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Original Research Article

# Self-Medication Practices among Medical Undergraduates at a Tertiary Care Teaching Institution

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**Abstract**

**Background:** Self-medication (SM) is a widespread practice among medical students due to easy access to medicines and growing pharmacological knowledge. While it may provide quick relief for minor ailments, irrational SM—especially involving antibiotics—can lead to adverse drug reactions and antimicrobial resistance. This study aimed to assess the prevalence, patterns, and determinants of self-medication among undergraduate medical students.

**Material and Methods:** A cross-sectional study was conducted among 250 MBBS students of a tertiary care teaching hospital over three months (March–May 2025). Students from all years, including interns, were enrolled using stratified random sampling. Data were collected using a pre-tested, semi-structured questionnaire covering demographics, knowledge, attitudes, and practices of self-medication in the preceding three months. Prevalence was estimated with 95% confidence intervals, and associations were analyzed using Chi-square test, and binary logistic regression.

**Results:** The overall prevalence of self-medication was 68.4% (95% CI: 62.4–74.0). Females reported higher prevalence (72.7%) compared to males (63.6%), and prevalence increased significantly with academic year ($p = 0.02$). The most common indications were headache/fever (65.6%), upper respiratory tract infections (42.7%), and gastritis (29.3%). Analgesics and antipyretics were most frequently used (72.5%), followed by antibiotics (21.9%), antihistamines (18.7%), and gastrointestinal drugs (16.5%). Pharmacies (46.8%) and leftover medicines (34.1%) were the main sources, while prior prescriptions (52.9%) and the internet (33.1%) were the main information sources. Only 41.2% reported completing the full course of medicines, and among antibiotic users, just 38.2% adhered to full duration.

**Conclusion:** Self-medication is highly prevalent among medical undergraduates, particularly among females and senior students. Although commonly practiced for minor ailments, unsafe behaviors such as incomplete antibiotic use raise concern. Targeted educational interventions and stricter enforcement of dispensing regulations are warranted to promote rational drug use among future prescribers.

**Keywords:** Self-medication, medical students, prevalence, antibiotics, rational drug use, India.



## Introduction

Self-medication (SM) refers to the use of drugs without prior medical consultation for the diagnosis, treatment, or prevention of illness. [1] While it may be considered a component of self-care when practiced responsibly, irrational self-medication poses risks such as adverse drug reactions, drug interactions, incorrect diagnosis, masking of severe disease, and the emergence of antimicrobial resistance. [2] The World Health Organization (WHO) recognizes SM as a common phenomenon worldwide and emphasizes the need to differentiate between rational over-the-counter (OTC) drug use and inappropriate use of prescription-only medicines. [3] Globally, the prevalence of SM among university students has been reported to range between 40% and 80%, with higher rates consistently documented in medical students. Studies from India have reported prevalence rates varying from 50% to 75% among undergraduates, reflecting both the easy availability of medicines and the perception of adequate medical knowledge at this level. [4] The most common indications identified in literature include fever, headache, upper respiratory tract infections, dysmenorrhea, and gastrointestinal disturbances. Analgesics, antipyretics, antibiotics, antihistamines,

and gastrointestinal drugs are among the most frequently self-medicated classes. [5]

Medical students represent a unique group for evaluating SM practices. Their increasing familiarity with pharmacology, exposure to clinical settings, and ready access to drug information may foster confidence in independent treatment of minor illnesses. [6] At the same time, inappropriate practices such as antibiotic self-medication, incomplete courses, and sharing of medicines are particularly concerning in this group, as they may influence future prescribing behavior as qualified doctors. Previous studies from South India, Delhi, and Maharashtra have shown a high prevalence of SM and highlighted antibiotics as a key area of misuse. However, variations in prevalence, associated factors, and drug classes used across different regions underscore the need for institution-specific data. [7]

Given the growing concern of irrational medicine use and antibiotic resistance, it is important to assess the magnitude and patterns of SM among undergraduates. The present study was undertaken with the objectives of estimating the prevalence of self-medication among MBBS students, describing the common indications and drug classes used, and identifying the determinants associated with this practice. Findings from such studies can provide insights for targeted educational interventions and promote rational drug use among future prescribers.

## Materials and Methods

This descriptive cross-sectional study was carried out among MBBS students of a tertiary care teaching hospital over three months. A sample size of 250 was calculated assuming a prevalence of 60% from previous studies. Students from all phases, including interns, were enrolled using stratified random sampling to ensure proportional representation. Ethical clearance was obtained and informed consent was taken from all participants. Data were collected using a pre-tested, semi-structured, anonymous questionnaire developed after literature review and expert validation. The tool included demographic details, knowledge about over-the-counter and prescription drugs, attitude items on a five-point Likert scale, and self-reported practices in the preceding three months. Practices assessed included common indications, drug classes, source of medicines, source of information, and safety behaviors such as dose checking, course completion, and consultation if symptoms persisted. Self-medication was defined as the use of allopathic medicines without consultation of a registered medical practitioner within the past three months. Data were entered in Microsoft Excel and analyzed using SPSS version 26. Descriptive statistics were used to calculate prevalence with 95% confidence intervals. Chi-square test and t test were applied for associations between categorical and continuous variables respectively. Logistic regression was performed to identify predictors of self-medication. A p value $<0.05$ was considered statistically significant.

## Results

A total of 250 MBBS students participated in the study, with an overall response rate of 94%. The mean age of participants was $20.4 \pm 1.8$ years, and females constituted 52.8%. Distribution across academic phases was proportionate, with nearly one-fourth from each batch.

**Table 1: Indication of self-medication**

| Indication | Frequency (n) | Percentage (%) |
|---|---|---|
| Headache / fever | 112 | 65.6 |
| Upper respiratory infections | 73 | 42.7 |
| Gastritis / acidity | 50 | 29.3 |
| Dysmenorrhea (females, n=132) | 34 | 26.1 |
| Diarrhea / constipation | 22 | 12.9 |
| Skin conditions / allergies | 18 | 10.5 |

**Table 2: Drug Classes**

| Class | Frequency (n) | Percentage (%) |
|---|---|---|
| Analgesics / antipyretics | 124 | 72.5 |
| Antibiotics | 37 | 21.9 |
| Antihistamines | 32 | 18.7 |
| GI drugs (PPI/H2 blockers) | 28 | 16.5 |
| Multivitamins / supplements | 21 | 12.3 |
| Herbal / alternative medicines | 15 | 8.8 |

The overall prevalence of self-medication within the last three months was 68.4% (95% CI: 62.4–74.0). Prevalence was higher among females (72.7%) compared to males (63.6%), though this difference was not statistically significant ($p = 0.11$). Prevalence increased with the year of study,

ranging from 54.8% in first-year students to 78.0% among final-year students. The most common indications for self-medication were headache/fever (65.6%), upper respiratory tract infections (42.7%), gastritis/acid peptic symptoms (29.3%), and dysmenorrhea in females (26.1%). Analgesics and antipyretics were the most frequently used drug classes. Pharmacies (46.8%) and leftover medicines at home (34.1%) were the main sources of medicines, while prior prescriptions (52.9%) and internet/Google searches (33.1%) were the commonest information sources. Regarding safety behaviors, 64.7% reported checking the dose, 59.8% read labels or leaflets, and only 41.2% completed the recommended duration of medicines. Among antibiotic users, just 38.2% completed the full course. About 9.2% of respondents experienced some adverse effects, most commonly gastritis and drowsiness.

## Discussion

In this cross-sectional study among 250 MBBS students, the prevalence of self-medication in the preceding three months was 68.4%, which is comparable to findings from Andhra Pradesh (67%) by Yadav et al. (2024) [8] and Maharashtra (72.1%) by Rasania et al. (2023) [9]. However, it was lower than the very high rates reported from South India (92%) by Badiger et al.(2012) [10] and North India (88%) by Banerjee et al.(2012) [11]. These differences likely reflect variations in institutional regulations, access to over-the-counter medicines, and differences in sample characteristics. Gender analysis revealed that self-medication was more common among females (72.7%) than males (63.6%), a finding consistent with Kumar et al. (2013) [12] from Mangalore (81.2% in females vs. 75.3% in males) and with the study by Rasania et al. (2023) [9], which also showed female predominance. This may be explained by gender-related health-seeking behavior and specific conditions such as dysmenorrhea that often prompt self-medication.

Prevalence increased with academic progression, from 54.8% in first-year to 78.8% in final-year students, echoing the trend observed in previous studies by Badiger et al.(2012) [10] and Yadav et al. (2024) [8]. As students advance, their growing knowledge of pharmacology and easier access to hospital pharmacies may increase confidence in self-treatment. Headache/fever (65.6%), upper respiratory infections (42.7%), and gastritis (29.3%) were the leading indications for self-medication. Similar findings were reported by Badiger et al.(2012) [10], where headache and fever were the top reasons, and by Banerjee et al.(2012) [11], where common cold and headache predominated. Dysmenorrhea was an important reason among female students in our study, consistent with prior literature highlighting gender-specific triggers.

Drug classes most frequently used were analgesics/antipyretics (72.5%), followed by antibiotics (21.9%), antihistamines (18.7%), and gastrointestinal drugs (16.5%). This pattern matches Yadav et al. (2024) [8], who noted high use of analgesics (74%) and antacids (83%), but also reported much higher antibiotic self-medication (58.5%). In contrast, the Maharashtra study reported lower analgesic use (11.4%) but higher use of antipyretics and antihistamines. Despite these variations, all studies consistently highlight inappropriate use of antibiotics as a common and worrisome practice. Sources of medicines in our cohort included pharmacies (46.8%) and leftover medicines at home (34.1%), similar to other Indian reports where prior prescriptions and family/friends were key influences in study by Yadav et al. (2024) [8]. Information sources in our study were prior prescriptions (52.9%) and internet searches (33.1%), aligning with findings from South India and North India, where reliance on previous prescriptions was predominant. Alarmingly, only 41.2% completed the recommended duration of medicines, and just 38.2% of antibiotic users completed the course. Similar concerns were raised by Kumar et al. (2013) [12] and Badiger et al.(2012) [10], both of whom highlighted the risk of antimicrobial resistance due to poor compliance. The occurrence of adverse effects in 9.2% of our participants further underlines the unsafe aspects of current self-medication practices.

## Conclusion

Self-medication is highly prevalent among Indian medical undergraduates, with increasing trends among senior students and female predominance. Analgesics and antipyretics were the most frequently used drugs, while antibiotic misuse and incomplete courses remain major concerns. These findings highlight the urgent need for targeted educational interventions and stricter regulation of drug dispensing to promote rational medicine use among future healthcare professionals.

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