

## Original Research Article

# A study of self-medication practices among medical students

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## ABSTRACT

**Background:** Self-medication is widely prevalent in India, more so among medical students as they have easy access to information from drug indices, literature and physician samples.

**Methods:** This was a descriptive cross-sectional type of study conducted among undergraduate students of a medical college in Maharashtra. Minimum sample size came out to be 259 by taking prevalence of self-medication as 78.6% from a previous study conducted on similar population. 75 students each were randomly selected from all four batches of MBBS. Data collection was done by using pretested questionnaire and it was analysed using SPSS version 22. Qualitative data was expressed in proportions and quantitative data was expressed in mean and standard deviation. Chi square test was used to check the association of various factors and self-medication practice.

**Results:** The prevalence of self-medication was found to be 72.1%. The practice was significantly more common in females, those belonging to urban areas and those from senior batches of MBBS ( $p < 0.05$ ). Headache (34.2%), acidity (25.7%) and fever (24.3%) were most common indications and antipyretics (28.2%), antihistaminics (17.3%) and analgesics (11.4%) were commonly used drugs for self-medication. In spite of being aware about the side effects of self-medication and importance of completing antibiotic course, their practices were largely unfavourable. Previous prescriptions (45.5%), family members (23.8%), pharmacist (21.8%) and medical textbooks (18.3%) were sources of information about self-medication.

**Conclusions:** Self-medication was highly prevalent among medical students with more prevalence among females, students from urban areas and senior students. The practices of students were also unfavourable.

**Key words:** Self-medication, Medical students, Under graduate, Practices

## INTRODUCTION

Self-medication is defined as the selection and use of medicines by individuals to treat self-recognized conditions or symptoms. It includes using drugs that have not been prescribed, recommended or controlled by a licensed healthcare specialist.<sup>1</sup> It is like a double edged sword which helps the patient by empowering them to take medicine themselves for commonly treatable condition and saving them from medical expenses and time required

for medical consultation whereas on the other hand it also could can wrong diagnosis, improper use of medicine and increase adverse effects.<sup>2</sup> In economically deprived countries, most episodes of illness are treated by self-medication. Many drugs are dispensed over the counter without medical supervision. Self-medication provides a lower cost-alternative for people who cannot afford the cost of clinical service. Studies revealed that the increase in self-medication is due to a number of factors such as education, family, society, law, availability of drugs and

exposure to advertisements.<sup>3</sup> 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.<sup>4</sup> Keeping in mind all these points, the present study was undertaken to determine the prevalent practices and various factors associated with self-medication among medical students.

### **Objectives**

Objectives of current study were; to find out the prevalence of self-medication among medical students, to find out the awareness pattern of self-medication among study subjects and to evaluate the factors associated with practicing self-medication behavior among the study subjects.

## **METHODS**

### **Study design, duration and subjects**

This was a descriptive cross-sectional type of study conducted among undergraduate students of Mahatma Gandhi Institute of Medical Sciences, Wardha, Maharashtra conducted from September 2016 to February 2017 on under graduate medical students. All students, who gave consent for participation in the study, formed the study population.

### **Sample size calculation**

Minimum sample size (N) was calculated using the Cochran formulae;

$$N = Z^2 pq / d^2$$

Where N is the sample size, p is the prevalence of self-medication taken as 78.6% from a previous study conducted on similar population.<sup>5</sup> q = (1 - p), Z is the standard normal deviation (usually set at 1.96, which corresponds to the 95% confidence interval), and d is the desired degree of accuracy set at 0.05 to tolerate a 5% error.

Accordingly, the calculated minimum sample size n=259. For better precision and considering the possibility of a probable non response, we decided to recruit a total of 300 subjects. In order to allow equal representation from all four batches of MBBS students, it was decided to enrol 75 students from each batch. These were selected randomly by using random number tables.

### **Study tool**

A pre-designed, semi-structured, self-administered questionnaire was used, after pretesting. It contained questions regarding demographic information, whether the student sought self-medication in the preceding month, illness for which the medication was used, drug/ drug group used by them, frequency and number of days of using self-medication in the last month and the source of information about the same etc. 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.”

### **Inclusion and exclusion criteria**

All the 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.

### **Data collection and analysis**

The study questionnaire was administered to the randomly selected participants from each batch in the presence of one of the investigators. The purpose of study was explained to them along with the option to opt out if they feel so and their written informed consent was also obtained. The data were entered and analyzed using statistical software SPSS version 22. 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**

Out of 300 questionnaires distributed, complete response was obtained from 280 thereby giving a response rate of 93%. 20 participants with incomplete responses were excluded from final analysis. 158 (56.4%) participants were male and 247 (62.5%) belonged to urban area. 202 (72.1%) had practiced self-medication in the last one month (Table 1). The practice of self-medication was found to be significantly higher among female students and in those belonging to urban areas (p<0.05). Also, there was a significant difference in self-medication practice among students studying in various years of MBBS, with more prevalence of this practice among senior students (p<0.05). The most common condition for which self-medication was used, was headache (34.2%), followed by acidity (25.7%) and fever (24.3%). The study participants also used self-medication for pain abdomen, cough and cold, skin problems, diarrhoea and vomiting and backache.

**Table 1: Use of self-medication practices according to socio-demographic profile of study subjects (n=280).**

Socio demographic variable		Practice self medication		Total (Column %)	Statistical remarks
		Yes	No		
Sex	Male	105 (66.5)	53 (33.5)	158 (56.4)	Chi square 5.836 Df=1, p value 0.016
	Female	97 (79.5)	25 (20.5)	122 (43.6)	
Place of residence	Rural	63 (60.0)	42 (40.0)	105 (37.5)	Chi square 12.326 Df=1, p value 0.000
	Urban	139 (79.4)	36 (20.6)	175 (62.5)	
Year of study	I	44 (61.1)	28 (38.9)	72 (25.7)	Chi square 11.959 Df=3, p value 0.007
	II	46 (65.7)	24 (34.3)	70 (25.0)	
	III	54 (78.3)	15 (21.7)	69 (24.6)	
	IV	58 (84.1)	11 (15.9)	69 (24.6)	
<b>Total</b>		202 (72.1)	78 (27.9)	280 (100)	

The other conditions included toothache, body ache and motion sickness (Table 2). The most commonly used drug group was antipyretics (28.2%), followed by antihistaminics (17.3%), analgesics (11.4%), antacids (11.4%) and others (Table 3).

**Table 2: Conditions treated by self-medication by the study participants (n=202).**

Medical condition	N (%)
Headache	69 (34.2)
Acidity	52 (25.7)
Fever	49 (24.3)
Pain abdomen	36 (17.8)
Cough and cold	32 (15.8)
Skin problem	30 (14.8)
Diarrhoea and vomiting	29 (14.3)
Backache	18 (8.9)
Others	20 (9.9)

\*Multiple responses were allowed

**Table 3: Most commonly used drug group for self-medication by study participants (n=202).**

Drug group	N (%)
Antipyretics	57 (28.2)
Antihistaminics	35 (17.3)
Analgesics	23 (11.4)
Antacids	23 (11.4)
Anispasmodic	18 (9.0)
Antidiarrhoeals	16 (7.9)
Nutritive supplements	13 (6.4)
Antibiotics	8 (4.0)
Others	9 (4.5)

When asked about the frequency and duration of using self-medication in last one month, almost one third (34.2%) respondents admitted to have used it regularly i.e., at least twice in a week while 28.7% used it occasionally i.e., at least once in month.

More than half of the respondents (52%) had used self-medication for less than 3 days in last month while 8.4%

had used it for more than 5 days. Mean duration of consumption of drugs in the last month was 2.59±1.64 days. Allopathy was the preferred system of medicine for self-medication for largest proportion of study subjects (61.9%). 121 (59.9%) participants were aware that a physician’s prescription is necessary for purchasing medicines.

**Table 4: Awareness and practices related to self-medication among study participants (n=202).**

Variable	N (%)
<b>Frequency of self-medication</b>	
Regularly (at least twice in a week)	69 (34.2)
Occasionally (at least once in a month)	58 (28.7)
Rarely	75 (37.1)
<b>Duration of self-medication (in last 1 month)</b>	
<3 days	105 (52.0)
3 to 5 days	80 (39.6)
>5 days	17 (8.4)
<b>Preferred system of medicine for self-medication</b>	
Allopathic	125 (61.9)
Ayurvedic	33 (16.3)
Homeopathic	21 (10.4)
Naturopathy	14 (6.9)
Don’t know	9 (4.5)
Aware that physician’s prescription is necessary for purchasing any medicine (Yes)	121 (59.9)
Take advice before taking such medication (Yes)	20 (9.9)
Aware of side effects of self-medication? (Yes)	116 (57.4)
Experienced side effects of self-medication (Yes)	67 (33.1)
Read information before taking medication? (Yes)	56 (27.7)
Advise others also to self-medicate? (No)	177 (87.6)
Know the importance of completing antibiotic course (Yes)	155 (76.7)
Complete antibiotic course, if self-medicating? (Yes)	67 (33.2)

Although a large proportion (57.4%) were aware about the side effects of self-medication, 33% had actually experienced them. A majority of them (87.6%) did not advise others for self-medication. Almost one fourth (76%) knew that course of antibiotics should be completed but only one third (33.2%) completed the course of antibiotics while self-medicating (Table 4). The most common source of information about self-medication was previous prescription (45.5%). Almost one fourth respondents (23.8%) mentioned it as advice from family members/relatives and a little lesser proportion (21.8%) mentioned pharmacist as their source of information. Medical books, advertisements, internet and seniors or fellow batchmates were other sources (Table 5).

**Table 5: Sources of information about self-medication among study participants (n=202).**

Source	N (%)
Previous prescription	92 (45.5)
Family member/relatives	48 (23.8)
Pharmacist	44 (21.8)
Medical books	37 (18.3)
Advertisements	24 (11.9)
Internet	24 (11.9)
Seniors/batchmates	15 (7.4)

## DISCUSSION

Medical students have an increased tendency for self-medication because of their exposure to medical knowledge. This is compounded by easy availability of non-prescription drugs in India. In the absence of complete knowledge, it acts as a constraint in ensuring safe and effective use of medicinal drugs. In the present study, the prevalence of self-medication among medical students was found to be 72.1%, which is quite high. Our findings are similar to those reported by Kasulkar et al.<sup>6</sup> Other authors have reported this prevalence among medical students within a wide range of 25% to 96%.<sup>3,7-16</sup> Because of use of different criteria and reference periods in various studies, it is difficult to compare the overall prevalence among them. The present study found a significantly more prevalence of self-medication among female students as compared to males, which is in concordance with previous research.<sup>5,14,17-19</sup> However, Daanish et al from their study in Afganistan have found the prevalence more in males.<sup>7</sup> We also found that the prevalence was significantly higher in students belonging to urban areas as compared to those from rural areas. Similarly, it was found that there is a significant difference in prevalence of self-medication practices among students from different years of MBBS and it was more common in students belonging to senior batches. This shows that as the students are exposed to more medical knowledge, their tendency towards self-medication also increases. This finding is consistent with that reported by other authors as well.<sup>6,7,13,14,20,21</sup> The commonest illness that led to self-medication was found to be headache (34.2%), followed by acidity, fever, pain abdomen, cough and cold, skin problems, diarrhoea and

vomiting etc. Other studies conducted on medical students have also shown these to be major indications for self-medication.<sup>8-13,16</sup> However, similar research done in Nigeria has shown malaria as common indication for self-medication.<sup>14</sup> This might be because of higher prevalence of malaria in Nigeria. The commonest drug groups used included anti-pyretics, antihistaminics, analgesics and antacids etc. This is also in accordance with other studies.<sup>6-15</sup> We found that use of antibiotics for self-medication was not a very common practice in our research participants as compared to that reported by Karmakar et al and Damodar.<sup>9,11</sup>

The largest proportion of study participants (61.9%) preferred to use allopathic medicines for self-medication, followed by ayurvedic and homeopathic medicines. One of the reasons for this can be easy and widespread availability of allopathic drugs. The reasons for using other systems were cited as belief in those systems and lesser probability of side effects. Similar results have been found by other authors.<sup>6,9</sup> Almost 60% participants were aware that physician's prescription is required for purchasing medicines and a slightly smaller proportion (57.8%) were aware of side effects of self-medication but still they practiced it. This shows a difference in knowledge and practices among the study subjects. Almost one third (33.1%) respondents had experienced side effects, 76.7% were aware of importance of completing antibiotic course and a small proportion (33.2%) actually completed antibiotic course while self-medicating. This is of concern as it is an important determinant for antimicrobial resistance and in spite of being knowledgeable, they are not following appropriate practices. Such type of behaviour is not expected from future doctors. Other authors have reported that 60% medical students knew about side effects and 56% completed full course of antibiotics.<sup>9</sup> A study done in Nagpur showed that almost 92% medical students knew the importance of completing full course of antibiotics.<sup>6</sup> Only 27.7% read information before taking any medication, which is not desirable behaviour. This proportion is very less as compared to that mentioned by another research.<sup>6,9</sup> One positive finding in this study was that a majority of participants (87.6%) did not advise others for self-medication. The main source of information about self-medication was found to be previous prescriptions (45.5%). Family members, pharmacists and medical books were reported as other important sources. These findings are similar to those reported by Patil et al.<sup>12</sup> However, our results are in contrast with those found by some other researchers, who have mentioned medical textbooks as main source of information.<sup>6,10,11</sup> Students have also reported advertisements and internet as sources of information. This shows that these have important role to play in promoting self-medication practices.

## Limitations

Limitations of current study were; this study was done in a single centre. For better representation, multi-centric

study could have been planned. We used a reference period of one month for calculating prevalence of self-medication. Therefore, the chances of recall bias can't be ruled out.

## CONCLUSION

Our results indicate that self-medication is highly prevalent among medical students. The practice is significantly more common in female students, those belonging to urban areas and those from senior batches of MBBS. Headache, acidity and fever are most common indications and antipyretics, antihistaminics and analgesics are commonly used drugs for self-medication. In spite of being aware about the side effects of self-medication and importance of completing antibiotic course, their practices were largely unfavourable. Previous prescriptions, family members, pharmacist and medical textbooks are sources of information about self-medication.

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