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A PREDICTIVE MODEL OF HEALTH LITERACY AND PREVENTIVE BEHAVIOR AMONG UNIVERSITY STUDENTS IN AN INTERDISCIPLINARY EDUCATIONAL ENVIRONMENT

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Annotation

This article analyzes the interrelationship between health literacy and preventive behavior among university students within an interdisciplinary educational environment on the basis of theoretical and empirical literature. The aim of the study is to integrate the relationships among students' healthy lifestyle, ability to receive and use health information, communicative competence, and physical activity into a unified predictive model. The methodology of the study is based on content analysis and comparative analysis of relevant scientific sources, systematic reviews, theoretical models, and contemporary international research. The findings indicate that health literacy is a central predictor of preventive behavior, and that its development is significantly influenced by communicative skills, digital information literacy, physical activity, and the educational environment. In addition, it is revealed that an interdisciplinary educational environment helps connect health-related knowledge not only at the theoretical level, but also with everyday practical decision-making. The article proposes a conceptual predictive model aimed at developing students' health culture in the context of university education. This model may serve as a methodological basis for designing educational and developmental strategies in higher education institutions focused on promoting a healthy lifestyle, preventive thinking, and health literacy.

KEYWORDS: Health literacy, preventive behavior, university students, interdisciplinary educational environment, communicative competence, physical activity, healthy lifestyle, health culture.

1 INTRODUCTION

Health literacy is regarded as an important determinant in modern healthcare and education systems, as it enables individuals to make informed decisions related to their health. The World Health Organization defines health literacy as a person's ability to access, understand, evaluate, and use information and services in order to maintain and promote a healthy life [1]. This approach links health literacy not only to reading and understanding medical information, but also to applying it in everyday life, critically evaluating it, and reinforcing it through effective communication [2].

University students represent a socio-demographic group of particular scientific interest, as health-related behaviors and habits are actively formed during this period. Since student life is a stage in which independent decision-making, lifestyle patterns, information consumption, physical activity, and stress-related habits are established, the development of health literacy and preventive behavior at this stage is especially important [3], [4]. Systematic reviews show that health literacy levels among university students are often lower than expected or unevenly distributed, which directly affects health-related practical decisions [5], [6].

In recent years, the relationship between health literacy and preventive behavior has increasingly been studied from an interdisciplinary perspective. The functional, interactive, and critical levels of health literacy proposed by Nutbeam demonstrate the close interconnection between knowledge, communication, and social engagement in healthcare [7]. Subsequent studies confirm that communicative health literacy is significantly associated with health-related behaviors, healthcare utilization, and health outcomes [8]. At the same time, the expansion of information flows in the digital environment has made eHealth literacy a particularly relevant issue, requiring investigation into students' abilities to search for, analyze, and apply accurate and reliable health information in practice [9].

Physical activity is also considered an important component of students' health culture. Systematic reviews indicate that the level of physical activity among university students is often insufficient; however, it is positively associated with health, well-being, and favorable behavioral outcomes [10], [11]. From this perspective, examining health literacy in connection with communicative competence, physical activity, and the interdisciplinary educational environment is of both scientific and practical importance.

The aim of this article is to develop an

interdisciplinary predictive model explaining the formation of health literacy and preventive behavior among university students. Based on the existing literature, the article highlights the theoretical foundations, structural components, and practical significance of this model within the higher education system.

2 LITERATURE REVIEW

Although the concept of health literacy was initially interpreted as the ability to understand and use information within the healthcare system, it later acquired a broader social and communicative meaning. Nutbeam divided health literacy into functional, interactive, and critical levels, linking it to an individual's activity and decision-making capacity in healthcare practice [7]. Sørensen and co-authors, in turn, explained health literacy as a system of complex competencies that enable individuals to access, understand, evaluate, and apply information and services, and proposed an integrated conceptual model [2]. Subsequent European studies on health literacy demonstrated that the level of health literacy depends on social inequality, education, language skills, and the information environment [3].

Research on health literacy among university students shows that this group is heterogeneous and differs according to academic fields, semesters, family background, and social factors. According to the systematic review by Kühn et al., health literacy among students is often lower than in the general population, and especially among non-medical students, the ability to evaluate health-related information tends to be weaker [5]. Systematic reviews conducted during the COVID-19 period also revealed that health literacy became one of the key resources for university students in filtering misinformation and correctly assessing risks during the pandemic [6].

Preventive behavior refers to the integrated set of actions through which students incorporate hygiene, proper nutrition, physical activity, avoidance of risk factors, seeking medical check-ups, and health-preserving habits into their daily practice. This type of behavior is multifactorial in nature and is shaped not only by knowledge, but also by motivation, the social environment, and the character of the educational process. In Chao's study, health-promoting lifestyle behaviors among university students were shown to be associated with academic major, gender, level of physical exercise, and daily habits [12]. A study conducted among German students also demonstrated that physical activity, sleep quality, nutrition, and harmful habits are

closely interrelated, confirming the need to assess student health through comprehensive indicators [13].

Communicative competence is increasingly recognized as one of the central components of health literacy. Understanding health-related information, asking questions, communicating with physicians or teachers, discussing medical recommendations, and critically interpreting information from social media and mass media all rely on communicative skills. Recent analyses indicate that there are strong theoretical and practical links between health communication and health literacy, and that effective communication strengthens healthy decision-making [14]. A study published in 2025 showed that communicative health literacy independently influences health-related behavior and healthcare utilization, thereby confirming the predictive significance of this factor [8].

Digital health literacy has also become an актуальная issue among students. The modern student receives a large share of health-related information through the internet and social media. Therefore, the ability to select digital sources, verify their reliability, and connect them with everyday healthy decisions is of particular importance. A systematic review of eHealth literacy among postsecondary students demonstrated that digital health literacy is positively associated with preventive practices, information-seeking behavior, and healthy decision-making [9].

Physical activity is considered one of the main practical indicators explaining students' preventive behavior. Systematic reviews on physical activity and physical fitness among university students emphasize that these indicators are often at average or low levels, although strengthening them is essential for a healthy lifestyle [10]. Another systematic review reported that physical activity and sedentary behavior are also related to educational outcomes, which indicates the need to integrate healthy behavior with educational effectiveness [11]. Thus, the reviewed literature confirms the existence of a multifaceted relationship among health literacy, communicative competence, physical activity, and preventive behavior. However, for university students in particular, a unified predictive model integrating these factors within an interdisciplinary educational environment has not yet been sufficiently developed. This article is aimed at filling that gap.

3 METHODS

This article was designed as a conceptual-analytical

study. The research design was based on the systematic analysis of theoretical sources, comparative interpretation, and conceptual modeling. Scientific studies related to health literacy, communicative health literacy, physical activity, preventive behavior, and the health of university students were selected for analysis. The review included fundamental theoretical works on health literacy, systematic reviews focusing on university students, studies on physical activity and lifestyle, as well as contemporary research articles on health communication and digital health literacy [1]–[14].

The following criteria were used for source selection: first, the studies had to clearly describe health literacy or closely related constructs; second, they had to provide empirical or systematic review data on university or postsecondary students; third, they had to be associated with preventive behavior, physical activity, communicative competence, or the educational environment. During the analysis, the main theoretical concepts, determinants, interrelations among factors, and practical conclusions were extracted from each source.

At the stage of conceptual modeling, health literacy was interpreted not as an isolated construct, but as a multidimensional phenomenon shaped by communicative competence, digital information-processing skills, physical activity, and the interdisciplinary educational environment. This construct was considered both a direct and indirect predictor of preventive behavior. In developing the model, the principle of theoretical integration was applied, meaning that factors examined separately in different sources were combined into a unified logical system.

4 RESULTS

Based on the literature analysis, an interdisciplinary predictive model of health literacy and preventive behavior among university students was developed. This model consists of four main blocks: communicative competence, health literacy, physical activity, and the interdisciplinary educational environment. According to the model, communicative competence is one of the initial factors in the process of receiving, understanding, processing, and transforming health-related information into practical decisions [8], [14]. Effective communication and information interpretation skills strengthen students' health literacy, which in turn contributes to the formation of preventive behavior. Health literacy, the second component of the model, is interpreted as the central mediator. The analysis showed that health literacy includes not only

possession of information, but also the ability to critically evaluate it and apply it in daily life [1], [2], [7]. Systematic reviews of university students indicate that uneven levels of health literacy, and especially its low level in certain groups, lead to differences in preventive behavior [5], [6].

Physical activity, as the third block, was incorporated into the model in two ways: on the one hand, as an independent practical indicator of preventive behavior; on the other hand, as an indicator of a student's general health culture and self-management strategy [10], [11]. Studies show that physical activity among university students develops together with other healthy habits and appears as part of a broader lifestyle complex [12], [13].

The fourth component, the interdisciplinary educational environment, was defined in the model as a structural contextual factor. Such an environment ensures that health-related knowledge is not limited only to medical courses, but is integrated with physical education, language and communication, socio-humanitarian disciplines, and digital literacy. Based on the literature, it was found that an interdisciplinary approach helps strengthen students' health culture, reduce misconceptions about health, and enhance preventive thinking [4], [6], [9].

As a result, the proposed model reflects the following logical chain: the interdisciplinary educational environment develops communicative competence and digital information-processing skills; these factors enhance health literacy; and health literacy, in turn, is manifested in preventive behavior through such actions as physical activity, hygiene, healthy nutrition, attitudes toward preventive check-ups, and avoidance of risk factors. The distinctiveness of this model lies in its integration of both individual and educational determinants of preventive behavior into a single system.

5 DISCUSSION

The proposed model identifies health literacy as the central mechanism for explaining the health of university students. This approach is consistent with the theoretical perspectives developed by Nutbeam and Sørensen, since both approaches link health literacy not only to the acquisition and processing of information, but also to social and communicative competencies [2], [7]. In this article, these theoretical perspectives are adapted to the student context, with particular emphasis placed on the role of the educational environment in shaping preventive behavior.

The discussion shows that the development of health

literacy at universities should not be limited only to medical lectures or separate health-related courses. On the contrary, its impact becomes stronger when healthy lifestyle issues are integrated into an interdisciplinary educational environment that combines physical education, language and communication, psychology, sociology, and digital culture. In particular, the strengthening of the relationship between communicative competence and health literacy enables students not only to receive health-related information, but also to analyze it and make informed decisions [8], [14].

The issue of digital health literacy is also highly relevant for the modern university. Since students receive a significant portion of health-related information through the internet, the inclusion of the eHealth literacy component in the interdisciplinary model is theoretically justified [9]. Studies conducted during the pandemic especially demonstrated that, in a flow of misinformation, the ability to identify reliable sources and understand risks may become a decisive factor in health-related behavior [6].

The inclusion of physical activity as an independent block in the model also has a strong scientific basis. Numerous studies identify physical activity as a basic component of a healthy lifestyle and psychophysiological well-being [10], [11]. Therefore, health literacy should be interpreted not only as knowledge, but also as a practical motivational resource that contributes to the formation of physically active habits.

The scientific novelty of this article lies in the fact that health literacy, communicative competence, physical activity, and the interdisciplinary educational environment are integrated into a single predictive model as interconnected factors. From a practical perspective, this model may be applied in developing integrated educational strategies aimed at promoting a healthy lifestyle and preventive culture in universities.

6 CONCLUSION

The formation of health literacy and preventive behavior among university students is a complex, multifactorial, and interdisciplinary process. The literature analysis showed that health literacy is the central predictor of preventive behavior, and that its development is significantly influenced by communicative competence, digital information-processing ability, physical activity, and the interdisciplinary educational environment. On this basis, the proposed model provides a theoretical and methodological foundation for developing students' health culture within university education.

From a practical point of view, programs aimed at improving health literacy at universities should not be limited to medical content alone, but should be organized in integration with physical education, communication, humanitarian disciplines, and

digital literacy. In future empirical studies, it will be important to test this model statistically, identify its structural pathways, and determine its predictive power.

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