

# Prevalence and Pattern of Self-Medication among Undergraduate Medical Students

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## **Abstract**

**Background:** Self-medication is becoming a Universal entity wherein, drugs are given over-the-counter without prescription, providing a low cost alternative for people, irrespective of rural-urban differences<sup>[1]</sup>, which might be horrendous when not applied with proper medical knowledge. It enjoys a paramount significance among medicos as they are the future practitioners of medicine with easy access to drugs.

**Aim:** To assess the prevalence and pattern of self-medication practice among undergraduate medical students.

**Material and Methods:** A cross-sectional questionnaire-based study was conducted among the undergraduate medical students of a tertiary care medical college in Tamil Nadu, India during February to March 2016.

**Results:** 400 students accepted for the study and took up the given questionnaire. 9 incomplete questionnaires were expelled and the remaining 391 were analyzed. It was found that 273 (69.8%) respondents practiced self-medication, which was common in females (53.5%) than in males (46.2%). The practice was widely prevalent among the pre final year students (84.3%) followed by final year students (74.6%) and second-year students (48.8%). The main symptoms for seeking self-medication included fever (36.6%), common cold (27.8%), heartburn (16.4%), and abdominal pain (8.4%). Drug groups commonly used for it were analgesics-antipyretics (31.09%), antihistamines (28.9%), antibiotics (22.7%), antacids (16.8%) and antispasmodics (9.5%). On analyzing the reason for self-medication, 52.7% students felt that their illness was not so severe while 34.1% stated previous experience with similar illness, 8.4% cited constrain of time and 4.8% mentioned easy access to drugs. The commonest source of information for self-medication were previous prescriptions (59.7%) and family (19.8%). 35.2% of the students prescribed medication to others. 98.2% respondents felt self-medication practices can be horrendous and 88.7% suggested health education to put an end to self-medication.

**Conclusion:** Our study reflects the prevalence of self-medication among the undergraduate medical students, which can be brought down by the faculty through their efforts to educate and create awareness among the students.

## **INTRODUCTION**

Self-medication includes, “treating of one own self with drugs about which one does not have complete knowledge of or taking drugs prescribed for somebody else for same of different illness or using drugs prescribed to them previously for longer periods than actually prescribed”.<sup>[2]</sup>

It involves getting medicines without a proper prescription, using previous prescriptions to get drugs, sharing medicines

with others or using unused medicines stored at home or elsewhere.<sup>[3]</sup>

Misguided by the lack of appropriate medical knowledge, self-medication can hide an underlying illness, increase the danger of developing resistant pathogens, and increase risk of complications resulting directly or indirectly like drug dependence, potentially harmful adverse drug reactions, antibiotic resistance etc.<sup>[4]</sup>

## NEED FOR THE STUDY

Self-medication and its repercussions must be nipped at the bud especially among medical students as they are future doctors who would play a pivotal role in dispersing the knowledge among the lay public.<sup>[5]</sup>

Though various studies have been conducted regarding the pattern of self-medication among medical students worldwide<sup>[6] [7] [8] [9][14][15][16]</sup>, this practice among Indian medical students remain less explored.<sup>[4][5][11][12][13][17]</sup>

The purpose of this analysis is to explore the prevalence and pattern of self-medication practiced by medical students in this tertiary care medical college and compare that with that of other such studies conducted in India and abroad.

## OBJECTIVES

1. To study the prevalence of self-medication among undergraduate medical students in a tertiary care medical college, Trichy, Tamil Nadu.
2. To assess the pattern of self-medication in the above setting.
3. To study factors in liaison with self-medication among medical students

## METHODOLOGY

A cross sectional questionnaire-based study was carried out among 400 medical students during February- March 2016 in Chennai Medical College Hospital and Research Center, Irungalur, Trichy. First year medical students were excluded from the study as their self-medication pattern was comparable with that of the non- medicos.<sup>[12]</sup>

## PROCEDURE

Prior permission was obtained from the ethics committee of the institution for conducting the study. The purpose of the study was explained to the participating students and confidentiality was assured. Informed written consent was acquired from every student before proceeding the questionnaire. The questionnaire was used to collect information including demographic data, whether the student sought self-medication in the preceding six months, frequency and illness for which the medication was used, drug/ drug group used by them and the reason for self-medication, source of information and drugs, whether they have suggested medication to others and strategies to bring down self-medication. The pattern of drug use over a six-month period preceding the study was noted.

## STATISTICS AND ANALYSIS OF THE DATA

The returned questionnaires were analyzed for completeness of data. The data received from complete questionnaires

were analyzed using Microsoft Excel and analyzed by using Statistical Package for Social Sciences (SPSS) program Version 16. Descriptive data were expressed as percentage, frequency and mean  $\pm$  S.D. Statistical significance was tested by chi-square test. A P-value less than 0.05 was considered to be significant. With some questions being multiple options, sum of percentage did not always equal 100%.

## RESULTS

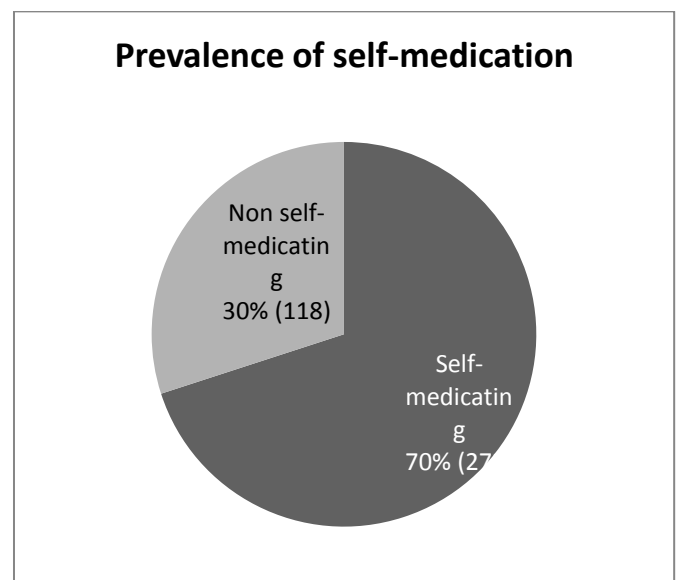
Out of the 400 students to whom the questionnaire was distributed, 391 of them completed the questionnaire. The mean age of the respondents was  $20.13 \pm 1.09$  years, ranging from 18 to 22 years. The total number of female students (214, 55%) exceeded their male counterparts (176, 45%) The details of the pattern are as follows:

### Nature of study population:

Year of Study	Males (%)	Females (%)	Total (%)
II	53 (43.0)	70 (56.9)	123 (100)
III	60 (44.7)	74 (55.2)	134 (100)
Final	63 (47.0)	71 (52.9)	134 (100)
<b>Grand Total</b>	<b>176 (45)</b>	<b>214 (55)</b>	<b>391 (100)</b>

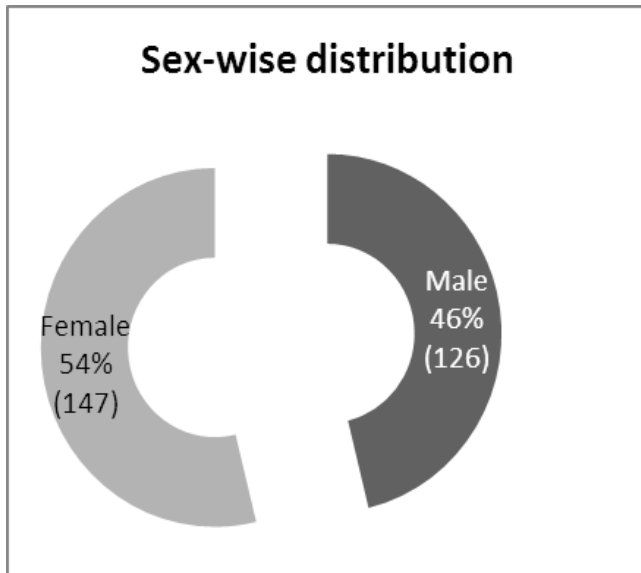
### Prevalence of self-medication:

A total of 273 (69.8%) students reported having taken medication on their own during the preceding six months.

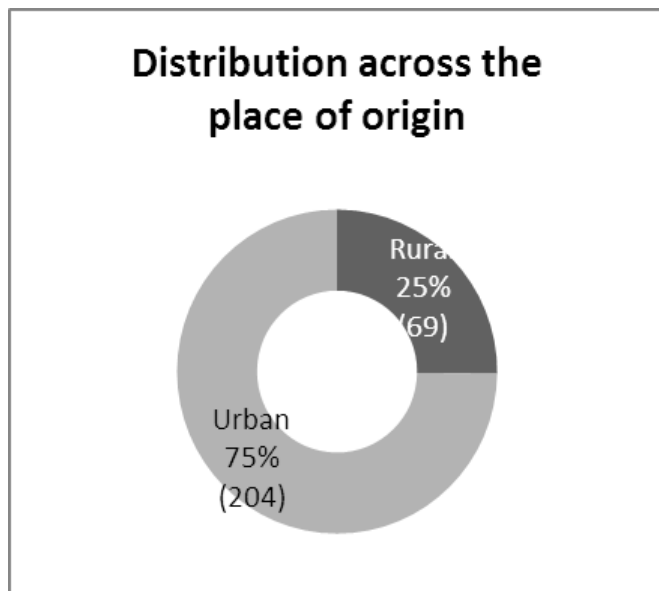


### Self-medication pattern according sex and place of origin:

Self-medication was practiced more among the females, the pattern being 147 females (53.8%) and 126 males (46.2%).



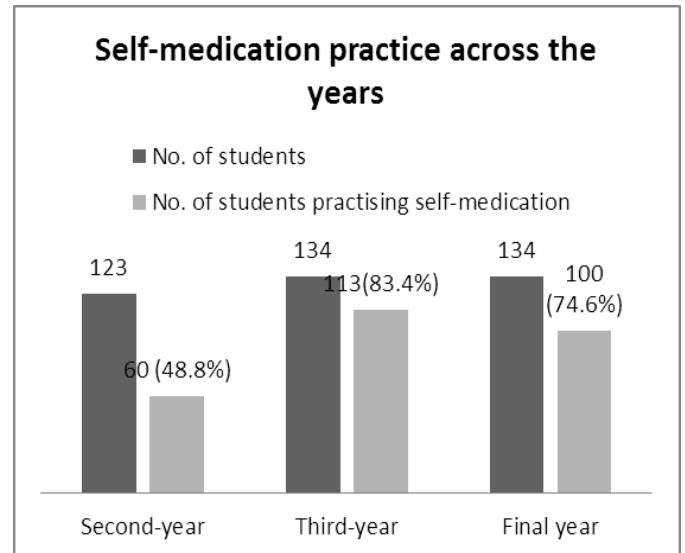
It was also noted that among the students that self-medicated, the urban students (74.7%, 204) exceeded over the rural students (25.2%, 69).



N = 391

#### Distribution of the self-medication pattern across the years:

It was observed that self-medication was the maximum among the third year students (41.4%), followed by final year students (36.6%), and second-year students (22%), which correspond with increasing exposure to medical knowledge.



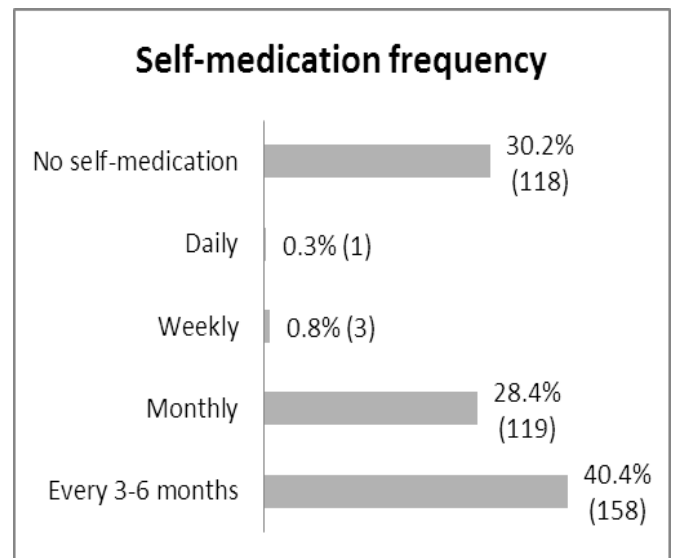
N = 273

#### Based on System of medicine:

Among those who self-medicated, 100% (n=273) of them followed allopathic system of medicine/ evidence based medicine (EBM).

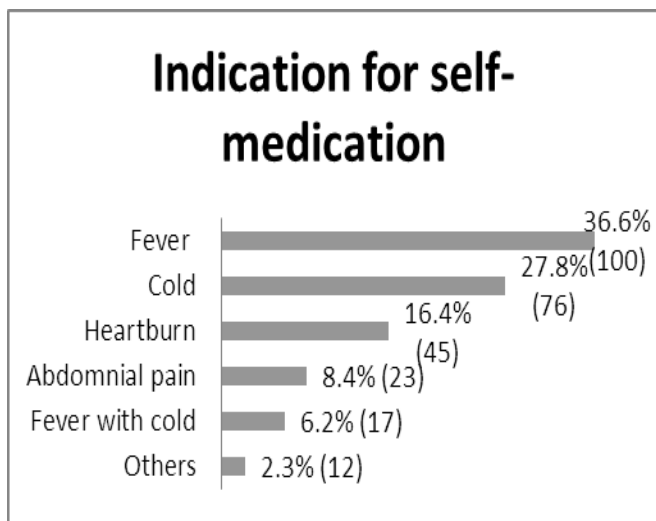
#### Based on frequency of self-medication:

Of the 273 people who took self-medication, 158 (40.4%) of them took medications every 3 to 6 months. 119 (28.4%) took drugs on a monthly basis. Very few people consumed drugs in a weekly or daily basis.



#### Based on indications for self-medication:

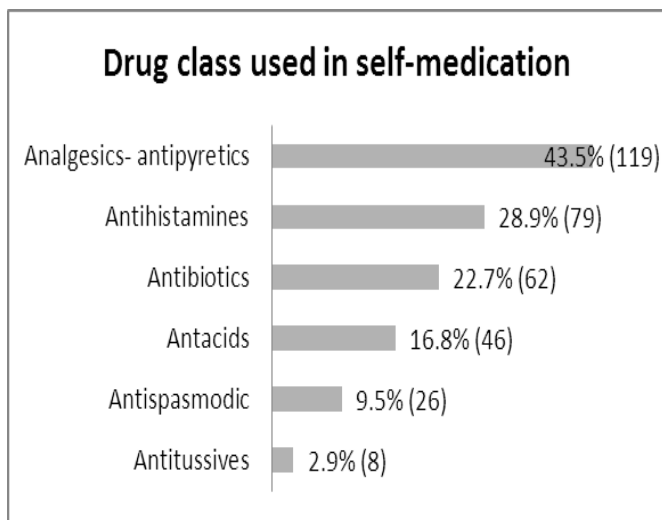
It was found that **fever (36.6%)** was the prime cause for which students practiced self-medication. Cold (27.8%) was the next common ailment followed by heartburn (16.4%), and abdominal pain (8.4%).



N = 273

**Based on drug class used in self-medication:**

The groups of drugs mostly used for self-medication include **analgesics-antipyretics (43.5%)** followed by antihistamines, antibiotics, antacids, antispasmodics and antitussives.

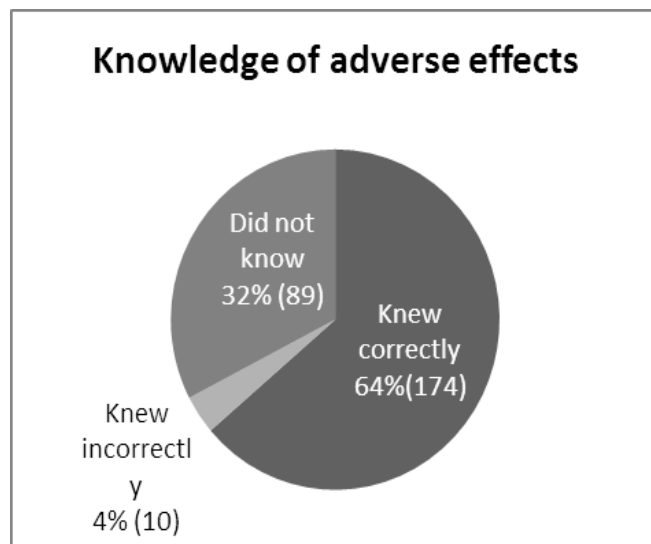


N = 391

All 273 (100%) of the students who took self-medication felt well after taking the drug. Full course of antibiotics was completed by 61 (98.3%) respondents. About 274 (70.1%) of the study population knew about the resistance gained by pathogens due to inappropriate antibiotic usage.

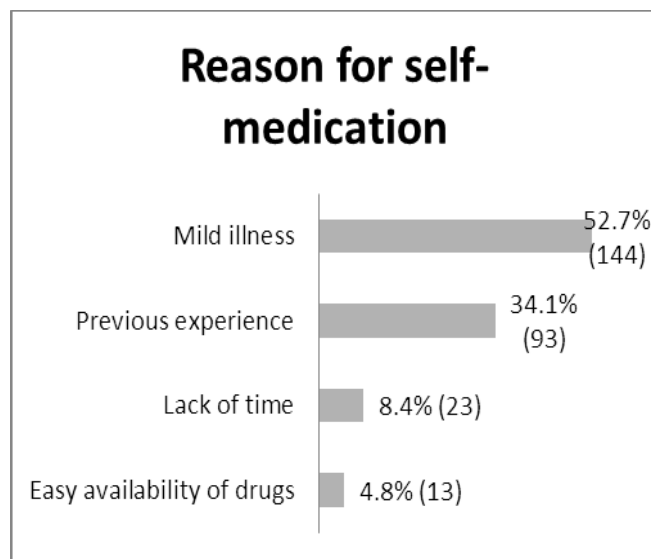
**Based on insight of the adverse effects:**

All the students who took self-medication were asked about the adverse effects of the drugs they took. The answers were analyzed for accuracy of their knowledge. 174 (63.7%) students correctly knew the adverse effects of the drugs they took.



**Based on reason for self-medication:**

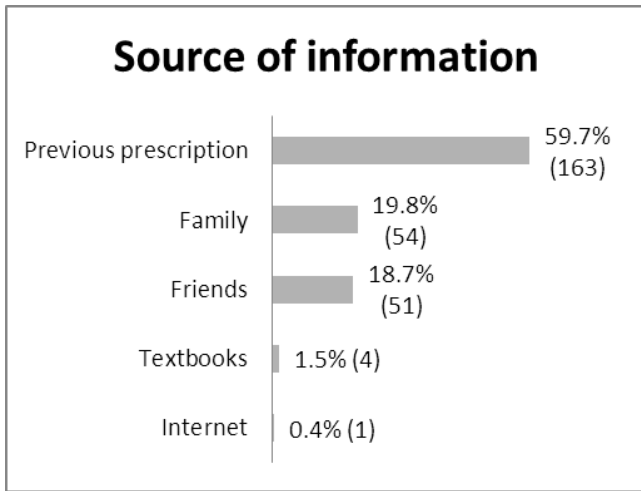
Among the reasons given for practicing self-medication, **144 (52.7%) respondents felt that their illness was simple**, while 93 (34.1%) preferred self-medication as they had previous experience with similar illness. About 23 students (8.4%) reported that easy availability of the drug was the primary reason for self-medication, while 13 (4.8%) preferred self-medication because of lack of time.



N = 273

**Based on source of information:**

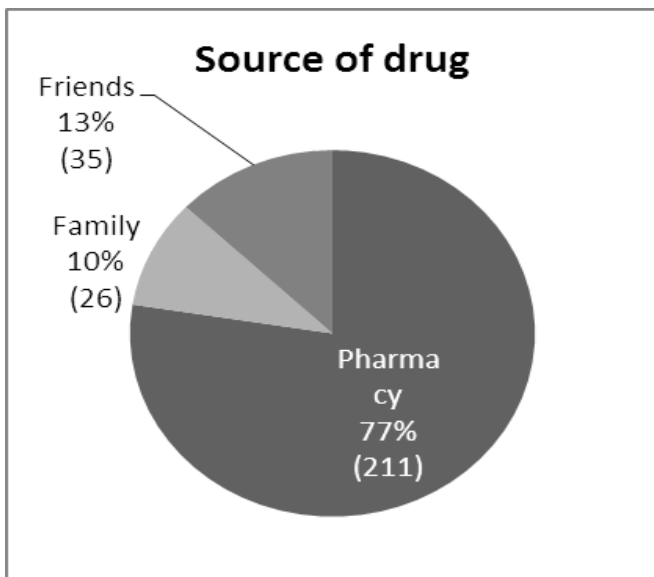
It was found out that 163 (59.7%) participants self-medicated based on previous prescriptions, followed by advice from family (54, 19.8%), and friends (51, 18.7%).



N = 273

**Based on source of drug:**

77.6% (211) of the study population bought the drugs for self-medication from community pharmacies. 12.9% (35) participants used the drugs available from their friends, while 9.6% (26) students used drugs that were sourced from their family.



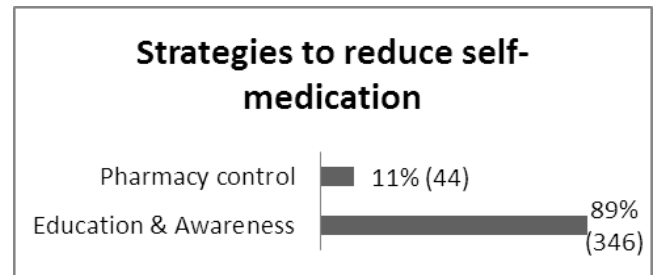
N = 273

138 (35.2%) participants have suggested medication for the usage of others. The **most commonly suggested medication is analgesics-antipyretics (40.5%)** followed by antihistamines (26.8%), antacids (18.8%), and antibiotics (12.3%).

Of the respondents who have suggested drugs for the use of others, 70 (50.7%) do not know the adverse effects of those drugs and 65 (47.1%) know them correctly.

About 40.2% of the respondents are aware of dependence produced by long-term intake of certain drugs.

Almost universally, 384 students (98.2%) have said that self-medication can be harmful. To bring down such practices, 346 (88.7%) suggest health education and awareness programs and 44 (11.3%) advice for stricter control of drug dispensation from pharmacies.



**FACTORS ASSOCIATED WITH SELF-MEDICATION**

**1. Place of origin:**

Self-medication	Rural	Urban	Total
Yes	69 (55.6%)	204 (74.6%)	273
No	55 (44.4%)	63 (23.6%)	118
Total	124 (100%)	267 (100%)	391 (100%)

$X^2$  Value = 17.318,  $df = 1$ ,  $p$ -value = <0.001

Among the students who self-medicated, there was a urban preponderance (74.7%) over rural (25.2%).

**2. Sex:**

Self-Medication	Male	Female	Total
Yes	126 (46.6%)	147 (68.2%)	273 (69.8%)
No	50 (28.4%)	68 (31.8%)	118 (30.2%)
Total	176 (45%)	215 (54.7%)	391 (100%)

$X^2$  Value = 0.953,  $df = 2$ ,  $p$ -value = 0.621 Self-medication was practiced more among the females, the pattern being 147 females (53.8%) and 126 males (46.2%).

**3. Year of study:**

Self-medication	Second-years	Third-year	Final-year	Total
Yes	60 (48.8%)	113 (84.3%)	100 (74.6%)	273 (69.8%)
No	63 (51.2%)	21 (15.7%)	34 (25.4%)	118 (30.2%)
Total	123 (31.5%)	134 (34.3%)	134 (34.3%)	391 (100%)

$X^2$  Value = 40.695,  $df = 2$ ,  $p$ -value = <0.001

The practice of self-medication was the maximum among the third-year students (41.4%),

Followed by final year students (36.6%), and second-year students (22%), this corresponds with increasing exposure to medical knowledge.

## DISCUSSION

Self-medication is considered an element of self-care.<sup>[2]</sup> Self-medication, as a phenomenon, has both advantages and advantageous that depend on who and what one chooses to self-medicate.<sup>[10]</sup>

The present study was conducted with the purpose of identifying the prevalence and pattern of self-medication among the medical students of a tertiary care medical college hospital in central Tamil Nadu and to compare its corroboration and variation with respect to such studies from India and abroad.

This study indicates that self-medication is widely practiced (69.8%) by the undergraduate students of the institute. As per various studies conducted within India, the prevalence of self-medication among the medical students was shown to be ranging between 57.1% and 92%.<sup>[4],[5],[11],[12],[13],[17]</sup> In studies conducted in developing countries, the prevalence of self-medication among medical students was likely to be 38.5% in Ethiopia<sup>[9]</sup>, 55.3% in Pakistan<sup>[14]</sup>, 55% in Egypt<sup>[16]</sup>, 56.9% in Nigeria.<sup>[15]</sup>

In this study, females (53.5%) seemed to undertake self-medication more when compared to males, which is in consensus with studies conducted among medical students in West Bengal (69.79%)<sup>[5]</sup>, Madhya Pradesh (52.8%)<sup>[4]</sup>, Karnataka (56.8% to 60.5%)<sup>[11],[13]</sup>, but this differs from the Kerala study wherein males (66.6%)<sup>[17]</sup> Predominantly self-medicate.

As usually thought self-medication would be more prevalent in final year medical students (79.3% to 100%)<sup>[5],[4],[17]</sup> as they know about drugs and disease. A salient finding in this study is that the third-year students (84.3%) practiced self-medication more than the final-year students (74.6%), and the second-year students (48.8%).

In this study, fever (36.6%) was the most common symptom for undertaking self-medication followed by common cold (27.8%), heartburn (16.4%), and abdominal pain (8.4%). Fever was the most common symptom leading to self-medication among medical students in studies conducted in Karnataka by Kumar et al (75.1%)<sup>[11]</sup> and Kerala (70.4%)<sup>[17]</sup>, whereas common cold was observed to be the primary cause of self-medication in the West Bengal study (35.2%)<sup>[5]</sup> and the Karnataka study by Badiger et al (69%).<sup>[13]</sup>

In this study, the most commonly used drugs were analgesics-antipyretics (43.5%) followed by antihistamines (28.9%), antibiotics (22.7%), and antacids (16.8%). Various

researches<sup>[9],[11],[12],[13],[16],[17]</sup> have observed that analgesics-antipyretics are the commonly self-medicated drugs among medical students, which is in concordance with our study, whereas antibiotics (31.09%) was the most common self-medicated drug in the West Bengal study.<sup>[5]</sup>

In this study, the most common reason cited for self-medication was mild nature of illness (52.7%) followed by previous experience with similar illness (34.1%), lack of time (8.4%), and easy access to drugs (4.8%). Similarly, studies in Karnataka<sup>[11]</sup> by Kumar et al, West Bengal<sup>[5]</sup>, and Madhya Pradesh<sup>[4]</sup> by Kasulkar et al have also cited mild illness as the most common cause for self-medication.

In this study, the respondents mentioned previous prescriptions (59.7%) as their major source of information for self-medication followed by advice from family (19.8%), friends (18.7%), and textbooks (1.5%). Previous prescriptions are the most common source of drug information according to studies conducted in Madhya Pradesh by Sontakke et al<sup>[12]</sup>, Karnataka by Kumar et al (53.1%)<sup>[11]</sup> and Ethiopia<sup>[9]</sup>. However, textbooks seem to be the main source of information in two Indian studies done at Madhya Pradesh by Kasulkar et al (52.3%)<sup>[4]</sup> and Karnataka by Badiger et al (39%).<sup>[13]</sup>

In this study, the most common source for procurement of drugs was community pharmacies (77.6%), which is corroborated by the Kerala study.<sup>[17]</sup> The other sources of drugs cited in this study were friends (12.9%) and family (9.6%).

The use of antibiotics among the medical students of this institute accounted for 22.7%, which is less compared to various other studies in India where antibiotic usage ranges from 30.1% to 34%<sup>[5],[13],[17]</sup>. Only 1.7% of respondents in this study did not complete the full course of antibiotics which is in contrast with the studies in Karnataka by Kumar et al (35.3%)<sup>[11]</sup> and Kerala (88.1%).<sup>[17]</sup> 70.1% respondents in this study were aware that inappropriate usage of antibiotics leads to pathogenic resistance.

In this study, 63.7% of respondents were aware of the possible adverse effects of the self-medicated drugs, while 32.6% were unaware of such adverse effects.

While 98.2% respondents in this study felt that self-medication is inherently harmful, 47% of students in the Karnataka study by Kumar et al<sup>[11]</sup> felt that it was part of self-care.

When asked to suggest strategies to reduce self-medication practice, 88.7% of the respondents in this study suggested Health Education and counseling, while 11.3% advocated for stringent control of drug dispensation from pharmacies.

## CONCLUSION

Our study reflects the prevalence of self-medication among the undergraduate medical students, which can be brought down by the faculty through their efforts to educate and create awareness among the students.

Since the findings in this report are based on a single Centre study in central Tamil Nadu, the study observations cannot be extrapolated per se. Many more studies have to be done among diverse populations to perceive various factors (notably, socio-economic status) influencing the practice of self-medication in India.

With self-medication being an integral part of self-care<sup>[2]</sup> and that it increased with increase in knowledge, as seen in this study (74.6 % among the final years practiced self-medication), the use of self-medication should be explained and incorporated with rational ideas people. Further studies need to be carried out to evaluate ways to incorporate self-medication into a proper self-care method.

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