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**SELF-MEDICATION PATTERN AND ITS COMPARISON AMONGST MEDICAL AND NON-MEDICAL COLLEGE STUDENTS OF UDAIPUR, INDIA**

Meena Atray, Rupin Kumar

Department of Pharmacology, R.N.T. Medical college, Udaipur, India

E-mail of Corresponding Author: drmatray@yahoo.com

**ABSTRACT**

**Purpose of Study:** This study envisages highlighting the main ailments for which college students use self-medication and to compare and contrast significant differences in the pattern of drug use between two study groups- Undergraduate Medical and Non-Medical students of the city of Udaipur, India

**Methods:** Self-administered, pretested, close-ended, semi-structured questionnaire was used to collect data, and to analyze the pattern from 320 Medical and 320 Non-Medical students.

**Results:** More Non-Medical (30%) students used media as their source of information ( $p < 0.001$ ). Intake of pain-killers, antibiotics, antiseptics, drugs for nausea, vomiting, fever, constipation and diarrhea, was higher in Medical students ( $p < 0.001$ ) while intake of drugs for weight reduction, anxiety, hormonal preparation and steroids was higher in Non Medical students ( $p < 0.001$ ). 95% Medical and 83% Non-Medical students were aware of adverse drug reactions. 90% of Non-Medical students used advertised drugs.

**Conclusions:** Medical students were less likely to self-medicate drugs that carried more risk of adverse reactions. There was greater media influence on the choice of drugs by Non-Medical students.

**Keywords:** Self medication, Medical students, Non-medical students

**INTRODUCTION**

Self medication implies the use of medicine with therapeutic intent but without professional advice.<sup>1-2</sup> The concept of self medication which encourages individuals to look after minor ailments with simple and effective remedies has been adopted worldwide.<sup>3-6</sup> Evidently, there has been an increasing interest to gauge the self medication trends in a developing country like India<sup>7-8</sup> owing to the availability of a wide variety of over 7000 drugs at local chemist shops and a skewed doctor-population ratio of 0.6/1000 coupled with a lack of awareness and literacy on proper medicine use. In a bid to save time, and due to limited availability of financial resources, the concept of self-medication is quite rampant among adolescents and college-going

students<sup>9,10</sup> with drug use and abuse being promoted among peer groups.<sup>10,11,12</sup>

The study aims to fill in the lacunae in knowledge of self-medication practices by college-going students of the city of Udaipur. Study of such a pattern among this highly vulnerable group is of great significance as many students in this age bracket are unaware of potentially harmful effects of drugs viz. drug habituation, drug addiction, allergies and other adverse reactions, which might develop as a result of injudicious drug use.<sup>13</sup> Irrational drug combinations and indiscriminate use of drugs like antibiotics have led to the evolution of Multi-Drug resistant bacterial strains in India, a prime example of the recent New Delhi Beta Lactamase strain being cited in this case.<sup>14</sup> There is also a tendency to propagate the wrong type of

treatment based on peer advises and personal experience; that in turn leads to a wrong choice of drug and development of adverse reactions in genetically prone individuals.<sup>15</sup> Students suffering from ailments that carry an underlying sexual etiology, in order to maintain anonymity from family and friends, may resort to self-medication with drugs that have potential harmful effects.<sup>16,17</sup> The fraternity of Medical students was chosen for comparison as they are expected to have more knowledge on drug use and abuse in contrast to an average non-medical student. Previous studies highlight the adverse effects and various other implications, including drug dependence and addiction, masking of malignant and potentially fatal diseases<sup>18</sup>, hazard of misdiagnosis<sup>19</sup>, the global emergence of Multi-Drug Resistant pathogens, problems relating to over and under dosaging<sup>20</sup>, drug interactions and tragedies relating to the side effect profile of specific drugs, especially those relating to developing countries.<sup>21,22</sup> Most studies agreed to the fact that the prevalence of self-medication is quite high in most countries, irrespective of socio-economic levels and promotion of the concept of self medication would lead to decreased burden on medical professionals<sup>22, 23, 24, 26</sup>

## MATERIAL AND METHODS

The city of Udaipur is located in west India and there are two Medical and two Dental Colleges. The study group was divided into two categories- Medical and Non-Medical students. All four medical colleges and four non medical colleges (two technical and two non technical) were selected. The students were selected by simple randomization (equal from each college) Medical students were those pursuing either M.B.B.S. or B.D.S. in any of the medical and dental colleges located within the city. Only allopathic students were included. Homoeotherapy, Ayurveda and Unani students were excluded. Students who had knowledge of

Pharmacology, final year students for M.B.B.S and third and fourth year students for B.D.S were included in the study.

Non-Medical students were defined as those pursuing undergraduate studies in all fields except Medical Science. Students of final year were included in the study.

The study excluded Post-Graduate students in both groups. There was no age criterion.

The minimum sample size to compare the trend in two groups was estimated to be 320 for both groups.

MaCorr Inc. Sample size calculator was used for estimating the sample size. The alpha error was set at 0.05 and power at 0.9. Result was statistically analyzed by using Chi square test.

The data was collected using a pretested, close-ended, semi-structured, self-administered questionnaire which was filled in by the participants under the supervision of the researcher.

## RESULTS

### Popularity of self-medication

1% of Medical and 9% of Non Medical students had always used self medication. 88% of Medical and 65% of Non Medical students replied that they sometimes use self- medication. 11% of Medical and 26% of Non Medical students had never used self medication.

### Source of knowledge about the drugs

Most Medical students (69%) and Non-Medical students (65%) obtained information about the drug used from Friends and Family members, 30% of Non-Medical students, while only 8% of Medical students used media as source of information ( $p < 0.001$ ). 24% of Non-Medical students while only 9% of Medical students used the drug store seller as their source of information. The association was found to be statistically significant.

**Common ailments for which drugs were self-prescribed (Table 1)**

There was a statistically significant difference in the use of drugs for Pain/Body ache, Anxiety, Infections, Weight reduction, Constipation and use of antiseptics and steroids between Medical and Non-Medical students.

**Conditions which decided till when the drugs were taken (Figure 1)**

Most Medical (85%) and Non-Medical (80%) students consumed the drugs till the symptoms subsided and relief was obtained. More number of Non-Medical (35%) students depended on the preliminary idea regarding the drug usage given by the drug store seller as compared to Medical students (14%).

**Reading the advisory label**

98% of Medical and 63% of Non-Medical students read the advisory label before self administering the drug.

**Awareness of adverse drug reactions**

95% of Medical and 83% of Non-Medical students claimed to have knowledge of adverse drug reactions.

**Role of the local chemist in self-medication**

90% Non-Medical students and 68% Medical students stated that the local chemist directed them about the use of the medicine, mode of administration and duration of treatment. 68% of Medical and 57% Non-Medical students received warning about the noticeable precautions while taking the drug.

**Awareness of drug interactions**

90% of Medical and 86% of Non-Medical students stated that they knew that two medicines taken concurrently may have serious implications.

**Found self-medication beneficial**

90% of Medical and 73% of Non-Medical students found self medication beneficial

**Propagation of own treatment**

89% of Non-Medical students and 77% of Medical students stated that they would promote and propagate their treatment to others.

**Knowledge of adverse drug reactions and development of new symptoms (Table 2)**

Significant difference was found in two groups

**Influence of media**

90% of Non-Medical and 22% of Medical students were found using advertised drugs for self-medication. The difference was found to be statistically significant.

**DISCUSSION**

Self-medication implies obtaining and consuming drugs without the advice of a physician. The Medical study group is expected to be more informed about the consequences of drug usage, contraindications and symptomatic recognition of underlying disease in comparison to Non-medical students.

Most of the respondents reported to have used Self-Medication at least once in their life time. Other studies reported similar findings<sup>18,25</sup>. Due to differing demographic profiles of the study participants, it was difficult to compare the results. The trend was slightly more among Medical students, possibly due to their increased education on drug use and related pharmacology. This knowledge is, however, incomplete in certain aspects and may spell out dangerous outcomes.

The most common source of knowledge regarding the drugs was friends and family. This is in contrast with earlier studies which state that drug seller serves as the most common source of information.<sup>25,18</sup> The Media played an important role in deciding the choice of drugs among Non-Medical students. This is an unwelcome trend as increased commercialization of medicine sales may lead to indiscriminate use. Furthermore, the Media may be promoting more expensive drugs, which may not have any additional benefits as compared to their low cost counterparts.

Analgesics and antipyretics were the most commonly used class of drugs, which is similar to findings in literature.<sup>18</sup> The key finding of the

study was the highly significant difference in trend of drug use among the two study groups with Painkillers, anti-anxiety drugs, weight reducing drugs, antiseptics, steroids, antibiotics, antiemetics, laxatives, and antacids (refer Table 1). Most of these drugs carry serious adverse effects with them, unless knowledge on their dosage and modalities of use are known. Steroids, anti-anxiety drugs hormonal preparations and weight reducing agents were more used by Non-Medical students; this indicated a dangerous trend. Medical students were more profound users of self-medicated antibiotics, possibly due to their increased knowledge.

Development of antimicrobial resistance should be kept in mind. Steroid use, even for cosmetic applications, is a dangerous trend as long-term complications and withdrawal reactions are unknown to students, especially Non-Medical students. Herbs are also used for self-medication in developing countries.<sup>18</sup> Ayurvedic medicines were popular among students due to greater faith in indigenous systems in India.<sup>18,22</sup>

The study revealed the need to educate the population on the importance of advisory labels and to present accurate and understandable information with regard to what each drug is meant for, potential benefits and risks associated with the use of such drugs, provided in a language that can be understood by the masses. Most students claimed to have knowledge of adverse drug reactions (ADRs), though the claim may be fictitious in case of Non-Medical students as most of them developed new symptoms even on stating that they had knowledge of ADRs (refer Table 2). This study highlights the fact that there appears to be a false sense of comprehension of a drug's adverse reactions among Non-Medical students and a need to increase awareness levels of drug ADRs and interactions among consumers. Plausible explanation for those who had knowledge of ADRs but developed no symptoms is the fact

that the effect of drug on an individual is genetically influenced, and not everyone develops the symptoms. Greater number of Non-Medical students as compared to Medical students responded that they had no knowledge and still developed no new symptoms. The reason could be that they were not able to attribute the causation of those symptoms to the medication used and could have wrongly claimed them to be due to the underlying etiology.

The study also highlights the importance of drug seller on dispensing of over-the-counter drugs. Non-medical students relied on them more in comparison, using them as sources of information regarding the drug dosage and precautions. As Non-Medical students were more enthusiastic in promoting and propagating their own treatment to others, this pointed out to an unwelcome trend as it is not necessary that a treatment that gave relief to one may do the same to others. This kind of propagation could lead to increased allergic reactions and adverse effects, which may even be fatal.

An important disadvantage of self-medication practices is the fact that underlying etiologies may go unnoticed unless a doctor is consulted. This study could also open up research possibilities for exploring the relationship between self-medication practices and emergence of antibiotic-resistant bacteria.

## CONCLUSIONS

The prevalence of self-medication is alarmingly high among college-going youth of the city of Udaipur. Medical students were less likely to self-medicate drugs. There was significant difference in the pattern among two groups. Drugs with more severe adverse effects were more used by Non-Medical students. The study reveals that education of the masses on the recognition of simple symptoms and administration of the exact medication for the effect is necessary to ensure that the self-

medication is promoted in the right sense. It is important to ensure that the local chemists/volunteer workers are qualified enough to guide their consumers on drug usage and channelize the boom in the pharmaceutical industry in a positive way. In the present study, there was greater media influence on the choice of drugs, indicating a need for tight regulation of Mass media publicity with the adverse drug reactions prominently explained in advertisements. As most of the students found it beneficial, A well-informed and a sound knowledge of drug use by college students would ensure that this segment is utilized as an effective volunteer group during emergency situations and natural calamities to administer general first aid and save many lives. The concept is imperative in reducing the burden on medical professionals.

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**Table 1: Common ailments for which self-medication was taken**

	MEDICAL		NON-MEDICAL		Chi SQUARE	P-VALUE	SIGNIFICANCE*
AILMENT/ DRUG	In Numbers	In Percentage	In numbers	In Percentage			
Pain/Body Ache	285	89	190	59	73.697	0	HS
Anxiety	10	3	59	18	39.002	0	HS
Headache	274	86	291	91	4.365	0.0367	S
Fever	281	88	232	73	23.586	0	HS
Infections	104	33	30	9	51.688	0	HS
To increase concentration/Memory	25	8	32	10	0.944	0.3313	NS
Lethargy-e.g. Vitamins	98	31	115	36	2.034	0.1539	NS
Nausea/ Vomiting	218	68	160	50	21.737	0	HS
Weight Reduction	12	4	42	13	18.203	0	HS
Cough	254	79	204	64	19.195	0	HS
Contraceptive Pills	7	2	4	1	2.278	0.1812	NS
Antiseptic	222	69	43	13	206.352	0	HS
Steroids	11	3	66	21	44.659	0	HS
Diarrhea	235	73	136	43	62.536	0	HS
Constipation	180	56	72	23	76.348	0	HS
Antacid	193	60	141	44	16.932	0	HS
Sleep inducing	8	3	10	3	0.229	0.6235	NS
Ayurveda/ Homoeopathy	55	17	75	23	3.861	0.494	NS
Cold	235	73	238	74	0.073	0.7871	NS
Hormonal Preparations	2	1	10	3	5.435	0.0102	S

\*S=Significant, HS=Highly Significant, NS=Not Significant

**Table 2 Number of individuals developing new symptoms in different conditions**

CONDITION	MEDICAL STUDENTS	NON-MEDICAL STUDENTS
Who had knowledge of adverse drug reactions and developed new symptoms <sup>a</sup>	10	67
Who had knowledge of adverse drug reactions and did not develop new symptoms <sup>b</sup>	294	198
Who did not have knowledge of adverse drug reactions and developed new symptoms <sup>c</sup>	10	15
Who did not have knowledge of adverse drug reactions and did not develop new symptoms <sup>d</sup>	6	42

<sup>a</sup>  $X^2=47.966$ ,  $p<.0001$ . <sup>b</sup>  $X^2=81.002$ ,  $p<.0001$ . <sup>c</sup>  $X^2=1.041$ ,  $p=.3077$ . <sup>d</sup>  $X^2=28.010$ ,  $p<.0001$ .

**Figure-1 Conditions which decided duration of self-medication**  
(Till when the drugs were taken)

