

HEALTH LITERACY AS A DETERMINANT OF STUDENTS' PROFESSIONAL SELF-REALIZATION: EXPERIENCE OF THE SLOVAK REPUBLIC

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Summary

Introduction. The article presents the results of diagnosing the health literacy of students of higher education institutions. This research was conducted within the VEGA project of the Ministry of Education, Science, Research and Sports of the Slovak Republic No. 1/0293/21 «Education for Adult Health» (2022-2023) by representatives of the Department of Pedagogy and Andragogy Comenius University in Bratislava with the participation of Ukrainian colleagues.

The aim of the study is to assess the role of health literacy and analyze the results of empirical research to determine the level of the health literacy among the students at the universities in the Slovak Republic. The scientific innovation involves the determination of potential contribution to the increase of students' health literacy level so as to implement the strategies to improve professional self-realization within the high education system.

Materials and methods. The results of students' diagnosing are described according to the modified European Health Literacy Survey Questionnaire (HLS_EU_Q47).

Results. The majority of the respondents is found out to have the sufficient level of the health literacy. It is identified that all respondents understood the need of additional informal training and gaining the skills of education activities. It is explained that the increase of the health literacy level results in gradual shaping of an expert's professional self-realization: only a person who is mentally healthy and conscious of health and healthy lifestyle issues can be aware of his/her ways for professional improvement.

Conclusions. The role of digital technologies in improving medical literacy of students is proved. The research results should become the basis for developing and implementing of educational activities to support public health.

Key words: higher education, health literacy, public health, self-realisation, students, survey.

INTRODUCTION

The main goal of all students after graduating a university is their eventual employment in a position they like and self-realization in their professional activities. After the pandemic COVID-19 was officially announced to be over, the serious competition started on the labour market which requires that the prospective experts should have not only professional competency and skills, but also high level of mental and physical health.

The training of competent experts in the framework of higher education stipulates that students must comply with a lot of conditions (e.g., availability of stable cognitive interests, self-study skills, self-discipline, desire for self-development

and self-realization, willingness to study throughout life). Self-realization determines the value of a person both as a student and a prospective employee, and his/her health literacy and consciousness of his/her own mental needs are important tools on the labour market. In European pedagogical science and in the research area to study the health literacy issues of certain groups of adult population, and the research which is being done so as to specify the trends in order to increase this literacy are quite innovative.

Despite the fact that European politicians, researchers and experts started to pay more attention to the study of the health literacy of different groups among adult population, the information about its state in Europe still remains insufficient.

In some leading European countries, the diagnosing of health literacy levels of average people started in 2004 when some researchers were trying to initiate the international comparative research for some years [15].

This research was done in many European countries so as to activate the policies of these states in order to increase the health literacy levels among different groups of adult population.

A group of scientists supervised by K. Sorensen analyzed and summarized the results of the health literacy research done in Europe, which was comprehensively conducted in eight countries: Austria, Bulgaria, Germany, Greece, Ireland, the Netherlands, Poland and Spain (n=1000 per country, n=8000 total). The data analysis was based on Eurobarometer and HLS-EU-Q questionnaire during personal interviews made online. HLS-EU-Q questionnaire results defined four levels of health literacy among adult population: insufficient, problematic, sufficient and excellent. The European research proved that 12 % of the respondents had the insufficient level of the health literacy and consciousness of their fitness, 35 % of the surveyed people had problematic literacy. By the way, what is interesting, the levels of adult people's health literacy were significantly different among countries. For example, the value of limited (insufficient plus problematic) of health literacy varied from 29 % in the Netherlands to 62 % in Bulgaria. Besides, some sub-groups were separated inside population which were specified by financial limits, low social status, low level of education and age. Such sub-groups constituted the higher part of people with low health literacy, which assumes the availability of social gradient, which was also proven by mathematical methods: unprocessed 2D correlations and multidimensional linear regression [20].

The summary of the Austrian scientists' results enables to state that there is a limited (insufficient or low) level of the comprehensive health literacy among a great number of adult population [15]. The researchers defined that this level affects a person's mental state and reduces his/her resource potential.

It was proven that the insufficient health literacy results in health deterioration and inefficient use of healthcare system resources [8]. Moreover, the health literacy level affects a man's quality of life [13; 25].

Students as representatives of growing-up generation constitute a special group of population whose fitness status is a barometer to evaluate a country's wellbeing. The prospective university graduates should be highly qualified, fit and durable, stress-free and highly productive.

Nowadays, the health literacy is one of the most important part of comprehensive and professional culture of universities' graduates. Last, but not least, this part of education leads to the formation of further professional development and experts' self-realization throughout life.

Lately the health literacy has become an important and highly appreciated issue in the area of university education.

The need to study the health literacy as preconditions of students' self-realization in society has updated the studies where: the content of «health literacy» notion has been specified [14; 19; 20]; the issues of scientific reaction to the health literacy in different countries worldwide have been separated [2; 5; 9; 16]; social disproportions in the health literacy in the USA have been studied [7]; the aspects of the health literacy development in different social and cultural societies have been explained [9; 25]; the role of the health literacy for the students of medical professions has been analyzed [10].

The theoretical analysis of the scientific sources proves the availability of scientists' efforts to find out mutual influences between the resources which support and maintain human physical and mental health and the health literacy of population, on the whole. The levels of the health literacy should include insufficient, problematic, satisfactory and excellent. The insufficient level together with problematic is a characteristic of the limited health literacy [16; 17; 20].

Summarizing, it should be pointed out that the health literacy belongs to personal factors which affect a person's ability to obtain, understand and use information about health and medical services. The health literacy is a precondition of a man's behavior who enables to maintain his/her health. Different aspects of the health literacy allow people to use their available space for making decisions and taking actions so as to improve their health as well as health of their community and society, in general.

Different aspects of university students' health literacy were and remain to be a subject of thorough attention in the field of both European and world research. However, to date, the comparative and summarizing research papers about the state and health literacy level and students' health-conscience behavior in the Slovak Republic have not been found.

As a result, the priority objective of higher education is diagnosing, educating and developing of university students' health literacy. The results of students' health literacy assessment can be used to upgrade the content of training courses on medical and sanitation education, get students involved in the healthcare system, plan medical services and develop the university education policy.

The aim of the study is to define the health literacy role and describe the results of empirical research of students' health literacy at the universities in the Slovak Republic, based on state-of-the-art approaches to evaluate the level of the health literacy.

The hypothesis:

According to the research objective, the scientific hypothesis is set up:

1) The assumption is made that university students can be at the low level of the health literacy.

2) Students usually obtain knowledge and expertise on health issues thanks to informal education.

MATERIALS AND METHODS

The assessments of health literacy levels have been made in by various research teams. C. Zegers, K. Gonzales, L. Smith, C. Pullen, A. De Alba, and K. Fiandt, who proved that an English FCCHL is quite a reliable tool for self-study of functional literacy in the field of health which consists of 14 points [24].

M. Tavousi specified that there 39 tools which research the general health literacy, 90 tools of the health literacy for certain states (diseases or content), 22 tools for certain groups of population and 11 electronic health literacy tools [22].

The classification of theoretical analysis results of foreign researchers' recent scientific works [6; 22; 24] showed that there are many different diagnosing tools for measuring adults' health literacy.

European Health Literacy Survey Questionnaire (HLS_EU_Q47) [21] is selected as a model in our research. This survey questionnaire at first was conducted by the researchers themselves with some respondents, then the results were discussed at the meeting of the research group and the decision was made to modify it (generalization of the questions and reduction of their number to 12). The modified survey questionnaire was offered to respondents to fill in in the format of Google form.

Summarizing, it should be pointed out that a set of methods was used in the empirical research: theoretical (analysis of scientific sources, comparison, classification, synthesis of research results, generalization and classification of scientific data); empirical (pedagogical experiment, observation, conversations, online surveying, analysis of documents); methods of mathematical data processing with their further high-quality interpretation meaningful generalization.

Both quantitative and qualitative methods for data collection were selected so as to make the research valid and reliable.

Participants

The number of research participants is 332 people. 147 (44,28 %) undergraduate students (Bachelor's degree) and 185 (55,72 %) graduate students (Master's degree). The main part of respondents' sampling was students of philosophy, pedagogy and medical departments of Comenius University in Bratislava (n=162 (48,79 %) as well as students from other university of the Slovak Republic. A certain number of the surveyed students – 78 (23,49 %) –

didn't indicate neither during conversations nor surveying what university they go to.

The age of respondents varies from 19 to 24. Based on the division according to age, the average respondents' age equals = 21,49, which coincides with the median value (= 21,5). For sampling of 332 people the modal value equals 20 years = 20), but = 0,24. The obtained elementary statistics testify to respondents' homogeneous sampling.

Student age has some specific patterns and is an important stage in the development of a future expert's personality. The initial professional self-definition is made in the environment of high education as well as a young person's outlook position is determined and the forms of professional behavior and communication are shaped. The education process of high education is determined by self-development and students' abilities to convert their own daily life activities into a subject of professional self-realization. The self-realization defines the active lifestyle of a student's personality, independence and responsibility for a choice of professional and individual way of life combined in a single meaningful system of generalized notions about the world, prospective professional activities and a sense of being.

Data Collection and Data Analysis Tools

The form for data sampling was developed in this research, which makes collection and classification of key information from scientific articles easier: year of publication; author(s); country of origin; education level of population; respondents' characteristics, who participate in surveying; interventions aimed at improving levels of the health literacy.

The variation analysis was used for collecting and processing data, mathematical statistics, such as average and median values as well as standard deviations, were calculated. Afterwards, Pearson correlation was conducted for analyzing correlative structures among variables.

Procedure

The research was done in 2022-2023 and consisted of three stages: organization, diagnosis and summary. A research group was set up, the schedule of its meetings was made up, research methodology was developed, the diagnostic questionnaire was discussed, selected and improved at the organization stage. At the diagnosis stage, some meetings with the deans and departments chairs of the Slovak universities (both online and person-to-person) were arranged about conducting students' surveying in Google format. At the summary stage, mathematical processing of the obtained surveying results was made, data was scientifically summarized, which was presented at the international scientific conferences.

The cross-sectional students' surveying included the questions from two fields of the modified questionnaire:

1) understanding of health information rather well so to know what to do, and 2) ability to actively interact with medical services providers.

The research methodology is based on the following scientific approaches: andragogy-, axiology-, competence-, culture-, individual- and system-based ones.

The scientific innovation involves the assessment of students' health literacy level in the Slovak Republic whether they are aware of the main risk factors for their health, which affect the process of professional education.

Ethical Issues

The offered questionnaire is anonymous, and all given data will be protected according to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). The students of universities volunteered to participate in the empirical research signing and confirming their agreement for data processing. They were offered an opportunity to cancel their participation in surveying without any consequences for their status.

RESULTS AND DISCUSSION

At the beginning of the 2020th of the 21st century the researchers of different countries paid attention to the studies of such kinds of students' health literacy who studied at pedagogical and medical universities: digital [1; 23] and professional [12]. The review of these studies enables to state that prospective teachers and doctors after graduating universities are supposed to have excellent knowledge, not only professional but also one in other areas, such as active socializing and professional (teaching and medical) awareness.

S. Betschart, studying the importance of school's administrators to the issue of the health literacy so as to improve schoolchildren's health, found out that schools also provide opportunities for interruptions, as there is a chance to educate children at an early age, even before their attitude and behavior related to health can be shaped [4].

The researchers found out that mental and physical health is more and more related to schoolchildren's achievements including school. The deteriorated schoolchildren's and teachers' state of health affects education and teaching, and vice versa.

E. Albright and P. Allen studied the role of the health literacy among college students [3]. Besides, S. Agnafors, M. Barmark and G. Sydsjö [2] also paid their attention to schoolchildren's and students' mental health. The researchers found out that academic success within 15-19 age period

didn't increase a risk of any problems with the mental health for youth at the age of 20, however, unavailability to apply and get higher education increases a risk of problems internalization and/externalization at the age of 20.

A group of researchers supervised by F. K. Cesar studied the professional attitude to sanitation literacy of medical employees and students at the medical universities of Latin America. As a result, this research stated that «a professional, who reacts to a patient's sanitation literacy, was characterized as one who knows the definitions and consequences of medical and sanitation literacy for patients' well-being, and can develop, adapt, implement as well as evaluate the sanitation education strategies» [5, p. 101].

The empirical research of the digital health literacy in terms of COVID-19 was done among the students of South Korea. Respondents' sampling included 604 students, undergraduate level (Bachelor's degree). Gender inequality is observed among the participants: 72,2 % were female participants and 27,8 % were male ones. The majority of the participants were within the age range 20-24 (72,2 %). The research done stated that there is a direct relationship between kinds of digital medical information, which college students look for, and its influence on their preventive health behavior during COVID-19. Besides, it was proven that rather developed IT search systems positively affect students' actual fitness [6].

The researchers in Ukraine claimed that since the beginning of the pandemic, the education process at the institutions of higher education has undergone considerable changes, as the whole high education system had to move to online education, which resulted in causing some problems in student's mental health [11].

In the framework of the experimental research within the VEGA project of the Ministry of Education, Science, Research and Sports of the Slovak Republic No. 1/0293/21 «Education for Adult Health», the results of diagnosing among the students of Slovak universities were processed by the representatives of pedagogy and philosophy departments of Comenius University in Bratislava. It should be emphasized that both in the research of South Korean students and those at the Slovak universities gender inequality was observed: 48 male students (14,46 %) and 284 (85,54 %) female.

The common understanding and definitions of students' health literacy specifics and levels were made during the research by analyzing their answers to the following questions: How difficult is it for you to locate a place where you can get professional help if you fall ill (for example, from a doctor, nurse, pharmacist, psychologist)? How difficult is it for: to make a decision about improving your health and general well-being? Do you think it is necessary to get involved in self-education in the field of health and healthy lifestyle? Have you participated in any educational events (lecture, discussion, etc.) so as to

improve your health, lifestyle? Have you participated in any educational events (lecture, courses, etc.) in the field of health, healthy lifestyle? What sources do you use to obtain information about health and healthy lifestyle? Do you read professional literature and journals devoted to health and healthy lifestyle? How did the pandemic Covid-19 affect your lifestyle? Has your need to search for information related to health and healthy lifestyle risen during Covid-19 pandemic?

The analysis of students' answers to some questions. The majority of the surveyed students (149 students, 44.88 %) answered to the question «Do you read

professional literature and journals devoted to health and healthy lifestyle?» «yes», often read, almost a quarter (98 students, 29,52 %) answered «sometimes», the others – 85 students (25,60 %) – replied «no, they don't read as they are not interested in it». The obtained results testify that students are not motivated enough to get information about risk factors for their health. Young people don't understand well enough the impact of their health state on their further professional self-realization.

«How difficult is it for you:...» Summary of the answers: 1 – «Very often», 2 – «Often», 3 – «Sometimes, when health problems arise», 4 – «No» in the table 1.

Table 1

Answer to the question «How difficult is it for you:...»

How difficult is it for you:	1		2		3		4	
	quantity	%	quantity	%	quantity	%	quantity	%
get information about things that will promote mental health or general well-being?	164	49,39	102	30,73	45	13,55	21	6,33
get information about a healthy lifestyle?	168	50,60	112	33,73	31	9,34	21	6,33
understand your doctor's or pharmacist's instructions on how to take your prescribed medicines?	184	55,42	101	30,42	36	10,84	11	3,32
understand the health advice you receive from family and friends?	135	40,66	130	39,16	38	11,45	29	8,73
assess how your home can affect your health and well-being?	106	31,93	134	40,36	75	22,59	17	5,12
The average value is rounded	151	45,60	116	34,94	45	13,55	20	5,91

According to the information given in the Table 1, we see that the majority of students have problems with receiving information about healthy lifestyle (50,60 %), factors which can favor mental health or well-being (49,39 %). More than a half (55,42 %) have a difficulty in understanding doctor's or pharmacist's instructions how to take their prescribed medicines. A fraction of the surveyed students (on average 6,0 %) don't have these problems. Consequently, the majority of students have big difficulties of obtaining and understanding the information about their own health state, healthy lifestyle, the impact of environment on their well-being. As a result, despite the quite high levels of students' awareness of health and healthy lifestyle, their health literacy cannot be defined as sufficient according the survey results.

Concerning the question «Do you think it is necessary to get involved in self-education in the field of health and healthy lifestyle?», the answers were as follows: 156 (46,99 %) respondents are very often in need of getting involved in it, 138 (41,57 %) often have this problem and 38 (11,44 %) students have it sometimes, which depends on their physical and mental state. No respondents were identified who could indicate that they don't need it.

Concerning the question «Have you participated in any educational events (lecture, discussion, etc.) So as to improve your health, lifestyle?», the answers were as follows: 151 (45,60 %) respondents replied «yes», 135 (40,66 %) pointed out that it is obligatory if they have an

opportunity, 34 (10,24 %) replied «no», and 12 (3,50 %) students were not aware of this opportunity at all. As a result, we see that students are interested in attending educational events devoted to the issues of health and healthy lifestyle.

Students' answers to the question «What sources do you use to obtain information about health and healthy lifestyle?» were interesting. According to the rating of importance, the answers are as follows: 1) by profession: from doctors – 214 (64,47 %) respondents indicated, from nurses – 73 (21,99 %), from pharmacists – 35 (10,54 %), and 10 (3,00 %) respondents replied that get this information from other medical personnel; 2) by resources: professional literature (rated as 1 score), medical information obtained at universities (2 score), Internet (3 score), from family members (4 score), social networks (5 score), during conversations with people around (6 score). What is important that all respondents understood the need in additional training (both formal and informal).

Students' surveying identified that they had some problems of understanding certain aspects of the obtained information, assessment its validity, ability to make their decision or analyze and sort out false notions. Besides, the lack of students' abilities of critical thinking was observed, which resulted in creating of difficulties to express their opinions while answering multi-choice questions.

Summarizing the respondents' answers, the general index scale of the health literacy was developed. It was

identified that the general average score for the field of «understanding of health information essence is quite well so as to know what to do» amounted to 3,68 ($p < 0,05$), and the general average score for the field «ability to actively interact with medical services providers» – 3,46 ($p < 0,05$), while 5 is the lowest score. Consequently, based on the results of the obtained answers, the levels of the surveyed students' health literacy were identified: low, sufficient, excellent.

The levels of students' rating are shown in Fig. 1: low level was identified among 97 (29,22 %) respondents, sufficient – 216 (65,06 %), and excellent – only 19 (5,72 %).

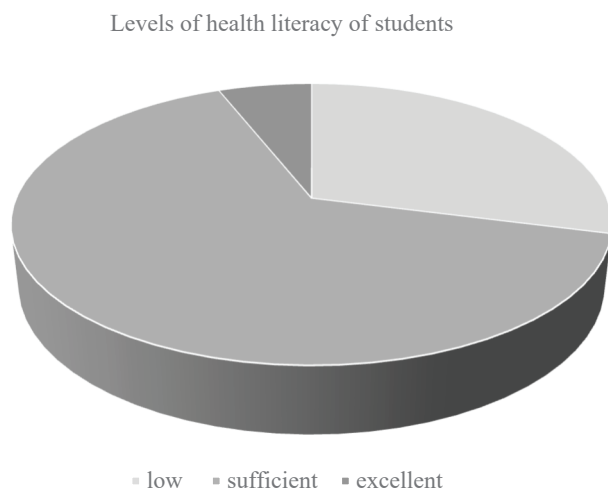


Figure 1. Levels of health literacy of students

The majority of students had the sufficient level of the health literacy, which was resulted from the availability of high education qualification, developed communicative and digital competency and good fitness state in this group of respondents. The corrected logistic regression for the first field of questions covering «understanding of health information essence is quite well so as to know what to do» showed that the students with low level of the health literacy are, highly probable, undergraduates (Bachelor's degree), and might have some problems with their fitness state. So, the level of education affects students' health literacy, which is a determinant for professional future experts' self-realization in the environment when the pandemic is practically over.

The research hypothesis was partly proven. The assumptions were made that the majority of respondents have a low level of the health literacy, however, the empirical data didn't prove it. Nevertheless, the assumption was proven that students obtain knowledge and competent information about health due to informal education.

The insufficient level of the health literacy among students reveals the results of traditional sanitation

education in society, which was just based on providing information about risks for health. However, a growth to the excellent level confirms an increase in gaining knowledge, expertise and skills at universities, which are aimed at supporting not only individual, but also efficient social actions, which affect life of a social group and society, on the whole, which leads to the desired results – maintaining and improving of health. Within the framework of this paradigm, information can be transferred about organization opportunities of different activities and skills development in the environment of informal education to solve the problems which are related to the influence of social, economic and ecological health factors. Eventually, better education in the area of health is aimed to promote a person to influence on social and economic determinants of health.

In addition, the health literacy precedes the implementation of events involving students about their health improvement and support. However, the essential cause-effect results cannot be made up as the previous information is unavailable. Besides, maybe, the level of the health literacy might be increased by active integration of educational training courses on health issues into university programs. Eventually, the level of the health literacy by itself can become a determinant of students' professional self-realization. The further longitudinal research might explore the logic of cause and effect relationship between the levels of the health literacy and students' professional self-realization in detail.

This research has some restrictions. First, the data was collected from respondents' sampling, who mainly were students of Comenius University in Bratislava, which makes the summary more problematic. We cannot exclude a possibility that the students from central and eastern Slovakia can also be interested in the assessment of the health literacy levels. Thus, the research should be done again in a while to study dynamics with wider representative sampling. Second, the online survey was made: so, if students had some technical problems, they might be excluded from the experiment. However, this risk can be low as the majority of students have the sufficient level of digital literacy. Third, the obtained data had limited sense, which didn't enable to make any cause-effect conclusions.

Consequently, the level of the health literacy should be analyzed with research with longitudinal design. The prospective research can include more comprehensive competence-based assessment of the health literacy, for example, by adding focus groups with respondents for online surveying.

CONCLUSIONS

The assessment of students' health literacy in Slovakia should become the foundation for the

development and implementation of educational activities so as to support and improve students' health in Eastern European countries, especially in Ukraine.

Our results testify that students' health literacy is a factor of a government efficient policy and the whole society in the field of healthcare and youth well-being. The assessment of the health literacy level must become the foundation for developing and implementing events so as to improve it. The improvement of students' health literacy can be made by providing information about health issues at different stages of education at educational institutions, arranging effective profession-oriented communication and structured informal education for youth. The state policy to increase levels of the students' health literacy in the framework of shaping their professional self-realization

is one of the priorities in the development of education system and healthcare.

In the future, the practice of regular students' surveying should be researched by the methodology which enables to compare the obtained results relating to one region (country), as well as different regions (countries). It will enable to assess and compare European students' health literacy as a determinant of their professional self-realization.

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Резюме

МЕДИЧНА ГРАМОТНІСТЬ ЯК ДЕТЕРМІНАНТА ПРОФЕСІЙНОЇ САМОРЕАЛІЗАЦІЇ СТУДЕНТІВ: ДОСВІД СЛОВАЧЧИНИ

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Вступ. У статті наведено результати діагностики рівнів медичної грамотності студентів закладів вищої освіти. Це дослідження було проведено в рамках проекту VEGA Міністерства освіти, науки, досліджень та спорту Словачької Республіки № 1/0293/21 «Освіта для здоров'я дорослих» (2022-2023) представниками кафедри педагогіки та андрагогіки університету Коменського в Братиславі разом з українськими колегами.

Метою дослідження є оцінка ролі медичної грамотності та аналіз результатів емпіричних досліджень для визначення рівня медичної грамотності студентів університетів Словачької Республіки.

Наукова новизна передбачає визначення потенційного рівня медичної грамотності студентів з метою реалізації стратегій підвищення професійної самореалізації в системі вищої освіти.

Матеріали та методи. Діагностування студентів здійснено відповідно до модифікованої Європейської анкети дослідження медичної грамотності (HLS_EU_Q47).

Результати. Виявлено, що більшість респондентів мають достатній рівень медичної грамотності. Встановлено, що всі респонденти розуміли необхідність додаткового неформального навчання та набуття навичок самостійної навчальної діяльності в сфері здоров'я. З'ясовано, що підвищення рівня медичної грамотності призводить до поступового формування професійної самореалізації студента як майбутнього фахівця: лише психічно здорова людина, яка усвідомлює питання власного здоров'я та здорового способу життя, може усвідомлювати шляхи свого професійного вдосконалення.

Висновки. Доведено роль цифрових технологій в підвищенні медичної грамотності студентів. Результати дослідження мають стати підґрунтям для розробки та впровадження просвітницької діяльності з підтримки громадського здоров'я.

Ключові слова: вища освіта, медична грамотність, громадське здоров'я, самореалізація, студенти, опитування.