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Original Research Article

An insight into self-medication patterns of analgesics among medical students: a comprehensive analysis of factors and determinants

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ABSTRACT

Background: Self-medication is widely practiced globally as a major form of self-care for pain management. Unfortunately, with the COVID-19 pandemic, prescription-only drugs are now increasingly being self-prescribed. This study was conducted to study self-medication practices of analgesics and associated factors among medical students of Lahore.
Methods: A cross sectional study was conducted among 432 participants. The participants were all current MBBS students (age group=18-25 years) studying in various medical colleges of Lahore, Pakistan. Data were analyzed using SPSS. The significance value was set at $p<0.05$. The study was conducted from September, 2021 to October, 2021.
Results: Self-medication practices were found to be high among medical students of Lahore, 296 (68.5%) out of total participants (432). Of all the analgesics, acetaminophen was the most preferred for relief of pain of various etiologies (64.58%). The most common reason of self-medication was headache (50.69%). Reason for self-medication for the majority of study population was that disease was not severe enough and did not merit to consult a doctor (36.34%).
Conclusions: Education on self-medication should be introduced at the undergraduate level to create awareness among students. The study also indicates the need for establishing health clinics in universities so that the students may benefit from the professional advice of trained health staff in the clinics rather than practicing self-prescription. Periodic survey about self-medication practices is required to improve awareness, prevent health issues related to adverse drug reactions of self-medication practices, and prevent economic burden on healthcare system in Pakistan.

Keywords: Self-medication, NSAIDs, Analgesics, Acetaminophen, Medical students

INTRODUCTION

Self-medication is the practice of using OTC (over-the-counter) drugs to alleviate symptoms or illnesses that the patient thinks do not merit enough to get checked by a doctor. It can also be defined as the use of non-prescription medicines by people on their own initiative.[1]

There appear to be various motives for self-medication including familiarity with symptoms or disease, belief that one is knowledgeable enough, financial issues, time-consuming doctor visits, and a non-serious attitude in dealing with one's own health issues.[2] Also, during the recent crisis of COVID-19, there has been a common perception and a general fear among people of the

possibility of contracting COVID-19 with increased hospital visits, social stigma relating to the disease, and travel restrictions. There has been depressing news from different parts of the world that people have self-medicated with drugs that were just to be dispensed and taken only at the doctor's advice; this has even led to deaths in some places.[3]

On one hand, self-medication saves time, and money and compensates for the lack of access to healthcare facilities to remote areas but on the other hand equally and perhaps more dangerously can cause fatal outcomes, such as life-threatening drug interactions, other serious adverse effects drug resistance and dependence and the problems being marked in pregnancy, lactation and at the extremes of age.[4]

Various studies have been conducted across the globe to determine causes and factors relating to self-medication. A study conducted on university students in Brazil indicated headache as the most common reason for self-medication followed by common cold, sore throat, fever, menstrual cramps, muscle pain, cough, and heartburn.[5]

A review of the published medical literature emphasizes that analgesics and antihistamines are the most frequently used medicines for self-medication purposes followed by antibiotics, antacids, multivitamins and anti-helminthic. Similar studies conducted in Chile, Bengal and Iran have shown the same results.[6,7] The condition in Pakistan is not very different. Studies carried out in Karachi and Abbottabad have shown increased rates of self-medication; about 76% of the population were self-medicating in Karachi and the prevalence of self-medication in Abbottabad was 95.5%.[8] Most common indication was headache followed by flu and fever. Analgesics, antipyretics and antibiotics were found to be the most commonly used medicines as is evident from the studies conducted in Karachi, Abbottabad and Islamabad.[9,10]

Self-medication is prevalent among all types of students but medical students bearing somewhat more knowledge about medicines, their indications and adverse effects are more prone to self-medicate. The existing literature was found to be deficient in regards to the reasons of self-mediation in the medical students of Pakistan. Furthermore, since COVID-19 pandemic medication practices and healthcare seeking behaviors have considerably changed. This study is being conducted to study self-medication practices of analgesics and associated factors among medical students studying in various medical colleges of Lahore.

METHODS

The sample size was calculated to be 384 with a confidence level of 95%, a margin of error of 5%, and a population proportion of 50%. The study was conducted among 432 participants. A pilot study was employed on 40 subjects to confirm the validity of the questionnaire, and the necessary amendments were made. The study was conducted from September, 2021 to October, 2021.

The inclusion criteria consisted of current MBBS students in the medical colleges of Lahore, Pakistan. Data from both government and private medical colleges were collected. All years in the medical colleges (1st year-final year) were included. Responses by students who did not self-medicate in the last 3 months were also included in the study.

Study design

A descriptive cross-sectional study was conducted using a research questionnaire from a previous study conducted at university college, Farasan province, Jazan University in Jazan, KSA. Permission to use the questionnaire was obtained via email by one of the authors. Google forms was used as a platform to make the questionnaire and was circulated amongst various medical colleges in Lahore through their class representatives. To prevent the contamination bias, students were allowed to fill the form once only. The research study was approved and supervised by the community medicine and public health department, Shaikh Khalifa Bin Zayed Al Nahyan medical and dental college, Lahore, Pakistan. Consent was obtained to use the information provided only for research purposes and it was stated that identities would be kept confidential. Any entries made by medical students studying outside Lahore and medical graduates were excluded.

The questionnaire was modified to include only questions regarding analgesics usage and demographic data including information about study year (first-final year), gender, age, area of stay (Hostelite or day scholars) and area of residence (Urban or rural). The data were used to compare and contrast the frequency and type of analgesics used along with the reasons for usage, method of procuring the drugs and reason for not consulting with a physician beforehand.

Study setting

Study was conducted in Lahore, Pakistan. Students were approached online through their class representatives. The questionnaires were self-administered and were collected online via Google forms. All students from different backgrounds were included who were studying in private and government medical colleges both.

Statistical analysis

Data were collected online via Google forms and analyzed using the software SPSS. The data were presented as mean, standard deviation (SD), frequency and percentages. Comparative study was done using Chi square test and significance value was considered to be $p<0.05$.

Ethical approval obtained from departmental committee, department of community medicine and public health at Shaikh Khalifa bin Zayed Al-Nahyan medical and dental college, Lahore, Pakistan. All questionnaires were considered as informed consent from participants.

RESULTS

Demographic information (Table 1) obtained detailed to be students aged 21.77±SD 1.454. Students who had no illness in last 3 months were 203 (47%) and students who had some illnesses were 229 (53%). Those who had self-prescribed during last 3 months were 296 (68.5%) and those who hadn't self-prescribed were 136 (31.5%).

The minimum age was found to be 18 and the maximum age was 25 years. The students were categorized in two age groups: 164 students having ages 18-21 and 267 aged 22-25 years. The self-prescribing users in the category 18-21 years were 102 (62.19%), while in the category 22-25 years were 193 (72.28%). The value of chi square between self-prescription and age category was 4.789 against the degree of freedom value of 1, for which the threshold at p=0.05 is 3.841. Therefore, the correlation of age category with self-medication practices is significant, showing an increased percentage of usage in the students from the 22-25 years category.

232 (53.7%) of the study population were female and 200 (46.3%) were male. Among the females, the number of students who had self-prescribed in the last 3 months was 167 (71.98%), while among the males it was 129 (64.5%). Our study showed no significant relation between self-medication practices and gender.

In terms of residence, 389 students were from urban areas, out of which 265 (68.1%) practiced self-medication, whereas 43 were from rural areas, out of which 31 (72.1%) practiced self-medication in the last three months. Our study showed no significant relation between self-medication practices and the residence of students.

Hostelite medical students were 210 and day scholars were 222, showing the self-medication frequency percentages of 68.1% and 68.9%, respectively. Our study showed no significant relation between self-medication practices and student accommodation status.

Self-medication practices of analgesics were significantly affected by the year of study as has been shown in Table 1. The value of chi square between self-prescription and study year was 22.458 against the degree of freedom value of 4, for which the threshold at p value of0.05 is 9.488.

Table 1: Demographics.

Demographic characteristics	Total no. of participants	No. of users	Percentage of users (%)	Non-users	Percentage of non-users (%)	P value
Gender						
Male	200	129	64.5	71	35.5	0.095
Female	232	167	71.98	65	28.01	
Age groups (in years)						
18-21	164	102	62.19	62	37.8	0.029
22-25	267	193	72.28	74	27.7	
Residence						
Urban	389	265	68.1	124	31.9	0.59
Rural	43	31	72.1	12	27.9	
Accommodation						
Hostelites	210	143	68.1	67	31.9	0.85
Day Scholars	222	153	68.9	69	31.1	
Study year						
1st	40	20	50	20	50	0.00
2nd	59	39	66.11	20	33.89	
3rd	89	49	55.05	40	44.9	
4th	181	140	77.34	41	22.65	
5th	63	48	76.2	15	23.8	

P<0.05 is statistically significant.

Causes of self-medication practice

Most common reason of self-medication (Figure 1) found to be headache (50.69%) followed by fever (29.4%) and then runny nose/cold/flu (22.69%). There was no reported practice of self-medication for epilepsy, burns/ birth control. However, people did self-medicate for dandruff, hair fall and acidity which may highlight their lack of knowledge of indications of different analgesics.

Most used analgesics for self-medication

This study reported that the most self-prescribed analgesic was acetaminophen (64.58%) out of which

35.5% of the participants used acetaminophen as the only analgesic in the last 3 months. The second most used analgesic was ibuprofen (14.35%), 13.66% of the study population used analgesics besides the ones listed in the questionnaire.

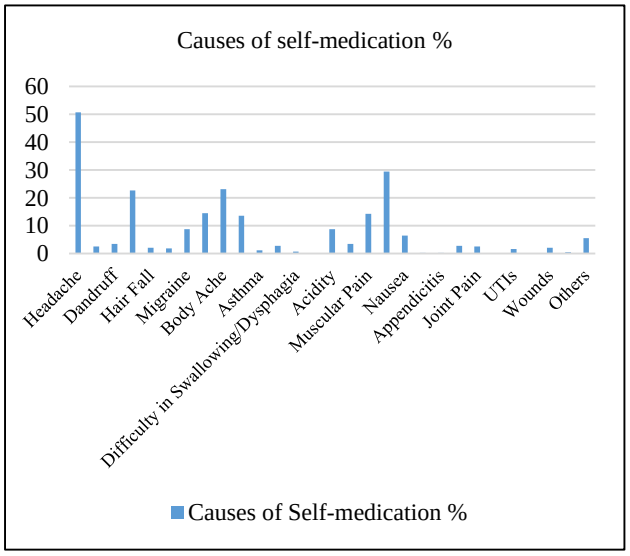

Figure 1: Causes of self-medication.

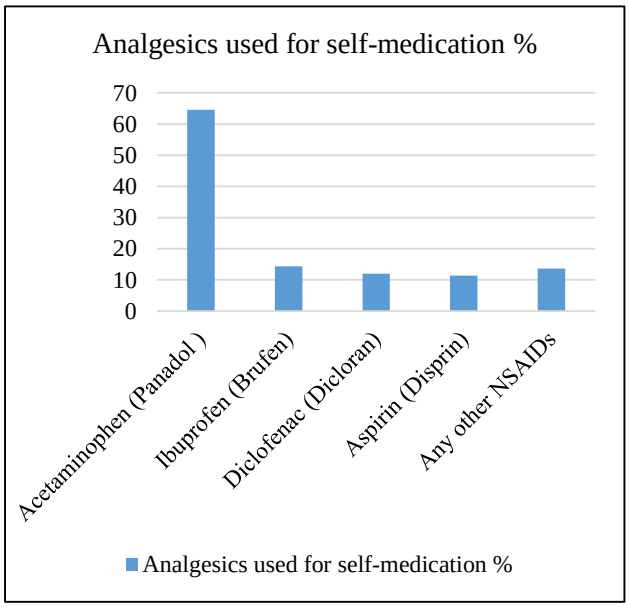

Figure 2: Analgesics used for self-medication.

Factors associated with self-medication of analgesics

Data analysis of questionnaires indicated that there were a number of reasons for self-medication with analgesics (Figure 3). The most common reason to self-medication among undergraduate medical students of Lahore was that the disease did not merit a consultation by the doctor (36.34%), followed by the need to save time (18.52%) or due to their busy academic schedule (15.74%). The least reported cause for self-medication was that they did not trust the doctors (0.46%).

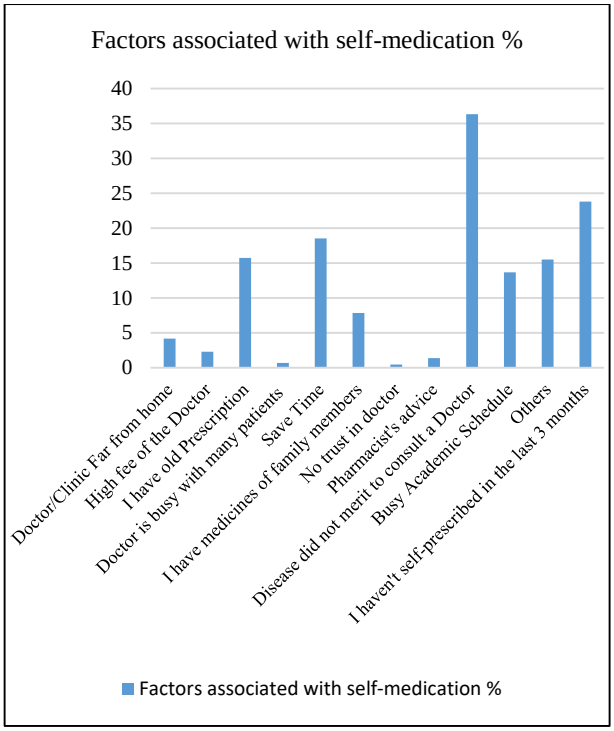

Figure 3: Factors associated with self-medication.

Sources of drugs for self-medication

According to this study, 73.61% of the participants bought medicine from a pharmacy while 77 (17.82%) participants took medicine from their family, friends or old prescriptions. Only 1.16% of the participants bought medicines through online shopping. 2.55% of the respondents took medicines from other sources not listed in the questionnaire.

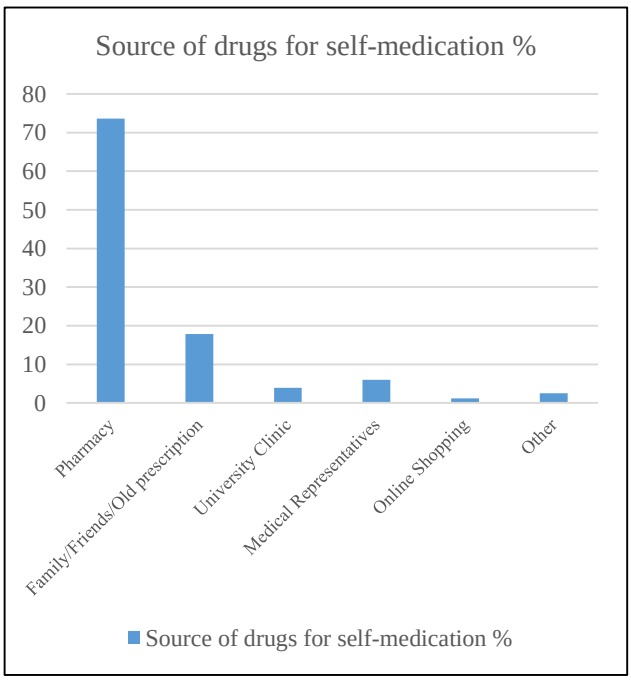

Figure 4: Source of drugs for self-medication.

Frequency of adverse effects after self-medication

Out of 432 participants, 411 (95.1%) reported no adverse effects. The remaining 4.9% reported side effects to be among one of acidity, skin rashes, diarrhea, vomiting or dizziness.

DISCUSSION

This study delves into the self-medication practices among undergraduate medical students in Lahore, shedding light on various demographic factors, causes, analgesic preferences, sources of drugs, and the frequency of adverse effects. A comprehensive analysis of the gathered data reveals several noteworthy trends and associations, providing valuable insights for both healthcare practitioners, stakeholders and policymakers.

Demographic characteristics play a significant role in understanding self-medication patterns. The findings in this study indicate that age is significantly correlated with self-medication practices, with a prominent increase observed in the 22-25 years age category. This aligns with previous studies that highlight how older individuals tend to engage in self-prescription more frequently, possibly due to a more sense of independence and self-reliance.[11]

Gender, on the other hand, does not appear to be a significant factor influencing self-medication practices among the targeted students. This finding contradicts some previous studies that suggest varying self-medication tendencies between genders, possibly attributed to differences in healthcare-seeking behavior.

The study further explores the influence of residence and accommodation status on self-medication practices, revealing no significant associations. This finding contradicts previously done studies.[12] This may indicate that the accessibility of healthcare facilities, a common factor in urban-rural disparities, does not substantially impact self-medication behaviors in this student population.

Interestingly, the study uncovers a connection between the year of study and self-medication practices with analgesics. This emphasizes the evolving nature of self-medication behavior throughout the academic journey as the students promote to the senior years. The implications of academic stress and increased exposure to medical knowledge on self-medication warrant further investigation.[13]

The causes behind self-medication practices depicts the decision-making process among the students. The reluctance to consult a doctor for conditions deemed non-serious, the need to save time, and a busy academic schedule emerge as predominant reasons. These findings emphasize on the importance of health education programs targeting medical students to enhance their awareness regarding appropriate healthcare-seeking behaviors.[14]

The choice of analgesics for self-medication reveals a preference for Acetaminophen among the surveyed population. This aligns with global trends, where Acetaminophen is often favored due to its perceived safety profile. Understanding the factors influencing drug selection is crucial for designing interventions that promote responsible self-medication or limit the self-medication practices.

Examining the sources of drugs for self-medication it is found that the majority of participants procured medicines from pharmacies, emphasizing the need for strict regulatory measures to ensure responsible dispensing. The low prevalence of online shopping for medicines suggests a limited reliance on e-commerce platforms, potentially due to concerns related to product authenticity and safety.

Lastly, the study reports a remarkably low frequency of adverse effects after self-medication, with the majority of participants experiencing no side effects. This contradicts broader literature on the potential risks associated with self-medication. It is imperative to monitor adverse effects closely and raise awareness among students about the potential dangers of unsupervised drug use.

In conclusion, this study contributes valuable insights into the self-medication practices of undergraduate medical students. The identified trends and associations highlight the multifaceted nature of self-medication behaviors, necessitating targeted interventions to promote responsible practices and ensure the well-being of this demographic.

However, the scope of this study is limited to the medical institutes and the outcomes necessitate further studies which involve non-medical institutions to get a broader insight into this realm.

CONCLUSION

Education on self-medication should be introduced at undergraduate level to create awareness among students. The study also indicates the need for establishing health clinics in universities so that the students may benefit from professional advice of trained health staff in the clinics rather than practicing self-prescription. Periodic survey about self-medication practices is required to improve awareness, prevent health issues related to the adverse drug reaction of self-medication practices and prevent economic burden on the healthcare system in Pakistan.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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