

## A comparative, questionnaire based cross-sectional study on self medication practice among medical and paramedical students at a rural tertiary care teaching hospital

Alok Dixit<sup>1\*</sup>, Vinodhini R Mudaliyar<sup>2</sup>, Arjun Adiyodi<sup>3</sup>, Asha Pathak<sup>4</sup>, Chandra Veer Singh<sup>5</sup>

<sup>1</sup>Professor, <sup>2,3</sup>Junior Resident, <sup>4,5</sup>Professor, Dept. of Pharmacology, Uttar Pradesh University of Medical Sciences, Etawah, Uttar Pradesh, India

**\*Corresponding Author: Alok Dixit**

Email: [alkdxt@yahoo.co.in](mailto:alkdxt@yahoo.co.in)

### Abstract

**Objective:** Self medication is use of medicine to treat self recognized symptoms, a very common practice among students in India. Lack of skill in selecting OTC medicines and habituation may lead to inappropriate self medication. This study was aimed to assess the knowledge, attitude, practice and perception of self medication and identify the frequently used drugs for self medication among university students.

**Materials and Methods:** A cross-sectional, questionnaire based study, comprising of open and close ended questions was conducted during July- August 2019 among undergraduate university students of Uttar Pradesh University of Medical Sciences, Saifai. 75 students from medical and 75 students from paramedical streams selected randomly were asked to fill the information regarding self medication in past six months.

**Results:** 80% (n=60) of students from paramedical and 93.3% (n=70) from medical stream have practised self medication. Among them, 80% and 44.3% of students also consumed medicines other than allopathy in each group respectively. NSAIDs are most commonly used drug class in both the groups and 13.85% students experienced adverse effects. There were significant differences among two groups in terms of awareness about antibiotics, antibiotic resistance, drug interactions and adverse drug reactions.

**Conclusion:** Self medication is a frequent practice among university students. Misbelieves, ignorance and lack of knowledge regarding antibiotic resistance and adverse drug reactions are major concern among students practicing self medication. There is need to augment awareness for judicious and rational use of medicine among students.

**Keywords:** Self medication, Antibiotics, University students, Over the counter drugs, Adverse effects.

### Introduction

According to World Health Organization (WHO), self medication is use of medicines to treat self recognized symptoms, or use of a prescribed medicine for chronic symptoms.<sup>1</sup> It is associated with use of prescription drugs, alternative medicines and over the counter drugs (OTC). One of the elements of self care is self medication. With worldwide appreciation seen towards self care, self medication is a global phenomenon which has been successfully integrated into health care systems throughout the world. WHO supports responsible self medication, it necessitates that the medicines which are to be used by consumers must have proven efficacy, quality and safety; and must only be indicated following an initial medical diagnosis.<sup>1</sup> Such medicine comes under the category of OTC medications. These drugs can easily be purchased without prescription in pharmacies and in retail outlets such as supermarkets.

Self medication offers various benefits. It helps to reduce the health care costs especially where medical services are limited, such as in remote (hilly) areas where access to medical services may be difficult. Even in developed countries, through appropriate and effective self medication, patients are able to control their symptoms to a greater extent and unnecessary consultations with physicians could be avoided. However, this isn't always the case. Inappropriate self medication occurs when prescription drugs are consumed for incorrect diagnosis, with inadequate dosage, and for incorrect treatment duration. These results in irrational drug use, failure of therapy, delayed seeking of medical advice, wastage of resources, increased chance of

resistance to antibiotics, adverse drug reactions and prolonged morbidity.<sup>2</sup> Consequently, self medication has emerged as a public health problem worldwide.

Self medication is widely prevalent all over world, more common in developing countries as compared to developed nations.<sup>3</sup> The prevalence varies from 4-75% in Asia to around 3% in Europe for self medication with antibiotics as a case.<sup>4</sup> Very often, the ratio of educated people who are self medicating is high compared to illiterate people. Self medication is more commonly seen in India due to easy availability of drugs from pharmacy stores without need for prescription and inadequate health services making the situation worse.<sup>5</sup> In India, self medication is a very common practice among medical students. This is due to knowledge about illness, easy access to drug, and capacity to manage the health problem and thus an inevitable urge of self medication. Studies show that final year medical students have increased tendency of self medication as a result of improved knowledge of diagnosing different clinical conditions and knowledge of use of drugs.<sup>6</sup> But, lack of skill in selecting medicines and habituation may lead to inappropriate self medication. There has been no study published comparing the knowledge, attitude, practice and perception of self medication among university students of different science streams in Uttar Pradesh to best of our knowledge. Our study was aimed to estimate the prevalence and determine the pattern of self medication practice among medical university students from medical and paramedical streams in the last six months.

## Materials and Methods

A cross-sectional, questionnaire based study was carried out during February 2019 among undergraduate university students of Uttar Pradesh University of Medical Sciences, Saifai. A two stage sampling technique was adopted. In the first stage, the university students were stratified into medical (MBBS - 2<sup>nd</sup> professional year, final professional year and internship) and paramedical (BSc, Bachelor in Nursing; BRIT, Bachelor in radiology techniques; and BPT, Bachelor in physiotherapy). In the second stage, 25 students from each division were randomly selected by roll number. Thus, the sample size was distributed proportionally between two groups and a total of 150 students were chosen for this study after approval from institutional ethics committee. They were explained the details of study and asked to fill the information regarding self medication in the past six months, after prior informed consent. The study questionnaire designed by faculty members was pre-tested on 10 volunteers and appropriate modifications were done. The final study questionnaire comprised of 24 questions, a mix of both open and close ended questions. Demographic characteristics, and details of drug taken such as the purpose of self medication, source of drug, drug information, adverse drug reactions experienced, were emphasized. Other relevant queries regarding awareness about various aspects of self medication, and their attitude towards the same were also stressed.

## Data analysis

The data were entered and analysed statistically by using IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp. Chi square test and Fisher's exact test were used for comparison of data between groups wherever required. P value  $\leq 0.05$  (two-tailed) was considered significant. Data gathered was analysed and expressed as number/count, mean, percentage and frequencies.

## Results

A total of 150 students with an average age of  $22.3 \pm 2.075$  (SD) were involved in this study. Of them, 130 (86.67%) students practiced self medication; 46.15% (n=60) were from paramedical and 53.85% (n=70) were from medical branch and 20 reported to have not practiced self medication within last 6 months hence excluded from data analysis of practice aspect of self medication. Slightly more than half 58.66% (n=88) of the participants were male. Among those who practiced self medication, 79 students (60.77%) used alternative medicine while 60 students (46.15%) took antibiotics to self treat their illness. Both alternative and

antibiotic consumption was higher in paramedical students 60.76% (n=48), 58.33% (n=35) versus medical students 39.24% (n=31), 41.67% (n=25). Other characteristics are listed in Table 1 and Fig. 1.

Significant differences in the knowledge and the recent attitude of students towards self medication were observed. Significant difference was also seen among three professional years of MBBS students with regard to knowledge based questions. 64% students (n=96) have advised self medication to known acquaintances, 42% students (n=63) believe that self medicines by OTC drug are as efficacious as prescribed medicines and 36.67% students (n=55) were in favour of self medication. Higher percentage of participant from paramedical group (n=49, 77.78%) reported that OTC drug were just as effective as those prescribed by a doctor and also stated that they would purchase again, the same drug that they had previously used (n=46, 83.64%) Table 2 and 3, respectively.

58.46% of students self medicated because of minor illness. The second most frequently reported causes of self-medication was time saving (17.69%), followed by ease (14.61%), economical and learning opportunity (4.62% each). Majority (63.07%) had procured the drug from chemist shop followed by friends or family (24.62%) and about 12.31% used left over drug from previously prescribed drug. 43.07% of the students got the drug information from previous prescription, 21.53% from textbook, 17.7% from peer group or family members, 10% from pharmacist and 7.7% from advertisement in media. The result for the purpose of self medication, source for drug procurement and source of drug information are represented in Fig. 2-4.

NSAIDs were the most commonly used drug class in both the groups. Pain was the most common indication among paramedical students; while, fever was the most common indication among medical students, for which self medication was practiced. Pain symptoms included variety of systems involved. Of which, headache and dysmenorrhoea were the top two common indications. Amoxicillin was the commonly used antibiotic. Most common reason for self medication with antibiotic was upper respiratory tract infection (URTI). 13.85% (n=18) students experienced ADR; 14 vs. 4 in each group respectively. Most of the ADR reported were mild; however 83.33% stopped self medication therapy after experiencing ADR. 46.92% (n=61) students had consulted physician at some point of time for worsening of symptoms after self medication (Table 4 and 5).

**Table 1:** Distribution of self medication practice among university students from different science fields

Stream/Course	Self medication		Total number of male students	Total number of female students	Number of SM with antibiotics	Number of SM with alternative medicine	Total number of SM students
	Male	Female					
n=150							n=130(%)
<b>Paramedical(n)</b>							
Bsc Nursing(25)	12	10	14	11	16	17	22

BPT (25)	7	11	13	12	9	14	18
BRIT (25)	12	8	20	9	10	17	20
Total (75)	31	29	43	32	35(58.33)	48(60.76)	60*(46.15)
<b>Medical</b>							
2 <sup>nd</sup> prof (25)	15	8	17	8	14	9	23
Final prof (25)	13	9	14	11	3	13	22
Intern (25)	14	11	14	11	8	9	25
Total (75)	42	28	45	30	25(41.67)	31(39.24)	70*(53.85)
<b>Total</b>	<b>N</b>	73	57	88	62	60	130
	<b>%</b>	56.15	43.85	58.66	41.33	46.15	86.67

\* P=0.0163,  $X^2 = 5.769$  association between total number paramedical and medical students practicing SM

**Table 2:** Awareness about various aspects of self-medication among university students

Stream/Course		Aware about antibiotics N=137		Aware about antibiotic resistance N=102		Aware about drug interaction N=106		Aware about ADR N=122	
		N	%	N	%	N	%	N	%
<b>Para medical</b>	Bsc Nursing	23	16.79	15	14.71	18	16.98	20	16.39
	BPT	19	13.87	13	12.75	13	12.26	14	11.48
	BRIT	22	16.06	15	14.7	15	14.15	18	14.75
	Total	64	46.72	43	42.16	46	43.39	52	42.62
<b>Medical</b>	2 <sup>nd</sup> prof	23	16.78	12	11.76	16	15.09	20	16.4
	Final prof	25	18.25	23	22.55	21	19.81	25	20.49
	Intern	25	18.25	24	23.53	23	21.71	25	20.49
	Total	73	53.28	59	57.84	60	56.61	70	57.38
<b>Total</b>		137	91.33	102	68	106	70.67	122	81.33
<b>P value</b>		<0.05		=0.005		<0.05		=0.0002	

Fisher's exact test; P value by Fisher's exact test for comparison between paramedical and medical students

**Table 3:** Attitude of the university students towards self-medication

Stream/Course		Ever advised the medicine you consumed to others N=96		Believe that OTC is as effective as prescription drugs N=63		Are you in favour of SM N=55	
		N	%	N	%	N	%
<b>Para medical</b>	Bsc Nursing	16	16.66	19	30.16	16	29.10
	BPT	15	15.63	16	25.4	15	27.27
	BRIT	18	18.75	14	22.22	15	27.27
	Total	49	51.04	49	77.78	46	83.64
<b>Medical</b>	2 <sup>nd</sup> prof	15	15.53	4	6.35	3	5.45
	Final prof	18	18.75	6	9.52	2	3.64
	Intern	14	14.58	4	6.35	4	7.27
	Total	47	48.96	14	22.22	9	16.36
<b>Total</b>		96	64	63	42	55	36.67
<b>Statistics</b>	<b>p value</b>	>0.5		<0.0001		<0.0001	

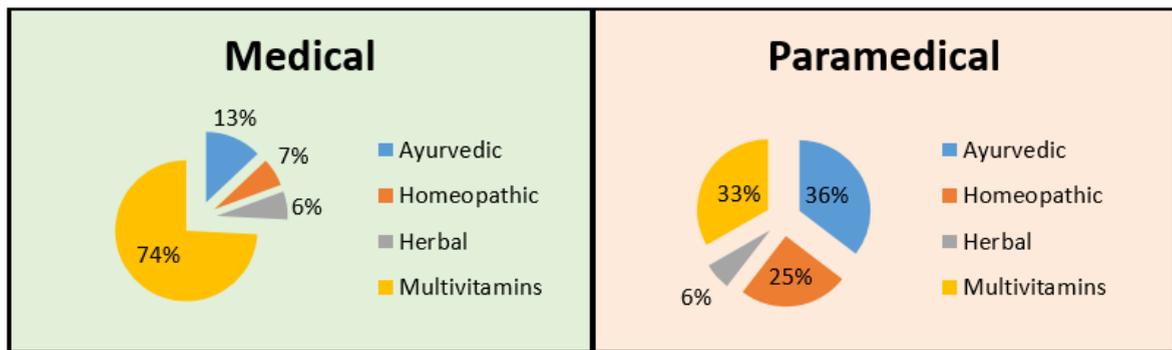
**Table 4:** Drugs used and indications for self medication among university students

	Drugs used in self medication			
	Paramedical		Medical	
	N=60	%	N=70	%
NSAIDs	19	31.67	22	31.43
Antipyretics	12	20	18	25.71
Antihistaminic	9	15	10	14.29
Others	20	33.33	20	28.57
Indications for self medication				

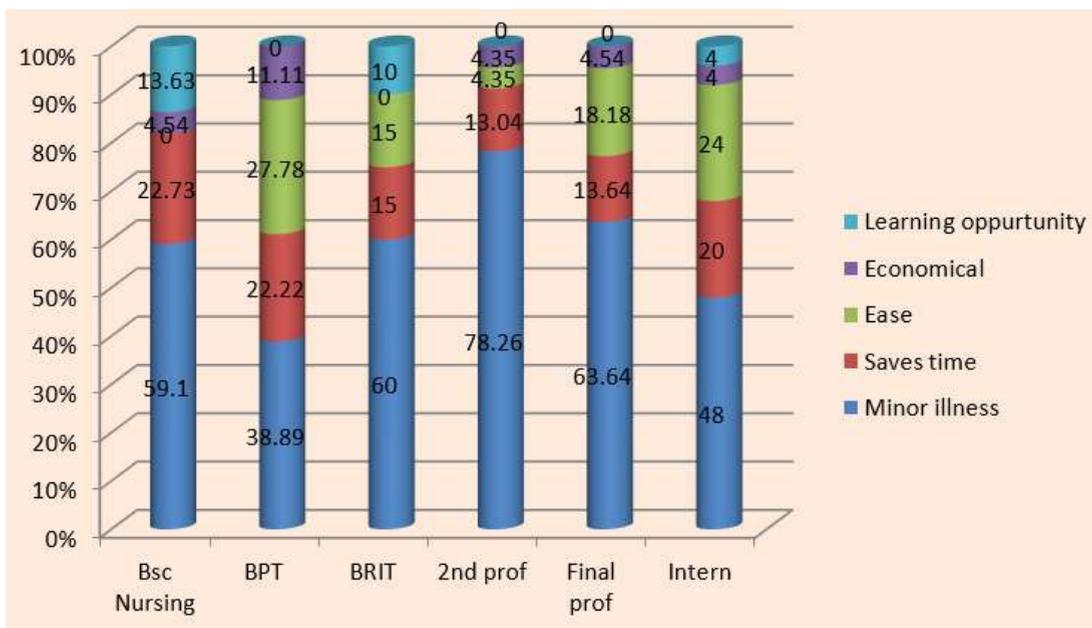
	Paramedical		Medical	
	N=60	%	N=70	%
Pain	19	31.66	14	20
Fever	13	21.67	22	31.43
Cold	7	11.67	15	21.43
Others	21	35	19	27.14

**Table 5:** Adverse outcomes due to self medication

	Number of students who experienced ADR n=18(%)	Number of students who stopped therapy due to ADR	Ever consult the doctor for not improving/ worsening of symptoms after self medication n=61(%)
Paramedical	14 (77.78)	12	27 (44.26)
Medical	4 (22.22)	3	34 (55.74)



**Fig. 1:** System of medicine followed for self medication



**Fig. 2:** Reason for self medication among university students

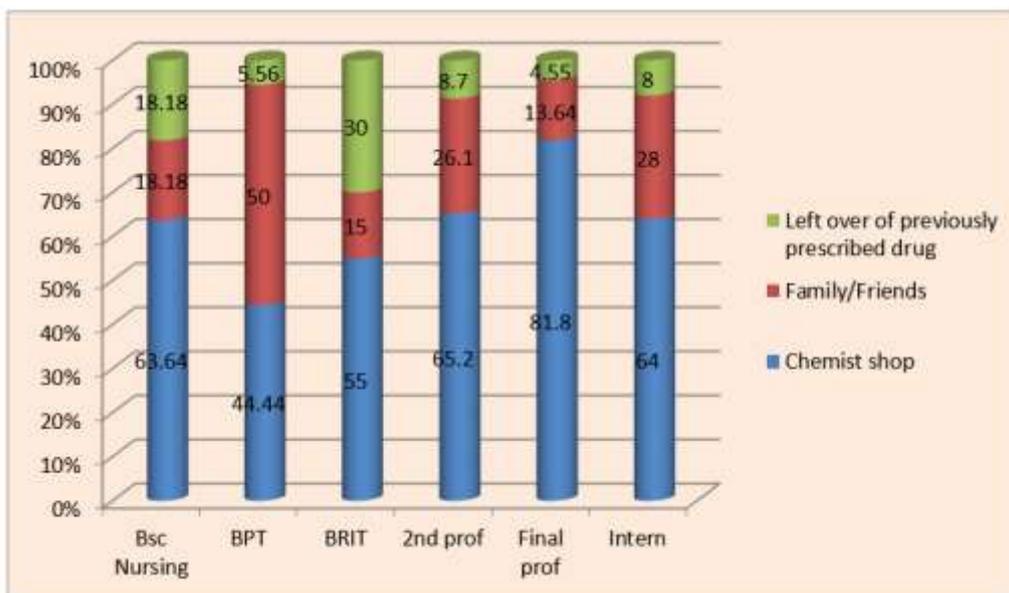


Fig. 3: Source of drug for self medication among university students

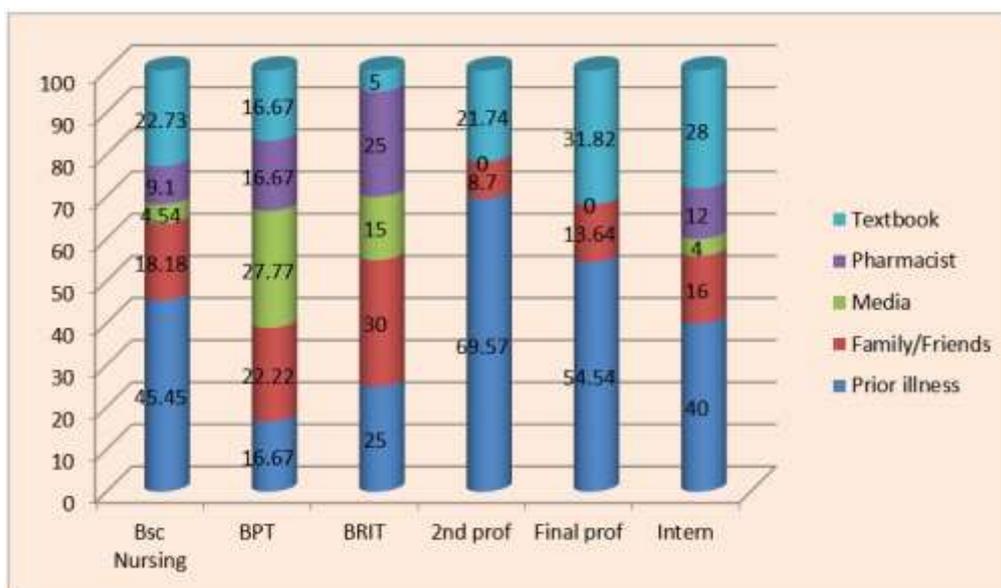


Fig. 4: Source of drug information for self medication among university student

**Discussion  
Prevalence**

Prevalence of self medication in this study was 86.67% with significantly higher prevalence in the medical than paramedical students. This is higher than reported among medical and paramedical students (74.6% and 69.4%) by a two-period comparative study conducted in 2007 and 2012,<sup>7</sup> and is lower than that documented (93%) with medical and non-medical college students of Delhi University.<sup>8</sup> These differences in prevalence among students could be explained partially by the variable sample size or the level of medical knowledge between students.

**Pattern of self medication practice**

In our study, the most common reasons for which the students self medicated were pain, fever, common cold among paramedical students and fever, common cold and pain among medical students. Similar results were reported in a studies conducted in different parts of India,<sup>9-11</sup> showing that OTC drugs usage was more in medical students for the conditions like cough and fever. Pain symptoms included migraine, toothache, dysmenorrhoea, joint pain and others. Of which, headache was the most common followed by dysmenorrhoea and others. NSAIDs were the most commonly used drug class in both the groups. Second most consumed drug after NSAIDs were antipyretics followed by antihistaminic and others. It is comparable to findings of study in which anti-inflammatory followed by oral

antibiotics and antipyretics groups of drugs used.<sup>7</sup> 46.15% of students self medicated with antibiotics within the last 6 months before the study. Among antibiotic, amoxicillin was commonly used. Majority paramedical students self medicated antibiotics for common cold which is not justified. Next common cause for self medication with antibiotic was upper respiratory tract infection (URTI), which included tonsillitis, pharyngitis and sore throat. Another study from Bahrain reported analgesics as most common class of drugs self medicated with antibiotics contributing only 6%. Researchers reasoned that limited use of antibiotics in Bahrain is due to strict regulatory policies about the prescription and over the counter sale of antibiotics.<sup>12</sup> This suggests that the use of antibiotic is high in our study which could be due to lack of regulatory policy governing the OTC sale of antibiotics. Though allopathic system was most preferred, yet more than half (60.77%) of the students also took alternative medicine.

The most frequently reported causes of self-medication were minor illness (n=76, 58.46%) while economical and learning opportunity were the least common reason (n=6, 4.62%). In the study, prior illness/prescription (n=56, 43.07%) was the most common source of drug information cited by students. This may reflect a usual behaviour and the repeated use of an old prescription. Other reasons for self medication mentioned were that it saves time, easy and economical. Majority of students self medicated because of mild nature of illness in our study. Similar observations were made by studies from West Bengal<sup>10</sup> and Nepal.<sup>14</sup> Another longitudinal study reported time saving as most common reason for self medication in 2<sup>nd</sup> MBBS students in India.<sup>15</sup>

Students find greater access to non-prescription medicine to be more convenient with no need to visit a doctor, easy, effective and economical. Students from paramedical sector were mainly relying on media, family and friends for advice and other information regarding the usage of drug. In our study, chemist shop was the most frequently reported sources for self medication in both groups. However, textbook was the main source of drug information among medical students while paramedical students depended on pharmacist. Our findings are similar to other studies from India<sup>11</sup> and Ethiopia<sup>13</sup> where textbooks were the most common source of information. 63.07% (n=82) bought medicines from chemist shop, 24.62% (n=32) borrowed from friends and family members followed by 12.31% (n=16) who reused the left over medicines. Both groups equally relied on friends, family while left over drugs were more common in paramedical students. This contributes to the risk posed by home pharmacies and suggests an easy access to medications and a widely acceptance of such practice.

### Knowledge & Attitude

There was a significant difference seen in knowledge based questions and the recent attitude towards self medication between two groups. Knowledge based questions were in terms of awareness about antibiotics,

antibiotic resistance, drug interactions and adverse drug reactions. Less number of paramedical students was aware about above mentioned aspects of self medication compared to medical students. This reflects the lack of thorough knowledge about integral part of drug use as one of the reasons for failure of therapy, failure to recognize contraindications, potential drug interactions from use of multiple drugs resulting in increase in pathogen resistance and increased side effects. Significant difference on awareness of three of the four queries i.e. antibiotics resistance, drug interaction and adverse drug reactions were also seen among three professional years of MBBS students. In order to reduce SM practices various educational programmes should be initiated in medical institutions to raise awareness among students on the pros and cons of responsible SM to eventually improve their attitudes towards SM.

Regarding attitude based question, students of both groups (n=96, 64%) have advised self medication to others. More participant were from paramedical group (n=49, 77.78%) who believe that OTC drug is equally efficacious as prescription drugs. This might be due to the difference in level of pharmacological knowledge and practice of responsible self medication between the two groups. Educational interventions to instruct them on the risks of OTC medications and the importance of disclosing OTC and herbal drugs composition to the healthcare providers are necessary. 55 students (36.67%) were in favor of self medication. Of which, majority were once again among students of paramedical branch (n=46, 83.64%). Fear of adverse effects was the most frequent reason stated by both groups who were against SM practice, which was similar to observations made in a study from Nagpur.<sup>16</sup>

### Limitation

However, there are some limitations. This study was about self medication in the last 6 months of the study period; therefore, there might be a recall bias. The study was conducted at only one university in the western part of Uttar Pradesh that includes students of medical and paramedical discipline, so we cannot generalise the results among other universities. Mutual influence cannot be ruled out though students were encouraged to fill the questionnaires independently. This study did not look into as to how many students have physicians in the family so their influence as a source of prescription cannot be ruled out.

### Conclusion

Our study found that self medication is prevalent among UPUMS university students. Students from both disciplines see self medication as offering convenience and effectiveness. However, misbelieves, ignorance and lack of knowledge regarding antibiotic resistance and adverse drug reactions were the major concern among paramedical students practicing self medication. There is need to augment awareness for judicious and rational use of medicine to students. Steps like strict regulations by drug

regulatory health authorities and proper health education can improve the student's attitude towards practice of self medication.

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None.

### Conflict of Interest

None.

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