ASSESSMENT OF SELF MEDICATION PRACTICES AMONG UNDERGRADUATE MEDICAL AND PARAMEDICAL STUDENTS: A CASE OF RURAL MEDICAL SCHOOLS OF TAMIL NADU, INDIA

Phiney Treesa Philip¹*, Aditya Senan¹, Sumi Reji¹, T. R. Ashok Kumar²

¹Pharm D, Nandha College of Pharmacy, Erode-52.
²Department of Pharmacy Practice, Nandha College of Pharmacy, Erode.

ABSTRACT

The study was aimed in assessing the magnitude and attitude towards self-medication among undergraduate medical, pharmacy and health science students in Perundurai Medical College Hospital, Erode and various other paramedical colleges of Tamil Nadu. A cross sectional study of one year illness recall was conducted. A questionnaire consisting of demographic questions and questions on illness and medication for the recall period collected from 892 students. Among these, 781 students (87.5%) of students reported the practice of self-medication while 111 students (12.44%) reported against it. Most drugs for self-medication were obtained from the medical stores (70.8%); the most commonly used group of drugs were anti-pyretics (71.95%) and analgesics (63.5%) respectively. Common reported illnesses were fever (70.67%) and headache (53.64%). Mild illness (59.53%) and confidence enough to treat (20.99%) were the top two reported factors for self-medication. Text books (53.43%) were the top reported source of information. Among these, 59.66% of students had the practice of recommending the drugs to others. Very few students were aware of the potential ADRs of self-medications (23.94%), and few of them also reported to have experienced side effects (19.71%). In this study, very few students had the habit of using other system of medicines (18.18%). Although the practice of self-medication is inevitable; drug authorities and health professionals need to educate students about the pros and cons of self-medication.

KEYWORDS: Self-medication, Drugs, Medical students, Awareness.
INTRODUCTION

Medications are an essential asset to health and important therapeutic tool in the hands of physicians and other health professionals.\(^1\) According to William Osler, a great feature which distinguishes man from animals is the desire to take the medicines.\(^2\) It is common for people to feel unwell and use medications for treating themselves. Every day, people throughout the world, act on their own for their health by practicing self-medication.\(^3\)

As per the World Health Organization, “Self-medication is the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms”.\(^4\) Self-medication defers from self-care in that it involves drugs that may do good or cause harm.\(^5\) It may include the use of herbs, the retention and reuse of prescription drugs or the direct purchase of prescription only drug without medical input. Economic, political, and cultural factors have stimulated the constant increase in self-medication worldwide, hence turning this practice into a major public health problem.\(^6\)

In these days, more drugs have changed from prescription only medicines (POM) to Pharmacy medications. The World Medical Association (WMA) defines POM, as those drugs which are available only with prescription as they are not safe except under medical supervision because of toxicity and potential harmful effects.\(^7\)

It affects both developed and underdeveloped countries as self-medication is a major component of primary health care system.\(^6,8\) As self-medication is mainly based on symptomatic treatment and is taken without the evaluation of a qualified practitioner, it may mask the signs and symptoms of underlying disease. This may complicate the problem and create drug resistance, delayed diagnosis and even adverse drug reactions.\(^9\)

Practice of self-medication has both positive and negative aspects. If practised correctly, it has a beneficial effect on the individual and health care system. It helps the common man to manage his own health and thereby promotes self-empowerment. The WHO has also pointed out that responsible self-medication can help prevent and treat ailments that do not require medical consultation and provides a cheaper alternative for treating common illness.\(^6\)

However it is also suggested that self-medication must be accompanied by appropriate health information.\(^10\) On the other hand, inappropriate self-medication causes wastage of resources, increased resistance of pathogens, adverse drug reactions, drug dependence and prolonged suffering.\(^5\) Under dosage may not cure the symptoms while over dosage can produce
damage to many organs. These practices can lead to interaction between drugs which may require medical attention.\textsuperscript{[11]}

Self-medication is commonly practiced among the youth.\textsuperscript{[11]} It is influenced by many factors such as age, sex, socioeconomic factors, lifestyle, ready access to drug, law, society and exposure to advertisement, high level of education, professional status, self-care orientation and medical knowledge.\textsuperscript{[12],[13],[14]}

Due to restricted time, nature of illness, concerns about confidentiality, and high ego, physicians find it difficult to enter the patient role.\textsuperscript{[7]} There are many reasons for the increased practice of self-medication among medical students. As they have easy access to information from drug indices, literature and other medical students to self-diagnose and medicate. The White Coat guarantees trouble free access to drugs available in the pharmacies.\textsuperscript{[1],[5]}

The most commonly used OTC medications are anti-pyretics, pain killers, cough and cold preparations, anti-allergic drugs, vitamins and other energy tonics. Though they are considered to be risk free, excessive use of these drugs can lead to serious unfavourable conditions\textsuperscript{15}. Antibiotic resistance is one of the most major issue which the health team is facing now-a-days. It increases the mortality and the morbidity rates due to the uncontrolled infectious disease as the standard treatment become ineffective.\textsuperscript{[16]} The chemotherapy of bacterial infections includes the isolation of aberrant agent, analysis of the agent’s antibiotic susceptibility, and using the adequate quantity antibiotics to the site of infection or modify the bacteria to be killed by the body’s own defence system.\textsuperscript{[17]} A study done at All India Institute of Medical Sciences, New Delhi found that self-medication was alarmingly high among the undergraduate medical and paramedical students and it increased with medical knowledge.\textsuperscript{[4]} The present study was conducted to identify the reason and the pattern of self-medication among the medical and paramedical students in Tamil Nadu. The aim of the study is to create awareness among the academic students since they are the future healthcare professionals who should serve as a model for their clients.

**METHODOLOGY**

A cross sectional descriptive study was conducted within undergraduate medical and paramedical students of a tertiary care teaching hospital and various other paramedical colleges of South India. Students from first year to third year within the age group of 17 – 22 years were enrolled as the study population. A structured questionnaire form with 15 closed
and open ended questions was prepared with the guidance of the assistant professor of the pharmacology department, to collect the data. Approval from the Institutional Ethics Committee was obtained prior to the start of the study. The study was conducted from May to August 2015 for a period of 4 months. Students were selected randomly by a convenient sampling method. The participants were explained regarding the nature of the study and consent was obtained. The self-medication pattern of the students for the past one year was collected. The information related to drug use pattern and indications for self-medication were included in the questionnaire. The investigators were present in case of any assistance. About 900 questionnaires were distributed, out of which 892 were completed and received from respondents. The collected data was checked, reviewed and organized daily for its completeness and consistency. The data was analysed using Statistical Package For Social Sciences (SPSS) version 22, using bivariate correlation analysis, where correlation is significant at the 0.05 and 0.01 level.

RESULTS

A total of 900 questionnaires were distributed from which 892 questionnaires were filled and received.

DEMOGRAPHICS

Gender: Out of 892 respondents, 373 (41.81%) were males and 519 (58.18%) were females.

![Gender Distribution](image)

**Fig. 1: Gender Distribution**

Age

The study was conducted among the students from first year to third year of various medical and paramedical courses. Students who came under the age group of 17-22 years were included in the study.
Among these maximum numbers of respondents were 20 year old, which included 260 respondents (29.14%) followed by 235 students (26.34%) of 19 year, 167 students (18.72%) of 21 years, 105 students (11.77%) of 18 years, 90 students (10.08%) of 22 years and 35 students (3.92%) of 17 years.

![Age distribution](image)

**Fig. 2: Age distribution**

**Department**
Among 892 respondents 240 (26.9%) of them were MBBS students, 226 (25.33%) were pharmacy students, 239 (26.79%) were nursing students and 187 (20.96%) were physiotherapy students.

![Department Classification](image)

**Fig 3: Department Classification**

**Practice of self-medication**
Among these 892 respondents, 781 students (87.50%) reported to practice self-medication and 111 students (12.44%) reported that they do not have the practice of taking medications by their own.
Fig 4: Practice of self-medication

Reason for self-medication
Among the 781 respondents who reported of practicing self-medication, 465 (59.53%) students reported the reason of self-medication to be mild illness, 164 (20.99%) students reported to self-medicate as they were confident enough to treat. 49 (6.27%) students self-medicated due to lack of time, 36 (4.6%) students said that they self-medicate since their illness were mild and they were confident enough to treat.

Fig 5: Reason for self-medication

Ailments led to self-medication
Out of 781 respondents, majority of the students reported to have used self-medication for multiple ailments. 146 (18.69%) students reported that they self-medicate for all the ailments mentioned in the questionnaire which includes headache, fever, cough, common cold, throat pain, abdominal pain and diarrhoea; followed by 110 (14.08%) and 102 (13.06%) students self-medicate for headache and fever alone respectively.
Table 1: Ailments led to self-medication

<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>AILMENTS</th>
<th>NUMBER OF STUDENTS (n=781)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Headache</td>
<td>110</td>
</tr>
<tr>
<td>2</td>
<td>Fever</td>
<td>102</td>
</tr>
<tr>
<td>3</td>
<td>Cough</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>Cold</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>Throat Pain</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Abdominal Pain</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>Fever + Cough</td>
<td>27</td>
</tr>
<tr>
<td>8</td>
<td>Cough + Cold + Throat Pain</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>Headache + Fever + Cough + Cold + Throat Pain + Abdominal Pain + Diarrhoea</td>
<td>146</td>
</tr>
<tr>
<td>10</td>
<td>Headache + Fever + Cough</td>
<td>51</td>
</tr>
<tr>
<td>11</td>
<td>Headache + Fever + Cough + Cold</td>
<td>33</td>
</tr>
<tr>
<td>12</td>
<td>Fever + Cough + Cold</td>
<td>33</td>
</tr>
<tr>
<td>13</td>
<td>Headache + Fever + Cough + Cold + Throat Pain</td>
<td>16</td>
</tr>
<tr>
<td>14</td>
<td>Headache + Fever + Cold</td>
<td>18</td>
</tr>
<tr>
<td>15</td>
<td>Cough + Cold</td>
<td>14</td>
</tr>
<tr>
<td>16</td>
<td>Headache + Fever</td>
<td>20</td>
</tr>
<tr>
<td>17</td>
<td>Headache + Fever + Cough + Cold + Diarrhoea</td>
<td>25</td>
</tr>
<tr>
<td>18</td>
<td>Fever + Abdominal Pain</td>
<td>20</td>
</tr>
<tr>
<td>19</td>
<td>Fever + Cold + Abdominal Pain</td>
<td>40</td>
</tr>
<tr>
<td>20</td>
<td>Fever + Cold + Throat Pain</td>
<td>21</td>
</tr>
<tr>
<td>21</td>
<td>Others</td>
<td>0</td>
</tr>
</tbody>
</table>

Altogether, 552 students self-medicated for fever, 419 students for headache, followed by 412 students for common cold, 379 for cough, 218 students for abdominal pain, followed by 187 for throat pain and 171 for diarrhoea.

Fig 6: Common ailments that led to self-medication
Commonly used drugs
Out of 781 students 85 (10.88%) students reported to use anti-pyretics, followed by 81 students reported of using antibiotics as self-medication. Again, 81 students reported of using antipyretics, analgesics and antibiotics during the period. 68 students were found to use only analgesics during the study period.

Table 2: Drugs for self-medication

<table>
<thead>
<tr>
<th>SL.NO</th>
<th>DRUGS</th>
<th>NUMBER OF STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Antipyretics</td>
<td>85</td>
</tr>
<tr>
<td>2</td>
<td>Analgesics</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>Antibiotics</td>
<td>81</td>
</tr>
<tr>
<td>4</td>
<td>Anti-Histamine</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>Antipyretics + Analgesics + Anti – Diarrhoeals</td>
<td>58</td>
</tr>
<tr>
<td>6</td>
<td>Antipyretics + Antibiotics</td>
<td>45</td>
</tr>
<tr>
<td>7</td>
<td>Antibiotics + Anti-Diarrhoeals + Cough Syrup</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Antipyretics + Antihistamine</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>Antipyretics + Analgesics</td>
<td>61</td>
</tr>
<tr>
<td>10</td>
<td>Antipyretics + Analgesics + Antibiotics</td>
<td>81</td>
</tr>
<tr>
<td>11</td>
<td>Antipyretics + Analgesics + Antacids</td>
<td>56</td>
</tr>
<tr>
<td>12</td>
<td>Antipyretics + Analgesics + Antibiotics + Anti-Fungals</td>
<td>24</td>
</tr>
<tr>
<td>13</td>
<td>Antibiotic + Antacid + Anti-Histamine</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>Antipyretics + Analgesics + Antacids + Steroids + Anti-fungals + Cough Syrup</td>
<td>13</td>
</tr>
<tr>
<td>15</td>
<td>Analgesics + Anti-Histamine</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Antipyretics + Analgesics + Antibiotics + Anti-Diarrhoeals</td>
<td>35</td>
</tr>
<tr>
<td>17</td>
<td>Antipyretics + Analgesics + Antibiotics + Cough Syrup</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>Antipyretics + Analgesics + Antibiotics + Antacids + Anti-Diarrhoeals + Cough Syrup</td>
<td>52</td>
</tr>
<tr>
<td>19</td>
<td>Analgesics + Antibiotics + Antacids</td>
<td>12</td>
</tr>
<tr>
<td>20</td>
<td>Analgesics + Antibiotics + Anti-Diarrhoeals + Anti-Histamine</td>
<td>12</td>
</tr>
<tr>
<td>21</td>
<td>Antipyretic + Antibiotics + Anti-Diarrhoeals + Sedative</td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>Antipyretics + Anti-Diarrhoeals + Anti-Histamine</td>
<td>22</td>
</tr>
<tr>
<td>23</td>
<td>Others</td>
<td>5</td>
</tr>
</tbody>
</table>

By combining the data, we found that students have a high prevalence of using anti-pyretics (562 students) followed by analgesics (496 students) and antibiotics (388 students). It was also noted that 13 students used steroid preparations and 6 students used sedatives as self-medication.
Course completion of antibiotics
A total of 388 students out of 781 reported to use antibiotics as self-medication. They were questioned on the completion of the antibiotic course on which 222 (57.21%) students responded that they complete the course while 166 (42.78%) students did not complete the antibiotics course.

Source of the drug
The source of the drug was asked to the students to know root of self-medication, which revealed that 553 (70.80%) students obtained the drugs directly from the medical shop. On the other hand, 228 (29.19%) students reported to use the drug obtained from other sources. These include left over medicines, hospital free supplies, physician samples, etc.
Source of information about the drugs

On accessing the source of information regarding the drugs for self-medication, 249 (53.43%) students reported text books as their primary source of information. 125 (26.82%) students reported that their parents were the source of information, while 70 (15.02%) students relayed on internet as their information source.

Awareness of Adverse Drug Reaction

The awareness on the ADR was found to be very less among the students. Only 187 (23.94%) students responded that they were aware of the ADRs of these drugs, remaining 594 (76.05%) students were unaware of the ADRs.
Side effects on self-medication

The respondents were enquired regarding the occurrence of side effects with regard to the practice of self-medication. 154 (19.71%) of the students experienced some sort of side effect with the drugs whereas 627 (80.28%) students did not experience any sort of side effects.

Recommendation of drug to others

The participants were enquired regarding recommendation of the drugs to others. It was found that 466 (59.66%) students recommended the drugs to their families or friends. On the other hand, 315 (40.34%) students responded that they do not have the habit of recommending drugs to others.
Among the respondents who nodded to recommended the drugs to others, 146 of them said that they recommend it to their friends and family, while 104 of them were found to recommend the drugs to their friends only, followed by 82 students who recommend the drugs only to their family.

Other system of medicines

142 (18.18%) students reported to have the habit of using other system of medicines like Ayurveda, Homeopathy etc., without medical advice. 639 (81.81%) students responded that they did not have the practice of using other system of medicine.
DISCUSSION

The prevalence of self-medication among university medical students has been reported as 45% in Turkey, 51% in Slovenia, 55% in Egypt, 56.9% in Nigeria, 76% in Pakistan, 88% in Croatia, 94% in Hong Kong\cite{15}, 70% in Ghana\cite{18}, Kuwait 97.8%\cite{19}, UAE 86%\cite{20}, and 80.9% in Malaysia.\cite{4} From the total of 892 students, 87.50% of students had the practice of self-medication while, 12.44% responded not have the habit of self-medication. While in other studies (Abay et al 2010)\cite{21} the percentage of students self-medicating was as low as 38.5%. These results corroborated the affirmation that people always use the medications that they “trust” when they are presented with the symptoms which they had experienced in previous illnesses.\cite{22}, \cite{23}, \cite{24} In the study 41.81% were males and 58.18% were females of which 84.98% of males said to have the habit of self-medication while in females the rate a little higher to about 89.40%. There was no statistically significant difference between males and females in regards to self-medication. Similar results were noted by Mansi M Patel 2013.\cite{25}

While analysing the habit of self-medication it was found that there was a high prevalence for pharmacy (96.90%) and medical students (92.08%) to practice self-medication than nursing (84.51%) and physiotherapy (74.33%) students. This is similar to the study performed by Girma et al\cite{12} 2011 in Ethiopia.

The major reason for self-medication was found to be because of mild illness (59.53%) followed by self-confidence. 20.99% of students reported that they self-medicated because they were confident enough to treat, because of their skills and medical knowledge gained from their medical study. Although this information would not be enough at this level of study to judge and take decisions regarding medication.\cite{19} Our results are similar to the study
conducted in Nepal by Raj Kumar et al (2015)\textsuperscript{[11]} in which 79.4% of respondents favoured mild illness as the reason for self-medication.

Fever (70.67%) and headache (53.64%) was the most common ailment for self-medication followed by common cold (52.57%) and cough (48.52%). The same was also reported in the study of Abay et al\textsuperscript{[21]} done in Ethiopia 2010.

71.95% students reported to use anti pyretics, followed by analgesics 63.50% and antibiotics to the rate of 49.67%. Similar results were found by other researchers in other countries. (Ansam et al 2007).\textsuperscript{[14]} Paracetamol and other types of NSAIDs were the most common types of anti pyretics used as self-medication. These drugs may induce to major problems. The first is, the possible risk of drug induced gastric ulceration and nephropathy. The overuse of such drug, especially when used in combination increases the risk of chronic toxicity among patient.\textsuperscript{[14]}

Almost 50% of the students reported to have the habit of practicing self-medication with antibiotics which is a major issue. Self-medication is an important determinant factor for improper use of antibiotics.\textsuperscript{[16]} It was also found that 42.78% of students did not have the practice to complete the antibiotic course completely. In a study performed among medical students in Mangalore, India, revealed that antibiotics account for 34% of the drugs used in self-medication.\textsuperscript{[26]}

Use of antibiotics for a short period of time or abrupt stoppage without completion of course would expose the infecting bacteria to sub therapeutic levels of the drug. This may lead to bacterial resistance.\textsuperscript{[27]}

70.80% of students marked medical shops to be their source of the drug while 29.91% of students reported to obtain the drugs from other sources which include the left over medicines of friends and family, drugs obtained from the hospital as the medical and paramedical students have free access to medicines. This result is similar to that of Mansi M Patel et al 2013\textsuperscript{[25]} while the study of Joseph O Farade 2011\textsuperscript{[28]} was at variance with our findings as leftovers were their main source of supply of drugs.

Text book was found to be the primary source of information for 53.43% of students, while 26.82 % of students reported their parents to be their source of information for self-
medication. While, in a study performed by Niranjan et al 2014\(^{29}\) in Nepal, it was found that friends and family were the primary source of information.

Only 23.94% of students responded positively towards the awareness of adverse drug reaction, while the majority of students, 76.05% reported that they were not aware of the ADRs. In a study performed by Suleiman Ibrahim Sharif et al 2012\(^{20}\) among UAE pharmacy students shows 41% awareness of ADRs. It signifies that awareness of ADRs among Indian medical students is comparatively low. The education needs to be more focused on understanding the ill effects that may be caused due to a particular treatment.

Side effects are very common for drugs. In this study 19.71% of students reported that they have experienced side effects of drugs at least once during self-medicating while majority of the students responded that they never experienced side effects with self-medication. This is similar to the study by Rahul et al 2014\(^{30}\), where the prevalence of side effect was found to be 11.2%.

59.66% of students have the practice of recommending the drugs to others while 40.34% of students do not have the habit of recommending drugs to others. Among them, 31.33% of students reported to recommend the drugs to their friends and family and 22.31% to their friends only.

81.81 % of students responded that they do not have the habit of using other system of medicine without the medical advice while, 18.18% of students reported to have the practice of using them. Herbal remedies are commonly used in the practice of self-medication in Ansam et al 2007\(^{14}\), but such high prevalence was not observed in our study. Therefore it is necessary that pharmacist should take responsibility to avoid selling drugs without prescriptions.

**CONCLUSION**

This study states that self-medication is very common among the medical and paramedical students of India. It suggests a need for review of educational programs especially by inclusion of modules of self-medication and rational drug use. There is an urgent need to frame policies regarding restriction of antibiotics as OTC in India. Improved awareness regarding the role of pharmacist as a drug consultant for careful and cautious use of self-medication is strongly recommended.
ACKNOWLEDGMENT
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CONFLICTS OF INTEREST
No funds provided.

REFERENCE


