



## SELF -MEDICATION PRACTICE AMONG MEDICAL STUDENTS IN A TERTIARY CARE MEDICAL COLLEGE IN NORTH INDIA

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### Abstract

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This study was undertaken to determine the knowledge, attitude & practice of self medication among M.B.B.S students of all the years of NIMS Medical College, Jaipur, Rajasthan. This study was an anonymous, questionnaire-based, descriptive study. A self-developed, pre-validated questionnaire consisting of both open-ended and close-ended questions was filled by 1st, 2nd, 3rd & 4th year M.B.B.S students. Data was reviewed, organized and summarized as counts and percentages and evaluated using the Chi-square test and p-value of <0.05 was considered statistically significant.

Out of a total of 316 students, 51.5% were male & 48.4% were females. Their age ranged from 17-27 years. Out of these, 73.4% students had taken self medication with 81% being females and 66% being males. The practice of self medication increased significantly from 1<sup>st</sup> year to 4<sup>th</sup> year ( $p < 0.00001$ ). The commonest indications for self-medication were headache (50.86%) and cough/common cold (28%). Minor illness (62.5%) was the most frequent reasons for resorting to self-medication and the main source of self medication was previous experience (34.91%). Analgesics were the commonest drugs used (51.62%) followed by antimicrobials (21.22%). The use of Analgesics & antimicrobials increased significantly from 1<sup>st</sup> year to 4<sup>th</sup> year ( $p < 0.0001$ ) with 70.2% students completed the recommended course of antimicrobials. 40.5% students thought that self medication was harmful & 58.86% thought that they should go to a doctor for illness. Students of Year 4 had better knowledge about appropriate self-medication & had greater awareness of the risks of self-medication. The practice of self-medication in our study was common and often inappropriate and this high prevalence is a cause of concern. Education and proper information about the drugs may go a long way in promoting responsible self medication.

### *INTRODUCTION*

Self medication is defined as the use of medication by a patient on his own initiative or on the advice of a Pharmacist or a lay person instead of consulting a medical practitioner<sup>1</sup>. This includes acquiring medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home. There is a lot of public and professional concern about the irrational use of drugs.

Internationally, self-medication has been reported as being on the rise<sup>2-4</sup>. In developing countries like India, easy availability of a wide range of drugs coupled with inadequate health services result in increased proportions of drugs used as self medication compared to prescribed drugs. In several studies it has been found that inappropriate self-medication results in wastage of resources, increases resistance of pathogens and generally entails serious health hazards such as adverse drug

reactions, prolonged suffering and drug dependence. On the other hand, if done appropriately, self-medication can readily relieve acute medical problems, can save the time spent in waiting to see a doctor, may be economical and can even save lives in acute conditions. It is now accepted that self-care in the form of responsible self-medication can be beneficial for patients, healthcare providers, the pharmaceutical industry and governments<sup>5</sup>. The potential risk/ benefit of self medication should be compared to potential risks/ benefits of prescription medicines. In self medication all the information required for safe and effective use must come from the labeling material, patient information texts, the individuals previous experience, information by media, advertising, and the advice given by health care professionals<sup>1</sup>. Studies on self-medication have shown that it is influenced by many factors, such as education, family, society, law, availability of drugs and exposure to advertisements<sup>6, 7</sup>. High levels of education and professional status have been mentioned as predictive factors for self-medication<sup>8</sup>. Doctors & medical students are more prone to self-medication due to their familiarity with

medicines. As their knowledge & familiarity with medicines increases, it is expected that their practice of self-medication will also increase. Despite this, there is a paucity of studies on self-medication among medical students. The present study was undertaken to determine the knowledge, attitude and practice of self-medication among all the four year M.B.B.S students of NIMS Medical College and Hospital Jaipur Rajasthan.

#### *MATERIALS & METHODS*

This study was an anonymous, questionnaire-based survey undertaken to assess the knowledge, attitude & practice of self medication among M.B.B.S students of all the years in NIMS Medical College, Jaipur, Rajasthan (India). A self-developed, pre-validated questionnaire consisting of both open-ended and close-ended items was used. A cross section of medical students (M.B.B.S) of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> year were taken. The pattern of drug use over a six-month period preceding the study was noted. A total of 16 questions (annexure 1) were stated concerning the following: Socio-demographic characteristics (like age, sex ), knowledge

& attitude towards self medication, patterns of self-medication, especially with antimicrobials (e.g. type of antimicrobials used, frequency, whether the course of antibiotic was completed.) etc. were included. All the students who were willing to participate in the study were enrolled. A briefing was given about the nature of the study, and the procedure of completing the questionnaire was explained. Consenting participants anonymously completed the questionnaire in the classroom. The survey was descriptive & after completion of data collection it was reviewed, organized and data was summarized as counts and percentages and evaluated using the Chi-square test and p-value of <0.05 was considered statistically significant. Some of the questions had multiple options to choose from therefore the sum total of percentage is not always 100%.

## RESULTS AND DISCUSSION

### Baseline characteristics

A total of 320 students were present at the time the questionnaire was administered. All the students responded to questionnaire but 4 students were excluded due to

submission of incomplete questionnaire. Thus, 316 students (n=316) were eligible for the study. The nationality of the subjects was Indian. Of these 163(51.5%) were male & 153(48.4%) were females. Their age ranged from 17-27 years.

**Prevalence of self medication (Table 1)** Out of the 316 students 232 (73.4%) had taken self medication & 84 (27.6%) were not taking self medication in the past 6 months. Comparing the sex wise variation of self medication rate, out of a total 153 females, 124(81%) were taking self medication & 29(19%) were not taking self medication; while for males out of a total of 163 males 108(66%) were taking self medication & 55(43.3%) were not taking self medication. This difference is statistically highly significant with P value <0.0029.

Year wise self medication increased from 52.2% in 1<sup>st</sup> year to 67% in 2<sup>nd</sup> year & 92.6% in 3<sup>rd</sup> year, but decreased to 89.2% in 4<sup>th</sup> year (Table 1). This increase in self medication was statistically significant between 1<sup>st</sup> & 2<sup>nd</sup> year ( $p < 0.05$ ), 2<sup>nd</sup> and 3<sup>rd</sup> year ( $p < 0.00003$ ), 1<sup>st</sup> & 4<sup>th</sup> year ( $p < 0.00001$ ), but not between 3<sup>rd</sup> and 4<sup>th</sup> year ( $p > 0.05$ ).

### **Most common drugs:**

A total of 523 drugs were consumed by 232 students over a period of six months. The average number of drugs consumed per student in a 6 months period was 2.254. There was a progressive increase in total number of medicines consumed. A total of 91(17.4%) medicines were consumed in the 1<sup>st</sup> year, which increased to 144(27.53%) in the 2<sup>nd</sup> year & to 157(30.01%) in the 3<sup>rd</sup> year but decreased to 131(25.04%) in the 4<sup>th</sup> year. The most common drugs used were analgesics-antipyretics 229(43.78%), followed by antimicrobials 111(21.22%), antihistaminic 74(14.14%), cough/cold remedies 47(8.98%), antacids 39(7.45%) & antispasmodics 23(4.39%)(Figure 1).

### **Analgesic-antipyretics-**

There were 229 (43.78%) analgesics consumed in total by all the students. A progressive increase in the use of analgesic-antipyretics was seen from 1<sup>st</sup> to 3<sup>rd</sup> year, with a mild decrease in 4<sup>th</sup> year (Table 2). The increase in use of analgesic-antipyretics between 1<sup>st</sup> year and 4<sup>th</sup> year is highly significant ( $P < 0.0001$ ). Among the analgesic-antipyretics, Paracetamol alone or in combination was the most commonly used drug being used in 42.06% cases.

### **Antimicrobials-**

There were 111 (21.22%) antimicrobials consumed in total by all the year students, with Azithromycin having the maximal consumption of 54(48.64%), followed by Amoxicillin 20(18.01%) & Ciprofloxacin 19(17.11%). The use of antimicrobials increased from 1<sup>st</sup> year to final year & the difference was highly significant ( $p < 0.0001$ ) (Table 2). Students who took antibiotic therapy & completed the course increased from 4(50%) out of eight students who took antimicrobials in 1<sup>st</sup> year to 34(77.2%) students out of 44 in the final year & the percentage of students who did not complete the course decreased from 4(50%) in first year to 10(22.7%) in the final year. In total 78 out of 111(70.2%) students completed the course. There is no significant difference ( $p > 0.05$ ) between medical students in all the years based on completing and not completing the course.

### **Knowledge**

Of the total 316 students, 128 (40.5%) students thought that self medication was harmful & 186(58.86%) thought that they should go to a doctor for illness (Table 3). Of the 232 students who took self medication 152(65.5%) had knowledge

about dose, side effects & interactions of the drugs they took & 80(34.5%) did not. This showed a progressive increase from 12.7% in 1<sup>st</sup> year to 49.1% in 2<sup>nd</sup> year to 90.7% in 3<sup>rd</sup> year & 96% in 4<sup>th</sup> year.

#### **Main symptoms of illness:**

The main symptoms of illness were headache seen in 118(50.86%) students followed by cough/common cold in 65(28%), sore throat in 64(27.5%), fever in 57(24.5%) & weakness/body pain in 26(11.2%) students.

#### **Main reason for not going to the doctor in M.B.B.S students (Table 4)**

The most common reason for not going to the doctor was minor illness (62.5%) followed by 13.79% of students who think that they already know the treatment, interestingly only 9.05% of students took advice from guardians/seniors

#### **Source of information**

Among the students who took self medication, the main source was previous experience in 34.91% students followed by books in 33.18%, previous prescription in 16.8%, guardians in 10.77%, seniors in 8.18%, chemists in 6.89%, friends in 5.17% & advertisements in only 3.87% cases.

Interestingly, seniors were only a minor source of information.

#### **Adverse drug reactions**

Total number of students who reported ADRs were 26 i.e. 11.2% of the total 232 and not reporting were 206(88.7%) of 232. Nausea & vomiting, stomach pain, & sedation were the most common ADRs reported.

#### **Discussion**

##### **Prevalence**

In our study of the total 316 M.B.B.S students of all the 4 years were studied of which 51.5% were male & 48.4% were females, out of these 73.4% students were taking self medication. In comparison to our study, prevalence of self medication among general population ranges from 59 - 90 %<sup>9-11</sup>. Among medical students a recent study in South India showed a self medication rate of 92%<sup>12</sup>, while similar studies among medical students in other countries have shown self medication rates ranging from 45-55%<sup>13, 14</sup>. In our study 81% females & 66% males were taking self medication. In comparison a study among medical students in India showed higher prevalence of self medication among males, while

another study done in Bahrain showed a slightly higher prevalence of self medication in females<sup>12-13</sup>. Year wise self medication increased from 1<sup>st</sup> to 4<sup>th</sup> year, same as previous studies<sup>15</sup> this can be due to the fact that knowledge & familiarity with drugs increased so self medication showed a rising trend.

### **Knowledge & attitude**

In our study 40.5% of the students thought self medication is harmful & this value decreased from 89% in 1<sup>st</sup> year to 40% in 4<sup>th</sup> year. 65.5% students had knowledge about dose, side effects, and interactions and 58.86% of students thought that they should go to doctor for illness. The information regarding dose of the drug was quite rare. There was little or no information regarding the side effects and drug interactions which was in accordance with the previous studies<sup>16-19</sup>. Only a few studies have studied the influence of medical training on self medication practice. One study has shown that Students of Year 4 had better knowledge about appropriate self-medication (58.7% versus 35.8%, of 2<sup>nd</sup> year), had greater awareness of the risks of self-medication and would discourage others from

practicing self-medication (58.7% versus 40.4%, of 2<sup>nd</sup> year)<sup>15</sup>. Our findings also show a similar pattern.

### **Self medication**

#### **1) Common indication**

The main symptom of illness was headache, cold/sore throat, fever this was in accordance to studies done earlier<sup>10-15, 18</sup>. The main reason for not going to the doctor was minor illness (62.5%) students & 13.79 % of the students already know the treatment, this was in accordance to previous studies<sup>[10, 14, 18]</sup>, whereas time saving and minor illness in a study<sup>11</sup> and time saving and high consultation fee<sup>[20]</sup>, while it was previous experience and mild illness in another study on medical students. The main source of self medication in our study was previous experience (34.91%), followed by books (33.18%), which was in accordance to a previous study in Ethiopia<sup>13</sup>. In India among non medical students previous prescription & chemists formed the main source of information<sup>10, 11, 18</sup>, while books and seniors tend to be the most common source of information in medical students<sup>12</sup>.

**Drugs:**

**(a) Analgesics**

Analgesics have been reported to be the most commonly used group of drugs among medical and non medical population [9, 12-15, 18]. Our study also found similar results. Among the analgesics, Paracetamol, alone or in combination was the most commonly used drug. This correlates well with headache being the most common indication for self medication.

**(b) Antimicrobials**

In our study 21.22% of students used antimicrobials and Azithromycin was the most commonly used antibiotic. General population showed antimicrobials use to be 11% [18]. This was comparatively higher. In one Iranian study, less medical students compared to nonmedical ones (42.2% vs. 48%) practiced antibiotic self-medication [21]. Interestingly, only 4.8% students at Gondar College of Medicine and Health Sciences in Ethiopia used antimicrobials while doing self-medication [14]. In other studies antibiotic usage was 34% among medical students [12] & 53% among allopathic medical doctors [22]. This reflects the influence of medical training on the practice of self medication & this trend was also seen in

our study with only 8.8% 1<sup>st</sup> year students practicing self medication which increased to 78.5% in 4<sup>th</sup> year students. Most of the studies among medical people showed penicillin and among them Amoxicillin as the main group of antimicrobials. In our study 70.2% respondents completed the course of antimicrobials. In comparison other studies have reported rates as low as 26.8% & 37.6% [22, 23].

**Adverse drug reactions (ADRs)**

11.2% students reported adverse drug reactions in our study which is more than double of that reported in a previous study in medical students [12]. No serious ADRs were reported. Vomiting, stomach pain, nausea & sedation were the most common ADRs reported reflecting analgesics, antimicrobials & antihistamines as the most common drugs used.

**CONCLUSION**

High prevalence of self medication in our study is a cause of concern. Education and proper information about the drugs will promote responsible self medication. As in other studies Analgesics-antipyretics & antimicrobials form the most common



drugs used in self medication. These drugs are not without side effects & improper use of Antimicrobials will promote the emergence of resistant strains. Proper information & awareness on the use of drugs along with enforcing restrictions on the sale of drugs will help to promote responsible self medication. Thus, to avoid or minimize the dangers of self medication, the students should be educated about the dangers of indiscriminate use of drugs. Secondly, the physicians should be more judicious in prescribing and must insist on drugs being supplied by the chemist only on a valid prescription. Thirdly, a proper statutory drug control must be implemented, rationally restricting the availability of drugs to the public.

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#### CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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Not applicable

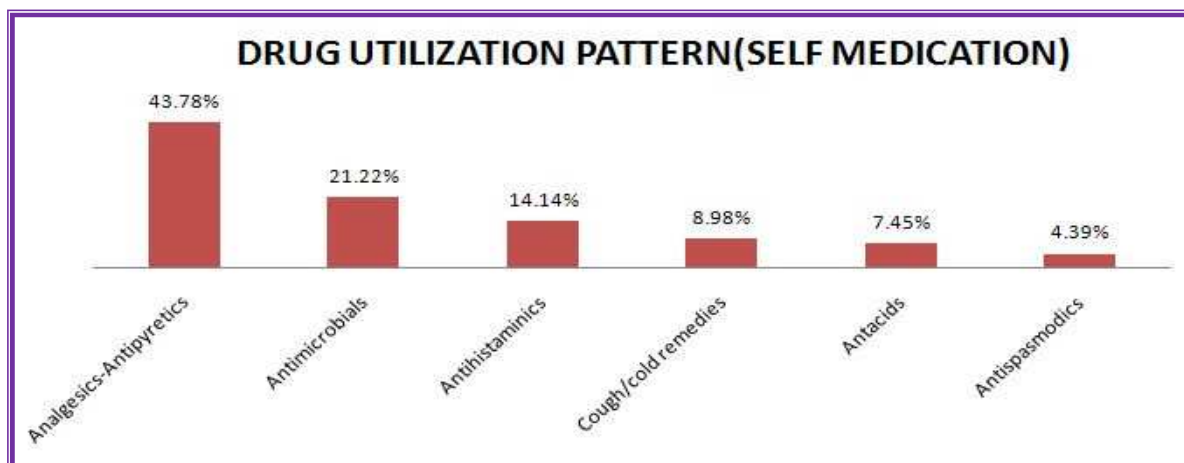


Figure 1. Drug utilization pattern

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**Annexure 1**

**Questionnaire used for assessing prevalence of self and non-doctor prescribing**

1. What is your name?
2. What is your full residential address?
3. What are your approximate monthly salary/pocket money/income of family?
4. Have you used medicines of your own without consulting either a doctor in the preceding six months: Yes/No
5. How many episodes of illness have you had in the preceding six months?
6. What was the main symptom of your illness?
7. What others symptoms did you experience?
8. Were there any associated complaints?
9. What type of medicine(s) did you use?
10. Can you tell me it's (their) name(s)?
11. If you took antimicrobials then did you complete the course: Yes/No
12. Did you have knowledge about dose, side effects, interactions, of the medicines you have taken? Yes/no.
13. What was the main source of information of yourself medication: Friends/Chemists/Advertisement/Senior s/Books/Previous prescriptions/Previous experience/Guardian.
14. What was your main reason for not consulting a doctor: Minor illness, Far place, Money constraints, Time constraints/Late night, Didn't feel the need, Doctor not available, Some known doctor, Previous experience, treatment advised by guardian/senior
15. Do you think self medication is harmful: Yes/No
16. Did you find any Adverse Drug reaction & what the most common ADR was.

**Table 1.**

**Year wise distribution of M.B.B.S students & the percentage taking self medication**

Year	No. of students	Taking self medication	Not taking self medication
1 <sup>st</sup> year	90	47(52.2%)	43(47.7%)
2 <sup>nd</sup> year	88	59(67%)	29(32.9%)
3 <sup>rd</sup> year	82	76(92.6%)	6(7.3%)
4 <sup>th</sup> year	56	50(89.2%)	6(10.7%)
Total	316	232(73.4%)	84(27.6%)

**Table 2**

**Comparison of Analgesics-antipyretics & Antimicrobials usage in all 4 year M.B.B.S students**

Year	Analgesics - Antipyretics	Antimicrobials
1 <sup>st</sup> year	56 (62.22%)	08(8.8%)
2 <sup>nd</sup> year	68 (77.2%)	22(25%)
3 <sup>rd</sup> year	76 (92%)	37(45%)
4 <sup>th</sup> year	47 (83.9%)	44(78.5%)
Total	247(68.9%)	111(31%)

**Table 3**

**Year wise distribution of M.B.B.S students who perceived self medication as harmful & whether they should consult a doctor for illness**

Year	Perceived self medication as harmful	Should consult a doctor for illness
1 <sup>st</sup> year	42(46.6%)	34(37.77%)
2 <sup>nd</sup> year	36(40.9%)	36(52.27%)
3 <sup>rd</sup> year	30(36.58%)	61(74.39%)
4 <sup>th</sup> year	20(35.7%)	45(80.34%)

Table 4.

Main reason for not going to the doctor in M.B.B.S students

Reason	Total (%)
Minor illness	145 (62.5%)
Already know the treatment	32 (13.79%)
Treatment advised by guardians/ seniors	21 (9.05%)
Didn't feel the need	15 (6.46%)
Time constraints & late night	13 (4.31%)
Far place	09 (3.87%)
Money constraints	08 (3.44%)

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