E-ISSN 2250-0944

ISSN 2250-1150

doi: 10.31838/ijprt/15.01.109

Research Article

Self-Medication Practices and Drug Use Patterns Among First-Year Medical Students: A Cross-Sectional Gender based Analysis

[1]Dr. Aruna Gurung, [2]Dr. Pradnyesh Namdev Panshewdikar

1. Associate Professor, Department of Pharmacology, Abhishek I Mishra Memorial Medical College &Research, Bhilai, Chhattisgarh
2. Associate Professor, Department of Anatomy, Abhishek I Mishra Memorial Medical College &Research, Bhilai, Chhattisgarh

Abstract

Background: Self-medication, defined as using drugs for self-diagnosed conditions without professional consultation, is prevalent among medical students, especially during early training stages. It offers convenience but poses health risks, including misuse and adverse effects. This study evaluates the prevalence, patterns, and gender-based differences in self-medication practices among first-year medical students. **Methods:** A cross-sectional descriptive study was conducted at Abhishek I Mishra Memorial Medical College, Bhilai, involving 100 first-year MBBS students from 1st November 2024 to 30th April 2025. Data were collected via a pretested, semi-structured online questionnaire assessing demographic variables, knowledge, attitudes, practices, reasons, and drug categories used. Data analysis included descriptive statistics and Chi-square testing, with significance set at $p<0.05$. **Results:** The prevalence of self-medication was high at 90%, with no significant gender difference (males 90.90%, females 89.28%). Most students (71%) reported rare (1–2 times in 6 months) self-medication, predominantly for headache (78%) with paracetamol/analgesics being the most used drugs (89%). Females demonstrated better understanding of self-medication concepts ($p<0.001$) and were more cautious, often self-medicating for longer durations (>5 days). The primary motivation was convenience, followed by prior experience with similar illnesses. Notably, healthcare professional advice was the main information source (67%). Attitudes reflected cautiousness, with most students recognizing risks associated with OTC misuse and emphasizing correct drug use. **Conclusion:** Self-medication is highly prevalent among first-year medical students, with significant gender-based differences in knowledge, attitudes, and drug use patterns. Early educational interventions focusing on rational drug use are recommended to promote responsible self-medication practices.

Key words: Self-medication, medical students, drug use patterns, gender differences, OTC drugs.

Introduction

Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms. In practice, it also includes use of the medication of family members, especially where the treatment of children or the elderly is involved.(1)

Self-medication is often associated with OTC (Over the Counter) medications, including analgesics or painkillers (opioids and non-opioids).(2,3)

OTC medicine is a medicine "that can be purchased direct from the attendant at the counter of a pharmacy, chemist's shop, or drugstore without a physician's prescription". Self-medication as an element of self-care, that has been integrated into many health care systems in the world, has some social and economic benefits, but also has several risks. If Self-medication with OTC items is practiced appropriately, it may have economic advantages not only to patients but also to employers and healthcare systems.(4,5,6)

Self-medication is occurring increasingly and is a serious public health concern, both in developing and developed countries. Self-medication can lead to serious consequences such as delay in diagnosis of illness, drug resistance, development of co-morbidities and, in some cases, death (7,8,9).

Self-medication is a widely prevalent practice in India. It assumes a special significance among medical students as they are the future medical practitioners. They may differ from the general population because they are exposed to knowledge about diseases and drugs. It is a common tendency among medical professionals to practice self-medication when they themselves fell sick. There are many reasons for the increased likelihood of self-medication among medical students as they have easy access to information from drug indices, literature, and easy access to physician samples. (10)

Many studies have reported a high prevalence of self-medication among medical students, with rates ranging from moderate to very high across different countries and institutions. This trend is often attributed to factors such as academic stress, time constraints, peer influence, perceived medical knowledge, and the convenience of managing minor illnesses independently. (11,)

While most research focuses on senior or clinical-year students, the foundation of self-medication behaviour may begin much earlier, often during the first year of medical education. At this stage, students are newly exposed to medical content but have not yet received formal pharmacological training. This combination of limited knowledge and increased confidence may lead to misconceptions about the safety and appropriate use of over-the-counter (OTC) drugs. Studying first-year students is therefore crucial to identify early patterns, address knowledge gaps, and introduce educational strategies that promote rational and responsible medication practices throughout their medical career. Hence, this study was conducted to explore the prevalence and patterns of self-medication among first-year medical students.

Aim:

To assess the prevalence,reason and drug use pattern of self-medication among first-year medical students with focus on gender based differences.

Objectives

1. To determine the prevalence of self-medication among first-year medical students.

2. To identify the most commonly used categories of drugs in self-medication
3. To examine the reasons and motivations behind self-medication practices in first-year students and compare these between male and female students.
4. To examine gender based differences in the practice and perception of self medication.

Methodology

This was a descriptive cross-sectional type of study conducted among undergraduate students of Abhishek I Mishra memorial Medical College, Bhilai, Chhattisgarh from January 2025 to April 2025 on first year under graduate medical students of 2024-2025 batch. The study was conducted after the approval from Institutional Ethics Committee.

All the first year MBBS students of the study institute were eligible for inclusion. The students who were absent on the day of questionnaire administration and those who did not give consent were excluded.

A pre-designed, semi-structured, self- administered questionnaire was used, after pretesting. The questionnaire had six sections: demographic variables, knowledge, attitude, practice, reasons, indications, towards self-medication, and categories of drugs commonly self-prescribed in the last two months. For the purpose of the study, the operational definition of self-medication was taken as "the use of medicine for self-treatment without consulting a qualified healthcare professional." For the purpose of the study, certain medical terms were explained to the first-year students like antipyretics, antacids, anti-histaminics and analgesics.

Questions were distributed through google forms. The links were sent in the class messaging group.

The qualitative data were represented using frequency and proportions. Quantitative data were represented using mean and standard deviation. For finding out the association between the use of self-medication and socio-demographic variables, chi square test was used. P value of less than 0.05 was taken as significant. Written informed consent was obtained from all participants, prior to their participation in this study. Anonymity and Confidentiality of the study subject was maintained.

Results

A total of 100 first-year medical students participated in the study. The participants were aged between 18 and 25 years, with a mean age of 21.08 ± 2.8 years. Among them, 56% were female (n = 56) and 44% were male (n = 44).

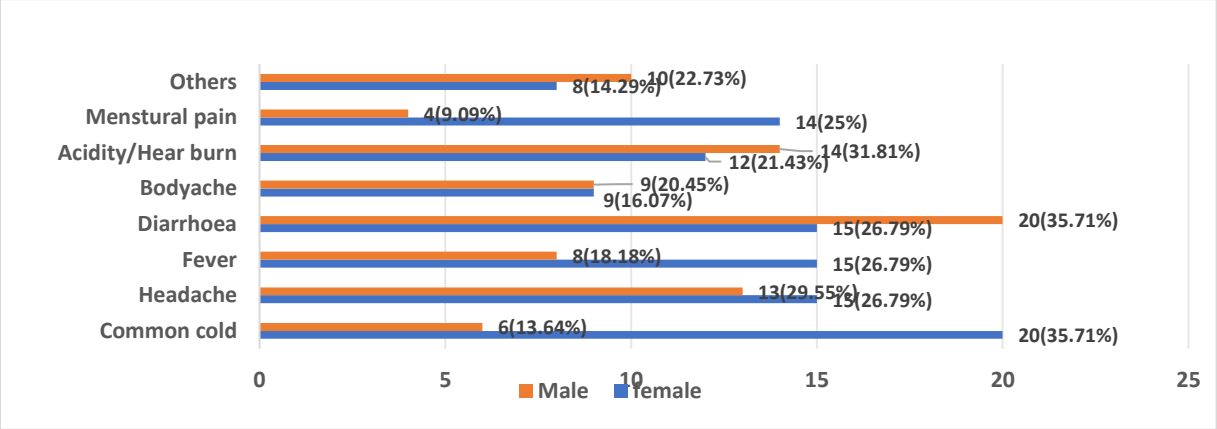
Table 1: Association between Gender and Correct Response to the Questions

Serial Number	Question	Gender (n)	Correct response (n)	Percentage	*p-value
1		Male (44)	15	34.09%	**<0.001

	What do you understand by self-medication?	Female(56)	40	71.43%	
2	What do you understand by Over the Counter drugs?	Male (44)	15	34.09%	**<0.08
		Female(56)	30	52.57%	

* Chi Square Test was done, **significant at 0.05

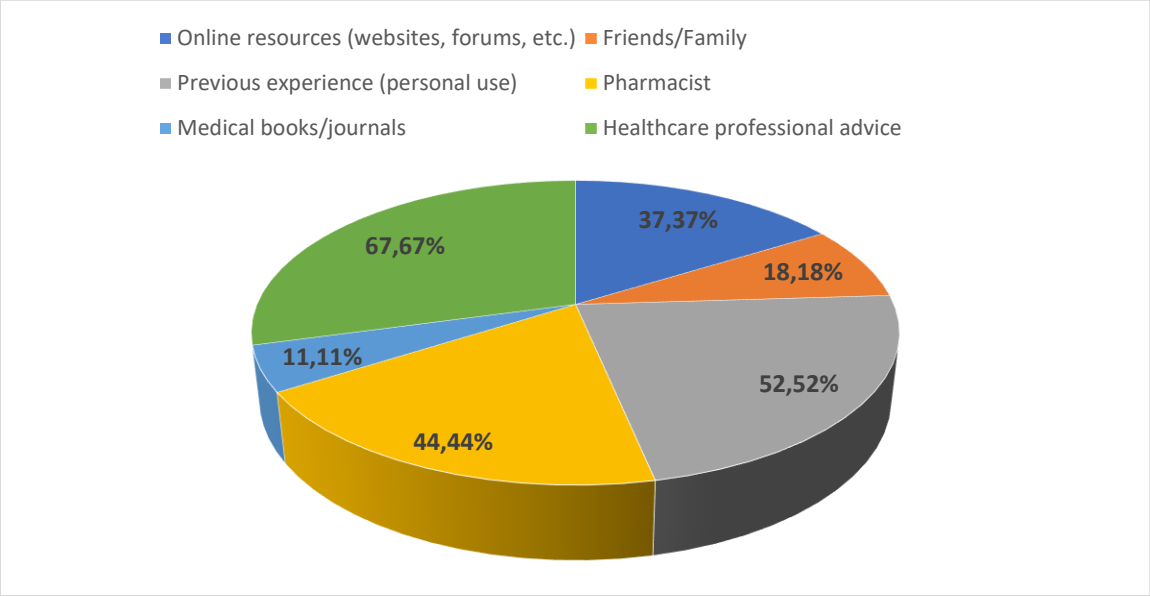
Figure 1. Knowledge regarding indications of self-medication drugs



*Students were allowed to choose multiple responses, as appropriate

Others indication included minor cuts and wounds, allergies, sore throat and skin infections

Figure 2: Sources of information regarding drugs for self-medication



*Students were allowed to choose multiple responses, as appropriate

Table 2: Attitude of medical students on self medication

Serial Number	Question	Options	Response n(%)		
			Male N=44(%)	Female N=56 (%)	Total N=100 (%)
Q1	How comfortable are you with the idea of self-medication for common ailments?	a) Very comfortable, I think it's a good way to manage health.	15(34.09)	4(7.14)	19(19)
		b) Somewhat comfortable, but I prefer professional advice when necessary.	25(56.81)	41(73.21)	66(66)
		c) Uncomfortable, I believe it's risky without medical supervision.	4(9.09)	7(12.50)	11(11)
		d) Very uncomfortable, I avoid self-medication entirely.	0(0)	4(7.14)	4(4)
Q2	How do you feel about people self-medicating for minor health issues?	a) It's completely safe and should be encouraged	8(18.18)	7(12.50)	15(15)
		b) It's a personal choice, but it has some risks	28(63.64)	33(58.93)	61(61)
		c) It's not advisable and can lead to serious health problems	8(18.18)	15(26.79)	23(23)
		d) I have no opinion on the matter	0(0)	1(1.79)	1(1)
Q3	Do you think self-medication is an effective alternative to consulting a healthcare professional for minor health issues?	a) Yes, it's often more convenient and effective.	27(61.36)	45(80.36)	72(72)
		b) Yes, for certain minor conditions, it can be effective.	15(34.09)	10(17.86)	25(25)
		c) No, I believe professional consultation is always necessary.	2(4.55)	0(0)	2(20)
		d) No, self-medication usually worsens the problem.	0(0)	1(1.79)	1(1)
Q4	Do you believe that over-the-	a) Yes, they can be misused easily, especially by those without medical training.	3(6.82)	0(0)	3(3)

	counter (OTC) drugs can lead to misuse if people don't follow the instructions properly?	b) Yes, but only if the drugs are used for purposes other than intended.	34(77.27)	41(73.21)	75(75)
		c) No, OTC drugs are safe and hard to misuse.	4(9.09)	12(21.43)	16(16)
		d) No, misuse only occurs with prescription medications, not OTC drugs.	3(6.82)	3(5.36)	6(6)
Q5	What is your opinion on the use of over-the-counter (OTC) drugs for treating common health problems?	a) They are safe and should be used freely by everyone.	24(54.55)	38(67.86)	62(62)
		b) They are safe when used correctly and within recommended doses.	15(34.09)	15(26.79)	30(30)
		c) They are not safe, and their use should be strictly monitored	5(11.36)	3(5.36)	8(8)
		d) I don't think OTC drugs are effective for treating health problems	0(0)	0(0)	0(0)

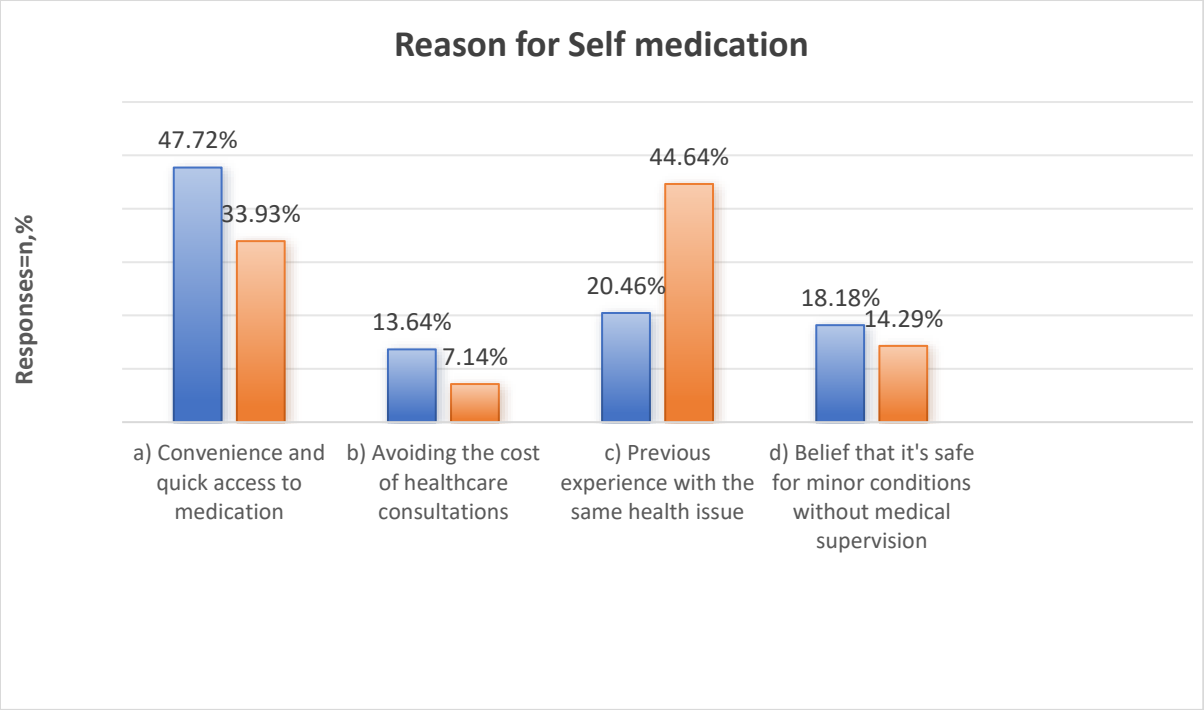
Table 3: Practice of self medication by medical students

The overall prevalence of self medication among first year medical students was 90%. However,a Chi-Square test of independence revealed no significant association between gender and self-medication among first-year medical students ($p = 0.831$; $p < 0.05$ considered significant), indicating that self-medication practices were similarly prevalent among males (90.90%) and females (89.28%)

Serial Number	**Question**	**Options**	**Response (%)**		
			Male N=44(%)	**Female N=56 (%)**	**Total N=100(%)**
Q1	How often do you self-medicate?	a) Rarely (1–2 times in 6 months)	28(63.64)	43(76.79)	71(71)
		b) Occasionally (1–2 times/month)	8(18.18)	5(8.93)	13(13)
		c) Frequently (weekly)	4(9.09)	2(3.57)	6(6)
		d) Never	0(0)	0(0)	0(0)
Q2.		a) <3 days	28(63.64)	19(33.93)	47(47)

	Duration of self-medication (in last 1 month)	b) 3-5 days	9(20.46)	4(7.14)	13(13)
		c) >5 days	7(15.90)	25(44.64)	32(32)
Q3	What symptoms/conditions lead you to self-medicate? (Tick all that apply):	a) Headache	33(75)	45(80.36)	78(78)
		b) Fever	10(22.73)	7(12.50)	17(17)
		c) Cold/Cough	1(2.27)	1(1.79)	2(2)
		d) Stomach pain	0(0)	0(0)	0(0)
		e) Acidity	0(0)	1(1.79)	1(1)
		f) Allergies	0(0)	1(1.79)	1(1)
		g) Skin issues	0(0)	0(0)	0(0)
		h) Others (please specify):	0(0)	1(1.79)	1(1)
Q4	What types of medications do you usually take for self-medication? (Tick all that apply):	a)Paracetamol/Analgesics	40(90.91)	49(87.50)	89(89)
		b) Antipyretics	0(0)	1(1.79)	1(1)
		c) Antacids	2(4.55)	1(1.79)	3(3)
		d) Antibiotics	2(4.55)	0(0)	2(2)
		e) Antihistamines	0(0)	1(1.79)	1(1)
		f) Vitamin supplements	0(0)	1(1.79)	1(1)
		g) Others (please specify): ___	0(0)	0(0)	0(0)

Figure 3. Reason for self medication among First year medical students



Discussion

Discussion Self-medication and misuse of OTC are considered global health- related problems. Differences in demographic factors and the functional definition of self-medication likely explain the disparity in self-medication rates.(8)

This study aimed to measure the prevalence of self-medication and pattern of drug use for self medication among first year undergraduate medical students of Abhishek I Mishra Memorial Medical College, Chhattisgarh India.

In our study, students belong to the age group (years) mean±standard deviation (SD) of 21.08±2.8 when compared to similar study done by Thadani et al. where the age group

mean±SD (years) was 20.5±0.98. The female partcipants in our study was 56% and male participants were 44%. In Thadani et al. study female participants were 68% and males

participants were 32%.(12)

In the present study, the overall prevalence of self-medication among first-year medical students was high, with 90% of students reporting the practice. These findings are consistent with previous studies done by Badiger S et al who also reported a significantly higher prevalence (92%)of self medication among medical students.However study by Jagadeesh et al and Patil et al, showed a prevalence of 66%, and 88.18% respectively.(13,14,15)

When analyzed by gender, 90.90% of male students and 89.28% of female students reported self-medicating. However, the Chi-Square test showed no statistically significant association between gender and self-medication practices ($p = 0.831$). This suggests that gender does not play a significant role in influencing self-medication behavior among this group. The lack of significant gender difference in our study may reflect similar access to medications, academic pressure, or health literacy among both male and female medical students.

An analysis of students' understanding of key concepts related to self-medication revealed significant gender-based differences. As shown in Table 1, only 34.09% of male students

correctly identified the meaning of self-medication compared to 71.43% of female students, with the association being statistically significant ($p < 0.001$). This indicates that female students demonstrated a significantly better understanding of the term "self-medication." A similar trend was observed in the response to the question regarding Over the Counter (OTC) drugs, where 52.57% of females responded correctly versus 34.09% of males, although this difference did not reach statistical significance ($p = 0.08$). These findings suggest that female students may possess greater awareness or are more attentive to health-related terminology and practices, potentially due to differences in health-seeking behavior or information-processing styles.

When participants were asked about the various sources of information supporting self-medication practices, healthcare professional advice emerged as the most commonly cited source (67%). This suggests that while self-medication is prevalent, many individuals still seek guidance from qualified professionals, potentially reducing the risk of inappropriate drug use. In contrast, a study by Rasania et al. reported that 92% of participants considered previous prescriptions as their primary source of information for self-medicated drugs, highlighting variability in influencing factors across different populations.(16)

The study examined attitudes toward self-medication and OTC drug use, highlighting gender-based differences. A majority (66%) of participants felt comfortable with self-medication but still valued professional advice. Females (73.21%) were more cautious compared to males (56.81%), with 34.09% of males expressing high confidence in self-treatment versus only 7.14% of females, these findings were consistent with prior research indicating women tend to be more risk-averse in health behaviors .(17,18)

Most respondents (61%) acknowledged self-medication as a personal choice with potential risks. Only 15% viewed it as completely safe, with slightly higher endorsement from males (18.18%) than females (12.50%). Notably, 26.79% of females deemed self-medication potentially harmful, reinforcing their cautious stance and aligning with findings by Figueiras et al. (19)

Regarding effectiveness, 72% considered self-medication convenient and effective, especially females (80.36%). Males were more likely (34.09%) to see it as suitable only for minor conditions, reflecting gendered confidence in health autonomy.

Concerns about OTC drug misuse were widespread (75%), with similar views across genders. Few believed OTC drugs to be entirely safe, indicating strong awareness of potential misuse—an issue also reported in WHO guidelines on responsible self-medication.(1)

Support for OTC drug use in common ailments was moderate (62%), more so among females (67.86%) than males (54.55%). Many emphasized correct usage, and only 8% favored strict regulation, showing that most participants recognize a need for balance between access and caution.

This study also highlighted the important gender-based patterns and trends in self-medication practices among the surveyed participants. A significant majority (71%) reported self-medicating rarely,defined as 1–2 times in 2 months, indicating that while self-medication is common, it is generally infrequent. Notably, females were more likely to report rare usage (76.79%) compared to males (63.64%), which may reflect a more cautious approach among female participants or differences in health-seeking behavior. However, unlike the present

study, Abay et al found no significant association between gender and self-medication practices, suggesting that gender-related differences in self-medication may vary across populations and cultural contexts (20).

The duration of self-medication varied considerably between genders. Most males (63.64%) used self-medication for less than three days, whereas a considerable proportion of females (44.64%) reported self-medicating for more than five days. This could suggest a gender-related difference in symptom persistence or health autonomy, with females potentially more inclined to manage conditions independently for longer duration before seeking professional help.

When exploring reasons for self-medication, headache was overwhelmingly the most common symptom, reported by 78% of participants, slightly more common among females (80.36%) than males (75%). Other conditions such as fever (17%) and cold/cough (2%) were mentioned less frequently, and hardly any participants selected stomach pain, skin issues, or other chronic symptoms. These findings are in line with previous literature suggesting that minor, familiar ailments are the main drivers of self-medication (13,14,15).

Paracetamol and analgesics were the most commonly used drugs (89%), consistent with headache being the most cited symptom. Use of antibiotics (2%) and antipyretics (1%) was low, which is encouraging, given concerns about antibiotic misuse. Interestingly, while 90.91% of males used analgesics, females showed slightly more diversity in drug choices, with small percentages using antihistamines, vitamin supplements, or antipyretics. These patterns reinforce findings from WHO guidelines, which emphasize that while self-medication can empower individuals, it requires awareness to prevent inappropriate drug use (1).

The most common reason for self-medication among first-year medical students was convenience and quick access to medication, reported more by males (47.72%) than females (33.93%). The findings were similar to the study conducted by Pandya et al.(11)

Females (44.64%) more often cited previous experience with the same illness, indicating a tendency to rely on past outcomes. Avoiding healthcare costs was a less common reason, especially among females. A small proportion believed self-medication is safe for minor conditions, with slightly more males (18.18%) than females (14.29%) holding this view. These findings suggest that self-medication is largely driven by ease and familiarity rather than cost or casual attitudes, emphasizing the need for early education on safe medication use.

References

1. World Health Organization: Guidelines for the regulatory assessment of Medicinal r6Products for use in self-medication[Internet]. WHO/EDM/QSM/00.1, 2000[cited 2025 May 13]. Available from https://iris.who.int/handle/10665/66154.
2. Cooper R.J.Over-the-counter medicine abuse – a review of the literature. J. Subst. Abus. 2011;18: 82–107.
3. Power, I. An update on analgesics. Br. J. Anaesth.2011; 107: 19–24.
4. Porta M. A Dictionary of Public Health. Oxford University Press; 2018.
5. Home WH. The benefits and risks of self-medication. WHO Drug Information. 2000;14(1):548.
6. Noone J, Blanchette CM. The value of self-medication: summary of existing evidence. J Med Econ. 2018;21(2):201–11.

7. Ocan M, Obuku EA, Bwanga F, Akena D, Richard S, Ogwal-Okeng J, et al. Household antimicrobial self-medication: a systematic review and meta-analysis of the burden, risk factors and outcomes in developing countries. BMC Public Health. 2015;15:742.
8. Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self medication. Drug Saf. 2001;24(14):1027–37.
9. Chalker J. Improving antibiotic prescribing in Hai Phong Province, Viet Nam: the "antibiotic-dose" indicator. Bull World Health Organ. 2001;79(4):313–20.
10. Divya S, Katlam S, Mohanty IR, Jindal JD, Deshmukh YA. Comparative assessment of self-medication practices among under-graduate medical and engineering students. Indian J Prev Soc Med. 2015;46: 105-11.
11. Pandya RN, Jhaveri KS, Vyas FI, Patel VJ. Prevalence, pattern and perceptions of self-medication in medical students. *Int J Basic Clin Pharmacol.* 2013;2(3):275-80.
12. Thadani S, Salman MT, Ahamed A. Knowledge attitude and practice of self medication among second year undergraduate medical students. J Ration Pharmacother Res. 2013;1(3):131-4.
13. Badiger S. Self-medication patterns among medical students in South India. Australasian Medical Journal. 2012 May 1;5(4):217–20.
14. Jagadeesh K, Chidananda KN, Revankar SP, Prasad NS. Study on self-medication among 2nd year medical students. Int J Basic Clin Pharmacol. 2015;4(1):164-7.
15. Patil SB, Vardhamane SH, Patil BV, Jeevangi SK, Binjawadgi AS, Kanaki AR. Self-medication practice and perceptions among undergraduate medical students: a cross-sectional study. J Clin Diagnos Res. 2014;8(12):HC20-3
16. Rasania SK, Sharma A, Rathi S. A study of self-medication among undergraduate medical students of a medical college in Maharashtra. *Int J Res Med Sci.* 2023;11(1):251-255. doi:10.18203/2320-6012.ijrms20225723
17. Bennadi D. Self-medication: A current challenge. Journal of Basic and Clinical Pharmacy 2014;5(1):19.
18. James H, Handu SS, Khaja KAJA, Otoom S, Sequeira RP. Evaluation of the Knowledge, Attitude and Practice of Self-Medication among First-Year Medical Students. Medical Principles and Practice . 2006;15(4):270–5.
19. Figueiras A, Caamano F, Gestal-Otero JJ. Sociodemographic Factors Related to self-medication in Spain. European Journal of Epidemiology. 2000;16(1):19–26.
20. Abay SM, Amelo W. Assessment of self-medication practices among medical, pharmacy, and health science students in Gondar University, Ethiopia. J Young Pharm. 2010;2(3):306–10