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A KNOWLEDGE, ATTITUDE, PRACTICE STUDY ON SELF-MEDICATION AMONG MBBS STUDENTS IN RURAL TERTIARY CARE TEACHING INSTITUTE IN CENTRAL INDIA

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ABSTRACT

Background - Self-medication is a widely prevalent practice globally, with medical students occupying a unique position due to their foundational pharmacological knowledge combined with academic pressures and easy access to medications. Understanding the knowledge, attitude, and practice (KAP) of self-medication among future healthcare professionals is essential for designing targeted educational interventions.' **Objectives -** To evaluate the levels of knowledge, attitudes, and practices regarding self-medication among second-year MBBS students, and to identify factors influencing such behaviours.**Methods -** A cross-sectional observational study was conducted among 87 second-year MBBS students using a structured, validated Google Form questionnaire. Data were analysed using descriptive statistics and results expressed as frequencies and percentages. **Results -** The prevalence of self-medication was 88.5% (n=77). Awareness of self-medication was high (90.8%). The most common conditions prompting self-medication were headache, fever, cough/cold, and pain. Analgesics (48.3%), cough and cold remedies (66.7%), and vitamins/supplements (44.8%) were the most frequently used drug categories. Approximately 88.5% of participants were aware of associated risks, yet only 11.5% considered the practice safe. The majority (81.6%) did not recommend self-medication to others.**Conclusion -** Despite high awareness of self-medication risks, the practice remains highly prevalent among MBBS students, driven primarily by the perception that symptoms are minor and drug knowledge is adequate. Structured pharmacology education emphasising rational drug use and professional consultation is warranted.

INTRODUCTION

Self-medication refers to the use of medicines by individuals without professional medical consultation, often based on personal judgment or advice from non-professionals. In a contemporary sense, it reflects an individual's willingness and capability to take an informed, independent, and active role in managing preventive, diagnostic, and therapeutic measures pertaining to their health.(Bennadi, 2013; Juyol & Quesada, 2002; Thenmozhi & Sharmil, 2023) Self-medication is a global phenomenon driven by multiple factors including easy access to over-the-counter (OTC) medications, rising healthcare costs, time constraints, and perceived self-reliance. While it can offer convenience and temporary relief for minor ailments, inappropriate self-medication carries significant risks: inappropriate dosing, harmful medicine combinations, incorrect identification of illness, use of multiple drugs without supervision, and the growing problem of antimicrobial resistance.(Alia & Grant-Kels, 2020; Behzadifar et al., 2020; Ruiz, 2010)

In India, the prevalence of self-medication ranges widely from 9% to 90%, making it one of the most variable but consistently high-burden contexts globally. Factors such as education level, media exposure, social influence, drug accessibility, and internet availability significantly modulate self-medication behaviour. Furthermore, the Drugs and Magic Remedies Act of 1954 technically prohibits many self-medication practices, yet enforcement remains inconsistent.(Al Shibly et al., 2022; Ayalew, 2017; Faqihi & Sayed, 2021) MBBS students represent a particularly critical and paradoxical population for studying self-medication. Their foundational education in pharmacology and clinical sciences may equip them to make relatively informed decisions; however, it may simultaneously foster overconfidence and lead to practices such as self-prescribing prescription medications and antibiotics without professional oversight. Academic stress, peer influence, easy access to pharmaceutical supplies, and a culture of medical self-sufficiency compound this risk.(Klemenc-Ketis et al., 2010; Zafar et al., 2008)

The COVID-19 pandemic led to a marked global increase in self-medication practices. Fear of hospital-acquired infection, social stigma, travel restrictions, and physical distancing requirements led to widespread use of unproven or unsupervised medications, sometimes resulting in fatalities. This highlighted the urgent need for evidence-based strategies to promote rational drug use among both the lay public and healthcare trainees.(Behzadifar et al., 2020; Ferner & Aronson, 2020; Saqlain et al., 2020) Previous studies from India and other low- and middle-income countries (LMICs) have documented self-medication prevalence of 57–92% among medical undergraduates, underscoring the need for institution-specific data to design targeted educational interventions. The current study was therefore undertaken to evaluate the KAP of self-medication among second-year MBBS students in central India.(Selvaraj et al., 2014; Shrestha et al., n.d.; Tesfamariam et al., 2019)

Materials and Methods

This cross-sectional observational study was conducted in the Department of Pharmacology of a medical college in Maharashtra, India, following Institutional Ethics Committee (IEC) approval. All second-year MBBS students willing to participate were enrolled using convenience sampling, yielding a final analytic sample of 87 students; those who declined consent or were unavailable during the study period were excluded. Data were collected using a structured, pre-validated, self-administered questionnaire distributed via Google Forms, comprising 26 items across five

domains: demographic details, knowledge of self-medication and OTC drugs, attitudes toward self-medication, self-medication practices, and awareness of risks and information sources. Informed consent was incorporated as the first section of the form. Data were exported to Microsoft Excel 2019 for analysis; categorical variables were summarised as frequencies and percentages, continuous variables as mean ± SD, and a p-value of <0.05 was considered statistically significant. All participation was voluntary, no personal identifiers were collected, and data were stored in a password-protected system accessible only to the principal investigator.

RESULTS

Demographic Profile

A total of 87 second-year MBBS students participated in the study. The mean age of participants was 20.8 ± 1.3 years (range: 18–24 years). The majority of participants were in the age group of 20–21 years (51.7%). Of the total respondents, 55.2% (n=48) were female and 44.8% (n=39) were male. Table 1 presents the demographic characteristics.

Table 1: Gender Distribution of Participants (n=87)

Gender	Male	39 (44.8%)
	Female	48 (55.2%)

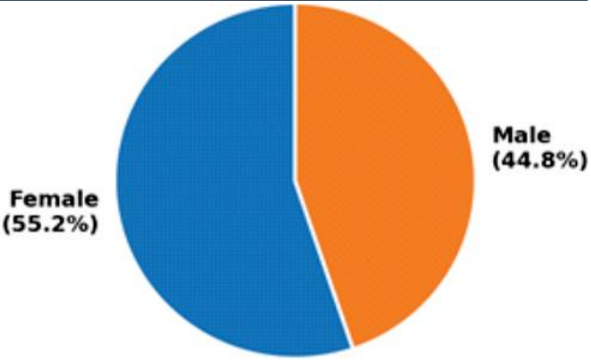

Figure 1: Gender Distribution of Study Participants (n=87)

Table 2: Age Group Distribution of Study Participants (n=87)

Characteristic	Category	n (%)
Age (years)	18–19	20 (23.0%)
	20–21	45 (51.7%)
	22–24	22 (25.3%)

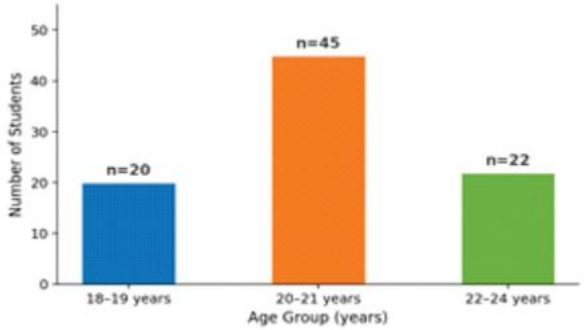

Figure 2: Age Group Distribution of Participants (n=87)

Knowledge of Self-Medication

Of the 87 respondents, 79 (90.8%) correctly identified the definition of self-medication. Risk awareness was high, with 77 (88.5%) confirming awareness of the potential risks associated with self-medication. The majority (88.5%) believed self-medication could be beneficial in certain situations. The most commonly perceived acceptable conditions for self-medication were minor illnesses (81.6%), situations where prior medication knowledge exists (75.9%), and lack of access to a doctor (27.6%). Table 3 summarises knowledge domain responses.

Table 3: Knowledge of Self-Medication Among MBBS Students (n=87)

Knowledge Item	Yes / Aware n (%)	No / Unaware n (%)
Know what self-medication is	79 (90.8%)	8 (9.2%)
Aware of risks of self-medication	77 (88.5%)	10 (11.5%)
Believe self-medication can be beneficial	83 (95.4%)	4 (4.6%)
Minor illness as acceptable situation	71 (81.6%)	16 (18.4%)

Attitudes Toward Self-Medication

Regarding attitude, 42 (48.3%) of participants were neutral toward self-medication as a practice, while 35 (40.2%) considered it unsafe and 2 (2.3%) very unsafe. Only 8 (9.2%) considered self-medication safe. Concerning OTC medications specifically, 49 (56.3%) were neutral, 28 (32.2%) felt they were safe, and 8 (9.2%) considered them unsafe. When asked about discouraging self-medication among MBBS students, 43 (49.4%) were neutral, 26 (29.9%) agreed with the need to discourage it, and 14 (16.1%) disagreed. Notably, 71 (81.6%) of participants stated they would not recommend self-medication to others, reflecting a gap between personal practice and the attitude toward recommending it. Table 4 summarises the attitude domain.

Table 4: Attitudes of MBBS Students Toward Self-Medication (n=87)

Attitude Item	Response	n (%)
Perception of self-medication	Safe	8 (9.2%)
	Neutral	42 (48.3%)
	Unsafe	35 (40.2%)
	Very Unsafe	2 (2.3%)
Perception of OTC medications	Very Safe	2 (2.3%)
	Safe	28 (32.2%)
	Neutral	49 (56.3%)
	Unsafe	8 (9.2%)
Would recommend self-medication	Yes	10 (11.5%)
	No	71 (81.6%)
	Conditional	6 (6.9%)

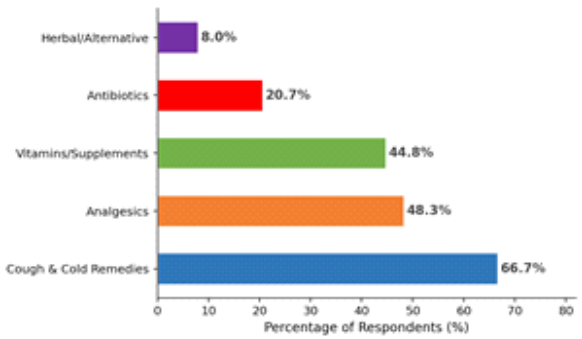

Figure 3: Drug Categories Used for Self-Medication (n=87)

Practice of Self-Medication

The prevalence of self-medication among second-year MBBS students was found to be 88.5% (n=77). Among those who self-medicated, 43 (55.8%) did so occasionally, 38 (49.4%) rarely, 4 (5.2%) frequently, and 2 (2.6%) very frequently. The most common conditions for which students self-medicated

were headache, cough/cold, fever, pain, and acidity. Analgesics were used by approximately 48.3% of participants, cough and cold remedies by 66.7%, vitamins and supplements by 44.8%, and antibiotics by approximately 20.7%. Herbal or alternative medicines were used by a small subset (8.0%). Adverse drug reactions were reported by 12 (13.8%) participants.

Regarding dosing decisions, 25.3% relied on previous experiences or symptoms alone, 17.2% consulted a healthcare provider or pharmacist, 13.8% followed packaging instructions, and a notable proportion (17.2%) combined symptom-based estimation with professional advice. When symptoms persisted after self-medication, 51.7% (n=45) reported always consulting a healthcare provider, 27.6% often, 13.8% sometimes, and only 4.6% never sought professional advice. Table 5 presents the practice domain findings.

Table 5: Self-Medication Practices Among MBBS Students (n=87)

Practice Variable	Response	n (%)
Ever practiced self-medication	Yes	77 (88.5%)
	No	10 (11.5%)
Frequency of self-medication	Rarely	38 (43.7%)
	Occasionally	43 (49.4%)
	Frequently	4 (4.6%)
	Very Frequently	2 (2.3%)
Types of medications used	Cough and cold remedies	66.7%
	Analgesics	48.3%
	Vitamins/Supplements	44.8%
	Antibiotics	20.7%
Experienced adverse drug reaction	Yes	12 (13.8%)
	No	75 (86.2%)
Consult after self-medication if symptoms persist	Always	45 (51.7%)
	Often	24 (27.6%)
	Sometimes	12 (13.8%)
	Never	4 (4.6%)

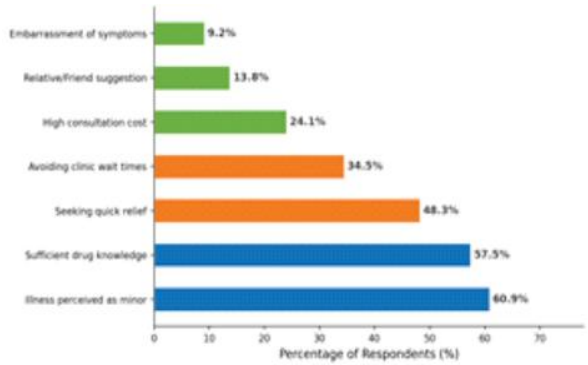

Figure 4: Reasons for Practising Self-Medication (n=87)

Sources of Information for Self-Medication

The most frequently cited sources of information for self-medication were the internet (39.1%), pharmacists (34.5%), friends/family (36.8%), and previous prescriptions (40.2%). Medical textbooks were cited by approximately 16.1% of students. Multiple sources were commonly used in combination. Table 6 details the distribution of information sources.

Table 6: Sources of Information for Self-Medication (n=87)

Source of Information	n	%
Internet	34	39.1%
Pharmacist	30	34.5%
Friends/Family	32	36.8%
Previous Prescriptions	35	40.2%
Medical Textbooks	14	16.1%

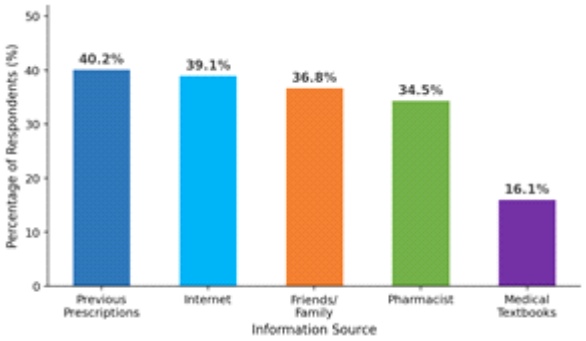

Figure 5: Sources of Information Used for Self-Medication (n=87)

Reasons for Self-Medication

The predominant reasons cited for self-medication were: perception that the health problem was not serious (60.9%), belief that drug and disease knowledge was sufficient (57.5%), desire for quick relief (48.3%), and avoidance of long waiting times at clinics (34.5%). Financial constraints (high cost of medical consultation) were cited by 24.1%. Table 6 summarises the motivational factors.

Table 7: Reasons for Practising Self-Medication (n=87)

Reason	n	%
Health problem perceived as not serious	53	60.9%
Knowledge on drugs and disease	50	57.5%
Seeking quick relief	42	48.3%
Avoidance of long waiting times at clinics	30	34.5%
High cost of medical consultation	21	24.1%
Suggestion of relative/friend	12	13.8%
Embarrassment discussing symptoms	8	9.2%

Adequacy of MBBS Knowledge for Self-Medication

When asked whether MBBS students possess adequate knowledge to self-medicate, 55 (63.2%) were neutral, 14 (16.1%) disagreed, 10 (11.5%) agreed, and 6 (6.9%) strongly agreed. This suggests considerable uncertainty about the sufficiency of existing medical training for safe autonomous medication use.

DISCUSSION

The present study documented a self-medication prevalence of 88.5% among second-year MBBS students (Table 1 and 2; Figures 1 and 2), which is consistent with several prior studies from India and neighbouring countries. A study by Shrestha et al. among medical students in Nepal reported antibiotic self-medication as notably prevalent within this subgroup, reflecting patterns seen in our study, where approximately 20.7% of respondents used antibiotics without prescription (Table 5). (Nepal & Bhatta, n.d.; Shrestha et al., n.d.)

The high awareness of self-medication risks (88.5%) alongside its widespread practice represents a classic knowledge–practice gap that has been well-documented in health behaviour research (Table 3). This gap may be explained by cognitive dissonance, the student context (academic pressures, limited time), and a culture of medical self-sufficiency prevalent in medical training environments. Comparable findings have been reported by Faqihi et al., who documented similar patterns among nursing undergraduates in Saudi Arabia. (Faqihi & Sayed, 2021; Verma et al., 2010)

The predominant drugs used — analgesics, cough/cold remedies, and vitamins/supplements — align with findings from systematic reviews by Behzadifar et al. and Tesfamariam et al., who similarly identified these categories as most commonly self-medicated globally and among students specifically (Table 5; Figure 3). The use of antibiotics for self-medication, documented in 20.7% of our sample, is particularly concerning given the threat of AMR, a priority issue identified by the WHO. (Behzadifar et al., 2020; Nepal & Bhatta, n.d.; Tesfamariam et al., 2019; Who-Amr-Amc-Report-20181109.Pdf, n.d.)

The primary motivator for self-medication was the perception that the illness was not serious (60.9%), followed by the belief that pharmacological knowledge was sufficient (57.5%) (Table 7; Figure 4). These findings mirror those reported by Thenmozhi and Sharmil in a rural community study, as well as Al Shibly et al., suggesting that motivation patterns transcend geographic and educational contexts. (Al Shibly et al., 2022; Nbsp et al., 2021; Thenmozhi & Sharmil, 2023)

The use of previous prescriptions (40.2%) and internet sources (39.1%) as primary information guides for self-medication reflects global trends (Table 6; Figure 5). Digital health information has become a dominant driver of self-medication behaviour, as highlighted by numerous studies pointing to the internet as a key facilitator of both rational and irrational medication use. This underscores the critical need for digital health literacy as part of undergraduate medical education. (Kasulkar & Gupta, 2015; Nbsp et al., 2021; Tesfamariam et al., 2019)

A noteworthy finding was that 51.7% of students reported always consulting a healthcare provider when symptoms persisted after self-medication, and 27.6% reported doing so often (Table 5). This suggests that while initiation of self-medication is frequent, there is a reasonable propensity to seek professional care when self-management fails — a potentially protective behaviour that can be reinforced through education. (James et al., 2006)

The overall attitude of the majority being neutral (48.3%) or negative (40.2 + 2.3% = 42.5%) toward self-medication, combined with 81.6% not recommending it to others, suggests an emerging professional awareness (Table 4). This provides a teachable moment for pharmacology and clinical faculty to convert awareness into responsible practice. (Aqeel et al., 2014; Habeeb & Gearhart, 1993; Prevalence and Pattern of Self Medication Use in Coastal Regions of South India | British Journal of Medical Practitioners, n.d.)

The finding that 63.2% of students were neutral on whether MBBS training provides adequate knowledge for self-medication is noteworthy and highlights a perceived lacuna in the curriculum. Introducing structured modules on rational drug use, pharmacovigilance, and the ethics of self-prescribing — particularly for the second-year MBBS level — could address this gap. (Abay & Amelo, 2010; Adoko & Nakaziba, 2025; Shrestha et al., n.d.)

Strengths and Limitations

This study has several strengths. It employed a structured, validated questionnaire with comprehensive KAP domains tailored to the medical student context. The response rate was high, ensuring adequate representativeness within the convenience sample. The Google Form methodology ensured anonymity, minimising social desirability bias. However, certain limitations must be acknowledged. The convenience sampling strategy limits the generalisability of findings beyond the study institution. Self-reported data are inherently subject to recall bias. The cross-sectional design precludes causal inferences. Future studies should employ random sampling, include multiple institutions across different years of the MBBS programme, and incorporate longitudinal designs to track changes in KAP over time.

CONCLUSION

Self-medication is highly prevalent among second-year MBBS students, with a prevalence of 88.5% in this study. Despite high awareness of associated risks, students continue to self-medicate — most commonly for minor ailments using analgesics, cough/cold remedies, and vitamins. The knowledge–practice gap is significant and influenced by factors including the perceived triviality of symptoms, pharmacological confidence, desire for quick relief, and time constraints. Educational interventions targeting rational drug use, antibiotic stewardship, and the ethical dimensions of self-prescribing should be integrated into the MBBS pharmacology curriculum. Additionally, the role of digital health literacy in guiding safe OTC medication use deserves attention in undergraduate training. Institutional policies encouraging students to seek professional consultation rather than self-prescribing — particularly for prescription medications and antibiotics — are recommended.

Declarations

Conflict of Interest: The authors declare no conflict of interest.

Funding: No external funding was received for this study.

Ethics Approval: Institutional Ethics Committee (IEC) approval was obtained by Institutional Ethics Committee of MGIMS, Sevagram, prior to the commencement of the study.

Informed Consent: Informed consent was obtained from all participants through the Google Form.

Data Availability: Data supporting the findings are available from the corresponding author upon reasonable request.

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