

SELF MEDICATION PRACTICES AND IT'S ASSOCIATED FACTORS AMONG MEDICAL STUDENTS IN A TERTIARY HEALTHCARE CENTER, SOUTH KERALA, INDIA

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ABSTRACT

Background: Self-medication (SM) practices are at high risk to occur among medical students. There are many demerits associated with SM practices like increased resistance of pathogens and can lead to serious health hazards like prolonged sufferings. This study was conducted to estimate the proportion of SM practices and to assess the associated factors and potential adverse effects of SM practices among medical students in a tertiary healthcare centre.

Materials and Methods: Hospital based cross sectional study conducted among 200 MBBS students in South Kerala during June to October 2023. Data collection was done using pretested predesigned semi structured self-administered questionnaire. Data was entered in Microsoft excel and analysed using SPSS.26. All qualitative & quantitative variables were expressed as frequency and percentage & means and standard deviation respectively. Proportion of self-medication and adverse events were expressed in percentage. Association between risk factor and self-medication was analysed using chi-square test. A p value of <0.05 was considered statistically significant. **Result:** Among respondents, 85% were taking SM for past one year. Main reason for seeking SM was feeling of illness as mild (69.8%) followed by time saved by SM (23.3%). Majority (79.1%) of them used SM for fever followed by headache (48.3%) and common cold (41.3%). Majority took antipyretics (97.6%) followed by antibiotics (48.8%) Only 3.5% of those taken SM experienced side effects. **Conclusion:** Higher proportion of participants taking SM, especially antibiotics raises concern for antimicrobial resistance and hence awareness regarding this and adverse drug reactions to different group of medicines should be given to medical students.

INTRODUCTION

Self-Medication (SM) is the utilization of medicines by person on their own without any professional prescription and supervision. If practiced properly, it can be used positively to treat various minor ailments, can save time and money, and can save lives in acute conditions. The cons are wastage of resources, increased resistance of pathogens that leads to serious health hazards like prolonged sufferings, drug reaction and drug dependence.^[1] It is widely practiced worldwide in urban and rural population including developing countries like India.

Nonprescription drugs amongst youth, especially in students are being misused due to exposure to media and advertisements. It has become a serious ailment raising the concern of incorrect diagnosis and drug reaction as well. Being future medical practitioners, SM has a special impact in medical students.^[1]

According to the study conducted by Nusrat Nabi, 67.78% of students gave a history of SMA (Self Medication with antibiotics) practice and 75% experienced adverse drug effects reflecting a strong positive association between the two. Convenience (86.07%) was observed to be the main reason of practicing SM in this study. Over-the-counter sale of

prescription-only drugs, namely antibiotics by the community pharmacies, is as high as 90.16%, leading to the main source of acquiring antibiotics for SM.^[2] The prevalence of SM was 58 (76.6%), more common among first year students in another study by Khadka et al. The common illness found was headache and common drug self-prescribed was analgesic-antipyretic. More than half of the students 52 (68.4%) reported that SM practices should be encouraged.^[3]

The prevalence of SM among undergraduate students remains unaltered over the span of 5 years. Nevertheless, there was a better sensitization toward appropriate antibiotic usage and the practice of responsible SM needs to be promoted among future healthcare providers.^[4] Studies that assessed SM for COVID-19 found heterogeneous results regarding SM prevalence and medications used.^[5,11]

Economic, political, and cultural factors have stimulated a constant increase in SM worldwide, turning this practice into a major public health problem. In India, easy availability of wide range of drugs coupled with inadequate health services result in increased proportion of drugs used as SM.^[6]

For medical undergraduates such practice has special significance as they are exposed to knowledge about diseases and drugs. Hence being known of all those information, they should be informed about negative effects and side effects of SM. They should also share their knowledge with society to decrease SM.^[7] This study was conducted to estimate the proportion of SM practices among medical students. This study also assessed the associated factors and potential adverse effects of SM practices among medical students in a tertiary healthcare centre.

MATERIALS AND METHODS

A hospital based cross sectional study was conducted in a tertiary medical care centre situated in the southern part of Kerala during June to October 2023 among MBBS students of 2019-2022 batches. All students who were willing to participate were included and those who were unavailable during data collection period were excluded. Sample size was calculated using this formula $N = (Z\alpha/2)^2 pq/d^2$, where $(Z\alpha/2)^2 = 3.84$. Considering proportion of SM practices as 68% from a reference study^[2], done by Nabi et al and d (relative precision) as 10% of proportion, final calculated sample size was 190. However, 200 students were included in the study. Stratified random sampling was used as sampling technique. All the MBBS students were divided into 4 strata (first phase, second phase, Third phase part 1&2. From each stratum 50 students were included in the study. In each strata equal number of participants was selected by simple random sampling. Lot sampling method was employed for this. For students those who were absent on the day of data collection one more chance was given to him/her. If the student is absent on two consecutive visits the next roll

number was involved in the study. Data collection was started after getting approval from Institutional Ethics

Committee(NO:SMCSIMCH/EC(PHARM)04/02/15). After creating a rapport with the respondents, the objectives of the study were explained and readiness to join the study was explored. The written informed consent was taken from all the respondents. Data collection was done using pretested predesigned semi structured self-administered questionnaire containing the sections on sociodemographic details of participants, self-medication practices, adverse drug reactions and associated factors. Confidentiality of the study subjects was maintained by not revealing personal identification details Data entry was done in Microsoft excel and analysis done using SPSS.26. All qualitative & quantitative variables were expressed as frequency and percentage & means and standard deviation respectively. Proportion of self-medication and adverse events were expressed in percentage. Association between risk factors and SM was analysed using chi-square test. A p value of <0.05 was considered statistically significant.

RESULTS

The study population was 200 medical students in a tertiary health care centre, South Kerala. Mean age of the study participants was 21.27(+/- 1.51) years.

Among the respondents, 72.4% of students were more than 20 years of age and 28% were less than or equal to 20 years of age. Among the respondents, 66.5% were females and 33.5% were males. Among the study participants, 96% were above poverty line and 4% were below poverty line. [Table 1]

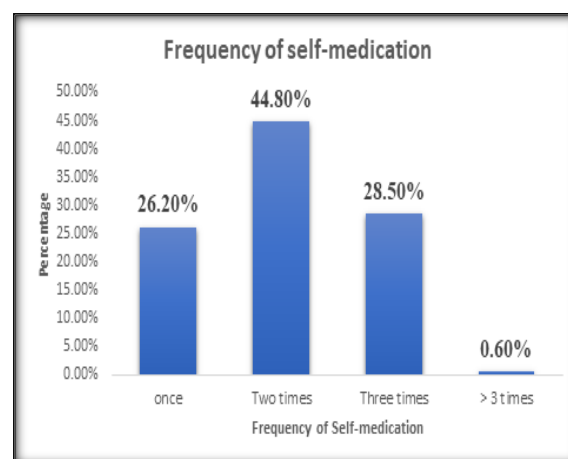


Figure 1: Frequency of SM

Among the respondents, 170(85%) were taking SM and 30(15%) were not taking SM in last one year. Among them 45(26.2%) self-medicated once, 77(44.8%) self-medicated 2 times, 49(28.5%) self-medicated 3 times and 1(0.6%) self-medicated more than 3 times. [Figure:1]

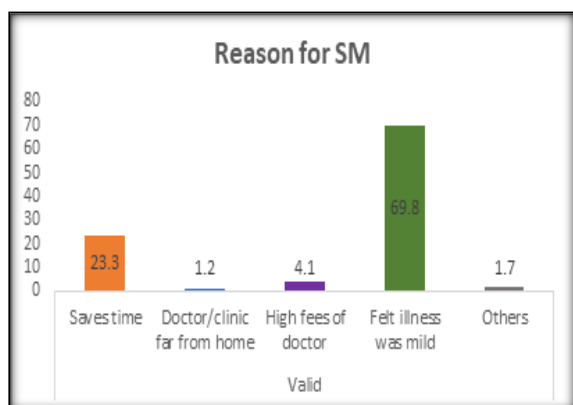


Figure 2: Reason for SM among study participants in percentage(n=172)

It is found that the reason for SM among 120 (69.8%) responders is that they felt illness was mild, 40(23.3%) uses it as it saves time, 7(4.1%) uses this due to high fees of doctor, the reason among 2(1.2%) responders is that doctor or clinic is far from their home. Also 3(1.7%) responders use this due to other reasons. [Figure 2]

In the study, majority of the study participants took SM for fever (79.1%) followed by headache and common cold (48.3%) and least being peptic ulcer and joint pain (0.6%). [Table 2]

Among the study participants, majority took antipyretics (97.6%) as SM followed by antibiotics (48.8%). Among antipyretics, majority used Paracetamol (98.2%) followed by Diclofenac (4.8%) and among antibiotics, majority used Azithromycin (76.2%) followed by Amoxiclav (28.5%). Least used drug was antiulcerants (2.9%). [Table 3]

3.5% of total SM cases developed drug allergy and 96.5% doesn't report any drug allergy. Among the study participants who self-medicated, for (81)47.4% it took 1 day for the disease to subside, for 74(43.3%) it took 3 days to subside, for 14(8.2%) it took 1 week to subside and for 2(1.2%) it took more than 1 week.

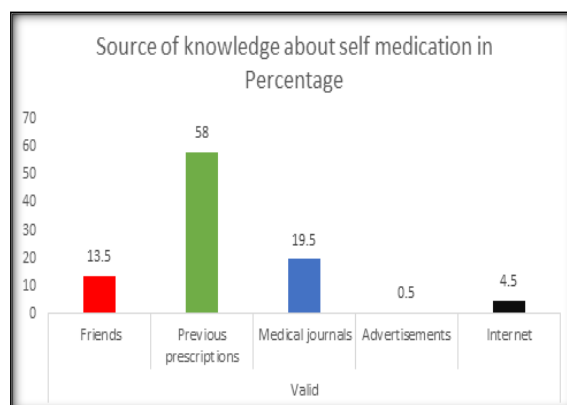


Figure 3: Source of knowledge about SM usage in percentage (n=200)

The study found that the major source of knowledge about SM was previous prescription 116(60.4%) followed by medical journals/books 39(20.3%) and friends 27(14.1%) and least from advertisements 1 (0.5%). [Figure 3]

Drug allergy was developed in 6(3%) of total SM cases and 2(1.1%) students had taken psychiatric medicines as SM. Among the participants, 144(72.4%), and 57(30%) and 174(87%) were aware of drug interactions, counterfeit medications and hazards of overdose respectively.

Among students who practiced self-medication majority (74.1%) were above 20 years and 26% below 20 years compared to those not practicing self-medication only 60% were above 20 years and 40% below 20 years. Considering gender, in both groups almost 67% students were females. Also, more than 90% students in both groups were APL. The difference found between both groups with respect to age, gender and socioeconomic status were not found to be statistically significant. [Table 4]

Table 1: Sociodemographic profile of study participants(N=200)

Variable	Number (n)	Percentage (%)
Age		
>20 years	144	72.4
≤20 years	26	27.6
Gender		
Male	67	33.5
Female	133	66.5
Socioeconomic Status		
APL	192	96
BPL	8	4

Table 2: Conditions for SM among study participants (n=172).

Conditions	Frequency	Percentage
Fever	136	79.1
Headache	83	48.3
Abdominal pain	27	15.7
Common cold	71	41.3
Joint pain	1	0.6
Diarrhoea	26	15.2
Vomiting	15	8.7
Cough	50	29.1
Peptic ulcer	1	0.6

Sore throat	27	15.7
Gastritis	8	4.7
Other	3	1.7

Table 3: Drugs which are taken as SM (n=172).

Drug	Frequency	Percentage
Antibiotic	84	48.8
Azithromycin	64	76.2
Amoxiclav	24	28.5
Cephalosporin	5	5.9
Ampicillin	6	7.1
Other	2	2.3
Antipyretic	168	97.6
Paracetamol	165	98.2
Diclofenac	8	4.8
Mefenamic acid	6	3.5
Ibuprofen	5	3
Other	0	0
Analgesics	65	37.8
Cough suppressant	44	25.6
Multivitamins	27	15.7
Anthelmintics	6	3.5
Antitumorants	5	2.9

Table 4: Association Between Age, Gender & Socioeconomic Status with Self Medication Practices(n=200).

Characteristics	Self-medication practices		P value
	Yes n(%)	No n(%)	
Age			
≤ 20 years	44 (25.9)	12(40)	0.112
>20 years	126(74.1)	18 (60)	
Gender			
Male	57(33.5)	10(33.3)	0.98
Female	113(66.5)	20 (66.7)	
Socioeconomic status			
APL	164(96.5)	28 (93.3)	0.419
BPL	6(3.5)	2(6.7)	

DISCUSSION

SM among students refers to the practice of individuals, often students, independently choosing and using medications without professional guidance. This behaviour may be driven by various factors, such as easy access to over-the-counter drugs, stress, academic pressures, or a desire to cope with emotional challenges. While some self-care is common, misuse of medications can lead to health risks and may indicate underlying issues that need professional attention.

In our study we collected data from 200 medical students in a tertiary care centre in south Kerala, India to estimate the proportion of SM. Among the respondents, 85% were taking SM. Main reason for seeking SM was feeling of illness as mild (69.8%) followed by time saved by SM (23.3%). Majority (79.1%) of them used SM for fever followed by headache (48.3%) and common cold (41.3%). Majority took antipyretics (97.6%) followed by antibiotics (48.8%) Only 3.5% of those taken SM experienced side effects.

A 2011 study by A. J. Montgomery,^[8] found that self-treatment exceeded 50% which complements present study. In a study by Kasulkar et al,^[1] among medical students, antipyretics and analgesics were commonly used for fever and headache. Students relied on reading materials for information and viewed SM as

a convenient solution for minor ailments, seeking quick relief. Another study conducted by I Banerjee,^[9] in West Bengal among undergraduate medical students revealed that 57.05% of respondents engaged in SM, with common ailments such as cough and cold being the primary reasons. The drugs frequently used included antibiotics (31.09%), analgesics (23.21%), and antipyretics (17.98%). The motivations for SM varied, with 47.19% considering their illnesses as mild, 28.46% valuing the time-saving aspect, 15.73% emphasising cost-effectiveness, and 8.62% opting for SM due to urgency. This insight into the prevalence and motivations for SM provides valuable information for understanding healthcare practices among medical students in the region. In another study by Niroomand et al,^[7] in 2020, nearly 72% reported SM in the past six months, citing reasons like trust in their own diagnosis (59.9%) and the mildness of the disease (56.6%). Strikingly, 77.7% admitted to autonomously choosing their medicines.

In a cross-sectional study done by Aparna et al in 2019 among 755 adults in Kerala, the prevalence of antibiotic SM was 3.31% which was much lower than the prevalence in our study. Sore throat was the primary reason (25%), and Azithromycin was the major antibiotic used (39%). Surprisingly, 36% relied on previous prescriptions for antibiotics.^[10] These studies highlight regional variations concerning

prevalence of SM, underscoring potential risks and negative consequences.^[11]

CONCLUSION

From the study of SM practices and its associated factors among medical students in a tertiary care centre, South Kerala, India we conclude that, among the medical students 85% were taking SM of which the proportion of those using antibiotics were 48.8%, antipyretics were 97.6 % and analgesics were 37.8%. Among the antibiotic users the most commonly used is azithromycin (76.2%). The proportions of SM practices among males were 33.5% and 66.5% in females. 27.6% of the participants were in the age group below 20 years and 72.4% were above 20 years. 3.5 % of those who practiced SM had adverse reactions. Higher proportion of medical students taking antibiotics for SM, there is a concern for antimicrobial resistance and hence awareness regarding the same is to be ensured to all of them. Awareness regarding adverse drug reactions to different group of medicines should also be given. Since this study was conducted among medical students in a single tertiary care centre, the results cannot be generalised to other medical institutions. As the study was conducted among medical students' chance for taking SM could be more compared to other students due to better medical and health related knowledge among them.

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