

Exploring Knowledge, Attitudes, and Practices on Self-Medication: A Comparative Analysis among Medical and Non-Medical Students

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ABSTRACT

Background: Treatment of self-identified disorders without consulting any health expert is Self-medication. It is a pressing issue, especially in developing countries where its prevalence is very high.

Objective: To compare the self-medication knowledge, attitude, and practices between medical and non-medical students.

Methodology: The study design was a comparative cross-sectional study, which was conducted amongst 708 undergraduate students (381 medical and 381 non-medical) using a quota sampling technique from March to June 2024. An online closed-ended questionnaire was used to assess knowledge, attitude, and practices regarding self-medication.

Results: The response rate was 93% with an age group of 18-24 years. 83.6% of the medical students and 78.2% of the non-medical students had good knowledge ($p=0.001$). The frequency of good attitude between medical and non-medical students was 25.4% and 16.4% respectively ($p=0.004$). The prevalence of self-medication practice among medical (73.7%) and non-medical (69.5%) ($p=0.211$).

Conclusion: Despite good knowledge, there is a neutral attitude and poor practice towards self-medication. Towards self-medication among undergraduate students, independent of their field of study. Easy access to doctors and health centers, along with proper monitoring of drug sales, can reduce self-medication rates among students.

Keywords: Self-medication, undergraduate, medical students, knowledge, practice.

INTRODUCTION

WHO defines self-medication as the treatment of self-identified disorders by the use of medicine without any consultation from any trained health expert, or the on-and-off consumption of medicine that a health professional previously prescribed for a recurring disease. When self-medication is performed appropriately, it can have some benefits for individuals as well as health systems; it helps save time that is wasted in waiting for a doctor consultation, saves already dwindling medical resources from being wasted on minor conditions, lessens the work pressure on doctors, reduces health costs, and reduces undue absenteeism from work [1].

Analgesics, antibiotics, multivitamins, and cough and cold medicines are among the most commonly self-administered medications. High exposure to pharmaceutical commercials and social media has contributed to an increase in self-medication practices among university students [2]. Reusing older prescriptions, taking in unconsumed medicines, homemade supplements, and therapies on the suggestion of relatives/friends or neighbors are all examples of self-medication practices [3].

Self-medication can be defined as a two-edged sword for its consumers, having both positive and negative consequences. Multiple elements are assumed to play a part in self-medication, and this can change in a region-specific pattern, with a few of them being the way of life, easy access to drugs, socioeconomic factors, etc. [4]. Moreover, the key issues linked with self-medication include adverse drug reactions, drug resistance, squandering of resources, and grave health dangers such as death [5]. SM practices based on individual experience while curing the same illness might contribute to the wrong diagnosis, which may lead to inappropriate treatment and ensuing health issues [6]. Today, self-medication has increased across the globe, with its occurrence being the highest in developing countries [7].

The problems that are linked to SMA are somewhat complicated in the developing world, such as the paucity and low quality of healthcare services at the primary care centers, little (official) access to medicines, and the absence of staunch policies for the monitoring of sales of medicines, mainly antibiotics [8]. According to multiple studies, the occurrence of SM is 32.5% to 81.5% across the globe [9, 10]. According to a fresh study done in Pakistan, nearly 7.9 medicines were sold without a prescription to an average of 5.5 clients in each local pharmacy [11]. In Pakistan, most self-administered medications are antimicrobials (azithromycin), anti-parasitic (ivermectin), anti-malarial (hydroxychloroquine), alongside leukotriene inhibitors (montelukast), vitamin D,

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zinc, calcium, and paracetamol [12]. These medications are in short supply in the dispensaries in the main cities of Punjab. Instant and extended complications may arise as a consequence of improper or excessive use of these medications [13]. Hence, it is mandatory to perform a study that might assist the government authorities in creating stern strategies to monitor pharmacies/medical stores not to sell antibiotics without prescriptions (over-the-counter; OTC) and assist in the formulation of educational interventions for the proper utilization of antibiotics, both for medical professionals and the general population [14].

Anyhow, to sum it up, there is a dire need to control this rising problem. This study aims to understand the Knowledge, attitude, and practices of Undergraduate Medical and Nonmedical students toward self-medication in Faisalabad and recognize the elements that could affect the practice of self-medication; to recognize the classes of medications used; to identify sources of information regarding drugs used; and to recognize reasons for self-medication.

METHODOLOGY

A comparative cross-sectional study was conducted at Aziz Fatimah Medical and Dental College and University of Agriculture, Faisalabad, from May to June 2024, after taking ethical approval from the Institutional Ethical Committee with the number IEC/292-24. The sample size was calculated using the WHO sample size calculator. The required sample was obtained after calculation, i.e., 762 (381 in each group for AFMDC and UAF), with a 95% confidence interval and power of 80%. Estimated proportions of self-medication in nonmedical students were 0.491[15], and for medical students, it was 0.592 [15].

381 medical students from Aziz Fatima Medical and Dental College and 381 non-medical students from the University of Agriculture were selected by non-probability quota sampling. Non-medical students from the University of Agriculture were included after taking formal permission from the institute. Allied health sciences students of AFMDC were excluded from this study.

Table 1: Comparison of scoring of knowledge on aspects of self-medication between medical and non-medical students.

| Variable | Groups | Scoring of Knowledge Related to Self-Medication | | | | p-value |
|----------|-------------|---|---------------|-----------|------------|---------|
| | | Good n(%) | Moderate n(%) | Poor n(%) | Total n(%) | |
| Course | Medical | 296 (83.6%) | 38 (10.7%) | 20 (5.7%) | 354 (50) | 0.001 |
| | Non-Medical | 277 (78.2%) | 63 (17.8%) | 14 (4%) | 354 (50) | |

Table 2: A comparison of the scoring of attitude related to self-medication among medical and non-medical students.

| Variable | Groups | Scoring of Attitude Related to Self-Medication | | | | p-value |
|----------|-------------|--|---------------|-----------|------------|---------|
| | | Good n(%) | Moderate n(%) | Poor n(%) | Total n(%) | |
| Course | Medical | 90 (25.4) | 196 (55.4) | 68 (19.2) | 354 (50) | 0.004 |
| | Non-Medical | 58 (16.4) | 202 (57.1) | 94 (26.5) | 354 (50) | |

Data from the study subjects was collected using an online Google form-based closed-ended questionnaire and shared through WhatsApp groups, and participants were requested to fill it within one week, and reminders were given every day. The questionnaire had four sections, regarding socio-demographics, practices, knowledge, and attitudes about self-medication. Consent was obtained from the participants before they were included in the study, and they filled out the questionnaire. Once they responded, complete confidentiality was maintained.

A validated Self-Medication questionnaire was used after permission [15]. Knowledge related to self-medication: a three-item scale, where two points were assigned to the “yes”, whereas choosing the “no” as an answer or “I don’t know” resulted in 0 points. Scoring 80% or higher was taken as good knowledge, 50 to 79.9% as moderate, and below 50% as poor knowledge of SM. A five-item Likert scale (1= strongly disagree and 5= strongly agree) assessed the attitude toward SM. Scoring of 80% or above was marked as a positive attitude, 50 to 79.9% as moderate, and below 50% as a negative attitude [16]. Practice was assessed by a scale of frequently practiced (once every two weeks), rarely practiced (once a month), very frequently (once a week), and not practiced.

Data was analyzed with the help of SPSS version 27 using descriptive analysis. Frequencies and percentages were computed for categorical variables. Numerical variables were summarized as mean ± standard deviation. Chi-square or Fisher’s test was applied to compare categorical variables among medical and non-medical students. A p-value of ≤ 0.05 was considered statistically significant.

RESULTS

Out of a total 762 sample size, 708 responses were included in the analysis, giving us a response rate of 93%. 54(7%) of the responses were not included in this study due to incomplete forms. This study comprised medical (50%) and non-medical (50%) undergraduate students and was based on Quota Sampling (50% Males and 50% Females). The majority of the population belonged to the age group of 18-24 years (97.2%).

Table 3: Comparison of the duration of antibiotic intake during self-medication between medical and non-medical students.

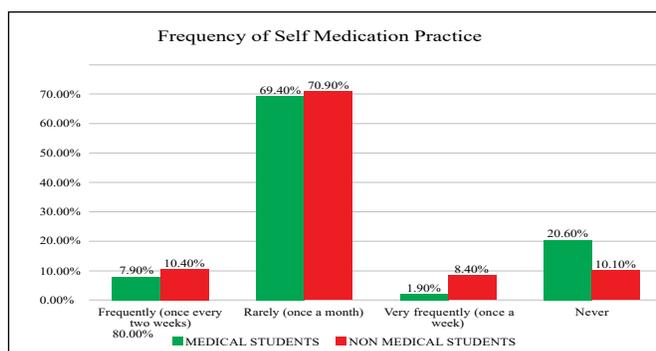
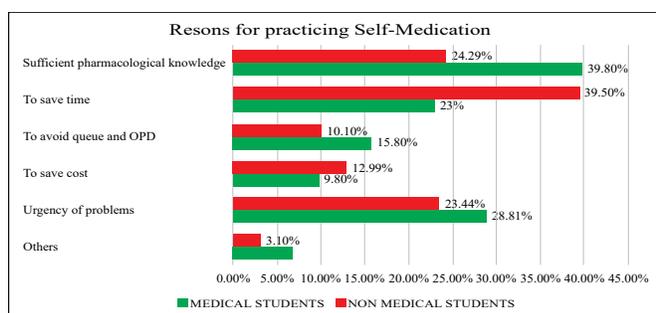
| Variable | Groups | Duration of Antibiotic Intake During Self-Medication | | | | p-value |
|----------|-------------|--|---------------|-----------------------|------------|---------|
| | | 1-3 days n(%) | 4-7 days n(%) | More than 7 days n(%) | Total n(%) | |
| Course | Medical | 250 (70.62) | 92 (25.98) | 12 (3.38) | 354 (50) | 0.076 |
| | Non-Medical | 269 (75.98) | 68 (19.20) | 17 (4.8) | 354 (50) | |

The prevalence of self-medication practice among medical (73.7%) and non-medical (69.5%) students was not significantly different ($p=0.211$). Furthermore, based on gender, the prevalence of self-medication among females (69.8%) and males (73.4%) was also not different ($p=0.279$). Out of 708 participants, 222(31.4%) were hostel residents, and 486(68.64%) were day scholars. The prevalence of self-medication among hostel residents (73%) and day scholars (70.9%) was not significantly different ($p=0.587$). Knowledge of self-medication was better in medical students than in non-medical students, showing a significant difference ($p<0.001$) (Table 1).

The attitude towards self-medication was good in 25.4% medical students, whereas 16.4% non-medical students were found to have a good attitude ($p=0.004$) (Table 2).

Notably, a higher number of medical students never practice self-medication as compared to non-medical students ($p=0.004$). (Fig. 1).

The most common reason for practicing Self-Medication among medical students was a sufficient understanding of pharmacological knowledge (39.80%). In contrast, the common reason for practicing Self-Medication among non-medical students was to save time (39.5%) (Fig. 2).

**Fig. (1):** Comparison of self-medication practice among medical and non-medical students.**Fig. (2):** Comparison of reasons for practicing self-medication among medical and non-medical students.

Duration of antibiotic intake during Self-Medication was 1-3 days in 71.6% of total participants, 4-7 days in 24.4% of the total participants, and more than 7 days in 4% of the total population. This short duration of antibiotic use was more common in non-medical students than in medical students (Table 3).

DISCUSSION

In this study, we compare the self-medication knowledge, attitude, and practices between medical and non-medical students of Aziz Fatima Medical and Dental College and undergraduate students of the University of Agriculture, Faisalabad. It provided us with valuable insight into their awareness and risky behavior, highlighting what educational interventions need to be focused on in the population.

In this study, the overall rate of self-medication was 73.7% among undergraduate medical students and 69.5% among non-medical students, which is consistent with studies done in Uganda (63.5%) [16] and Serbia (81.3%) [17] higher than the reported self-medication rates in Ethiopia (26.54%) [18], Nigeria (50.3%) [19] and lower than reported rates in Jordan (97.2%) [20], and KSA (97%) [21]. The difference in self-medication rates can be explained by differences in sample size characteristics, demographics, and data collection tools.

There was no significant difference between the self-medication practice rate between medical and non-medical students, which is consistent with studies done in Jordan [20] and Serbia [17], whereas it is inconsistent with the studies done in Saudi Arabia [22] and Pakistan [23]. There was no significant difference between the self-medication rate among males (73.44%) and females (69.77%), results being consistent with studies done in Northwest Ethiopia [24]. No significant association was found between self-medication practice and demographic characteristics, consistent with the study done in Tanzania [14], Iraq [25].

Among the reasons for practicing self-medication among medical students, sufficient pharmacological knowledge (39.8%) was the most common, followed by urgency of the problem and saving time. This percentage can be explained by the notion that medical students think they have good pharmacological knowledge, which gives them enough confidence to treat minor ailments [26]. Among non-medical students, the main reason for self-medication was found to be saving time, followed by sufficient pharmacological knowledge and avoiding queues at OPD. This may be explained by the fact that study hours are parallel to hospital hours, or the ailment is not serious enough to consult doctors [27].

In our study, the main source of medication was reported to be pharmacy stores, with rates as high as 86.40% among medical students and 81% among non-medical students, followed by family (18.36%, 20%) and friends (4%, 5.3%), respectively. This pattern was consistent with a study done in Egypt [28] and Iraq [25]. According to a study done in Eritrea, 93.7% [29] of people used over-the-counter drugs for self-medication, and community pharmacies were the main source of antibiotics without a prescription [30]. This shows that it is important to have proper rules to regulate pharmaceutical stores dispensing medicines without a proper prescription.

Regarding the commonly used antibiotics among our subjects, amoxicillin was reported to be used by 41.5% of the population, followed by azithromycin (25.6%) and ciprofloxacin (20%). These results were consistent with the study done in India [31]. It may be due to their inexpensiveness, rapid action against a variety of pathogens, and easy availability from pharmacies. Our study reported that cold and flu (46.7%), fever (46.7%), and sore throat (40.7%) were the most common indications that required self-medication. This was similar to the studies done in India [32]. However, in Ethiopia [18] and Iraq [25], self-medication was reported to be more commonly practiced for headaches (47.2% and 71%), followed by cold and cough (1.1% and 0.6%).

Regardless of the high self-medication rate, our study showed that most of the participants (80.9%) had good knowledge regarding antibiotics, their usage, side effects, and regimens. This was consistent with the study done in East Africa [33], where 86% of participants practiced self-medication while having a good perception (72.9%) of antibiotic usage. It may be since access to the internet is available to all, which makes them have enough basic knowledge about antibiotics. Contrary to this, 53.5% of participants in the study done in Kuwait had poor knowledge about antibiotics [34]. In our study, despite having a good knowledge regarding antibiotics, 56.2% of the participants (55.3% of medical students, 57.06% of non-medical students) only had a moderately positive attitude towards self-medication. The higher attitude score among medical students (25.4%) is contrary to the study done in Tanzania [14].

As per our study, most of the population (90.5%) have heard about self-medication *via* the Internet (42.2%), family and friends (39.5%), lectures (37.5%), and health practitioners (22.4%). We can use this information and these platforms to teach the population about self-medication and its harmful effects, ultimately improving their knowledge regarding self-medication practices. Lastly, in our study, the majority of the population (71.6%) reported taking antibiotics for 1-3 days only, a short duration which was seen to be more prevalent among medical students. Similar findings have been reported in studies done in Sri Lanka [30] or in Pakistan [23], where students commonly discontinued antibiotics once symptoms subsided. Such premature discontinuation

reflects a poor understanding of antimicrobial stewardship and contributes to the growing problem of antimicrobial resistance. This shows the underestimation of a problem like antibiotic resistance by both medical and non-medical students, despite having good knowledge.

LIMITATIONS

Our study has some limitations that can be focused on in future studies. Self-reported data over a 3-month recall period may have introduced recall bias. Participants' honesty could not be verified, and mutual sharing of information could not be excluded. Although the sample size was large, the non-random sampling limits generalizability. Future studies should take into account the special circumstances, like academic contexts and pressure, as a potential factor influencing self-medication besides knowledge and attitude.

CONCLUSION

This study concluded that self-medication is done by both medical and non-medical undergraduate students. Although medical students demonstrated better knowledge and a more positive attitude toward self-medication than non-medical students, this did not translate into more rational practice. Continuous education focusing on the risks of self-medication, particularly antibiotic resistance and adverse effects, should be emphasized for both medical and non-medical students. Moreover, strict regulatory measures are needed to ensure that antibiotics and other prescription drugs are dispensed only by pharmacists upon a new, valid prescription.

RECOMMENDATIONS

Universities should launch focused health education initiatives to educate students about the dangers of self-medication and the appropriate ways to take care of themselves, according to the study's conclusions. Despite their familiarity with medications, medical students ought to be taught to approach self-medication with greater caution. Meanwhile, non-medical students would gain increased health literacy to lessen their dependence on unqualified counsel. Furthermore, laws that facilitate on-campus access to qualified medical services could aid in the reduction of needless self-medication. Future studies have to examine how well these interventions work over the long run to alter self-medication habits.

ETHICS APPROVAL

The study was approved by the Institutional Ethical Committee with IEC no. IEC/292-24. All procedures performed in studies involving human participants were following the ethical standards of the institutional and/ or national research committee and the Helsinki Declaration.

CONSENT FOR PUBLICATION

Informed consent was taken from each participant.

AVAILABILITY OF DATA

Data cannot be shared publicly as it is the property of AFMDC.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Declared none.

AUTHORS' CONTRIBUTION

US : Designed the study, Data analysis, proofreading, and final draft
 MA : Data Collection, Helping with manuscript writing
 A : Data Collection
 MHA : Designed the study, Data analysis, proofreading, and final draft
 MAM : Data Collection
 HSHI : Proofreading, final draft

All authors have read and approved the manuscript

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