

# Prescription of Medicines by Undergraduate Medical Students of Lahore, Pakistan

FAHAD JALIL<sup>1</sup>, ALI SADIQ<sup>2</sup>, MAAZ SALEEM<sup>3</sup>, FAIZAN MUSTAFA<sup>4</sup>, AMEER MUHAMMAD<sup>5</sup>, SHAHROZE WAJID<sup>6</sup>

<sup>1,2,5</sup>Department of Internal Medicine

<sup>3</sup>Department of Cardiothoracic Surgery

<sup>4</sup>Department of Psychiatry and Behavioural Sciences

<sup>6</sup>Department of Orthopedic Surgery, Shaikh Zayed Hospital Lahore

Correspondence: Dr. Fahad Jalil e-mail fahadjalil33@yahoo.com 03238445807

## ABSTRACT

**Aim:** To assess the attitude, awareness and practices of drug prescription by undergraduate medical students.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** Shaikh Zayed Hospital, Lahore from 1<sup>st</sup> April 2019 to 30<sup>th</sup> June 2019.

**Methods:** Two hundred and sixty three undergraduate medical students of Lahore participated in this study. Online data was collected using online questionnaire on Google-forms.

**Results:** 81% had prescribed medicine to someone in past, and 42% of them said that they did it "seldom 2-3 times a year". Common reasons for this practice were "Previous experience with same illness" (49%), "Problem too trivial to go to a doctor" (20.5%), "I knew everything about the illness" (7.6%). The most prescribed medicines were Painkillers (25.4%), Antibiotics (20.2%) and Antipyretics (15.1%). Most of them were asked (77.1%) to prescribe medicine while some volunteered (22.9%) for it. The percentage of female medical students (86.8%) who prescribe drugs is greater than that of male medical students (76.5%).

**Conclusion:** Prescription of medicines by medical students is rampant and can cause more harm than good. Most of the undergraduate medical students think that drug prescription by non-RMP is unethical and can be harmful still most of them prescribe drugs to others and continue to do so.

**Keywords:** Undergraduate Medical Students, Attitude, Assess, Awareness

---

## INTRODUCTION

Medicines are the drugs or preparations having physiologic effect on the body when ingested or otherwise introduced in the body. Only trained health professionals can prescribe the medicines. A health professional after years of study and being proficient in medicine becomes able to suggest someone a drug. Other than this, those who are prescribing drugs are not only acting against the law and but can also cause serious harm to the individuals or society.<sup>1</sup> Adverse drugs interactions are increasing the medical injuries and most of these are due to paucity of the prescribers knowledge and his practical and procedural skills.<sup>2</sup>

In our country many pharmacies sell drugs without prescription slips, consequently making drugs easily available for a common man leaving layman unaware of the potentially harmful effects of many of these drugs.<sup>3</sup> The irrational usage of drugs among the students carries with it severe health and academic outcomes and poses threat to their safety.<sup>4</sup> Medical students are practicing self-medication as well as prescribing other medicines as an Undergraduate while they are still in the learning phase. The increase in the advertisement of the pharmaceuticals is the reason for the self-medication and drugs prescription among the younger population leading to the problems of self misdiagnosing the illness, non indicated use of the drugs and drug interactions.<sup>5</sup>

Very few studies regarding the practice of drug prescription to others by the undergraduate medical students have been carried out in Pakistan. In 2008, a similar study similar study was carried out in Karachi

showing that 53% of medical students are doing this practice. It is also alarming that this practice is increasing because no efforts are being done to minimize it.

## PATIENTS AND METHODS

This cross-sectional study was carried out among the 263 undergraduate medical students of both the public and private sector medical colleges and universities of Lahore. A modified predesigned questionnaire was formed on Google-forms and these undergraduate medical students were asked to fill and submit it to participate in this study. The online questionnaire form consisted of three sections. First section included consent line. Second section included the basic demographic information of the individual and the third section contained questions related to the research studies. Raosoft Software was used to calculate the sample size which was 250, having a confidence level of 94%, an error margin of 6% and the response of distribution to be 40%. Data from the online forms was obtained in Microsoft excel file and was entered, managed and analyzed in SPSS version 21.

## RESULTS

One hundred and forty nine (56.7%) were males while 114 (43.3%) were females. The mean age was 22±1.477 years. The percentages being 1<sup>st</sup> year (8%), 2<sup>nd</sup> year (15.6%), 3<sup>rd</sup> year (30%), 4<sup>th</sup> year (37.6%) and 5<sup>th</sup> year (8.4%). 144 (54.8%) of participating students were day scholars while 119 (45.2%) of the participants were living in Hostels. 213 (81%) had prescribed medicines to someone else in the past while 50 (19%) of them had never prescribed medicines to anyone (Table 1). The most common causes of prescribing medicines were "Previous experience" (49%),

Received on 12-08-2019

Accepted on 13-01-2020

“Problem too trivial to go to a doctor” (20.5%), and “I knew everything about the illness” (7.6%) [Table 2].

The most common prescribed medicines were ‘Painkillers’ (25.4%), ‘Fever relieving medicines’(15.1%), ‘Anti-Biotic medicines’ (20.2%) and 16.3% of these medical students have prescribed ‘More than one type of medicine’ in the Past. It was found out that 42.3% of these medical students prescribed medicines ‘seldom 2-3 times a year’ while 23.6% use to prescribe it ‘sometimes every few months’. 12.9% prescribe ‘once a year’ while 6.1%of the medical students prescribe medicines ‘often’. 10% chose not to answer. Out of the undergraduate medical students who have prescribed medicines in the past, 32.9% ‘Volunteered’ to prescribe it while 77.1% ‘were asked’ to prescribe medicines. 49.9% medical students said ‘it is okay for them to prescribe medicines’ while 50.1% medical students disagreed. They were asked ‘is it okay for you to prescribe medicine for some mild condition if you are fully aware of it?’. 79.1% said ‘YES’ while only 20.9% said ‘NO’. 88.2% said that ‘it might be harmful to take medicine without consulting a Registered medical practitioner (RMP)’ while 11.8% shockingly said that it cannot be harmful (Table 3). 27% medical students said that it is okay for them to diagnose a medical illness in the absence of a RMP while 73% disagreed. They were asked “do you think it is okay for you to treat them with medication in the absence of a RMP”, 25.5% said YES while 74.5% said NO. In the end, 78.2% Medical Students said that ‘it is Unethical for a Non-RMP to prescribe medicines’ while 21.3% disagreed saying that it is not Un-ethical (Table 4).

Among the undergraduate medical students who prescribe drugs, the percentage of female medical students (86.8%) is greater than the Male medical students (76.5%).  $p = 0.034$  (Table 5). It was also found significant that the percentage of undergraduate medical students who think that it’s okay for them to prescribe medicines increases with their increasing year of study  $p = 0.031$  (Table 6). Out of the 81% (n=212) undergraduate medical students who said that they have prescribed medicine to someone in the past, 46.2 % (n=98) thinks that it is not okay for them to prescribe medicine.  $P = 0.036$ . It is a very dangerous fact that medical students even knowing that they shouldn’t prescribe medicines, they continue to prescribe them (Table 7). Another significant finding of our study is that, out of those 78.2%(n=200) medical students who said that it is unethical for a non-RMP to prescribe medicines, knowing that they are not RMP and it is unethical, 45.4%(n=91) still said that it is okay for them to prescribe medicines to others  $p < 0.01$  (Table 8)

Table1: Have you ever prescribed medicine?

Response	No.	%
Yes	213	81.0
No	50	19.0

Table-2: Why did you prescribe these medicines?

Reason	No.	%
Previous experience	129	49.0
Cost effective	9	3.4
Urgency	14	5.3
Found info on internet	5	1.9
Problem too trivial	54	20.5
Knew everything about the illness	20	7.6
No answer	32	12..2

Table 3: Do you think taking medicines without consulting a RMP could be harmful?

Response	No.	%
Yes	232	88.2
No	25	9.5
No answer	6	2.3

Table 4: Do you think its unethical to suggest a medicine by a non-RMP? (n=257)

Response	No.	%
Yes	201	78.2
No	56	21.8

Table 5: Cross tabulation of Sex\*Have you ever prescribed drug?

Gender	Have you ever prescribed drug?	
	Yes	No
Male	46.5%	23.5%
Female	86.8%	13.2%
Total	81%	19%

Table 6: Cross tabulation of “Year of study\*Do u think it’s okay for you to prescribe medicine?”

Year of study	Do you think it’s okay for you to prescribe medicine?	
	Yes	No
1 <sup>st</sup> Year	45%	55%
2 <sup>nd</sup> Year	33.3%	66.7%
3 <sup>rd</sup> Year	48.1%	51.9%
4 <sup>th</sup> Year	56.1	43.9
5 <sup>th</sup> Year	72.7	27.3
Total	50.8%	49.2%

Table 7: Cross tabulation between “Have you ever prescribed drug\*Do you think it’s okay for you to prescribe medicine?”

Have you ever prescribed drug?	Do you think its okay for you to prescribe medicine?	
	Yes	No
Yes	53.8%	46.2%
No	36.4%	63.8%
Total	50.8%	49.2%

Table 8: Cross tabulation between ‘do you think its unethical to suggest a medicine by a non RMP. Do you think it’s okay for you to prescribe medicine?’

Do you think it’s unethical to suggest a medicine by a non RMP?	Do you think it’s okay for you to prescribe medicine?	
	Yes	No
Yes	45.5%	54.5%
No	70.9%	29.1%
Total	51%	49%

## DISCUSSION

Prescription of medicines by medical students is an issue of grave concern and it can lead to many problems, some of which can be devastating and lethal for the individuals as well as society. These problems include the Emergence of Multi-drug resistant micro-organisms that can cause untreatable diseases.<sup>6</sup> It can cause dependence upon a drug as well as its addiction if taken for longer periods of time.<sup>7</sup> A major problem that it can cause is Hiding the malignant and lethal diseases.<sup>8</sup> Risk of misdiagnosis can occur due to this practice.<sup>9</sup> Problems as a cause of under dosage as well as over dosage can also occur due to these prescriptions by non-doctor inexperienced, unqualified medical students.<sup>10</sup> Drug Interactions can also occur that

can cause serious implications like chemical reactions and allergies etc.<sup>11</sup> Last but not the least, this practice can cause severe side effect profile of a specific drug.<sup>12</sup>

In this study, the medicines that were most commonly prescribed were Analgesics, Antipyretics and Antibiotics. The antipyretics and analgesics can hide the real cause of serious illnesses and treat the fever and pain symptomatically which can cause serious implications as the illness is masked by these medicines while the real cause is still there and still growing. It can also have devastating effects on the society if diseases like tuberculosis, which is a resilient endemic infectious disease, are harbored and treatment is delayed and the symptoms are treated by inappropriate medicines.

Antimicrobial resistance is a great challenge these days.<sup>13</sup> A lot of research and work has been done to stop this growing problem of antimicrobial resistance. Drug resistance develops when a specific drug is taken in overdose or over prolonged periods of time. It can also develop if the antibiotics choice is ineffective and inappropriate.<sup>14</sup> It has been found out in this study that 20.2% of undergraduate medical students prescribed antibiotics. Now neither do these students have the complete knowledge of drug dosage, drug reactions, drug side effects, drug interactions, its indications and contraindications nor are they enough experienced or qualified to prescribe them to others. This can cause the above mentioned severe implications that are harmful for the people and mankind too. It was also shown previously that the undergraduate medical students are not skilled enough to prescribe these antimicrobial drugs.<sup>15</sup> In this modern world, where the world has become a global village and anyone can travel to different countries and continents, the development of antimicrobial drug resistance in one area can have devastating effects all over the world. Hence it is an issue of great international importance.

Considering these results, we would assume that the medical students are well aware of the implications, the ethicality, the legality and the harmful effects of prescription of medicines by non-doctors. Well yes, most of them are aware of these aspects. This is an evil practice that we should try to eradicate from our society, country and the whole world and the prescription of medicines should only be done by Registered Medical Practitioners or Certified Pharmacists as it is done abroad. Strict rules and regulations should be applied on the pharmacies so that they cannot sale non-over the counter drugs without a prescription slip by a certified doctor. The sale of these medicines by pharmacies is a feature of many developing countries and need to be stopped.<sup>16</sup>

It is known that easy access to pharmaceuticals is a determinant of illegal prescribed drugs and self medication.<sup>17</sup> Many of the pharmacies are not registered and most of them are not regulated by government.<sup>18</sup> Majority of the people who visit pharmacies don't even know if the pharmacies are licensed and legal or not.<sup>19</sup> A system to monitor all this should be made in order to ensure implementation of rules.

Awareness regarding this issue needs to be created. The Medical students should be approached via awareness programs as well as print and electronic media. The people should be told about serious consequences and harmful aspects of taking medicines from non-doctors. The medical students should be taught about this illegal and unethical practice as a part of their curriculum. Medical ethics should be taught starting from the very first year of a medical college. Medical students should be taught how to turn down a person asking for prescription of medicine.

Teaching of medical ethics early on in a medical students life is very important and beneficial intervention.<sup>20</sup> Sadly many institutions in Pakistan do not teach medical ethics unfortunately.<sup>21</sup>

Lastly we propose a Health system where the rich and the poor can get the same treatment and even the poor people can afford. Most of the people who do not go to the doctors and prefer to get treated from quack and Hakeem and ask medical students for prescription and suggestion of medicines are the poor people who cannot afford the fees of a doctor or treatment of their disease.<sup>19</sup> Many people just to bypass the doctor fee do not go to doctors and instead visit the pharmacy to ask for medicine suitable for their particular ailment. It should be studied further as to why people choose alternate sources of medication. This needs to be eliminated. The health system should be made available for everybody so that they can get proper treatment and health care facilities.

## CONCLUSION

A great number of undergraduate medical students of Lahore are prescribing drugs to others and this can lead to a lot of problems some of which can have a global impact. We need holistic approach to stop this evil and dangerous deed from escalating. We have suggested the area to be studied further and public health professional and health policy makers should consider this seriously and this issue should not be ignored.

## REFERENCES

1. Zafar SN, Syed R, Waqar S, Irani FA, Saleem S. Prescription of medicines by medical students of Karachi, Pakistan: A cross-sectional study. *BMC public health*. 2008;8(1):162.
2. Rothwell C, Burford B, Morrison J, Morrow G, Allen M, Davies C, et al. Junior doctors prescribing: enhancing their learning in practice. *British journal of clinical pharmacology*. 2012;73(2):194-202.
3. Patil SB, Vardhamane S, Patil B, Santoshkumar J, Binjawadgi AS, Kanaki AR. Self-medication practice and perceptions among undergraduate medical students: a cross-sectional study. *Journal of clinical and diagnostic research: JCDR*. 2014;8(12):HC20.
4. Arria AM, Caldeira KM, Allen HK, Bugbee BA, Vincent KB, O'Grady KE. Prevalence and incidence of drug use among college students: an 8-year longitudinal analysis. *The American journal of drug and alcohol abuse*. 2017:1-8.
5. <journal.pone.0072247.PDF>.
6. Bauchner H, Wise PH. Antibiotics without prescription: "bacterial or medical resistance"? *Lancet*. 2000;355.
7. Calabresi P, Cupini LM. Medication-overuse headache: similarities with drug addiction. *Trends Pharmacol Sci*. 2005;26.
8. French L, Horton J, Matousek M. Abnormal vaginal discharge: what does and does not work in treating underlying causes. *J FamPract*. 2004;53.
9. Ashina S, Zeeberg P, Jensen RH, Ashina M. [Medication overuse headache]. *Ugeskrift for laeger*. 2006;168.
10. Assael LA. The pill culture, the pill society. *J Oral Maxillofac Surg*. 2006;64.
11. Neafsey PJ. Self-medication practices that alter the efficacy of selected cardiac medications. *Home Healthc Nurse*. 2004;22.
12. Tackett BN, Smith MC, Nedorost ST. Morbidity of over-the-counter topical steroids. *Journal of the American Academy of Dermatology*. 2006;54.

13. Beovic B. The issue of antimicrobial resistance in human medicine. *Int J Food Microbiol.* 2006;112.
14. Foucault C, Brouqui P. How to fight antimicrobial resistance. *FEMS Immunol Med Microbiol.* 2007;49.
15. Ibia E, Sheridan M, Schwartz R. Knowledge of the principles of judicious antibiotic use for upper respiratory infections: a survey of senior medical students. *South Med J.* 2005;98.
16. Chang FR, Trivedi PK. Economics of self-medication: theory and evidence. *Health economics.* 2003;12.
17. Loyola Filho AI, Lima-Costa MF, Uchoa E. Bambui Project: a qualitative approach to self-medication. *Cad SaudePublica.* 2004;20.
18. Nishtar S. Pharmaceuticals--strategic considerations in health reforms in Pakistan. *J Pak Med Assoc.* 2006;56.
19. Rao M H SIBM: Attitude and practice pattern of urban population in the use of local pharmacy in treatment seeking process and it's comparison with the semi urban population of Karachi. *Pak J Med Res.* 2004, Karachi , 43 (3): 121-129.
20. Goldie J, Schwartz L, McConnachie A, Morrison J. The impact of a modern medical curriculum on students' proposed behaviour on meeting ethical dilemmas. *Medical education.* 2004;38.
21. Moazam F, JafareyAM. Pakistan and biomedical ethics: report from a Muslim country. *Camb Q Healthc Ethics.* 2005;14.