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Assessment of Self-Medication Practices and its Associated Factors Among Undergraduate Students of Private Medical Colleges in Lahore

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ABSTRACT

This research examined beliefs and behaviors along with related factors concerning the usage of drugs to self-diagnose among scholars in healthcare disciplines. The use of drugs is a frequent yet potentially hazardous behavior, particularly among aspiring healthcare practitioners. This study aimed to evaluate usage of drugs among undergraduates, examining their knowledge and reasons for this behavior, as well as identifying factors associated with self-medication among students. In this study descriptive observational study research was carried out at Shalimar and Akhtar Saeed Dental and Medical College. The information was gathered from 245 students through a survey. The collected data were examined using SPSS software utilizing frequency distribution table's percentages and for inferential the chi-square statistical test to be used. In terms of prevalence, self-medication was found to be practiced by 77.6% of the participants. The most frequently cited reason for this practice was the use of an old prescription, reported by 39.6% of the students (97 participants). 55.1% of participants 135 participants had a low attitude level, which suggests that they were uneducated about self-medication. While only 3.3% (8 participants) had a negative attitude, whereas 41.6% (102 participants) demonstrated a good attitude. Studies have demonstrated a significant association between self-medication practices and most demographic factors, as well as self-medication awareness. In this research reveals a considerable occurrence of self- medication among medical students a habit that carries notable dangers of their future responsibilities as healthcare professionals primarily driven by ease and previous prescriptions statistical analysis revealed significant connections between self-medication practices and various demographic and knowledge-related aspects these findings highlight the critical necessity for educational initiatives and special controls on medication use by the medical students to mitigate the dangers linked to unsupervised self-treatment.

Keywords: Self-Medication, Self-Medication Practices, Undergraduate Students, Medical Colleges, Self-diagnose, Usage of drugs.

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INTRODUCTION

Self-medication is the choice and self-medicated by individualities to treat self- recognized illnesses or symptoms without consulting a healthcare professional. This exercise implicates the use of over-the-counter specifics, herbal remedies, or preliminarily specified medicines to manage physical or internal health issues. While tone- drug can be a element of tone- care and allow individualities to take responsibility for their health, it can also pose significant risks if not practiced responsibly. (Onwuchuluba et al., 2024).

Self-medication is a significant public health issue that varies in incidence worldwide. One of the key elements causing the emergence of antibiotic resistance in India is the high rate of self-medication. Self-medication without medical supervision can result in pathogen resistance, higher morbidity, missed diagnoses, improper, inaccurate, or excessive therapy, and delays in necessary treatment.(Rathod et al., 2023).

Self- medication is a common practice worldwide. Major problems related to self- medication are wastage of coffers, increased resistance of pathogens, adverse responses, and prolonged suffering. (Acharya et al., 2022)

Frequency of Self Medication

The frequency of self-drugging among scholars worldwide is raised. Programs on the pitfalls of self-drugging and rising control and monitoring of the trade of drugs are recommended. Easing scholars' access to doctors and health centers could reduce self-medication in scholars.(Behzadifar et al., 2020)

Self- medication is decreasingly current among scholars due to factors similar as busy schedules, easy access to untoward medicines, and disinclination to visit healthcare professionals. A study by set up that further than 79 of university scholars engage in self- drug, frequently for minor affections like headaches, snap, and digestive issues. While this practice may feel accessible, it poses risk similar as incorrect dosing, medicine reliance, and masking underpinning health conditions. Promoting mindfulness about the responsible use of specifics and encouraging regular medical checks can help alleviate the troubles associated with use of medication by self. (Siraj et al., 2022)

Use of drug is a prevalent practice among scholars universal. Many of the factors that raise the self-medication rate, such as easy entree to over-the-counter (OTC) drugs, academic stress, and lack of awareness about potential health risks. This study aims to explore the reasons behind use of drugs among students and the associated hazards and significances

Furthermore, the study advanced medical understanding by increasing the quantity of knowledge about the risk factors for self-medication. The factors influencing self-medication can help in designing interventions to promote safe and responsible medication use. By identifying these factors, universities and can develop educational programs to raise awareness about the risks of self-medication and encourage students to seek professional medical advice.(Al-Kubaisi et al., 2022)

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Background

Self- drug refers to the practice of individuals treating their own affections and conditions without professional medical advice or prescription. This practice frequently involves the use of untoward medicines, leftover specifics, or indispensable remedies. While self-medication can give quick relief and reduce the burden on healthcare installations, it also carries significant pitfalls similar as misdiagnosis, incorrect dosage, medicine relations, and implicit for abuse or resistance, especially with antibiotics.

In numerous countries, self- drug is wide due to factors like limited access to healthcare, high medical costs, and the vacuity of specifics without prescription. Despite its frequency, there's frequently inadequate mindfulness regarding the safe use of specifics and the implicit consequences of indecorous self- treatment. (Quincho-Lopez et al., 2021)

Understanding the patterns, reasons, and issues of self- medication is pivotal for developing effective health education programs, perfecting public health programs, and icing the rational use of medicines. This study aims to explore the prevalence and factors impacting self- drug among population.

Conceptual definitions:

The uses of drugs to treat self-diagnosed conditions, as well as the continuous use of prescribed drug for a chronic illness and its symptoms, both qualify as kinds of self-medication. Using herbs, keeping and reusing prescription medications, buying by prescription-only medications directly without consulting a doctor.(Baracaldo-Santamaría et al., 2022)

Objective

- Determine the self-medication practices among undergraduate medical students in private medical colleges of Lahore
- Examine the association between self-medication habit and demographic variable such as income
- Explore the basic reasons for practicing self-medication among students

LITERATURE REVIEW

The study conducted in Iran focused on medical university students and reported a self-medication prevalence of 19%. Although this figure is relatively lower than those observed in similar studies from other regions, it still highlights a concerning trend, especially considering the expected professionalism and medical knowledge of the participants. The authors noted that the most cited reason for self-medication was the belief in the safety of over-the-counter (OTC) drugs. In fact, 66.67% of students indicated that they used medications without supervision because they considered them harmless. This perception underscores the critical need for targeted education on the risks of self-medicating, even with seemingly safe medications.

Medical students represent a particularly important demographic for such research, as they are future healthcare professionals who will shape public attitudes toward medicine use. Their self-medication behaviors may reflect not only their personal beliefs but also the influence of medical training and perceived competence in drug usage. Self-medication is commonly practiced among medical students due to their easier access to medications, confidence in self-diagnosis, and prior exposure to clinical

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knowledge. These factors collectively contribute to higher rates of self-medication among this group compared to the general population.(Kokabisaghi et al., 2024)

A comprehensive systematic review conducted by examined self-medication trends among university students in Pakistan between January 2012 and December 2022. The review reported that approximately 80% of both medical and non-medical students engaged in self-medication, underscoring a significant public health concern. Similar findings have been documented globally, suggesting that self-medication is a widespread behavior among university populations. Several factors drive this practice, including limited access to adequate healthcare services, time constraints in seeking professional consultation, financial challenges, and the use of leftover medications. In Pakistan, the antibiotics most frequently used for self-medication among university students were amoxicillin and ciprofloxacin, raising concerns about potential misuse and the development of antimicrobial resistance. (Khaliq et al., 2024)

This study was investigated self-medication among university students in Peshawar, Pakistan, and another comparing the knowledge, attitude, and practice of self-medication between second-year medical. The findings indicated that the majority of students self-medicated for common conditions such as cold, headache, fever, and sore throat, typically using painkillers, antibiotics, and antipyretic drugs. Approximately 60.2% of participants opposed advocating for self-medication among peers. This highlights a critical distinction between personal behavior and professional ethics. Medical and health sciences students, despite engaging in self-medication, were generally aware of the potential risks and did not endorse the practice for others. This reflects a common theme in the literature where healthcare students often recognize the dangers of self-medication, particularly in the context of inappropriate drug use or incorrect self-diagnosis.(Zahir et al., 2024)

This study focused on assessing the prevalence of self-medication among basic sciences medical students at a tertiary care center. Self-medication rates vary across populations, with medical students consistently reporting higher prevalence compared to the general public. In this study, 67.7% of students in Kathmandu reported engaging in self-medication—a figure considered relatively high in comparison to similar research. Paracetamol was identified as the most commonly used drug, a finding consistent with several other studies on student self-medication practices.(Lekhak et al., 2024)

The study explores that the use of drugs among medical and pharmacy students during the COVID-19 pandemic. The research found a high prevalence of self-medication, with 83.0% of participants reporting the use of medications since the start of the pandemic. This finding aligns with other studies that have highlighted the increase in self-medication during the COVID-19 pandemic. This research found that certain demographic factors were associated with higher rates of self-medication. Female students, students in their third year of medical studies, and individuals who reported good self-reported health were more likely to engage in the use of drugs. Future health professionals need to be taught not only about the pharmacological aspects of medications but also about the ethical and practical considerations of drug use, especially in the context of self-medication. Proper education can help students make informed decisions and reduce the risks associated with inappropriate drug. (Yasmin et al., 2022)

Similarly, The descriptive cross-sectional study to assess the prevalence of self-medication in the management of primary dysmenorrhoea among medical and nursing undergraduate students. The study conducted specifically highlights the high prevalence of self-medication among young women, reinforcing the idea that dysmenorrhoea is often managed by students without professional consultation, despite the availability of medical care in university settings.

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This study also sheds light on the demographic factors that influence self-medication practices in dysmenorrhea. The prevalence of self-medication was found to be particularly high among students aged 21–25 years, which is the age group most affected by primary dysmenorrhea. The use of self-medication was also influenced by the availability of medications, with mefenamic acid being the most commonly used drug.(Shrestha et al., 2022)

In a cross-sectional study was carried out among 866 healthcare students in a Nigerian University. The level of knowledge regarding the appropriate use of self-medication is another critical factor. While self-medication may be common among healthcare students, it is essential to assess their understanding of safe practices. Several studies have indicated that a significant proportion of healthcare students possess inadequate knowledge about the risks associated with self-medication The most common conditions treated by self-medication are often minor ailments, such as headaches, coughs, and malaria. In the study by the most frequently self-medicated conditions were headache (18.4%), malaria (16.9%), and cough (9.3%), which aligns with findings from other studies.The findings from the Nigerian university study provide useful insights into the current state of self-medication practices among healthcare students and underscore the importance of reinforcing responsible medication use during training to minimize potential health risks.(Akande-Sholabi et al., 2021)

The study about Self-medication is the practice of using drugs or other substances without the guidance of a healthcare provider, often to treat symptoms of illness or health conditions. This practice is increasingly common among university students, a population known for its high stress levels, academic pressures, and limited access to healthcare. According to a systematic review and meta-analysis by Behzadifar et al. (2020), the global prevalence of self-medication among university students is alarmingly high, with 70.1% of students reporting having self-medicated at some point.Several factors contribute to the high prevalence of self-medication among university students. One of the key drivers is stress, which is prevalent among students due to academic pressures, exams, and social challenges.(Behzadifar et al., 2020)

Research has shown that both demographic factors (such as gender) and institutional variables (such as attending key versus non-key universities) significantly influence students' motivation and academic performance. Notably, male students were found to exhibit higher levels of intrinsic motivation but, somewhat unexpectedly, lower academic achievement compared to female students. The study emphasized that intrinsic motivation has a more substantial direct impact on academic performance than extrinsic motivation. Furthermore, self-efficacy and learning engagement were identified as key mediators in strengthening the relationship between motivation and performance. These findings suggest that enhancing self-efficacy and engagement could lead to improved academic outcomes, particularly in healthcare education, by supporting more targeted motivational interventions (Wu et al., 2020)

Self-medication (SM) is a common and growing practice among healthcare students, and it carries important implications for both individual health and public health systems. Rational self-medication involves the safe, appropriate, and cost-effective use of medicines for self-diagnosed conditions or minor health problems. Among healthcare students—particularly those studying pharmacy—there is an expectation that their formal education equips them with the knowledge, attitudes, and decision-making skills needed to practice self-medication responsibly. However, multiple studies have highlighted that theoretical knowledge does not always translate into practical, safe behaviors, raising significant concerns about the actual self-medication practices among this group. he findings revealed a strikingly high prevalence of self-medication among the respondents, with 96.73% of pharmacy students reporting that they had engaged in self-medication. The most common conditions

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leading to SM included headaches (78.97%) and symptoms related to cold and cough (79.91%). In terms of medications used, painkillers were the most frequently consumed (90.19%), followed by antibiotics (53.97%). These findings reflect a broader pattern also reported in similar settings, where easy access to over-the-counter drugs, lack of regulatory enforcement, and barriers to professional healthcare access drive high rates of self-medication, even among students who are supposed to be more informed.(Kajumbula and Nsengimana, 2020)

METHODOLOGY

Study Design:

A cross-sectional study design was applied for this study because it allowed for the examination of the frequency of self- medication and the identification of associated risk factors within a specific population at a single point in moment. This design was facilitate the gathering of data on both exposure (risk factors) and consequence alongside, proffering perceptivity into the connections between various factors. (Ali et al., 2023)

Study Setting:

The study was conducted at Shalimar dental and medical College Lahore and Akhtar Saeed medical and dental council Lahore Province Punjab, Pakistan.

Study Population:

All medical scholars of Shalamar and Akhtar Saeed, Medical and Dental College Lahore. Province Punjab, Pakistan.

Sample Size:

For the sample size determination the formula is:

$$n = \frac{z^2.p(1-p)}{d^2}$$

where:

- n = required sample size
- Z = Z-score with confidence level (95% CI)
- P = estimated prevalence or proportion (as a decimal) ,p= (0.82)
- d = margin of error (precision), 5 % (0.05)

$$n = \frac{(1.96)^2.(0.80)(0.20)}{(0.05)^2} = 245$$ (Loni et al., 2023)

Sampling Technique:

Convenience sampling was employed in this research. Participants were selected according to their availability and will to participate, rather than through randomly choosing. (Golzar et al., 2022)

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Data Analysis

The data were analyzed using the version of SPSS V.20.

DATA ANALYSIS AND RESULTS

Table no 1: Demographic Variables Details

Variable		n	%
Gender	Male	39	15.9
	Female	206	84.1
	Do not wish to specify	0	0
Living status	Urban	218	89
	Rural	27	11
Field of study	MBBS	42	42.4
	DPT	35	14.3
	NURSING	106	43.3
Mother Occupation	Officer	0	0
	Employee	12	4.9
	Business	0	0
	House wife	228	93.1
	Retied officer	5	2.0
	Farmer	0	0
	Other	0	0

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Father Occupation	Force person	0	0
	Private employee	34	13.9
	Businessmen	82	33.5
	Govt. Employee	17	11.3
	Retired officer	54	22
	Farmer	16	6.5
	Other	26	10.6
Marital Status	Unmarried	*221*	*90.2*
	Married	*24*	*9.8*
	Widowed	*0*	*0*
	Separated	*0*	*0*
	Divorced	*0*	*0*
Religion	Muslim	*213*	*86.9*
	Hindu	*0*	*0*
	Sikh	*0*	*0*
	Christen	*32*	*13.1*
	Other	*0*	*0*

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How many siblings in your home	1	*7*	*2.9*
	2	*32*	*13.1*
	3	*38*	*15.5*
	4	*91*	*37.1*
	More than 4	*77*	*31.4*
Year of study	Fourth year	*129*	*52.7*
	Final year	*116*	*47.3*
Total house income	30.000-50,000	95	38.8
	51,000-80,000	60	24.4
	81,000-100,000	49	20
	More than 100,000	41	16.7

In a above table the majority were female (84.1%, n = 206), while males comprised 15.9% (n = 39) of the sample. Most participants resided in urban areas (89%, n = 218), while 11% (n = 27) were from rural settings. In terms of field of study, 43.3% (n = 106) were enrolled in nursing, 17.5% (n = 43) in MBBS, and 14.3% (n = 35) in doctor of physical therapy (DPT) programs. Regarding mother's occupation, the vast majority were housewives (93.1%, n = 228), followed by a small proportion of employees (4.9%, n = 12), and retired officers (2%, n = 5). For father's occupation, the largest group were businessmen (33.5%, n = 82), followed by retired officers (22%, n = 54), private employees (13.9%, n = 34), government employees (11.3%, n = 17), farmers (6.5%, n = 16), and others (10.6%, n = 26).In terms of marital status, the vast majority were unmarried (90.2%, n = 221), with only 9.8% (n = 24) being married. Regarding religion, most participants identified as Muslim (86.9%, n = 213), while Christians made up 13.1% (n = 32). The number of siblings varied among participants: 2.9% had only one sibling, 13.1% had two, 15.5% had three, 37.1% had four, and 31.4% reported having more than four siblings. As for academic level, 52.7% (n = 129) were in their fourth year, and 47.3% (n = 116) were in their final year of study. Lastly, the monthly household income of participants was distributed as follows: 38.8% (n = 95) reported an income between 30,000–50,000 Pkr, 24.4% (n = 60) between 51,000–80,000 pkr, 20% (n = 49) between 81,000–100,000 Pkr, and 16.7% (n = 41) had an income of more than 100,000 pkr.

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Table 2: Prevalence of self-medication among the medical undergraduates

Have you taken self-medication in the last 12 months?

	Frequency	Percent
No	55	22.4
Yes	190	77.6
Total	245	100.0

The table shows that a significant majority of respondents (77.6%) answered "Yes" to engaging in self-medication, while only 22.4% responded "No." This indicates a strong tendency among the participants toward the practice of Self-medication.

Graphical Representation of Table no 1:

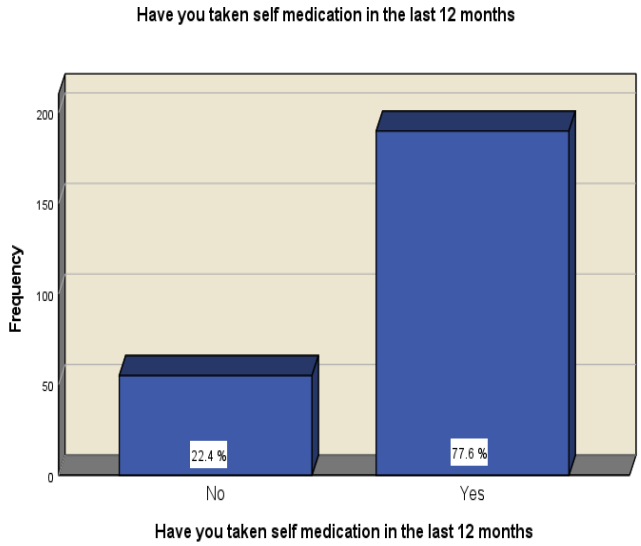

Table no 3: Examine the Underlying Reasons for Self-Medication

Basic Reason of Self-Medication

Reasons	Frequency	Percent
Doctor/ Clinic far from home	36	14.7
High Fee	6	2.4
No trust in doctor	3	1.2
save time	80	32.7
old prescription	97	39.6
I have medicine of family member	6	2.4
pharmacist advice	17	6.9
Total	245	100.0

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The above table highlights the various motivations behind individuals' decisions to self-medicate. The most frequently cited reason was the use of an old prescription, reported by 97 participants (39.6%). The second most commonly reported reason was the desire to save time, mentioned by 80 participants (32.7%). On the other hand other important factors include the distance to a doctor or clinic (36 participants, 14.7%) and pharmacist advice (17 participants, 6.9%). Less commonly mentioned reasons were high consultation fees (6 participants, 2.4%), lack of trust in doctors (3 participants, 1.2%), and the availability of unused medications from a family member (6 participants, 2.4%)

Graphical Representation of Table no 3:

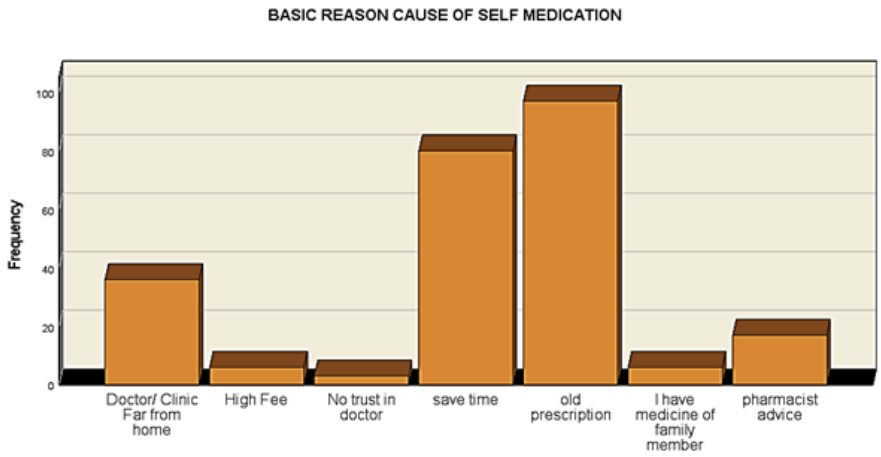

Table no 4: Association of Self-Medication and Income

Demographic Factors Total House income	Self-Medication Habit		Pearson	
	No	Yes	*Chi-square Value*	*P-Value*
30,000-50,000	19	76	*19.344*	*0.000**
51,000-80,000	19	41		
81,000-1,00,000	17	32		
more than 100,000	0	41		
No of valid Cases	*245*			

**** Significant association between factors***

The P-Value (0.000) and the Chi-Square Value (19.344) indicate a statistically significant association between self-medication habits and total house income.

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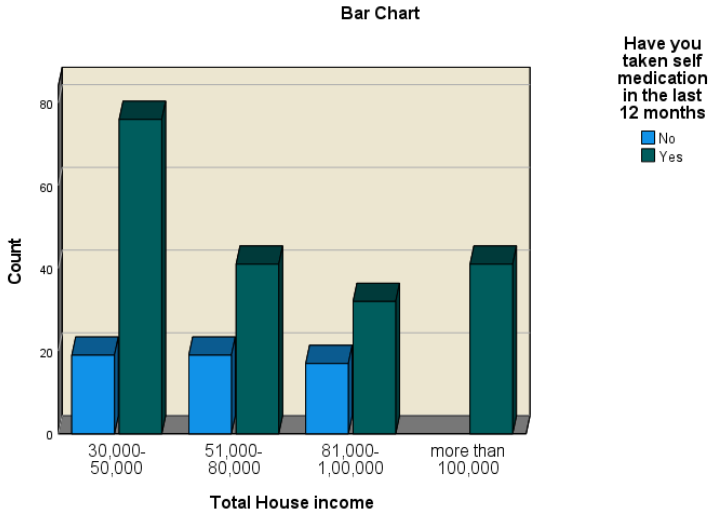
Graphical Representation of Table no 4:



CONCLUSION AND RECOMMENDATIONS

Conclusion

This study highlights the high prevalence of self-medication among undergraduate students, particularly in medical sciences with significant factors contributing to this behavior. The widespread reasons for self-medication include the use of old prescriptions and the desire to save time, with factors such as distance to healthcare facilities and pharmacist advice also playing a role of self-medication. The results focus the significance of attitudes and information regarding self-medication since people is more inclined to approach it carefully if they are more aware of the possible risks. Based on the data, a significant majority of respondents (77.6%) reported self-medicating within the last 12 months. Only 22.4% did not engage in self-medication. This indicates that self-medication is a common practice among the population surveyed. Similarly The chi-square test ($\chi^2 = 19.344$, $p = 0.000$) reveals a strong and statistically significant association between household income and self-medication habits. Interestingly, both the lower-middle (30,000–50,000) and highest (over 100,000) income groups exhibit higher self-medication rates, suggesting a non-linear pattern. This underscores the need for income-tailored health education and policy initiatives to address self-medication behaviors across different socioeconomic groups. The study's results suggest an urgent need for awareness programs and stricter regulations regarding use of self-drug, particularly among medical and health-care students. By addressing gaps in knowledge and improving attitudes through education, it is possible to reduce the risks associated with unsupervised self-medication and encourage more responsible healthcare-seeking behaviors.

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Recommendation

- Conduct regular seminars and workshops on the risks and consequences of self-medication, especially targeting medical and healthcare students.
- Apply stricter policies to limit the sale of medications without a valid prescription, particularly antibiotics and other high-risk drugs.
- Take a new survey on a large population and use random sampling

DATA AVAILABILITY

Data availability by the Author

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