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EVALUATION OF SELF-MEDICATION PRACTICES AMONG FIRST AND THIRD YEAR MBBS STUDENTS IN A TERTIARY CARE HOSPITAL, ASSAM

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ABSTRACT

Background: "Self-medication" is a frequent practice in which people take drugs without contacting a healthcare professional. It is common among medical students due to their understanding of pharmaceuticals & easy access to prescriptions. Therefore, the present study focuses on examining self-medication habits among first and third-year MBBS students in a tertiary care hospital in Assam, India.
Methods: This prospective cross-sectional study involved medical students in two groups: 1st & 3rd year MBBS students. A pre-tested questionnaire was distributed to both groups using Google Forms, preceded by a pre-test conducted with 16 respondents. The data collection process involved 2 sections: Section A focused on demographic information, while Section B focused on self-medication-related inquiries using multiple-choice answers, open-ended questions & Likert scales.
Results: The study found that two groups differ in drug information sources, with Group 2 relying more on classroom teaching (51.96%) & textbooks (53.92%), while Group 1 heavily relies on advertisements (38.04%), prescriptions (48.91%), & Google (41.30%). Group 2 had a higher percentage of reliance on different sources for drugs, suggesting social circles may influence their behavior. Both groups shared similar reasons for self-medication, but Group 2 had higher percentages for time-saving (66.67%), confidence in knowledge (58.82%), and ease & convenience (60.78%). Group 2 used a wider variety of drugs with significantly higher percentages for antispasmodics (31.37%), decongestants (77.45%), & lozenges (37.25%). Additionally, both groups had concerns about adverse effects, wrong drug use, misdiagnosis, and drug dependence. Furthermore, group 2 had a higher awareness of self-medication aspects, including dose, adverse drug reactions, precautions, and medication course completion, compared to Group 1.
Conclusion: The present findings highlight the importance of understanding different information-seeking behaviors & motivations behind self-medication practices to tailor effective public health strategies.

Keywords: *Self-medication, MBBS students, Google Forms, multiple-choice answers, open-ended questions, Likert scales.*

INTRODUCTION

"Self-medication" refers to the use of drugs that are specifically created and labeled for use without a doctor's supervision & that have been found to be both safe & effective for treating common health issues [1]. Self-administering medications are sometimes referred to as "non-prescription" or "over the counter" (OTC) and are available through pharmacies without a doctor's prescription. The idea that self-medication is a form of self-care is being supported by an increasing amount of studies [2]. According to certain perspectives, encouraging self-care gives patients every chance to assume accountability & develop self-assurance in their capacity to look after their own health. In contrast to other facets of self-care, self-medication entails the use of prescription medications, which may be advantageous or disadvantageous. This is especially important in nations where over-the-counter prescription medication is readily available due to a lack of enforcement of restrictions. As a result, these medications are used extensively, which has been linked to major side effects. According to a number of studies, self-medication that is not appropriate wastes resources and has major health risks, including the possibility of drug dependence, hazardous drug reactions, and extended suffering [3].

When self-medication is done appropriately, it can reduce waiting times for medical appointments, be cost-effective, and save money on insurance & the public health system. Competent self-medication, according to the World Health Organization, can help prevent and treat conditions that don't need a doctor's advice and is less expensive for treating common disorders [4]. The use of self-medication is primarily the responsibility of the individual. Everybody who uses a self-medication product should be informed of its advantages & disadvantages. There is a lack of information on self-medication among medical students, despite the fact that several researches evaluating the practice have been conducted in a variety of demographics [5]. In terms of self-medication, first-year medical students might not be any different from the general population. But after their second year, when they are exposed to information about illnesses & remedies, they can start to stand out from the general population. According to the Indian medical curriculum, the pharmacology syllabus is completed by the end of the fifth semester. Therefore, students are not exposed to knowledge about medications or diseases in the second semester. However, students are already familiar with both the clinical & pharmaceutical information by the end of the ninth semester. As a result, this study aims to assess medical students' self-medication habits and investigate whether knowledge of drugs and illnesses improves these practices.

MATERIALS AND METHODS

Study design and setting

A prospective cross-sectional study was carried out at Silchar Medical College & Hospital in Silchar, Assam, for over a period of one month. The study population consisted of medical students divided into two group: Group 1 consisted of first-year MBBS students in their second semester, whereas Group 2 consisted of third-year MBBS students in their ninth semester.

Inclusion criteria

The study included first year & third year part-2 MBBS students who were willing to participate and had taken self-medication during the last 1 year.

Exclusion criteria

Third year part-1 MBBS students, students who were not willing to participate, any questionnaire that was incompletely filled & students who were on chronic medication were excluded from the study.

Study procedure

A self-created, pre-validated, and pre-tested questionnaire with both open & closed-ended questions was disseminated via Google Forms. Initially, the questionnaire was pre-tested with ten respondents to make any necessary revisions. Subsequently, the completed questionnaire was sent to the two study groups after being reviewed and authorized by the Institutional Ethics Committee. The data collecting method was split into two sections: Section A concentrated on gathering demographic data including age, gender, and education. While, Section B asked questions about self-medication using multiple-choice responses, open-ended questions and Likert scales.

Ethical approval

The Institutional Ethics Committee of IEC No. SMC/18.841 approved this. The study's purpose was described, and all study participants gave their signed informed consent. Participants' anonymity & confidentiality were preserved.

Statistical analysis

The statistical analysis was carried out using the SPSS software. Descriptive data was presented as mean ± SD and percentages. The data between both the groups were compared using the chi-square ($\chi 2$) test. p-values < 0.05 were considered statistically significant.

RESULTS

In this study, 92 students from group 1 and 102 students from group 2 completed the questionnaire. Group 1 consisted of 57.60% male (53 students) and 38.2% female (39 students). In contrast, 56.86% of the students in group 2 were male (58), while 43.13% were female (44). The average age of respondents in group 1 was 20±1.2 years, whereas group 2 was 22±2.13 years. The data in Table 1 illustrate the drugs information sources used for self-medication in two groups. Starting with classroom teaching, it appeared to be the least utilized source of drug information among both the groups. Only 2.17% of Group 1 & 51.96% of Group 2 obtained drug knowledge from this method. Textbooks were more popular, with 13.04% of Group 1 & 53.92% of Group 2 relying on them for drug information. Advertisements were utilized by a significant number of participants, with 38.04% of Group 1 & 24.51% of Group 2 referring to them for drug information. Previous prescriptions played an essential role, as 48.91% of Group 1 & 47.06% of Group 2 had relied on them before. Google searches were also popular, with 41.30% of Group 1 & 39.22% of Group 2 using this method for drug information. The chi-square test revealed no significant difference between the 2 groups' sources of information for advertisements, prior prescriptions, and Google ($p>0.05$). However, there were significant differences between Group 1 & Group 2 for classroom instruction & textbooks ($p < 0.05$).

Table 1. Drug information sources used for self-medication.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
Classroom teaching	2 (2.17%)	53 (51.96%)	<0.001
Textbook	12 (13.04%)	55 (53.92%)	<0.001
Advertisement	35 (38.04%)	25 (24.51%)	0.06
Previous prescription	45 (48.91%)	48 (47.06%)	0.77
Google	38 (41.30%)	40 (39.22%)	0.92

Table 2 compares the sources of drugs used for self-medication in 2 groups. In Group 1, medical stores were the most popular drug source for self-medication, accounting for 45.65% of respondents. Following medical stores, the next significant sources were home (34.78%), doctor parents (14.13%), & friends (8.70%). On the other hand, in Group 2, a higher percentage of respondents obtained drugs for self-medication from medical stores (60.78%) compared to Group 1. The second most common source in Group 2 was friends (37.25%), followed by doctor parents (17.65%) and home (29.41%). Overall, the data indicates that both groups primarily relied on medical stores for obtaining drugs for self-medication, with Group 2 showing a higher preference for this source compared to Group 1. Additionally, the influence of friends as a source of self-medication was more pronounced in Group 2 than in Group 1. The statistical analysis showed that while there were no significant differences in drug sourcing from medical stores, homes, or doctor parents between Group 1 & Group 2, there was a significant disparity in obtaining drugs from friends (p=0.0009).

Table 2. The source of the drugs used for self-medication.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
Medical store	42 (45.65%)	62 (60.78%)	0.58
Home	32 (34.78%)	30 (29.41%)	0.94
Doctor parents	13 (14.13%)	18 (17.65%)	0.94
Friends	8 (8.70%)	38 (37.25%)	0.0009

The results presented in table 3 shows the responses for the reasons in favor of self-medication. Both groups reported similar percentages of participants who believed that self-medicating for minor illnesses was more convenient than visiting a doctor with 49 (53.26%), & 52 (50.98%) participants in Group 1 & 2 respectively. A higher percentage of participants in Group 2 (48.04%) reported that self-medicating provided quick relief compared to Group 1 (15.22%). This difference was statistically significant (p=0.04), suggesting that it may influence the decision to self-medicate. Additionally, while both groups acknowledged time-saving as a benefit of self-medication, Group 2 showed slightly higher agreement at 66.67% compared to Group 1 at 59.78%. Confidence in personal knowledge about medicines or previous prescriptions was also noted as a factor, with 48.91% in Group 1 & 58.82% in Group 2. Moreover, aspects such as cost-effectiveness, ease & convenience, learning opportunities, and crowd avoidance were considered by varying proportions within each group.

Table 3. The reasons in favour of self-medication.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
No need to consult the doctor for minor illness	49 (53.26%)	52 (50.98%)	0.97
Quick relief	14 (15.22%)	49 (48.04%)	0.04
Time saving	55 (59.78%)	68 (66.67%)	0.99
Confidence on your knowledge about medicines Previous prescription	45 (48.91%)	60 (58.82%)	0.50
Cost-effective	38 (41.30%)	60 (58.82%)	0.17
Ease & convenience	32 (34.78%)	62 (60.78%)	0.56
Learning opportunity	28 (30.43%)	54 (52.94%)	0.67
Crowd avoidance	2 (2.17%)	23 (22.55%)	0.09
Any other	1 (1.09%)	2 (1.96%)	0.99

The present study also identified data on the indications for self-medication among two groups (Table 4). In Group 1, 69.57% of participants reported headaches as an indication for self-medication, while in Group 2, 80.39% reported the same. Fever was prevalent in both groups, with 71.74% in Group 1 & 86.27% in Group 2. There was a significant difference in respiratory symptoms between the 2 groups (p=0.01), with 30.43% reporting cough, cold, & sore throat in Group 1 & 76.47% in Group 2. Additionally, significant differences were also observed between the two groups for stomach pain (p=0.001) & menstrual symptoms (p=0.02) respectively.

Table 4. Indications for self-medication.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
Headache	64 (69.57%)	82 (80.39%)	0.99
Fever	66 (71.74%)	88 (86.27%)	0.89
Cough, cold, sore throat	28 (30.43%)	78 (76.47%)	0.01
Stomach pain	4 (4.35%)	39 (38.24%)	0.001
Menstrual symptoms	1 (1.09%)	23 (22.55%)	0.02
Diarrhoea	0	0	0
Vomiting	0	0	0
Any other (please specify below)	0	0	0

The data presented in Table 5 shows the drugs that were used for self-medication in two different groups. It is evident that Group 2 had higher rates of self-medication across all categories compared to Group 1 with statistically significant differences observed in the use of PPI & antacids (p=0.05), antispasmodics (p=0.003), decongestants (p=0.001), & lozenges (p=0.001) respectively.

Table 5. Drugs were used for self-medication.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
Analgesics	69 (75%)	90 (88.24%)	0.99
Antipyretics	68 (73.91%)	88 (86.27%)	0.99
PPI & antacids	60 (65.22)	94 (92.16%)	0.05
Antimicrobials	45 (48.91%)	89 (87.25%)	0.32
Multivitamins	56 (60.87%)	91 (89.22%)	0.82
Antispasmodics	1 (1.09%)	32 (31.37%)	0.003
Decongestants	4 (4.35%)	79 (77.45%)	0.001
Lozenges	2 (2.17%)	38 (37.25%)	0.001
Herbal medicine	0	13 (12.75%)	0.24
Any other (please specify below)	1 (1.09%)	1 (0.98%)	0.99

In comparing the reasons for not engaging in self-medication between Group 1 & Group 2 (Table 6), it was found that while both groups shared concerns about adverse effects, misdiagnosis, and the risk of using drugs incorrectly, there were notable differences in their worries. Group 2 participants were significantly more apprehensive about the potential for drug dependence compared to Group 1. This difference was statistically significant (p=0.005), indicating a distinct variation in attitudes towards this particular concern between the two groups.

Table 6. Reasons for not taking self-medication.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
Lack of knowledge about medicines	15 (16.30%)	42 (41.18%)	0.12
Risk of adverse effects	90 (97.83%)	98 (96.08%)	0.99
Risk of using wrong drugs	65 (70.65%)	53 (51.96%)	0.87
Risk of misdiagnosing	49 (53.24%)	58 (56.86%)	0.96
Risk of drug dependence	0	19 (18.63%)	0.01
Risk of using drugs wrongly	68 (73.91%)	72 (70.59%)	0.98
Any other (please specify below)	0	0	0

The data from Table 7 reveals substantial differences in self-medication awareness between the Group 1 & Group 2. Group 2 displayed significantly higher levels of knowledge across all aspects compared to Group 1, with 98.04% aware of dose & ADRs (p=0.02), 88.23% reading package inserts (p<0.001), 86.05% understanding generic vs. branded medicines (p<0.001), & 97.06% recognizing the importance of completing medication courses (p<0.001). These findings underline a clear need for targeted educational efforts, particularly in Group 1, to enhance understanding & promote safer self-medication practices.

Table 7. Awareness about several aspects of self-medication among respondents.

Questions	Group 1 (n=92)	Group 2 (n=102)	p-value
Aware about OTC medicines	4 (4.35%)	0	0.49
Aware about dose, ADRs of medicines	48 (52.17%)	100 (98.04%)	0.02
Aware about precautions while using medicines	88 (95.65%)	88 (86.05%)	0.98
Read package insert	2 (2.17%)	90 (88.23%)	<0.001
Aware about generic & branded medicines	12 (13.04%)	88 (86.05%)	<0.001
Aware about importance of completing course of medicines	15 (16.30%)	98 (97.06%)	<0.001

DISCUSSION

Present study showed that classroom teaching was the least used drug information sources for self-medication among two groups, followed by textbooks, advertisements, previous prescriptions, and Google searches. In a similar study by Prasad *et al.,* [6] out of 147 prescribers, almost all of the participants (95.80%) used textbooks as sources of drug information. The use of previous prescriptions as a source of drug information is also a common trend in related studies. For instance, a study by Kaufman et al. [7] found that among older persons in the United States, past prescriptions were the most widely used source of pharmacological information. In contrast to our study, several researches [8, 9] observed that seniors were the most common drug information source.

Based on information gathered about the sources of drugs used for self-medication, it was found that both groups most frequently obtained their drugs from medical stores, with friends being the most common source. However, there was a significant disparity in obtaining drugs from friends compared to other sources. These findings align with the research conducted among undergraduate medical students in Maharashtra, India, which also reported medical stores as a common source of self-medication [10]. Another study conducted in Uganda also found that a majority of the students purchased medicine for self-medication from drug stores [11].

The results of the responses for the reasons in favor of self-medication showed that, lower percentage of participants reported avoiding crowds as a reason for self-medication in group 1. However, group 2 had higher percentage of participants who believed that self-medicating saved time compared to visiting a doctor. Many individuals choose to self-medicate to avoid the time-consuming process of visiting a healthcare professional for minor ailments [12]. This practice is especially prevalent when individuals perceive their illness to be trivial or mild and not requiring a doctor's consultation [13]. The convenience & accessibility of self-medication allow individuals to save time by quickly obtaining over-the-counter drugs from sources such as community pharmacies. Furthermore, self-medication is frequently used for common illnesses like fever, headaches, and colds that people think are easily treatable without medical assistance. Therefore, the desire to save time is a significant factor contributing to the widespread use of self-medication.

Present findings indicate that headaches & fever were common indications for self-medication in both groups, with a higher prevalence in Group 2. Respiratory symptoms were significantly more prevalent in Group 2 compared to Group 1, with a substantial difference in reported cases of cough, cold, & sore throat. Stomach pain was less common overall but more prevalent in Group 2. Menstrual symptoms were reported by a significantly higher percentage of participants in Group 2 compared to Group 1. Notably, neither group reported diarrhea or vomiting as reasons for self-medication. These results are comparable with those reported by Bhushan et al. [11], who discovered that fever was the leading cause for self-medication. Furthermore, in a study conducted by Shams et al. on 389 medical students, the most regularly used self-medication items were painkillers (77.57%), antipyretics (52.06%), cough & cold medications (48.71%), antitussives (40.20%), & antibiotics (30.92%) [14]. Another research of 259 undergraduate students at a medical college in Maharashtra, India discovered that the most common reasons for self-medication were headache (34.2%), acidity (25.7%), & fever (24.3%). Antipyretics (28.2%), antihistamines (17.3%), & analgesics (11.4%) were among the most regularly used medications [15]. Furthermore, in a study conducted by Eda et al. [16], the most widely used drug for self-medication was paracetamol, which was utilized by 30.3% of students. The majority of students (33.5%) utilized self-medication medicines for one day, with cold being the most common symptom (19.9%).

The findings of reasons for not taking self-medications suggested that while concerns about adverse effects, misdiagnosis and using drugs wrongly were common across both groups, there were variations in specific reasons for not taking self-medication, indicating differing perceptions & attitudes towards self-medication practices. In a similar study, Sinha et al. discovered that the possible consequences of self-medication among medical students included prolonged morbidity, illogical drug usage, increased pathogen resistance, health concerns, and unpleasant drug reactions [17]. The present study also found that Group 1 was more conscious of many aspects of self-medication than Group 2. In a similar study, Manchu *et al.* [18] also showed a higher level of awareness among final MBBS students compared to second MBBS students. The study was carried out at a single tertiary care facility in Assam, India, which may limit its application to other situations or populations. The study's sample size was limited, which could have impacted the statistical power & precision of the results. The study relied on self-reported data, which could have been skewed by recollection or social desirability bias. Participants may not accurately recollect or report their self-medication activities, which could lead to inaccuracies in the findings.

CONCLUSION

The study highlights the importance of understanding different information-seeking behaviors & motivations behind self-medication practices to tailor effective public health strategies. Further research is needed to understand the potential risks & benefits associated with self-medication in medical students. In addition, larger-scale studies in diverse settings are also required to enhance the generalizability of the findings.

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AUTHORS CONTRIBUTIONS

Nivedita Saha: One of the researchers that came up with the study concept and research topic. Moreover, being involved in the design of the study, defining intellectual content, searching the literature, obtaining and analyzing data, she was also involved in preparing and editing manuscript, and also reviewing it. Dolly Roy: One of the developers of the study's concept. In addition, she had also contributed in the design of the study, defining the intellectual contents, searching the literature, acquiring data, preparing and reviewing the manuscript, and supervised all phases of the research process.

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