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Research Article

Perceptions and Practice of Self-Medication among Undergraduate Medical Students of a Tertiary Care Teaching Hospital in South India

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ABSTRACT

Background and objectives: Self-medication is a common practice worldwide and medical students are at higher risk of self-medication because of early exposure and access to drugs and related information. The objective of this study was to assess the practice and perceptions of self-medication among medical students.

Methods: In this cross-sectional study, data were collected using a questionnaire from undergraduate medical students at the Maharajah's Institute of Medical Sciences, Vizianagaram, India, during November-December 2019. The subjects were selected via convenience sampling. The data were analyzed using the SPSS (version 21) and chi-square test. A p-value of less than 0.05 was considered statistically significant.

Results: The prevalence of self-medication among 440 students was found to be 83%. Self-medication was more common among female students (85.8%) as compared to male counterparts (80.9%) ($p>0.05$). The majority of students (73.4%) cited mild nature of illness as the factor responsible for self-medication. Fever was the most common indication for self-medication accounting for 81.4% cases, and antipyretics was the most commonly (74.8%) used drug category. Moreover, 48.9% of the participants opined that self-medication is part of self-care and needs to be encouraged.

Conclusion: Self-medication is widely practiced among undergraduate medical students. Therefore, there is an urgent need to educate them regarding the dangers of irrational drug use along with the implementation of stringent regulations regarding the sale of drugs without a valid prescription.

Keywords: Self-medication; medical students; self-care; prevalence

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INTRODUCTION

The World Health Organization defines self-medication as the use of medicinal products by individuals to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms (1). Self-medication involves purchasing medicine without a physician's prescription, resubmitting old prescriptions to purchase medicine, sharing medicine with relatives or members of one's social circle, using leftover medicine stored at home or failing to comply with the professional prescription, either by prolonging it or interrupting it too early or decreasing or increasing the originally prescribed dosage (2). Over the counter drugs are used in the practice of self-medication around the globe, which is generally considered to be safe and effective. However, a pitfall in this practice of self-medication, especially in India, is that prescription drugs are commonly dispensed without valid prescriptions (3). Such practice poses many medical challenges with widespread implications (4). Wrong self-diagnosis leading to delayed treatment, unnecessary out of pocket expenditure, adverse drug reactions due to incorrect dosage, drug interactions, incorrect route of administration, and drug dependence are some of the drawbacks of self-medication (5).

The younger population is highly influenced by the media and the internet, which promote self-medication behavior (6). It has been observed that medical students are commonly involved in the practice of self-medication, without having sufficient knowledge on the drugs taken (7). In a study conducted at All India Institute of Medical Sciences, New Delhi, self-medication was considerably high among undergraduate medical and paramedical students, a trend which increased with more medical knowledge (8). The present study was conducted to determine rate of self-medication among Bachelor of Medicine and Bachelor of Surgery (MBBS) students at the Maharajah's Institute of Medical Sciences, Vizianagaram, India. Moreover, the study assesses the prevalence, practice, and perceptions of medical students towards self-medication.

MATERIALS AND METHODS

This cross-sectional study was carried out among the undergraduate medical students of Maharajah's Institute of Medical Sciences, Vizianagaram, India, between November 1st 2019 and December 31st 2019. The sample size was calculated assuming 50% prevalence rate (p, as there was no data regarding self-medication among medical students in this region), 5% absolute precision (d), 80% power, and 95% confidence interval. The sample size was calculated as 385 using the following formula:

Sample size (n) = $(Z^2pq)/d^2$, where q=1-p and Z=1.96 at 95% confidence interval.

The sample size was rounded off to 400. Assuming 10% non-response rate, the final sample size was considered to be 440. Next, 110 students were randomly selected from each professional year i.e. 1st professional MBBS, 2nd professional MBBS, 3rd professional MBBS part I and 3rd professional MBBS part II.

Inclusion criteria were being a medical student with history of self-medication in the last six months and willingness to participate in the study. Written informed consent was taken from all volunteers. Medical students with chronic illness who were under mediation were excluded from the study.

A pre-designed, semi-structured, validated questionnaire was used to collect data from the students. The questionnaire was pre-validated by a panel of senior faculty members. A pilot study was carried out and suitable modifications were carried out before finalizing the questionnaire. The questionnaire gathered information on sociodemographic data including age, gender, semester, the patterns and practices (systems of medicine, source of knowledge,

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most commonly used drugs, most common indications) of self-medication, and the related factors. India has the unique distinction of having three recognized systems of medicine. They are, Ayurveda, Allopathy and Homeopathy. The meaning of the word "Ayurveda" is science of life. It aims to keep structural and functional entities in a state of equilibrium, which signifies good health through various procedures, regimen, diet, medicines and behavior change. Homeopathy simply means treating diseases with remedies, prescribed in minute doses, which are capable of producing symptoms similar to the disease when taken by healthy people, i.e. principle of "Similia Similibus Curantur", which means "likes are cured by likes". Hahnemann used "Allopathy" to refer to a system of medicine that combats disease by using remedies that produce effects in a healthy subject that are different from the effects produced by the disease to be treated.

Data regarding attitude towards self-medication and methods to prevent self-medication were collected from all 440 students irrespective of their self-medication status. The questionnaire is available in supplementary data.

After obtaining permission from the Dean and Principal of the institute and briefing on the objectives of the study, the questionnaires were distributed among the subjects at the end of lecture hours in each MBBS group. Completed questionnaires were collected after 10-15 minutes.

Statistical analysis

The collected data were entered into the SPSS software (version 21) and analyzed using the Chi-square test at significance of 0.05.

RESULTS

Of 440 undergraduate students, 257 (58.4%) were male and 183 (41.6%) were female. The mean age of subjects was 20.7±1.56 years (range: 18 to 27 years). The prevalence of self-medication among the students was found to be 83% (n=365). The prevalence of self-medication was higher among females (85.8%) as compared to males (80.9%); however, this difference was not statistically significant (Chi-square value=1.78, p=0.18).

The majority of students (85.5%) followed the Allopathic system of medicine followed by Ayurvedic (12.0%), and Homeopathic (2.5%) systems of medicine. The practice of self-medication was highest (95.4%) among students in the 3rd professional MBBS part II. The relationship between year of medical education and self-medication practice was found to be statistically significant (p=0.01) (Table 1).

Table 1. Self-medication practice among students according to years of MBBS education

Year of MBBS	Positive history of self-medication	No history of self-medication
1st Prof.	67	43
2nd Prof.	91	19
3rd Prof. Part I	102	8
3rd Prof. Part II	105	5
Total	365	75

*Chi-square value= 57.3, df= 3, p<0.0001

More than half of the students (51.8%) used academic knowledge/textbooks as the source of information for self-medication, followed by the internet (42.2%), old prescriptions for same illness (37.5%), friends and family (16.7%), and newspaper/television (11.2%) (Table 2). The majority of the students (73.4%) cited mild nature of illness as the factor responsible for self-medication, followed by sufficient knowledge on drugs (57.8%), and cost-effectiveness (41.4%). Other factors responsible

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for self-medication were to save time (23.8%), urgency (21.4%), and to maintain privacy (5.8%).

Table 2. Sources of information and factors responsible for self-medication

Sources	No of students (n=365)	Percent
Academic knowledge/Text books	189	51.8
Internet	154	42.2
Old prescriptions	137	37.5
Friends and family	61	16.7
Newspaper/Television	41	11.2
Factors		
Mild nature of illness	268	73.4
Sufficient knowledge on drugs	211	57.8
Cost-effectiveness	151	41.4
To save time	87	23.8
Urgency	78	21.4
To maintain privacy	21	5.8

As shown in (table 3), fever was the most common indication for self-medication accounting for 81.4% cases. The next common indications for self-medication were headache (61.6%), cough/cold (57.8%), and general body ache (56.2%). Other indications were diarrhea (31.0%), vomiting (26.0%), allergies (22.7%), and gastritis/heart-burn (14.0%). Commonly used categories of drugs for self-medication were antipyretics (74.8%), analgesics (63.3%), cough suppressants (61.6%), anti-histamines (51.0%), and antibiotics (49.6%). Out of 365 students, 291 (79.7%) were aware of the dose and course of medicines they were taking and the remaining 74 (20.3%) were not aware. Among the students, 13 (3.6%) had experienced side effects following self-medication, for which they either consulted a doctor or stopped the medication.

Table 3. Indications and commonly used drugs for self-medication

Indications	No of students (n=365)	Percentage
Fever	297	81.4
Headache	225	61.6
Cough/cold	211	57.8
General body ache	205	56.2
Diarrhea	113	31.0
Vomiting	95	26.0
Allergies	83	22.7
Gastritis	51	14.0
Category of drugs		
Antipyretics	273	74.8
Analgesics	231	63.3
Cough suppressants	225	61.6
Anti-histamines	186	51.0
Antibiotics	181	49.6
Anti-diarrheal	133	36.4
Anti-emetics	92	25.2
Multi-vitamins	71	19.4
Anti-spasmodics	60	16.4
Gastritis medicines	47	12.8

(Table 4) shows the attitude of the students towards self-medication. Only 48.9% of the participants opined that self-medication is a part of self-care and needs to be encouraged.

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In addition, 54.8% of the students wished to continue/start self-medication, while 30.7% of the students wished to recommend self-medication to others.

(Table 5) shows the methods to prevent self-medication. As shown in table 5, 40.9% of the participants opined that stopping the supply of medicines without a valid prescription can prevent the growing trend of self-medication. Moreover, 29.8% of the students believed that raising awareness regarding risks associated with self-medication can prevent the practice of self-medication.

Table 4. Attitude of the students towards self-medication

Items	Yes	No	Not sure
Self-medication is a part of self-care	215 (48.9%)	213 (48.4%)	12 (2.7%)
Continue/start self-medication	241 (54.8%)	142 (32.2%)	57 (13.0%)
Recommend self-medication to others	135 (30.7%)	305 (69.3%)	0

Table 5. Methods to prevent self-medication as perceived by the students

Items	No of students (%)
Stop supply of medicines without a valid prescription	180 (40.9%)
Raising awareness regarding risks associated with self-medication	131 (29.8%)
Enforcing laws to stop misleading advertisements of drugs	87 (19.8%)
Improving the accessibility of health care facilities	42 (9.5%)

DISCUSSION

The prevalence of self-medication among undergraduate medical students in our study was 83%. Various similar studies in India reported the prevalence of self-medication to be ranging from 57.1% to 92% (9-11). The prevalence of self-medication was reported to be 25.4% in Ethiopia (12), 55% in Egypt (13), 56.9% in Nigeria (14), and 80.9% in Malaysia (15). Gender is considered to be an important factor contributing to self-medication among young adults, including students. In our study, the prevalence of self-medication was found to be slightly higher among female students, which is in agreement with results of other studies (9, 11). The majority of the students (85.5%) followed the Allopathic system of medicine, which is in line with findings of previous studies (16, 17).

In our study, the most common source of information for self-medication was academic knowledge from textbooks, followed by the internet. This observation is similar to findings of some previous studies (10, 11). However, other studies revealed that the most common sources of information are previous prescriptions by doctors (18), seniors, family, and friends (19). In the present study, the most common factor responsible for self-medication was mild nature of illness, which is similar to findings of two studies in India (9, 11) and a study in Iran (20). However, in a study from Tamil Nadu, India (21), the majority of students practiced self-medication as to save time. Moreover, in a study in Punjab, India (17), the most common factor for self-medication was quick relief.

In our study, fever was the most common indication for self-medication, which is similar to results of a previous study in Tamil Nadu, India (21). In Ethiopia (12), fever was also reported as the most common indication for self-medication. However, studies from West Bengal (9) and Southern parts of India (11) reported cough/cold as the most common indication for self-medication. Antipyretics were the most commonly used category of drugs for self-medication. This finding is in agreement with findings of studies in South India (11) and Ethiopia (12). Antibiotics were self-medicated by 49.6% of the medical students in our study. This rate is higher than the

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rates reported by other studies in India (9, 10).

In this study, 48.9% of the students opined that self-medication was part of self-care, which was higher than that the rates reported from Ethiopia (22) and Karachi, Pakistan (23). More than 50% of the students wished to continue/start self-medication. Nearly one third of the students wished to recommend self-medication to others. Our results indicate the urgent need for strong policies to stop the supply of medicines without a valid prescription to prevent the growing trend of self-medication, particularly among medical students.

There are some limitations in current study. The study was based on self-reported data about self-medication in the last six months; hence, the possibility of recall bias cannot be ruled out. The subjects were selected via convenience sampling method, which is inferior to random sampling. The findings are from a single center in South India and therefore cannot be generalized per se.

CONCLUSION

Medical students should be educated about the implications of self-medication. The irrational use of drugs is a cause of public and professional concern that may result in accidental drug poisoning. Other problems with self-medication are wastage of resources and serious health hazards such as drug dependence, adverse reactions, and prolonged suffering. Self-medication as part of self-care can be justified only when there is judicial use of medicines.

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DECLARATIONS

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Ethics approvals and consent to participate

The study was carried out after obtaining written consent from the participants and necessary permissions from the Dean and Principal of the institution.

Conflicts of interest

The authors declare that there is no conflict of interest.

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