health literacy was associated with a 0.38 decrease in smoking status and type, and a 0.13 decrease in smoking frequency and duration. These results suggest that enhancing health literacy among university students may be a crucial factor in reducing smoking prevalence within this population [21].

Göring A. and co-authors emphasize that higher levels of physical activity and male gender (specifically among those engaged in sports) positively correlate with higher health literacy levels [22]. It is noteworthy that higher health literacy levels were associated with better quality of life (QOL) among students ($p < 0.01$) [14].

Overall, these findings highlight that lifestyle, including the level of physical activity and habits, can significantly influence health literacy levels. Integrating a healthy lifestyle may be a key component in improving health literacy among students [20-23].

Social factors

The study conducted by Vozikis et al. revealed that various factors, such as economic well-being (family income), gender, and behavioral aspects, including alcohol consumption, smoking, and physical exercise, correlate with health literacy levels and the overall health status of the participants [12].

1. Connection with Education Levels Among Medical Students: Research highlights that high levels of health literacy are associated with education in medicine and health sciences, including public health [2,13,24-26]. Medical students and those in health-related faculties demonstrate higher scores across all scales. However, there is some inconsistency in the data on medical students, with some studies indicating higher levels of health literacy, while others report difficulties in navigating electronic health systems [27,28,29].

2. Relationship Between Parental Education and Socioeconomic Status: The study by Honghui et al. emphasizes that students' health literacy is influenced not only by their own education but also by their parents' education. Families with higher education levels and incomes have better access to health information and services. Parents with higher education are more attentive to their children's health and can better guide them in this regard [30]. Similarly, Bánfai-Csonka and co-authors found that economic status significantly influenced health literacy levels ($p = 0.035$) [31]. Moreover, lower health literacy levels were observed among students reporting inadequate financial conditions and low social status compared to their older peers [8]. Factors such as living alone and unhealthy lifestyles (e.g., smoking and prolonged screen time) were associated with problematic health literacy levels among students [32].

Overall, these findings underline the complex interplay of education, economic well-being, and social factors that influence health literacy levels among students [12,13,30,33-35].

The relationship between health literacy and people's health

Evans et al. found that students who rated their health as unsatisfactory were twice as likely to have limited health literacy compared to those who rated their health as satisfactory [36].

More frequent use of healthcare services was associated with higher levels of health literacy. Regular medical check-ups, whether due to illness or as a preventive measure, led to more frequent interactions with healthcare professionals, thereby contributing to improved health literacy among university students [37].

In a study conducted by Elsborg among Danish students, it was established that in four out of nine areas, students who had previous contact with hospitals, either as inpatients or outpatients, scored higher than those who had not [24].

Discussion

Despite the relatively high level of education among the population, the prevalence of inadequate health literacy remains significant. The review findings suggest that age may not be a critical factor in determining health literacy among young people. However, some results indicate that age might influence health literacy levels in specific contexts, such as digital health literacy.

Studies conducted by Vamos et al. (2016), Patil, and Rababah revealed that women reported higher levels of digital health literacy compared to men, highlighting gender differences in understanding medical information and making decisions. Nevertheless, some studies found no significant gender differences.

Students with low health literacy levels were more likely to exhibit sedentary lifestyles, obesity, and alcohol consumption, suggesting that low health literacy is associated with unhealthy behaviors. Research shows that health-related experiences positively impact students' health literacy. Compared to smokers, non-smokers demonstrated higher levels of health literacy [13]. Understanding the healthcare needs of smoking students provides valuable insights for building a healthy university environment.

According to WHO's "Healthy Universities" projects, a healthy campus environment improves through an ecological approach that focuses on both societal and individual factors influencing health [7].

It is argued that health literacy levels are linked to the field of study. This could be due to medical students, compared to those in other professional fields, accumulating and applying more medical knowledge in practice, having more favorable conditions for gaining medical knowledge, and achieving a more comprehensive understanding of health-related topics.

Frequent access to healthcare services was associated with higher levels of health literacy. Regular medical check-ups, whether due to illness or as a preventive measure, lead to frequent interactions with healthcare professionals, contributing to higher health literacy levels among university students [24].

Other significant socio-economic determinants of health literacy that positively correlate with it include family socio-economic status and parental education. This can be explained by the fact that parents with higher education levels and socio-economic status help their children better navigate health knowledge and behaviors.

Health literacy has the potential to contribute to the sustainability of healthcare systems by reducing healthcare costs. By lowering disease incidence and slowing disease progression, health literacy, especially among youth, can impact the lives of students and their surroundings, enabling them to become more independent. It is also linked to parental education levels, socio-economic determinants (such as culture, family income, and environmental contextual factors), age groups, and media/digital communication channels [38-40].

A key finding from the literature review is the lower level of health literacy among students in non-health-related faculties. Educational institutions should take an active role in improving students' health literacy. Collaboration between health education faculty and other departments, including non-health-related faculties, is recommended to create courses tailored to students' health needs. Innovative teaching approaches, such as project-based and problem-based learning, could be effective strategies [15,16].

Educational institutions can also train students in critical thinking and how to distinguish reliable information from misleading content. Improving health literacy will help students develop a scientific approach to researching and analyzing vast amounts of information, enabling them to navigate the healthcare landscape effectively [41,42,43].

This approach fosters the creation of a comfortable environment for open dialogue, making medical information more accessible and comprehensible.

Conclusions

Based on the review and analysis of conducted studies, the following conclusions can be drawn regarding the level of health literacy among university students:

1. Gender Differences in Health Literacy: Gender differences significantly influence health literacy levels. Women generally demonstrate higher health literacy than men, emphasizing the importance of considering gender-specific characteristics when developing health literacy improvement programs.

2. Lifestyle and Health Education: An active lifestyle, the absence of harmful habits, and education in health and medicine are key factors contributing to higher health literacy levels among students.

3. Professional Orientation: Students in medical-related professions typically have higher levels of health literacy. This highlights the importance of specialized training in shaping health literacy.

4. Access to Healthcare and Family Factors: Frequent access to healthcare services, high socio-economic family status, and parental education positively impact health literacy levels. These factors support a deeper understanding of health and medical issues.

5. Critical Thinking and Information Assessment Skills: Developing critical thinking and the ability to discern reliable information are essential components for improving health literacy among students.

Further research into health literacy among young people is a vital step toward realizing the principle of accessible healthcare for every citizen. It also contributes to improving all aspects of health through the prevention of future diseases.

Thus, a comprehensive analysis of factors influencing health literacy levels among youth helps identify key aspects to consider when developing programs and strategies aimed at improving health literacy.

6. Further Research and Educational Innovations: To further enhance health literacy among students, additional research considering diverse factors is recommended. The implementation of educational innovations, such as project-based learning and workshops, can help create a more conducive environment for learning and sharing health knowledge.

Final Note: Improving health literacy among students is a key factor in building a healthier society. Understanding the factors influencing health literacy provides a foundation for effective educational strategies and development programs aimed at enhancing the health of students and their future patients.

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Жоғары оқу орындарының білім алушыларының денсаулығы мәселелеріндегі сауаттылық. Әдебиетке шолу

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Түйіндеме

Денсаулық мәселелеріндегі сауаттылыққа негізделген шешімдер қабылдау үшін денсаулыққа байланысты ақпаратты алу, түсіну, бағалау, қолдану бойынша білім, мотивация және дағдылар кешені ретінде әлемнің әртүрлі елдеріндегі зерттеу нысаны болып табылады. Денсаулық мәселелерінде сауаттылыққа көп көңіл бөлінгеніне қарамастан, жастардың алдында тұрған мәселелерді түсіну жеткіліксіз зерттелген. Халықаралық тәжірибені зерделеу және жоғары оқу орындарының білім алушыларының денсаулығы мәселелерінде сауаттылықты зерделеу бойынша әдебиеттерге шолу жүргізілді.

Студенттердің денсаулық мәселелеріндегі сауаттылық деңгейі әртүрлі зерттеулерде айтарлықтай өзгереді және бірқатар демографиялық, әлеуметтік-экономикалық және басқа факторлармен байланысты. Шолу нәтижелері жас, денсаулығы мәселелерінде сауаттылықты анықтайтын маңызды фактор болмауы мүмкін екенін көрсетеді. Бірқатар зерттеушілер әйелдердің ер адамдарға қарағанда денсаулық мәселелеріндегі сауаттылық көрсеткіштері жоғары екенін хабарлады. Студенттердің денсаулық мәселелеріндегі сауаттылық деңгейіне тек студенттің ғана емес, ата-анасының да экономикалық жағдайы мен білім деңгейі әсер етеді. Спортпен шұғылдану денсаулық мәселелеріндегі сауаттылығы жоғарылауымен байланысты болды ал теріс мінез құлық денсаулық сауаттылығының төмен деңгейімен байланысты. Денсаулық мәселелеріндегі сауаттылық деңгейі білім беру бағытымен байланысты екені анықталды. Зерттеулер көрсеткендей, студенттердің денсаулыққа қатысты тәжірибесі олардың денсаулық мәселелеріндегі сауаттылық деңгейіне оң әсер етеді.

Қорытындылай келе, денсаулық мәселелеріндегі сауаттылыққа әртүрлі демографиялық, әлеуметтік-экономикалық факторлар, денсаулық жағдайы әсер ететінін атап өткен жөн. Осы саладағы одан әрі зерттеулер, жастар денсаулығы мәселелерінде сауаттылықты зерделеу және арттыру (қажет болған жағдайда) әрбір азамат үшін денсаулық сақтаудың қолжетімділігі қағидатын іске асырудағы маңызды қадам болады. Денсаулық мәселелерінде сауаттылықты арттыру студенттердің өмірінің барлық салаларын, денсаулық деңгейін, өмір сүру сапасын арттырады.

Түйін сөздер: денсаулық мәселелеріндегі сауаттылық, студенттер, денсаулықты нығайту, медициналық сауаттылық, қоғамдық денсаулық сақтау.

Грамотность в вопросах здоровья обучающихся высших учебных заведений. Обзор литературы

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Резюме

Грамотность в вопросах здоровья, как комплекс знаний, мотивации и навыков по получению, пониманию, оценке и применению информации, связанной со здоровьем для принятия обоснованных решений, является предметом исследования в разных странах мира. Однако эта тема остается недостаточно изученной. Мы изучили международный опыт и провели обзор литературы по грамотности в вопросах здоровья среди студентов высших учебных заведений.

Результаты демонстрируют, что уровень грамотности в вопросах здоровья среди студентов значительно варьируется в различных исследованиях и зависит от множества демографических, социально-экономических и других факторов. Возраст может не быть значимым фактором, определяющим грамотность в вопросах здоровья, так как некоторые исследователи сообщают, что женщины демонстрируют более высокий уровень грамотности по сравнению с мужчинами. Экономический статус и уровень образования как самого студента, так и его родителей влияют на уровень грамотности в вопросах здоровья. Кроме того, занятия спортом связаны с более высокой грамотностью в вопросах здоровья, тогда как негативное поведение коррелирует с более низким уровнем. Направление образования также оказывает влияние на грамотность, а опыт, связанный со здоровьем, положительно влияет на уровень грамотности студентов.

В заключение, грамотность в вопросах здоровья зависит от различных демографических и социально-экономических факторов и состояния здоровья. Дальнейшие исследования в этой области, а также усилия по повышению грамотности в вопросах здоровья среди молодежи, станут значительным шагом на пути к доступности здравоохранения для всех граждан, улучшению жизнедеятельности, уровня здоровья и качества жизни студентов.

Ключевые слова: грамотность в вопросах здоровья, студенты, укрепление здоровья, медицинская грамотность, общественное здравоохранение.