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Research Article

Assessment of Knowledge of Safe Self-Administration of Medicines Among Health School Students

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Abstract

Background: Knowledge of the correct use of medicines is an essential factor in each person's life. In recent decades, the use of drugs for self-medication has increased. The lack of knowledge about the safe use of medication and the manifestation of its side effects is an essential issue for the population's health. It is vital to assess/enhance the frequency and knowledge of safe self-medication among students. By analyzing the results of international research, it was found that students need more knowledge regarding the issue mentioned above, which causes various adverse effects on students' health.

Aim: The research aimed to evaluate the knowledge of the safe administration of medicines among health school students of one of Georgia's prominent private universities.

Methodology: The research used a quantitative research method and a cross-sectional design. The structured questionnaire was distributed through university databases. The answers received from the students' survey were processed in the IMB SPSS program.

Results: The findings of this study are significant, as they underscore the complex interplay between education level, program of study, medication use, and knowledge about medication safety. These results provide valuable insights into the current state of medication knowledge among students and the potential health risks associated with it.

Conclusion: The study's findings reveal a concerning trend. While higher-level students use medications more frequently, they might lack comprehensive knowledge about contraindications, posing potential health risks. This conclusion underscores the urgent need for improved medication education among students.

Keywords: Safe self-medication, Student health, Education for Safety

Introduction

Knowing how to take medication for self-medication safely plays an essential role in each person's health. In recent decades, the use of drugs for self-treatment has increased. The lack of knowledge about the safe use of medicines and their negative impact on health is an essential issue of concern globally.

Lack of information or incorrect knowledge about the safe use of medication for self-medication potentially increases the risk of its misuse and reduced effectiveness. Medication knowledge is essential when evaluating patients' medication use and adherence to prescribed therapy. This has a direct impact on health outcomes [5]. Self-medication is a person's decision to take medication independently of a healthcare professional. Self-medication is common among young women and students [14]. It is essential for health decision-makers and policymakers to accurately estimate the rate of self-medication among students in order to develop various programs to prevent self-medication among students [16]. Unnecessary use of medication and resulting side effects can lead to adverse health outcomes. A high knowledge of safe medication adminis-

tration is significantly associated with the prevention of hospitalizations and increased economic burden. The medical treatment process includes the doctor's prescription, the pharmacist's check, and the correct information delivery to the patient. Medication safety is essential at every stage [12]. Most of the students resort to self-medication, but many of them do not know the correct use of such medicines as antibiotics, antipyretics, and antihistamines. The main reason for self-medication is the quick relief of pain, students' self-confidence in their knowledge, and they do not consider it necessary to visit a doctor [4]. Students studying health sciences programs, pharmacy, nursing, dentistry, or medicine often resorted to self-medication. Therefore, conducting research among health sciences students is essential, as self-medication affects their health and has many negative consequences [17]. In addition, assessing health students' knowledge of this issue will help pharmacists and health policymakers design reforms to prevent unsafe medication use [10].

Methodology

The study was conducted among students in different healthcare programs at one of the private universities in Georgia, including nursing, pharmacy, medicine, dentistry, and health administration programs. Quantitative research with a cross-sectional design was defined as the research methodology. The study was conducted through a pre-designed questionnaire approved by the University's Biomedical Research Ethics Board. The questionnaire included 14 questions and consisted of socio-demographic questions, self-medication frequency, and knowledge of safe administration. The questionnaire consisted of open and closed questions. The student survey was conducted anonymously, using an online Google Doc sent to respondents through university databases. It was hypothesized that there is a significant relationship between the knowledge gained by health school students during their studies and their knowledge about the safe use of medications. Five stages were distinguished for hypothesis testing: formulation of the hypothesis based on the research, collection and selection of variables from the questionnaire, application of statistical tests, and evaluation of the obtained results about the hypothesis. Variables were selected from the questionnaire, and finding the relationship between them helped us test the hypothesis. In particular, the study period of health school students includes the levels/courses they are on. The acquired knowledge will be compensated by the programs they are studying. The second part of the research questionnaire mentions information about their knowledge about the safe use of medicines. Chi-square testing was used to test the null hypothesis. The collected data were processed with SPSS software.

Results

Analyzing the research results, 188 respondents took part in the survey. They all studied in different programs and teaching levels in the School of Health Sciences. The age of the respondents varied from 17 to 37. Out of 188 respondents, 130 were female respondents, and 57 were male. One student refrained from answering. 78 first-year students, 62 second-year students, 22 third-year students, 23 fourth-year students, and two fifth-year students participated in the study. 70 students out of 188 respondents stated that they take it very rarely, 62 students - rarely, 42 students - often, 13 respondents have to take medication very often, and only one respondent was able to answer the mentioned question. Among 118 people, 63% take medicine on the recommendation of a doctor, 9 % - on the recommendation of a pharmacist, family member, or friend - 8% are students, and 20% - make the decision themselves. Of 188 respondents, 53% of students had taken medication for self-medication in the last six months, and 39% had not taken medication for self-medication in the last six months. 15 (8%) students do not remember. 187 out of 188 surveyed students answered about the side effects of medications taken for self-medication. 115 have information ultimately. Moreover, 95 students had information about the contraindications of the medication, 34 respondents did not, and 41 had partial information. 16 were unsure whether they had information about the contraindications of medicines. 85% of students checked the medicine's suitability before taking it. As a result of self-treatment, 102 respondents of 188 respondents completely recovered, 43 students - partially recovered, 3 - developed complications, and 26 - it was difficult to answer (Tables 1-3).

Table 1: Medication Frequency by Year of Study.

Medication Frequency	First-Year	Second-Year	Third-Year	Fourth-Year	Fifth-Year	Total
Rarely	33	20	12	4	1	70
Rarely (medicaments)	28	25	2	6	0	61
Often	15	13	5	9	0	42
Very Often	1	4	3	4	1	13
Difficult to Answer	1	0	0	0	0	1

Table 2: Medication Frequency by Health School Program.

Medication Frequency	Nursing	Pharmacy	Health Administration	Medicine	Dentistry	Total
Rarely	4	5	1	48	12	70
Rarely (medicaments)	5	3	15	35	4	62
Often	4	0	9	21	8	42
Very Often	5	0	0	5	3	13
Difficult to Answer	0	0	0	0	1	1

Table 3: Knowledge about Side Effects of Medication Misuse by Health School Program.

Knowledge Level	Nursing	Pharmacy	Health Administration	Medicine	Dentistry	Total
Positive	11	5	16	63	20	115
Negative	6	2	1	16	4	29
Partial	1	0	8	14	4	27
Not Sure	0	1	0	15	0	16

The analysis was based on a dataset of interview responses and processed using the SPSS program to determine correlations among ten selected variables. According to the summarized research results, it can be unambiguously said that a strong positive correlation between the level of education and frequency of taking medication, the occurrence of self-medication in the last six months, information about side effects of medication, pre-medication screening and adverse health outcome/complication of self-medication. A negative correlation was established between students' level of education and knowledge of drug contraindications and self-medication-induced health deterioration (Table 4).

Table 4: Correlation level frequency.

Variables	1	2	3	4	5	6	7	8	9	10
1. Level of Study	1		0.215			-0.194			-0.204	
2. Health School Program		1					0.144			
3. How Often Take Medication	0.215		1		-0.222			0.186		
4. Taken Medication in Last 6 Months				1						
5. How Often Took Medication in Last 6 Months			-0.222		1				0.178	
6. Info About Side Effects of Medication Misuse	-0.194					1			0.403	0.18
7. Recommendation Source for Medication		0.144					1	0.541	0.205	0.147
8. Self-Medication in Last 6 Months			0.186				0.541	1		0.279
9. Info About Medication Contraindications	-0.204				0.178	0.403	0.205		1	0.194
10. Check Medication Suitability Before Taking						0.18	0.147	0.279	0.194	1
11. Health Outcome from Self-Medication						0.18		0.279	0.194	0.2

Analysis of research results reveals a complex relationship between the level of study and medication use among students. Senior students tend to use medications for self-treatment more frequently, but there is a concerning gap in their knowledge regarding the contraindications of medications. This knowledge gap poses potential health risks, highlighting the need for improved educational interventions to promote safe medication practices.

Discussion

Safe self-administration of medication is an important issue among students. Increased advertising of pharmaceutical products has helped to easily interest young people in purchasing them independently [10]. The US Centers for Disease Control and Prevention has identified colleges and universities as essential settings for delivering youth health promotion education and services [18]. A study of medication knowledge among students at a university in Taiwan found that students lack knowledge of safe medication practices. However, surveyed students confirm their willingness to receive information on proper medication administration [10].

A survey conducted in Egypt among first-year and final-year students from various disciplines, including health sciences (medicine, pharmacy, nursing) and other programs (commerce and education), highlighted significant trends in self-medication practices. Students often resorted to self-medication for minor ailments such as colds, headaches, sore throats, and colitis. The study revealed a high prevalence of self-medication, with students frequently bypassing medical consultations due to perceiving their conditions as minor. Pharmacists, family members, neighbors, old prescriptions, and the Internet were familiar sources of recommendations for self-medication.

The researchers emphasized the need for enhanced public health education to address this issue. They also called for stricter regulations on drug advertising and supply to mitigate the risks associated with self-medication [8].

Self-medication, which is a form of care or self-care, is a necessary first step in the treatment of health disorders. The World Health Organization recognizes the critical role of self-medication

in preventing health problems. However, approaches to the appropriateness and correct use of self-medication are still not organized and developed. According to the review of various research, the practice of self-medication is more common among young women and students. The World Health Organization's 2000 Guidelines for the Regulatory Evaluation of Medicinal Products for Self-Medication reported that prescribing and self-medication by inexperienced persons has led to incorrect dosages, incomplete treatment, and inappropriate use of medications [15]. This fact has caused side effects for many drugs, especially antimicrobial drugs. Self-medication is a severe problem. The high prevalence of self-medication can be controlled through regulatory bodies, mass education, and access to medical facilities [14]. A 2018 study examined self-medication practices among pharmacy and medicine students in southeastern Iran. The research focused on the frequency of self-medication and the types of drugs commonly used, highlighting antibiotics as the most frequently chosen medication. The study also explored the sources of these drugs, noting a tendency among students to reuse previous prescriptions. Additionally, it emphasized the students' awareness of the potential risks associated with antibiotic overuse, particularly the development of drug resistance [7].

In addition to the consequences of compromising safe medication administration/administration, a lack of knowledge regarding safety and medication error terms is often a problem. The results of several studies confirm that, although trainees in the field of health care have some knowledge about medication errors, there is still a significant need to improve their knowledge. The researchers believe this can be achieved by developing a well-planned curriculum that can be implemented in university programs. However, they believe additional research is needed on medication safety practices among undergraduate healthcare students. The researchers believe that addressing current gaps in trainee knowledge and attitudes could lead to better recognition and reporting of medication errors, thereby enhancing patient health safety [9]. A study investigated self-medication practices among students, focusing on the types of medications commonly used. It revealed that medicines for colds and tranquilizers were frequently chosen, with antibiotics often used without a doctor's prescription. The study also highlighted the role of the Internet and social networks as significant sources of information about self-medication [13].

Self-medication without professional supervision carries several risks and potential harm. Self-medication can lead to delays in receiving necessary medical care. On the other hand, delayed treatment can lead to complications or progression of the disease. Some over-the-counter medications can temporarily relieve symptoms and complaints, give a false sense of improvement, and worsen the condition over time. Self-administration of medication is often done on the advice of family members, friends, colleagues, and non-professionals. In addition, there are frequent cases of reusing the old prescription, changing the dose and duration of treatment at one's own will, etc.

Studies have confirmed that the likelihood of self-medication is higher among nursing faculty students, the reason being easy access to information and familiarization with different groups of medications during the study period. A study by professors of the University Nursing Department at Kermanshah University of Medical Sciences in Iran found that self-medication attempts among nursing students were associated with individual factors, university-based knowledge of medications, medication access, and underestimation of disease severity [11].

By including this topic in the syllabus, healthcare students should be provided with sufficient information to understand the rational practice of self-medication better. It is a sad fact that it is rare for students to consult medical specialists to obtain or continue medical treatment. A critical factor in the use of over-the-counter drugs is the strong influence of social media on young people. Students are more likely to rely on Internet information about medication use or treatment than on recommendations or advice from health professionals. Self-medication is recommended by the World Health Organization when a person discovers certain health disorders or symptoms, as well as for treating chronic or recurrent diseases [15]. In countries with a high economy, it is possible to introduce the practice of self-medication. However, it is necessary to inform the population about the proper use of over-the-counter medicines [1].

Since adopting the World Medical Association (WMA) Declaration on Self-Medication in 2002 and its reaffirmation in 2012, health authorities have promoted the concept of responsible self-medication, where individuals use drugs to treat mild or specific symptoms. Nearly three-quarters of students self-medicated within a month, often as a repetitive behavior [6]. A global study by Iranian university professors found that about 70% of university students engage in self-medication, a higher rate compared to non-student youth. Education level was identified as a potential factor influencing this prevalence. Additionally, a study of nursing students in Colombia revealed that 69% practiced self-medication, primarily using painkillers and anti-flu drugs [2,3]. It is essential to educate students, especially those in health-related fields, on the safe use of medications and the role of healthcare professionals in providing accurate information on the subject. The self-confidence and efficacy of self-treatment gained through education in health students is welcome. This may be an indicator of the success and effectiveness of the curriculum.

Conclusion

The research in Georgia revealed knowledge about the correct administration of medicines among university students and identified the groups where it is necessary to give different recommendations. As a result of the research, different attitudes of students were revealed depending on the level of education or faculty. The study results show that students have some knowledge about the correct use of medicines, although this knowledge is based on the knowledge gained during the student's studies. Therefore, the knowledge gained during the study greatly impacted the formation of students' views on the correct use of medicines. It is a fact to be emphasized that many high-level students studying in clinical programs more often resort to self-medication based on their knowl-

edge. Let us evaluate the level of knowledge of all the medical school students regarding the mentioned issue. The first and second-year students have a lower level of awareness about self-treatment than the higher-year students. Self-medication remains a significant concern, with its practice linked to adverse health outcomes. These insights highlight the need for improved educational interventions focusing on medication safety and contraindications to mitigate the risks associated with increased medication use and self-medication among students. Accurate and reliable estimates of self-medication rates are essential for healthcare decision-makers and policymakers to design and implement various healthcare reforms to prevent self-medication. Improving knowledge about safe medication administration is critical not only for avoiding medication errors and ensuring patient safety but also for enhancing students' knowledge about safe self-administration of medication and promoting their health and well-being. The results of the research are suitable for research conducted in other countries. It is unequivocally revealed that among students, the higher the level of education, the safer the approach to self-medication.

Acknowledgments and Conflict of Interest

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