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ORIGINAL ARTICLE

Exploring self-medication patterns among students in Khyber Pakhtunkhwa, Pakistan: A comparative analysis between medical and non-medical disciplines.

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ABSTRACT… Objective: To determine the prevalence and factors associated with self-medication among students with medical and non-medical backgrounds in Peshawar, Khyber Pakhtunkhwa. **Study Design:** Cross-sectional study. **Setting:** Medical and Non-medical Universities of Peshawar. **Period:** May to October 2022. **Methods:** For this comparative analysis, sample size was calculated based on the formula of Cochran, taking a 95% confidence level with 5% precision. The sampling was conducted using a non-probability convenience approach. Data was collected using a structured questionnaire and analyzed with the help of SPSS v.25. **Results:** A study sample of 427 participants with a 95% response yielded 212 medical students and 215 non-medical students. The prevalence of self-medication among medical and non-medical students was 35.36% and 39.35%, respectively. The occurrence of self-medication was reported as 7% daily, 11% weekly, 11% fortnightly, and 71% monthly. Among the reasons for self-medication, headache was the most common (49.65%), followed by cough/sore throat/cold (31.85%), fever (26.46%), generalized body aches (17.56%), heartburn/indigestion (14.75%), nausea/vomiting (9.36%), constipation (4.91%), anxiety/depression (4.68%), and insomnia (3.51%), while 8.89% constitutes other factors like allergies, skin rashes, and weight loss. The main reason for self-medication was the mild nature of the illness, which accounted for 31.85% of cases. **Conclusion:** The study indicated a considerable number of student population involved in self-medication practices. The prevalence of this behavior was slightly more common among non-medical students than medical students. Various factors contributed to self-medication ranging from physical symptoms to mental health issues.

Key words: Khyber Pakhtunkhwa, Medical Students, Non-Medical Students, Self-medication.

INTRODUCTION

Self-administration of drugs to treat a medical problem without the guidance or supervision of a medical professional is known as self-medication.[1] When done properly, the practice to self-medicate can be beneficial, because it can diminish the burden on medical services and the time spent waiting for a physician. It can also save costs in poor countries with inadequate healthcare resources.[1] However, inappropriate self-medication can lead to depletion of resources and resistance to pathogens, causing health-related issues that could have been easily prevented. This involves encountering the side effects of drugs and developing an increased tolerance to certain drugs, resulting in drug addiction.[2] Although a considerable proportion of drugs recommended for the treatment of diseases are claimed to be safe, they can still cause harm if the person possesses inadequate understanding regarding their usage. Another obstacle associated with self-medication is that it can mask the diagnosis of the actual disease, preventing the underlying cause of the symptoms from being treated.[3] Considering the side effects of self-medication, research conducted in Abbottabad showed that 22.7% of the study population developed an addiction to certain drugs.[2] Despite being aware of the detrimental outcomes, 62% of the participants persisted to practice it.[4]

Self-medication is highly prevalent in different parts of the world, reaching up to 97.8% in Kuwait[5],

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86.4% in Brazil[6], 68% in European countries, 38.5% in Ethiopia[7], 44.8% in Bahrain[8], and 59% in Nepal.[9] Numerous research investigations have concluded a wide variety of reasons contributing to the propensity for self-medication among different professions and demographics. A notable proportion of individuals relied on their past experiences, rendering them the best judge of their medical requirements.[10] Moreover, these practices were found to be significantly impacted by other factors such as gender, age, level of education, and monthly income of the study participants.[11]

The gender of an individual emerges as a significant determinant in the adoption of self-medication practices.[12] Several studies have reported a higher frequency of self-medication among females than in males.[1,11,13,14] Interestingly, this practice was common even among individuals lacking affiliations with the field of medicine.[2] The level of education of the individual was found to be the most contrasting variable influencing self-medication.[3] People with lower literacy levels were engaged in self-medication to a lesser degree compared to those with higher levels.[4] Another study revealed that adolescents hailing from families that self-medicate were more inclined to this practice.[15]

The objective of this study was to evaluate the frequency of self-medication among students of Khyber Pakhtunkhwa and the factors influencing it. To assess the knowledge of medical students, their rate of self-medication was compared with non-medical students. As prospective physicians tasked with prescribing drugs, their self-medication practices might reflect their understanding of the subject. Such insights facilitate the health-related bodies and policymakers to obtain an accurate estimate necessary to mitigate the act of self-medication.[13]

METHODS

From May to October 2022, this cross-sectional study involved the selection of medical students from Khyber Medical University and non-medical students from Peshawar University. Approval for the study was obtained from the research and ethics committee of Pak International Medical College, Peshawar, referenced by letter No. 351/CM/PIMC. Participants were enlisted through non-probability convenience sampling, with informed consent procured from each individual. The sample size was determined using the Cochran's formula, with a 95% confidence level and 5% precision. For data collection, a validated questionnaire was utilized, drawing inspiration from similar studies conducted previously.[1,11,15] A questionnaire was self-administered to the participants, ensuring accurate and unbiased responses. The questionnaire was designed to gather important information including demographic particulars, self-medication behaviors, and potential influencing factors. Subsequently, the Statistical Package for the Social Sciences (SPSS) version 25 was used to analyze the recorded data.

RESULTS

In this study, 427 responders participated and were categorized into age groups of 18–20 years (n=161), 21–24 years (n=258), and 25–27 years (n=8). Among them, 49.89% were female and 50.11% were male. 50.35% were recognized as non-medical students while 49.64% were medical students. Participants were categorized as urban (56.67%) and rural (43.33%) based on their permanent residence. In terms of household income, 45.35% reported making less than 50,000 pkr, 24.36% reported between 50,000 to 100,000, and 30.29% reported an income greater than 100,000 pkr. Regarding housing, 48.95% were day scholars and 51.05% of the participants resided in hostels. As illustrated in Figure-1, 35.36% of 212 medical students and 39.34% of 215 non-medical students reported self-medication. The total prevalence of self-medication among all students surveyed was found to be 74.7%.

Out of a total 214 male students, 165 reported engaging in self-medication whereas, among 213 female students, 154 admitted to self-medication. The most common frequency of self-medication reported was monthly, accounting for 71% of the students followed by fortnightly and weekly as shown in Figure-2.

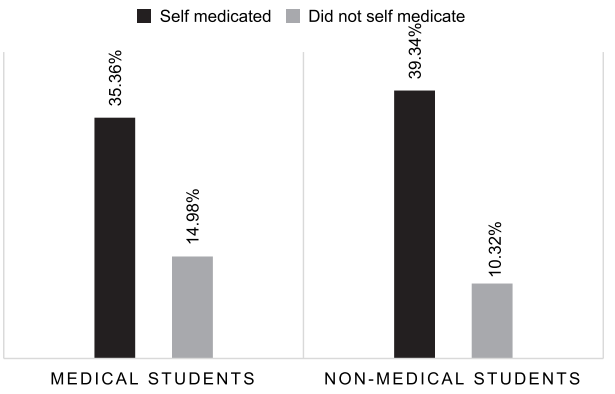

Figure-1. Frequency of self-medication among medical and non-medical students

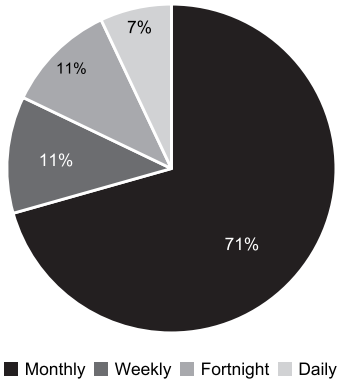

Figure-2. Frequency of self-medication

The most prevalent reason recorded for not engaging in self-medication was the fear of adverse effects. Following this, the concerns about its harmful effects on health were reported at 6.32%. Other reasons included feeling insufficiently knowledgeable (5.15%), lacking confidence (3.04%), and previous bad experiences with self-medication (1.17%).

Figure-3 illustrates the frequency of various conditions for which students reported self-medication. Headache emerged as the most prevalent condition with a percentage of 49.65%, followed by cough, sore throat, cold, and fever. It is important to note that the percentages exceeded 100% because respondents selected multiple conditions for self-medication.

The primary reason cited for self-medication was the mildness of the illness, accounting for 31.85% of cases. Other factors included the urgency of the problem (17.09%), lack of time (16.39%), unavailability of health services (3.04%), lack of money (3.51%), and unavailability of transport (1.87%).

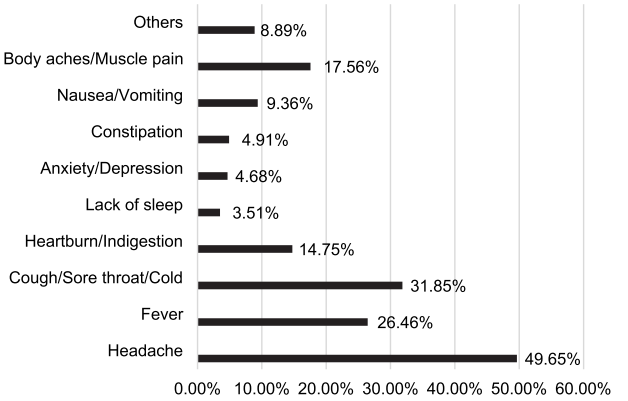

Figure-3. Frequency of conditions for which students engaged in self-medication

Regarding the sources from which they seek guidance, a large number of students (35.12%) engaged in self-medication based solely on their own decisions, without seeking any external recommendations. Others sought advice from family members (32.78%), friends or classmates (3.51%), pharmacists (16.86%), or relied on information gathered from the internet (11.94%).

Concerning the reading of patient information leaflets, 29.97% of students indicated that they occasionally read them, while 22.71% admitted to never reading them. The remaining respondents revealed reading the leaflets consistently. Out of the students surveyed, 12.17% encountered adverse events associated with self-medication, while 46.37% reported no such incidents. Additionally, the remaining students expressed uncertainty regarding adverse events.

DISCUSSION

The phenomenon of self-medication within the wider population poses a significant concern necessitating urgent intervention. Despite potential advantages, the risks could be more important if there is not enough oversight. Previous researches have explored variances in self-medication tendencies between individuals with medical training and those without. In this study, it was observed that self-medication prevalence

among non-medical students stood at 39.34%, surpassing the rate among medical students at 35.36%, resulting in an overall prevalence of 74.7%. Similar findings were reported in a study conducted in Karachi, where non-medical students were more into self-medication compared to their peers studying medicine.[4] However, these findings were in contrast with a meta-analysis indicating that medical students tend to self-medicate more than non-medical students.[13] This could be due to various factors. Firstly, medical students due to their training, usually possess a better understanding of drugs and their potential side effects. They may frequently use the same drugs during their educational training, resulting in increased familiarity with self-medication. Moreover, medical students often have easier access to these drugs which makes self-medicating with familiar substances even more common.

Some studies have suggested that there exists no notable distinction in self-medication practices between students in medical and non-medical fields.[1,2,6,7,9] The high prevalence among both cohorts implies their inclination toward assuming accountability for their health. However, this conduct also exposes them to potential hazards such as inaccurate diagnoses, improper medication usage, polypharmacy, and drug interactions. In this study, the most common reason for self-medication was the perceived mildness of the disease corresponding to results with similar findings from other studies.[4,10,14,16,17] Moreover, the majority of students were engaged in self-medication without recommendation, indicating autonomous decision-making, a trend aligned with findings from another study.[18] This demonstrates the prevalent tendency among individuals to self-medicate who perceive their illness as minor. In different studies, however, various sources of recommendation for drugs were reported such as media, advertisements[7,19] family[6,15], physicians, pharmacists[1,16], past experiences[10], and use of old prescriptions.[14]

In our study population, headache emerged as the most common condition to self-medicate, a finding consistent with results from studies conducted in Karachi.[4] The prevalence of students resorting to painkillers is not surprising because academic stress may contribute to headaches, compelling students towards this practice. As reported in different researches[2,10,12,15], this study didn't identify discernable variances in self-medication rates between genders. But, certain surveys have suggested higher instances of self-medication among females.[1,5,11,13,14] This distinction might potentially arise from the challenges related to menstruation and gynecological concerns faced by women. Societal and gender norms might incline females towards prioritizing their health needs and seeking treatment independently.

Considering the widespread occurrence of self-medication among students, educational bodies must implement health awareness programs to educate them about the potential risks associated with this act. They must also highlight the importance of consultation with healthcare professionals for correct use of over-the-counter drugs. Additionally, the government should enforce strict policies to control the distribution of drugs without proper prescription.

There are some limitations of this study including the constraints of conducting an extensive survey, demanding significant time and resources. This could result in the production of less comprehensive data. Since, this study was restricted to students from one province, limiting the applicability of the findings to other provinces of Pakistan. Variables such as access to healthcare, economic status, personal beliefs, and cultural norms might impact the observed relationships.

CONCLUSION

Self-medication appears to be slightly higher among non-medical students compared to their medical counterparts, demonstrating a total prevalence of 74.7%. These findings indicate that a significant segment of students are engaged in self-medication practices. The common rationale stated for this behavior was the perception of the mildness of the disease. Factors influencing self-medication varied widely, ranging from physical ailments like headaches and fever to

psychological issues like anxiety and depression.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Baber Awan	Conceptualization, Data collection.	
2	Mohammad Hassan Khan	Study design, Data analysis, Manuscript write-up.	
3	Muhammad Afnan Ghazi	Statsitical analysis, Bibliography.	
4	Abdul Mussawwir	Data analysis and curation.	
5	Muhammad	Critical review, Editing final draft.	
6	Muhammad Saleh Faisal	Manuscript write-up, Data interpretation.