

A Cross-Sectional Study Examining the Behavioral Patterns and Attitudes of First - and Second-Year Medical College Students in West Bengal, India, Regarding Self-Medication

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ABSTRACT

BACKGROUND

Self-medication is a pervasive habit, and drug abuse is a severe problem. Since medical students are future doctors, they give it a unique significance. The study's objectives were to assess the practice, knowledge, and attitudes of first- and second-year medical students at a medical college in West Bengal, India, about self-medication.

METHODS

The study was conducted in Nilratan Sircar Medical College and Hospital, Kolkata, West Bengal. In 2021, medical students across the colleges of West Bengal conducted cross-sectional research using questionnaires. Upon being informed of the objectives and design of the study, first- and second-year MBBS students willingly agreed to participate.

RESULTS

In this study, 91.50% of medical students practiced self-medication. The common indication for self-medication was fever (89.2%) and headache (69.6%). Previous prescriptions for the same illness (68.87%) were the main source of information for self-medication. Common reasons for self-medication were urgency (53.33%) and quick relief (50%). Over-the-counter (88.14%) drugs were the most common sources of medications. The common preferred system of self-medication was allopathic (92.5%). The percentage of discontinuation (58.1%) of self-medication was more. The majority of them favoured oral (96.67%) media.

CONCLUSIONS

It was determined that more than half of the student population self-medicated for a wide range of ailments; the cause may be the increased public awareness of drugs brought on by the availability of information via books, the internet, and over-the-counter medications from pharmacists. Therefore, it is crucial to stop students from self-medicating to prevent the emergence of drug habits, resistance, and drug interactions.

KEY WORDS

Awareness, Drug Abuse, Illness, Medical Students, Self-Medication.

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BACKGROUND

Self-medication is the use of medication for health issues without consultation with a registered doctor, and these practices are increasing daily. The International Pharmaceutical Federation (FIP) and the World Self-Medication Industry (WSMI) define self-medication as the use of non-prescription medicines by patient initiatives.^[1] Medicines for self-medication are often called non-prescription or over-the-counter drugs and are available without a doctor's prescription through pharmacies. Medicines that require a doctor's prescription are called prescription products.

According to WHO, an individual can self-medicate to cure self-recognized disorders or symptoms or utilize a medicine intermittently or continuously prescribed by a doctor for chronic or recurring illnesses or symptoms.^[2] On one side, limited access to healthcare, cost, and the burden of seeing a registered doctor compel a person to self-medicate; on the other side, knowledge and encouragement of self-care through various social media platforms, government agencies, availability of drugs OTC, little regulatory policies over drugs, also contribute to increasing self-medication.

Studies on self-medication reveal that various factors, including education, family, society, law, drug availability, and marketing exposure, impact it.^[3,4] The prevalence of self-medication among Indian medical students was reported to be between 57.05% and 94%.^[5,6,7,8,9,10] A study reported that 87% of engineering students self-medicate.^[11] Antipyretics, analgesics, and antimicrobials are the most often used drugs for self-medication.^[5,6,12]

Self-care is a growing concept that includes both positive and negative characteristics. Despite having several advantages of self-medication from the patient perspective, like less time-consuming, more convenient, and economical, it has harsh consequences not only for the patient itself but for the whole society: increasing drug resistance, lack of proper knowledge about the drugs, drug-interactions lead to adverse drug reaction, chances of using wrong medications and risk of disease aggravation. Research on self-medication among medical students is scarce. The attitude and practice of self-medication among medical students might differ from the general population because of their potential knowledge of diseases and drugs and the availability of drugs where they work. The objective of this study was to ascertain how first- and second-year medical students from a medical college in West Bengal, India, practice, know about, and feel about self-medication.

METHODS

This was a descriptive, cross-sectional, questionnaire-based study conducted in Nilratan Sircar Medical College and Hospital, Kolkata, West Bengal

Sample Size Calculation

The minimum sample size (N) was calculated using the Cochran formulae: $N = Z^2 pq / d^2$ where N is the sample size,^[13]

p is the prevalence of self-medication taken as 57.05% (4), q = (1 - p),

Z is the normal standard deviation, which is typically set at 1.96 to match to the 95% confidence interval, and d, the desired level of accuracy, which is set at 0.05 to accept a 5% mistake. The estimated minimum sample size was therefore 377.

Ethical Issues

The institution's ethical committee approved in advance for the study to be carried out. (Ethical committee reference number: NRS/2021/02/0186) The participating students were informed of the study's objectives and maintained confidentiality. Before completing the questionnaire, each student gave their informed consent.

Study Procedure

All first and second-year medical students were approached during multiple classes in 2021 over two weeks. Out of 500 students (250 in each batch), 378 were present on those days and were informed of the study's purpose and their voluntary participation. A printed, pre-designed, pre-tested, self-administered, semi-structured questionnaire was given to them to complete.

Thirty-six fourth-year medical students who were not involved in the study were checked and validated on the questionnaire before it was created. The survey inquired about the demographics of the students and whether they had self-medicated within the previous month, the disease for which they had used the medicine, the drug or drug group they had used, and why they had not sought medical advice [Annexure 1]. A few operational terminologies were specified for the study's needs. Taking medication for self-treatment without seeking medical advice is referred to as self-medication. An individual who satisfies the criteria for healthcare professional is:

Obtaining an allopathic bachelor's degree in medicine (MBBS) and being registered with the Medical Council of India or a state medical council;

For homeopathic practitioners, obtaining a Bachelor of Homeopathic Medicine and Surgery (BHMS) degree or having obtained a Bachelor of Ayurvedic Medicine and Surgery (BAMS) degree (for ayurvedic practitioners)

Statistical Analysis

We used IBM SPSS for statistical analysis.

RESULTS**Baseline Characteristics of Participants**

Of all of the students who answered to the survey (391), 13 were excluded according to the exclusion criteria. The remaining 378 students' questionnaires were considered for evaluation.

1. Socio-Demographic Characteristics of MBBS Students [1st & 3rd Semester]

Most of the students belonged to the age group of 18-20 yrs. (n=346, 91.5%), 18 (4.9%) students belonged to the age group of 21, and 11 (2.9%) were of age 17 (Table 1). More than half of the respondents were males (59.26%), but most of the students were in the first academic year of the MBBS course (65.92%), with the majority of them residing in the urban area (75.92%).

2. Distribution of Students according to the History of Continuing the Prescription Prescribed by a Physician

It is very alarming that less than 50% of students always followed the prescription written by registered doctors (45.2%). 31.5% followed sometimes, and 23.3% never followed prescriptions.

3. The Practice of Self-Medication among students

89.26% of optimistic respondents committed to being involved with self-medication practices in the last six months.

3.1 Distribution of students according to their history of illness due to which they self-medicated themselves

Maximum students had self-medicated themselves for fever (n=284, 89.2%), pain (n=171, 53.7%), headache (n=222, 69.6%), flu/cough & cold (n=195, 61.1%) (Table no. 2).

3.2 Distribution of students according to their reasons for self-medication

Most students self-medicated themselves due to urgency (n=170, 53.33%), or minor ailment (n=151, 47.4%) for quick relief (n=159, 50%). A small percentage of them took medication due to their confidence in pharmacological knowledge, to save time and money, to avoid waiting to see a doctor, and some (n=64, 20%) thought that their ailment was too trivial for consultation (Table no.3).

3.3 Distribution of students according to their preferred types of drugs and their source of information about medicines

266 (83.4%), 225 (70.54%), 188 (58.92%), and 163 (51.03%) students took antipyretics, analgesics, antibiotics, and vitamins, respectively, by themselves without a doctor's consultation (Table no.4). Some used antidiarrheals as well. 70% of the students used any of the following drugs in the last three months: Cough syrup, antacids, oral contraceptives, inhalers, eye and ear drops over the counter. Furthermore, mostly, they got information regarding the medication, as to where and how to use it through previous prescriptions for the same illness (n= 220, 68.87%), from pharmacists (n=119, 37.34%), from the internet and social media platforms (28.63%), or from their seniors (119, 37.39%) (Who are still medical students) (Table no.5). 281 (88.14%) got their drugs over the counter; some students got them from free samples, friends, and relatives (Table no. 6). 295 (92.5%) used allopathic medication, some (n=84, 26.2%) used homeopathic medications too, and mostly via oral (n=308, 96.67%) and topical (n=125, 39.25%) route (Table no. 7).

3.4 Distribution of students according to the effect of self-medication

According to most of the students (77.59%), they were relieved from symptoms after self-medicating, and some of them experienced adverse effects, stopped the medication, and subsequently consulted a doctor (14.94%). A small percentage of the students (2.9%) stopped the medications for some reason and changed to a different medication, this time by self-medication. (Table?)

3.5 Attitude/perception of students about Self Medication

198 (62.2% of the study population) thought self-medication was required, whereas 23.3% did not know about it (Table no.10). 80 (25% of the study population) thought that they could diagnose their disease themselves. 145 (45.6% of the study population) and 94 (29.6% of the study population) thought that they could not treat themselves and were confused about it; still, some had self-medicated themselves. It focuses on self-ignorance (Table no.10). 54.4% of the study population told that they would self-medicate themselves in the future, even after ill effects. 31.9% of the study population recommended self-medication to others.

Age	Number of Students	Percentage
17	11	2.9
18	115	30.4
19	141	37.4
20	90	23.8
21	18	4.9
22	3	0.7
Total	378	100%

Table 1. Distribution of students according to their Age

Name of Illness	Number	Percentage
Fever	284	89.2%
Headache	222	69.6%
Flu/Cough & cold	195	61.1%
Pain	171	53.7%
Sore throat	84	26.2%
Vomiting	121	38.1%
Diarrhea	113	35.5%
Mouth ulcer	25	7.9%
Rash/Allergy	56	17.7%
Insomnia	12	3.7%
Others*	2	0.8%

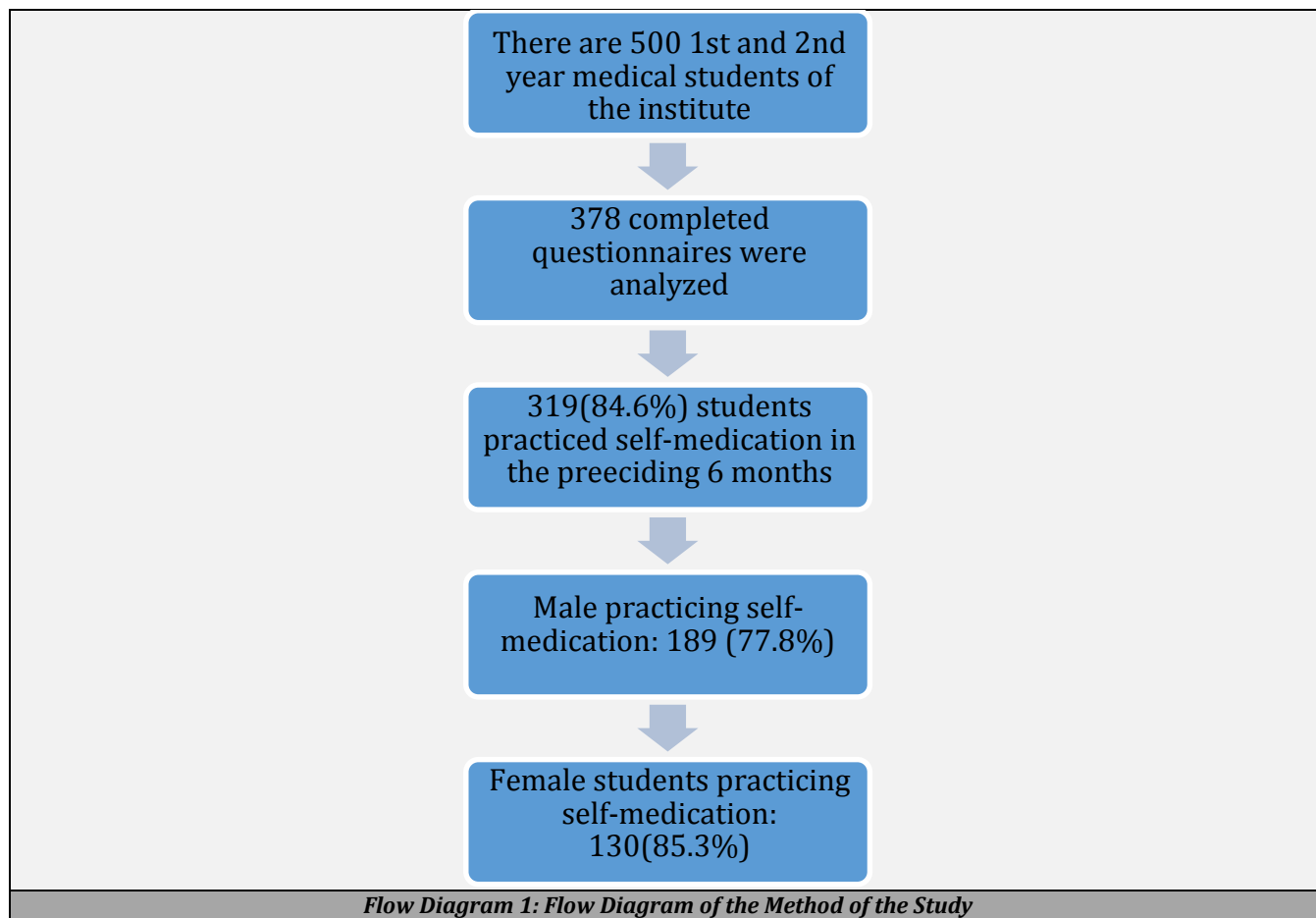
Table 2. Distribution of students according to their history of illness

Reasons	Number	Percentage
Too trivial for consultation	64	20%
Confidence about pharmacological knowledge	57	17.78%
Save time	96	30%
Avoid crowd at opd	50	15.56%
Privacy	26	8.15%
Save money	67	21.11%
Minor ailments	151	47.4%
Quick relief	159	50%
Urgency	170	53.33%

Table 3. Distribution of students according to their reason for self-medication

Types of Drugs	Number	Percentage
Antipyretic	266	83.40%
Analgesics	225	70.54%
Antibiotics	188	58.92%
Tonics/Vitamin	163	51.03%
Antidiarrheal	94	29.46%
Sedatives	9	2.9%
Antispasmodic	24	7.47%
Others*	225	70.54%

Table 4. Distribution of students according to the type of medication used



Source of Information	Number	Percentage
Reading materials	87	27.38%
Previous prescription for same illness	220	68.87%
Pharmacist/OTC	119	37.34%
Friends	48	14.93%
Drug advertisement	48	14.93%
Internet	91	28.63%
Senior	119	37.39%

Table 5. Distribution of students according to the source of information

Source of Drugs	Number	Percentage
Over the counter	281	88.14%
Free sample	45	14.07%
Friends	38	11.85%
Relatives	33	10.37%

Table 6. Distribution of students according to the source of the medications

Preferred System	Number	Percentage
Allopathic	295	92.5%
Homeopathic	84	26.2%
Ayurveda	21	6.6%
Others	11	3.33%

Table 7. Distribution of students according to the preferred system

Dosage Form	Number	Percentage
Oral	308	96.67%
Injectable form	18	5.56%
Topical	125	39.25%
Inhaler	22	7.03%
Eye/ear drops	11	27.03%

Table 8. Distribution of students according to the dosage forms of the medications

History of Discontinuation	Number	Percentage
Always	19	5.9%
Never	185	58.1%
Sometimes	115	36%
Total	319	100%

Table 9. Distribution of students according to the trend of discontinuation of self-medicated drugs

Questions	Yes	%	No	%	Do not know	%
Requirement of self-medication	198	62.2%	46	14.5%	74	23.3%
Can diagnose their disease	80	25%	133	41.7%	106	33.4%
Can treat themselves	79	24.8%	145	45.6%	94	29.6%
Self-medication in future	173	54.4%	46	14.4%	99	31.2%
Recommendation of self-medication	102	31.9%	113	35.5%	104	32.6%

Table 10. Distribution of students according to the perception of students regarding self-medication

DISCUSSION

Self-medication is a type of self-care that is increasing daily due to rising healthcare awareness via various social media platforms and the internet. Self-medication practices may lead to drug resistance, unwanted side effects, and even death in some cases.^[14] One of the main reasons for high SM (Self-medication) practice in India is the lack of regulation on OTC (Over-the-counter) drugs and non-adherence to rational drug use practices and policies.^[15]

This study highlighted the self-medication practice and perception among 1st and 2nd-year medical students of medical colleges in Eastern India. We found the prevalence of self-medication as 89%, which is on the higher side of the prevalence curve if we compare with several studies. Medical students' tendency to self-medicate in India is between 57.05% and 94%.^[4,5,6,7,8,9] According to other studies conducted in several other countries, prevalence of self-medication in Ethiopia is between 25.4 and 43.3%,^[16,17] 51% in Slovenia,^[18] 55.3% in Pakistan,^[19] 55% in Egypt,^[20] 56.9% in Nigeria,^[21] 80.9% in Malaysia,^[22] 100% among students in

Bangladesh,^[23] 38 % in Afghanistan.^[24] Use of self-medication was reported by 96.8% of the participants, and this was not different between medical (97.2%) and non-medical students (96.5%) in Jordan.^[12] The difference between our study compared to other studies conducted in India and other countries may be due to their medical study-related background (more knowledge about different ailments and drugs used in their treatments.), availability of drugs in the hospitals where they work, lack of knowledge of adverse consequences of any drug, socioeconomic conditions, and countries' drug laws.

A study conducted in Nigeria revealed that the prevalence of self-medication increasing year by year^[25] makes us feel the necessity to complete a survey on the practice and attitude of self-medication in recent years. This study revealed that the practice of self-medication was the same in females (130 out of 154 females- 84.4 %) as males (189 out of 224 males- 84.3%) with a significant value ($p = 0.011$). Other studies demonstrated that self-mediation among females was more critical than for males.^[26]

A notable discovery in our study is that 2nd-year medical students practiced self-medication more frequently than the first-year students. Although the result is not significant (P value is 0.12), this finding is consistent with the study conducted in India ($p < 0.001$).^[5] and in Nigeria ($p = 0.004$).^[25] This result suggested that increased knowledge about diseases and drugs might be associated with the practice of self-medication.

The drugs more commonly used by the responders were antipyretics ($n=201$, 83.40%) followed by analgesics, antibiotics, and vitamins. This practice is also congruent with the studies conducted in coastal south India^[6] and in IGIMS, Patna, India.^[8] A study conducted in Nigeria demonstrated that most common medications were analgesics, followed by antibiotics and antimalarial drugs.^[25]

Antibiotics followed by analgesics and antipyretics were the most commonly used medications for self-medication, according to a survey done in West Bengal, India. From these studies, it is evident that self-medication is increasing year by year. Even though the most common drug remains antipyretics, and previously it was antibiotics, the percentage of antibiotic use has increased heavily (from 35%^[5] to 58.92 %).

The other two categories, i.e., analgesics and antipyretics, have gone up to 83.40% and 70.54%, respectively. This might be due to self-awareness and readily available data regarding the use and side effects of the drugs and also influenced by social media. Some studies with comparable objectives that were carried out in developing nations have reported higher use of antimicrobials for self-medication, especially where there is an increased incidence of infectious diseases and antibiotics are freely available OTC.^[19,27]

Regarding the morbidities that led the medical students to engage in self-medication, fever (89.2%) was most common, followed by headache, cough & cold, pain, and diarrhoea. According to first-year medical students in Bahrain in 2006, headache was the most prevalent ailment (70.9%), followed by stomach ache, fever, and cough/ common cold. In a study done in Karachi, headache (72.4%) was likewise the most prevalent morbidity among medical students seeking treatment.^[6] The Ethiopian study's most frequently reported

symptoms for self-medication were fever and headache, followed by cough and the common cold.^[5]

Regarding reasons which provoked students for self-medication, the urgency to treat the symptoms (53.3%) was the most common, followed by a minor illness and the urge to get quick relief. Those with mild illnesses practicing self-medication have severe implications as many diseases may initially appear benign. Still, misdiagnosis and wrong treatment may invite serious health hazards. This outcome is consistent with research conducted in Bahrain in 2006,^[6] where 45.5% of students chose self-medication because it saved time, while 25.4% preferred it since the illness was mild.

They mostly take oral (96.67%), allopathic medications (92.5%) by their previous prescription of similar symptoms (change the term in the tables too) (68.87%), seniors (37.39%), pharmacists (37.34%), or through the internet (28.63%). The students usually get the drugs from over-the-counter (88.14%), followed by free samples from outpatient hospitals (14.07%) and friends and relatives. According to 77.59% of students, they were cured (definition of "cured"-relief from symptoms), and 22.41% of students stopped their medication and consulted a doctor. (Table). Just less than half of the students always followed the prescription written by a doctor (45.2%). It is hazardous to note that nearly 23.3% of the students never followed a doctor's prescription. In emerging drug resistance, it is problematic to note that 41.9% of the students always or sometimes discontinue their medication without completing the full course.

Previous studies showed that the reasons behind the prevalent use of self-medications include the following: Quick relief, time and money saving, high convenience, the presence of minor illnesses, prior knowledge of medicine effectiveness, and the lengthy waiting time at doctors' clinics or hospitals.^[12,28,29] The familiar sources of self-medications may include families, friends, pharmacists, newspapers, magazines, and internet websites.^[12,30]

It is a common propensity among medical professionals to exercise self-medication when they feel unwell. Although they could seek advice from fellow physicians, because of the busy way of life and a complicated set of motives such as hesitation, they are reluctant to seek clinical assistance from expert colleagues while they are ill. This specific exercise has its pros and cons. At the same time, accountable self-medication is a handy opportunity to deal with minor contamination and properly control acute emergencies; the point of self-medication effects is harmful. The results of these multicenter studies may suggest the need to integrate responsible self-education as an intrinsic component of the medical curriculum.

CONCLUSIONS

It is determined that more than half of the student population self-medicates for a wide range of ailments; the cause may be the increased public awareness of drugs brought on by the availability of information via books, the internet, and over-the-counter medications from pharmacists. Therefore, it is crucial to stop students from self-medicating to prevent the emergence of drug habits, resistance, and drug interactions.

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