

Self-Medication Practices Among MBBS Students: Evidence from Multan Medical and Dental College, Pakistan

Muhammad Tayyab Awan¹, Saman Zafar², Nimra Khan³ and Ammarah Ghafoor⁴

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Abstract

Self-medication is a widespread practice among both the public and medical students in Pakistan. This study investigates the prevalence and patterns of self-medication among MBBS students at Multan Medical and Dental College. A structured questionnaire was administered to 200 randomly selected students across the first to fourth years, and data were analysed using SPSS version 20.0. Results indicate that students frequently self-medicate, primarily with analgesics, antipyretics, and antihistamines. The primary reasons identified include prior experience, time constraints, and cost savings. Although 87% of students reported no adverse effects, 13% experienced negative health outcomes. The study concludes that despite their medical knowledge, students often underestimate the risks of unsupervised drug use. Thus, policymakers must intervene to target awareness campaigns, introduce institutional reforms and enforce policy measures strictly to curb the trend of self-medication.

Keywords: Self-Medication; Medical Students; Adverse Effects; Prior Experiences.

Introduction

Self-medication is defined as the use of drugs to treat self-diagnosed conditions or the continued use of prescribed medications for recurrent or chronic illnesses without professional consultation. This practice is common in developing countries, such as Pakistan, where healthcare access is limited and many medicines are available over-the-counter without a prescription. While self-medication may provide short-term relief for minor ailments, it can cause severe health risks when applied to more serious conditions. Commonly misused drugs such as NSAIDs may result in gastrointestinal ulcers or kidney complications (Bennadi, 2022). The unnecessary use of antibiotics for minor illnesses, such as the flu, is particularly concerning, as it exacerbates the global challenge of antimicrobial resistance. Despite having better knowledge of medicines than the general population, medical students often engage in self-medication, citing workload, familiarity with drugs, and convenience (Banerjee & Bhadury, 2012; Sarahroodi, et al., 2012; Ehiguator, 2014). This study aims to assess the prevalence, causes, and consequences of self-medication among MBBS students at Multan Medical and Dental College, Pakistan.

Objectives of the Study

The objectives of this research are to:

1. Examine the prevalence of self-medication among MBBS students.

¹Multan Medical and Dental College, Multan, Pakistan. Email: m.tayyabghafoor@gmail.com

²Multan Medical and Dental College, Multan, Pakistan. Email: drsamanzafar@gmail.com

³Multan Medical and Dental College, Multan, Pakistan. Email: nimra.khan4888@gmail.com

⁴Nishtar Medical University, Multan, Pakistan. Email: dr.ammarah13@gmail.com



2. Identify the reasons behind self-medication practices.
3. Evaluate the adverse effects reported by students.
4. Recommend strategies to reduce self-medication among medical students.

Scope of the Study

The study examines the use of medicines without professional medical advice among MBBS students. The results are relevant for pharmaceutical companies, health professionals, educators, and policymakers. By providing evidence from Pakistan, this research contributes to policy discussions on preventing unsafe drug use and highlights the need for awareness campaigns within medical institutions.

Literature Review

Self-medication is a global phenomenon defined as the selection and use of medicines by individuals to treat self-recognised disorders or symptoms. While responsible self-medication for minor ailments can alleviate the burden on healthcare systems and empower patients, inappropriate practices pose significant risks to individual and public health. This review synthesises evidence from recent studies (primarily from the last five years) to examine the prevalence, drivers, and multifaceted health effects of self-medication, highlighting the growing concerns around antimicrobial resistance and psychoactive substance use.

Prevalence and Common Substances

The prevalence of self-medication is high worldwide, with variations between developed and developing nations. In many low- and middle-income countries, factors such as limited access to healthcare, cost of consultation, and the availability of medications without a prescription drive the practice. A study conducted in India found that 78.6% of participants engaged in self-medication, with analgesics (like ibuprofen and paracetamol) and antibiotics being the most used drugs (Yadav et al., 2016; Sachdeva et al., 2021). Similarly, a systematic review reported high prevalence rates across Africa and the Middle East, often involving antimalarials and antibiotics (Ocan et al., 2022).

In developed countries, self-medication often centres on over-the-counter (OTC) analgesics, cough and cold remedies, and nutritional supplements. However, a concerning trend is the self-medication of mental health conditions. A study conducted during the COVID-19 pandemic revealed a significant increase in the use of sedatives, hypnotics, and antidepressants without medical supervision, linked to rising anxiety and depression levels (Torres et al., 2021).

Drivers of Self-Medication

Recent literature identifies several key drivers:

Convenience and Timesaving: The perception that minor ailments do not warrant a doctor's visit is a primary motivator (Figueiras et al., 2000).

Previous Experience and Misperception: Success in treating a similar symptom in the past reinforces self-medication behaviour. Most students at the initial stage have a limited understanding of diseases and their treatment. In such misperception, they are involved in self-medication (Awan et al. 2015)

Accessibility of Information: The internet and social media are potent sources of health information, but often provide misleading or incomplete advice, leading to incorrect self-diagnosis and treatment (Bennadi, 2022; Patil et al., 2014).

Economic Factors: The direct and indirect costs of formal healthcare make self-medication an attractive, low-cost alternative (Sachdeva et al., 2021).

Advertising and Marketing: The aggressive marketing of OTC products and, in some regions, prescription-only medicines influences consumer behaviour (Ismail et al., 2016).

Adverse Health Effects of Inappropriate Self-Medication

Antimicrobial Resistance (AMR)

The irrational use of antibiotics through self-medication is a primary driver of the global AMR crisis. Studies consistently show that self-medication often involves incomplete courses of antibiotics, the use of incorrect doses, and the selection of broad-spectrum antibiotics for viral infections (such as the common cold), for which they are ineffective (Badiger et al., 2012). This misuse exerts selective pressure, promoting the survival and spread of bacteria that are resistant to antibiotics. Ocan et al. (2022) emphasised that self-medication with antibiotics in communities is a significant contributor to the high burden of AMR in sub-Saharan Africa, complicating the treatment of common infections (Ali et al., 2010).

Adverse Drug Reactions and Masking of Severe Diseases

Self-medication carries the risk of adverse drug reactions (ADRs), including allergies, gastrointestinal issues, and organ toxicity. A critical risk is the delay in seeking an appropriate medical diagnosis. For instance, self-medicating with analgesics for chronic headaches or abdominal pain can mask symptoms of underlying severe conditions like tumours or appendicitis, leading to delayed diagnosis and worse health outcomes (Sachdeva et al., 2021). Moreover, drug-drug interactions between self-medicated products and prescribed medications can cause harmful side effects, a particular issue for patients with chronic diseases (Al-Hussaini et al., 2014).

Dependence and Misuse of Psychoactive Substances

The self-medication of mental health symptoms is specifically hazardous. Some research reveals that individuals often use substances like alcohol, cannabis, or prescription sedatives to reduce symptoms of anxiety, depression, or trauma. This practice, however, may cause a dual diagnosis—a substance use disorder co-occurring with a mental health disorder. Torres et al. (2021) identified that self-medication was a significant pathway to opioid misuse and dependence, producing a vicious cycle where substance use spoils the underlying mental health condition (Khalid, 2017).

Financial Burden and Public Health Implications

Although some individuals try to save costs, inappropriate self-medication increases financial burden on account of treatment failure, hospitalisation for ADRs, and the need for more expensive drugs to treat resistant infections (Abay & Amelo, 2010; Lukovic et al., 2014). It is likely to contribute to the spread of AMR, undermining the effectiveness of essential medicines globally. Recent medical literature underscores that self-medication is a complex public health problem with serious consequences. Although it may be a rational choice for minor, self-limiting conditions, the prevailing pattern is hazardous. The key risks include the acceleration of antimicrobial resistance, adverse drug effects, diagnostic delays, and the potential for substance dependence (Donkor et al., 2012). Addressing this challenge requires a multidimensional approach, including public education on the risks of self-medication, stricter enforcement of prescription-only drug policies, and improving access to affordable, quality healthcare to reduce the need for self-care as a primary recourse.

Methodology

This study used a cross-sectional research design to collect data at a single point in time from a sample of MBBS students at Multan Medical and Dental College. This design is appropriate for investigating the prevalence and associations of self-medication practices within this specific population. Data were gathered using a structured questionnaire administered in English, which is the medium of instruction for the participants, ensuring comprehension. The administration of the survey was conducted through a field survey, implying direct distribution and Collection by the researchers. For analysis, the statistical software SPSS version 20.0 was utilised, with results being summarised using descriptive statistics, primarily percentages, and presented in tabular form.

Regarding the validity of the sample, the study recruited 200 MBBS students from the second to final year using a random selection method. This sampling approach enhances the representativeness of the sample relative to the target population of medical students at the institution. A sample size of 200 can be considered adequate for a single-institution study aiming to describe practices and patterns, as it provides a substantial base for calculating proportions and conducting basic inferential statistics. However, the ultimate validity and generalizability of the findings are contingent upon the randomness of the selection process being effectively implemented to minimise selection bias and ensure that the sample accurately reflects the broader student body from which it was drawn.

A potential methodological limitation in this study is the risk of standard method bias (CMB), which can arise when both the predictor and outcome variables are measured from the same source using the same instrument simultaneously. In this case, the use of a self-administered questionnaire creates conditions for CMB, which could artificially inflate the relationships between variables due to factors such as social desirability bias or consistency bias. While the study design does not mention specific procedural or statistical remedies for CMB, such as incorporating reverse-scored items or conducting Harman's single-factor test post hoc, the focus on descriptive percentages for reporting prevalence may somewhat mitigate the impact of this bias on the core findings related to the frequency of self-medication. Nonetheless, for any associative analyses inferred from the data, the absence of controlled measures for CMB remains a notable limitation.

Results and Discussion

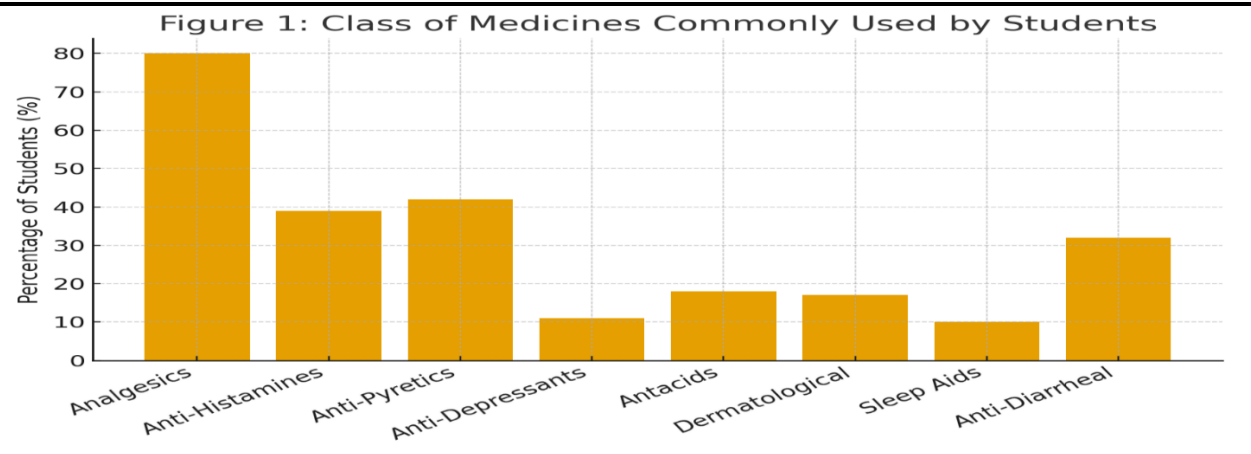
The results demonstrate that analgesics were the most commonly used medicines (80%), followed by anti-pyretic (42%) and antihistamines (39%). Other categories included anti-diarrheal drugs (32%), antacids (18%), dermatological medicines (17%), antidepressants (11%), and sleep aids (10%). These findings indicate that students mainly relied on medicines offering quick relief for common symptoms. The medicines commonly used by the participants are listed in Table 1.

Table 1: Types of Medicines Commonly Used by MBBS Students

Class of Medicines	Percentage of Students (%)
Analgesics	80
Anti-Histamines	39
Anti-Pyretics	42
Anti-Depressants	11
Antacids	18
Dermatological	17
Sleep Aids	10
Anti-Diarrheal	32

Note: Data represents the proportion of MBBS students who reported using each class of medicine. The results given in Table 1 are also shown in Figure 1.

Figure 1: Class of medicines commonly used by students



Frequency of medicines use

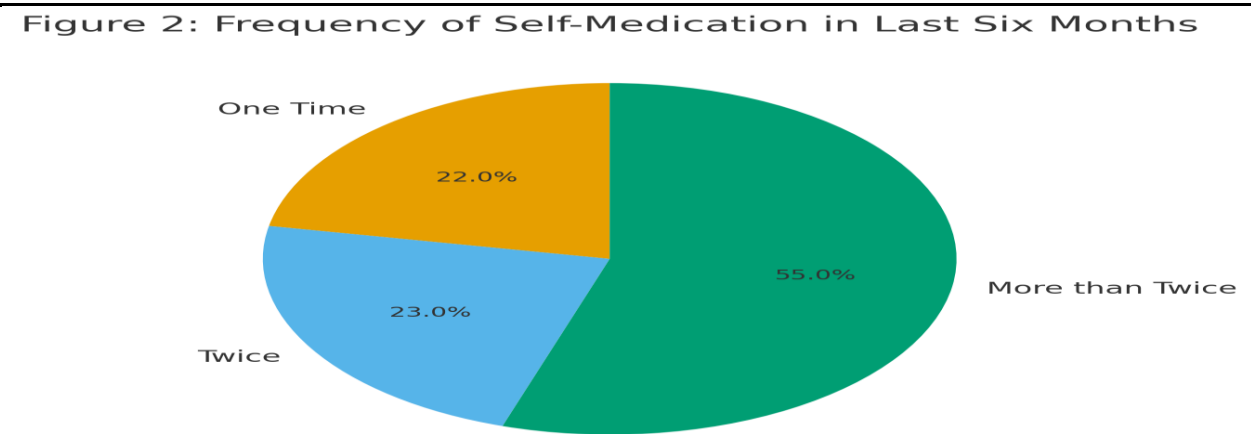
Self-medication was found to be a repeated practice rather than a one-time occurrence. As summarized in Table 2, more than half of the respondents (55%) reported using medicines more than twice in the previous six months, while 23% used medicines twice and 22% used only once.

Table 2: Frequency of Self-Medication in the Last Six Months

Frequency of Self-Medication	Percentage of Students (%)
One Time	22
Twice	23
More than twice	55

Note: Percentages reflect self-reported frequency of self-medication among MBBS students. These results are also highlighted in Figure 2.

Figure 2: Frequency of self-medication in last six months

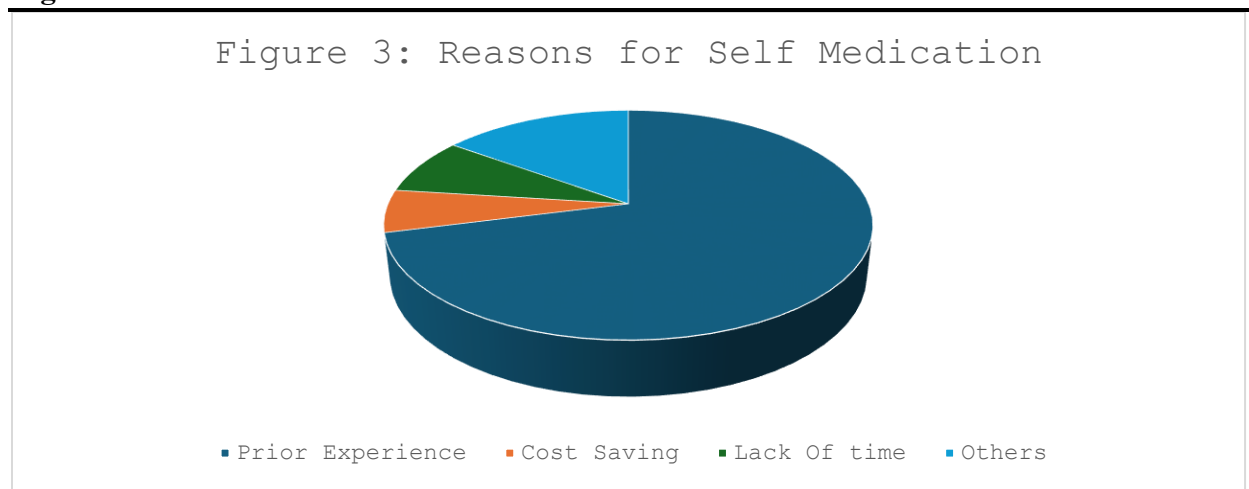


Reasons for Self-Medication

The reasons cited for this practice included prior positive experience with medicines (71%), lack of time to consult doctors (8%), and cost-saving motives (6%). A small proportion (21%)

mentioned other reasons, such as convenience or peer suggestions. Although 62% of students reported following the instructions of medical professionals, 38% admitted that they disregarded medical advice. Prior experience is the major reason of self-medication. It means if a student takes medicine and he gets relief; he will repeat the same medicine. Most common reasons are displayed in Figure 3.

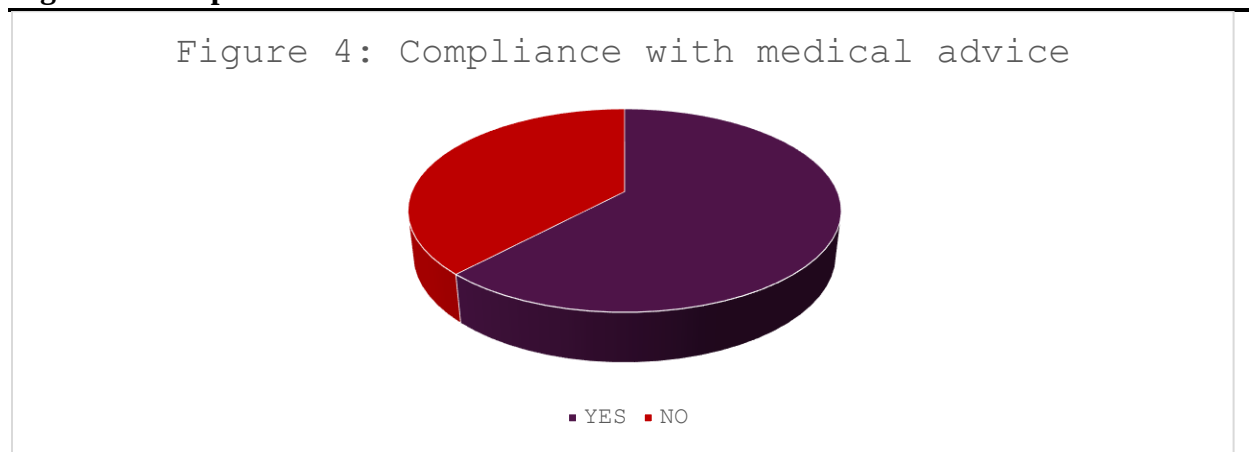
Figure 3: Reasons for self-medication



Compliance with Medical Advice

Although 62% of students claimed to follow professional advice when using medicines, 38% admitted to ignoring such instructions. This highlights a concerning disregard for safe medical practice even among future healthcare providers. This practice is very dangerous. The ratio of compliance and non-compliance by the participants is shown in Figure 4.

Figure 4: Compliance with medical advice

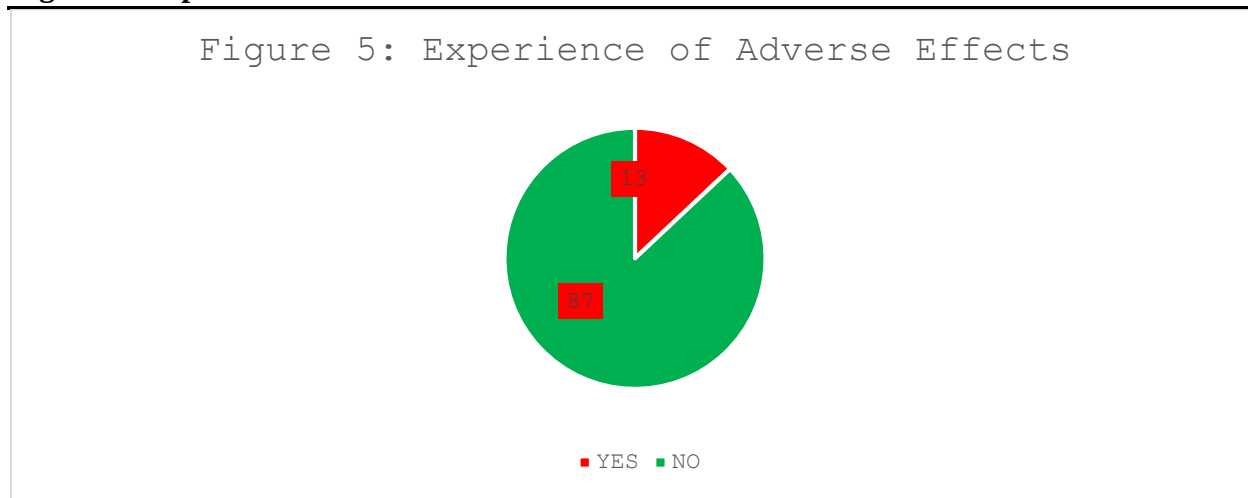


Reported Adverse Effects

In terms of health consequences, 87% of respondents claimed that they did not experience adverse effects, while 13% reported negative outcomes, including gastrointestinal problems, allergies, or other complications. The most frequent symptoms leading to self-medication were headache

(75%), fever (56%), diarrhea (37%), and allergies (28%). Other reported conditions included acidity (24%), joint and back pain (21%), nausea and vomiting (17%), skin problems (16%), and toothache (12%). These adverse effects are presented in Figure 5.

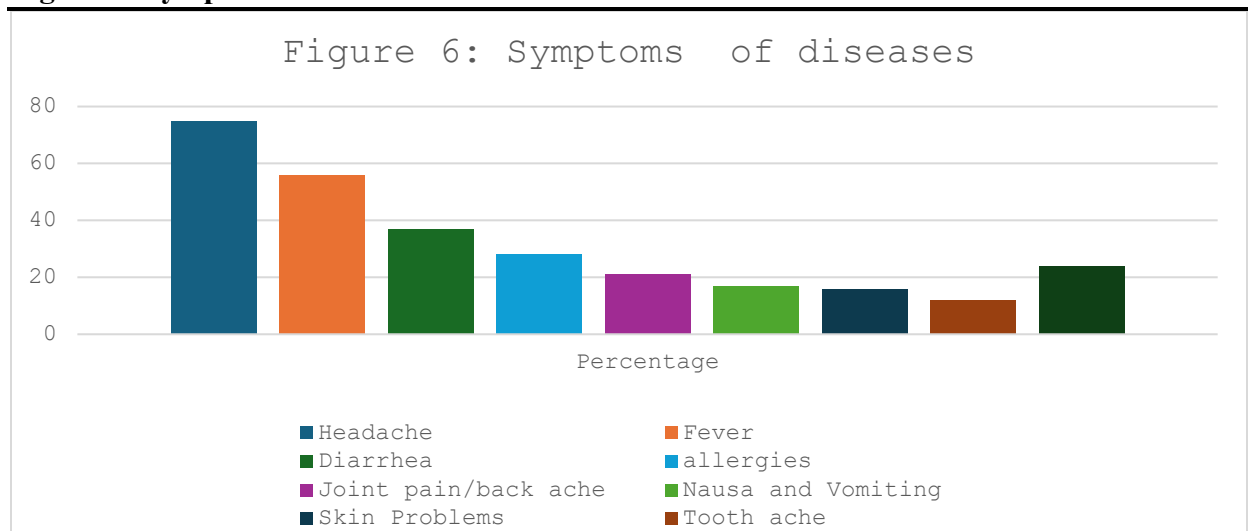
Figure 5: Experience of adverse effects



Symptoms of diseases

The respondents feel symptoms of different diseases and use relevant medicines. Major symptoms include headache, allergies, fever, joint pains, acidity, skin problems, etc. The reported symptoms were highlighted in Figure 6.

Figure 6: Symptoms of diseases



The results show that 78% of respondents suffered headaches, 58% faced fever, 38% suffered diarrhea, 27% suffered allergies, 25% suffered skin problems, 20% suffered joint and back pain, 18% suffered nausea and vomiting, and 10% suffered toothache.

Conclusion

The findings of this study reveal that self-medication is highly prevalent among MBBS students at Multan Medical and Dental College. Analgesics, anti-pyretics, and antihistamines emerged as the most used drugs, with more than half of the respondents reporting repeated use within the past six months. The primary motivations for this practice were prior experience with medicines, time constraints, and cost considerations. Although most students did not report adverse effects, a notable proportion experienced negative outcomes, underscoring the potential risks of self-medication. These findings highlight a concerning paradox: despite having better knowledge of medicines than the public, medical students continue to use drugs without considering their adverse effects. These findings support the studies of Hughes et al. (2001) and Zafar et al. (2008). El Ezz and Ez-Elarab (2011); Kumar et al. (2013); Ehiguator et al. (2014); and Jorgji et al. (2014), who identified adverse effects of self-medication on the health of students. If this practice continues, such behaviour could normalise risky practices within the healthcare profession, resulting in serious long-term consequences for both practitioners and patients. Therefore, the study suggests that regulatory bodies and the Health Department should launch targeted awareness campaigns, counselling programs, and practical interventions to reduce self-medication among students. The findings suggest that while self-medication seems to provide short-term relief, the risks associated with unsupervised drug use remain high and costly. The tendency to rely on prior experience rather than professional consultation poses a long-term danger, particularly when misuse of antibiotics and analgesics can lead to resistance, toxicity, or dependency. It means that prior experience does not guarantee that the medicines work correctly every time, because the nature of diseases may change, leading to adverse effects from self-medicated drugs.

Policy Recommendations

In light of the above conclusions, we can make the following recommendations to reduce self-medication practices:

- There is an urgent need to organise regular seminars and workshops within medical colleges to generate awareness about the adverse effects of self-medication and the high cost associated with treatment.
- All medical institutions must develop and enforce codes of conduct that discourage students from using drugs without formal prescriptions. There must be some punishment in the form of a fine in case a student is found to be involved in self-medication or suggesting this practice to other students.
- A chapter may be added to pharmacology and community medicines, which highlights the importance of professional medical advice and its everlasting positive effects, as well as illustrating the adverse effects of self-medication on the health of individuals. This will produce a sense of responsibility among the medical students.
- All medical colleges must provide free medical treatment facilities to students so that the students can consult qualified doctors and obtain required medicines without cost or time barriers.
- There is a need to strengthen pharmacy laws to restrict over-the-counter access to medicines, particularly antibiotics and high-risk medicines.
- The medical colleges should offer confidential support for the students who habitually self-medicate and provide them with counselling services.
- There must be a quarterly survey to track trends and evaluate the effectiveness of interventions. In this way, the college administration can monitor the abnormal activities of the students.

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