THE IMPACT OF LEARNING PHARMACOLOGY ON PRACTICE OF SELF-MEDICATION AMONG MEDICAL STUDENTS OF SHEIKH ZAYED MEDICAL COLLEGE, RAHIM YAR KHAN, PAKISTAN

Mazhar Hussain[I✉], Moazzam Ali Atif[I], Sana Tufail[I], Lubna Akhtar[I]

[I] Department of Pharmacology, Sheikh Zayed Medical College, Rahim Yar Khan, Pakistan

✉ Email: mazharhussain214@gmail.com

Phone: +92321 6723330

Date Submitted: May 11, 2017

Date last Revised: December 21, 2017

Date Accepted: December 23, 2017

ABSTRACT

OBJECTIVE: To study the impact of learning pharmacology on the practice of self-medication among medical students.

METHODS: This questionnaire based cross sectional study was conducted on 674 medical students of Sheikh Zayed Medical College, Rahim Yar Khan, Pakistan at the end of their curriculum from Oct to Dec 2016. Group-A comprised of 318 students of 1st and 2nd year while Group-B comprised of 356 students of 3rd and 4th year.

RESULTS: The mean age of the students in group-A was 20±1.8 years and in group-B it was 22±2.2 years. The prevalence of self-medication in group-A and group-B was 285/318 (89.62%) and 305/356 (85.67%) respectively. Main reasons for self-medication were time-saving, mild-illness and quick relief ($p<0.05$). Commonly used drugs in both groups were analgesic 240/318 (75.47%) in group-A and 265/356 (74.43%) in group-B, antipyretic 222/318 (69.81%) in group-A and 242/356 (67.97%) in group-B, antacids 215/318 (67.61%) in group-A and 224/356 (62.92%) in group-B. However, 3rd and 4th year students used antibiotics, anxiolytics and multivitamins twice as compared to 1st and 2nd year students ($p<0.05$). Awareness about self-medication practices in terms of dosage, duration of treatment, adverse effects, precautions and drug interactions was quite high in group-B as compared to group-A ($p<0.05$). Similarly, group-B also was aware of over-the-counter drugs, expiry of drug and reading leaflet instruction ($p<0.05$).

CONCLUSION: The practice of self-medication was not much different in senior and junior medical students; however, senior medical students were more concerned about the rationale use of drugs after learning pharmacology.

KEY WORDS: Learning (MeSH); Pharmacology (MeSH); Medical Students (MeSH); Self-Medication (MeSH).

THIS ARTICLE MAY BE CITED AS: Hussain M, Atif MA, Tufail S, Akhtar L. The impact of learning pharmacology on practice of self-medication among medical students of Sheikh Zayed Medical College, Rahim Yar Khan, Pakistan. Khyber Med Univ J 2017; 9(4): 205-208.

INTRODUCTION

Self-medication is defined as self-treatment of any medical ailments without the proper medical consultation and diagnosis. The practice of self-medication is on the rise all across globe.[1-2] The main reason behind that is easy availability and accessibility of over the counter drugs, low socio economic status, unsatisfactory pharmacy practices because of lack of registered pharmacist in country and non-availability of doctors especially in rural areas. In addition, lack of proper health awareness program, implementation of health reform policies and proper drug acts poses the population to indulge in the practice of self-medication in developing world. Therefore; a holistic approach is required to give awareness of self-medication to population in order to protect from its dare consequences.[3-5]

However, it is noted that practice of self-medication has some advantages, if it is practiced correctly. There is easy access to medicine, economical, convenient, time saving and rapid relief of symptoms in some acute conditions.[6] World Health Organization (WHO) also favors practice of self-medication on those conditions that usually do not requires proper medical consultation as it provides a cheap alternative for common ailments and also reduces burden on health care system.[7] Unfortunately it has more disadvantages when it is mal-practiced, as most of serious medical ailments are misdiagnosed or under diagnosed. Moreover, improper dosage may lead to adverse effects like renal and gastrointestinal toxicity with analgesics, treatment failure and emergence of resistance especially with the use of antibiotics, teratogenicity with teratogenic drugs and dependence in case of drug acting on central nervous system.[8]

The subject of "Pharmacology and Therapeutics" is included in the curriculum of 3rd year Bachelor of Medicine Bachelor of Surgery (MBBS). In this subject students are usually taught about mechanism of drug actions, their therapeutic uses, dosage, indications, contraindications, adverse effects and various drugs interactions. The purpose of pharmacology is to provide sufficient knowledge about drugs to 3rd year MBBS students onwards so that they can apply it to patients in clinical setting with confidence. However, it is noticed that MBBS students themselves indulge in the practice of self-medication without knowing any sufficient knowledge about drugs.[9-10]

The knowledge of medical students of 1st and 2nd year MBBS classes usually not differs too much from general population on the practice of self-medication. However, in 3rd and 4th year MBBS class their knowledge may be more than general population about practice of self-medication because they are taught about various drugs and diseases.[11] So the present study was

TABLE I: BASELINE CHARACTERISTICS OF STUDENTS

Parameters		Group A (n=318)	Group B (n=356)	p-value*
Age (years)		20±1.8	22±2.2	>0.05
Gender	Male	180 (56.60%)	210 (58.9%)	>0.05
	Female	138 (43.39%)	146 (41.0%)	>0.05
Location	Urban	265 (83.33%)	302 (84.83%)	>0.05
	Rural	53 (16.66%)	54 (15.1%)	>0.05
Mothers' education	Under Matric	110 (34.59%)	133 (37.35%)	>0.05
	Above Matric	208 (65.4%)	223 (62.64%)	>0.05
Self-care orientation	High	302 (94.9%)	312 (89.8%)	>0.05
	Low	16 (5.03%)	44 (12.35%)	>0.05
Practice self-medication within last 0-12 Months	Yes	285 (89.62%)	305 (85.67%)	>0.05
	No	33 (10.37%)	51 (14.32%)	>0.05

*** Chi Square test for categorical data & t-test for numeric data**

designed to observe the awareness and practice of self-medication among medical students of various MBBS classes before and after learning pharmacology in order to know that either knowledge of drugs has any positive or negative impact on practice of self-medication.

METHODS

This cross-sectional study was conducted on medical students of Sheikh Zayed Medical College, Rahim Yar Khan, Pakistan, at the end of their curriculum from Oct to Dec 2016. An ethical approval was taken from institutional review board and the purpose of study was clearly explained and confidentially was ensured to all students before the start of study. A total of 674 students were divided into two groups. Group-A comprised of 318 students of 1st and 2nd year MBBS while group-B comprised of 356 students of 3rd and 4th year MBBS classes respectively. Both groups were given open and closed ended self-generated questionnaires to fill in about practice of self-medication on its various aspects at the end of their curriculum. A written informed consent was obtained and proper instructions were given to each student.

A structured questionnaire comprised of four sections was prepared after extensive literature review of various cross-sectional studies of self-medications. Any ambiguity in the questions or responses was removed before its implementation and it was assessed by two independent professors of pharmacology who were the members of institutional review board of two different institutions.

First section of performa compromised of demographic characteristics. In second part, students were asked to choose single best answer about reasons for using self-medication while in third part there were multiple options about commonly used drugs and students had to choose according to their preferences. The last part of the questionnaire was related to drugs, in which students were asked about awareness of drug on its various aspects.

The analysis of data was done by Statistical Package for Social Sciences (SPSS) version 16. Data among two groups were expressed as counts and percentages. Comparison of the statistical data between two groups was done by chi square test. The p-value less than 0.05 was considered to be statistically significant.

RESULTS

All students answered the questionnaire completely and response rate was 100%. There were 318 students in group-A and 356 in group B. There were 178 (55.98%) boys and 140 (44.04%) girls in group-A while in group-B 212(59.55%) were boys and 144(40.45%) were girls. The mean age of the students in group-A was 20±1.8 years and in group-B it was 22±2.2 years. The practice of self-medication among two groups within last 1 year was not statistically significant 285/318 (89.62%) in group A and 305/356 (85.67%) in group B (Table I).

The main reason for using self-medication was time saving, for mild illness and quick relief followed by previous exposure and cost effectiveness in both study groups which was not statistically significant (Table II).

The most commonly used medication in both groups were analgesic 240/318 (75.47%) in group-A and 265/356

TABLE II: REASON FOR SELF-MEDICATION PRACTICE

Reason for self-medication practice	Group A [n=318 (%)]	Group B [n=356 (%)]	p-value*
Time saving	89 (27.98%)	110 (30.89%)	>0.05
For mild illness	75 (23.58%)	90 (25.28%)	>0.05
Quick relief	68 (19.10%)	78 (21.91%)	>0.05
Previous experience	35 (11.0%)	40 (11.23%)	>0.05
Cost effective	30 (9.43%)	25 (7.02%)	>0.05
Others	21 (6.60%)	13 (3.65%)	>0.05

*** Chi Square test**

TABLE III: COMMONLY USED DRUGS FOR SELF MEDICATION

DRUGS	Group A [n=318 (%)]	Group B [n=356 (%)]	p-value*
Analgesic	240 (75.47%)	265 (74.43%)	>0.05
Antipyretic	222 (69.81%)	242 (67.97%)	>0.05
Antacids	215 (67.61%)	224 (62.92%)	>0.05
Antibiotics	105 (33.01%)	215 (60.39%)	<0.05
Cough & flu preparations(Anti Allergic)	195 (61.32%)	210 (58.98%)	>0.05
Anxiolytics	55 (17.2%)	140 (39.32%)	<0.01
Multi vitamins	18 (5.66%)	135 (37.92%)	<0.05
Herbals	9 (2.83%)	14 (3.93%)	>0.05

* **Chi Square test**

(74.43%) in group-B; and antipyretic 222/318 (69.81%) in group-A and 242/356 (67.97%) in group-B. However, seniors (group B) used antibiotics, anxiolytics and multivitamins twice as compared to junior students (group A) which were found statistically significant (Table III).

However, awareness about the self-medication practices in terms of dosage, duration of treatment, adverse effects, precautions, drug interactions was quite high in group-B as compared to group-A. Similarly, awareness about over-the-counter (OTC) drugs, expiry of drug and leaflet instruction was statistically significant in Group-B versus group-A (Table IV).

DISCUSSION

Present study showed that practice of self-medication was higher among medical students. However, as compared to first and second year MBBS students, the students of 3rd and 4th year were quite confident about the practice of self-medication. The main reason was that during 3rd and 4th year they were exposed to knowledge of pharmacology. Most of the students were keen about drug indications, contraindications, dosage, adverse effects and various drugs interactions. In addition, they carefully read the instructions given on leaflet.

A number of studies were conducted in the past on the practice of self-medication among both medical and non-medical students with varying results. The reason for this variation may be due to differences in socioeconomic status, demographic characteristics and methodologies used for practice of self-medication under different circumstances. A study conducted by Klemenc-Ketis[12] and Sawalha[13] showed no difference in the practice of self-medication in both medical and non-medical students; but senior medical students practiced self-medication more carefully as compared to juniors because they knew the potential hazards of irrational use of self-medication. A similar type of study revealed that although junior students were not exposed to the knowledge of drugs during their curriculum but they had some awareness about self-medication due to available information from multiple sources. Moreover, they had no awareness about OTC medicine, adverse effects and drug interactions as compared to senior students.[14]

On the contrary, study conducted by Bahir et al.[15] showed that students of 3rd year were less indulged in practice of self-medication as compared to 1st and 2nd year because they spent more time in wards and with senior doctors and they usually prefer to take advise for their illness from senior doctors. Kumari et al.[16] concluded that senior medical students practice self-medication less as compared to juniors because they had a good knowledge of self-medication on its various aspects which is part of good medical training during their curriculum. Patel et al.[17] in another study revealed the strong impact of learning pharmacology on knowledge, attitude and practice of self-medication among medical students. However, another study which represented two medical and non-medical universities revealed that there was not much difference in practice of self-medication among medical and non-medical students despite majority of them knew it was incorrect.[18]

In our study, findings were almost similar; practice of self-medication was not so much different in all medical students. Moreover, awareness, attitude and practice towards self-medication were acceptable in senior students as compared to juniors, because of learning pharmacology.

A meta-analysis of twenty-seven studies over periods of 10 years revealed that self-medication practice was significantly higher in both medical students and physicians. This self-directed attitude is one of the occupational hazards for the medical profession.[19] There is strong need to educate medical students as well as all other health professionals from the start of their carrier to ensure safe practice of self-medication. In addition, government should make strict rules about valid prescription, drug legislation and pharmaceutical advertisement in order to stop the irrational growing trend of self-medication.

CONCLUSION

Learning pharmacology has a positive impact on practice of self-medication among medical students. The practice of self-medication was not much different in senior and junior medical students; however, senior medical students were more concerned about the rationale use of drugs after learning pharmacology.

ACKNOWLEDGMENT: The authors

TABLE IV: AWARENESS ABOUT VARIOUS ASPECTS OF SELF MEDICATION

Awareness	Group A [n=318 (%)]	Group B [n=356 (%)]	p-value*
Aware about dose	10 (3.14%)	252 (70.7%)	<0.01
Aware about duration of therapy	15 (4.71%)	240 (67.4%)	<0.01
Read leaflets instructions	125 (39.30%)	300 (84.2%)	<0.05
Read about expiry of drug	120 (37.7%)	295 (82.8%)	<0.05
Aware about OTC drugs	32 (10.0%)	325 (91.2%)	<0.01
Aware about precautions	42 (13.2%)	298 (83.70%)	<0.01
Aware about adverse effect	25 (7.86%)	225 (63.2%)	<0.01
Aware about drug interactions	8 (2.5%)	208 (58.4%)	<0.01

* **Chi Square test**

are thankful to all students regarding their cooperation and active participation in the study.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

MH: Concept & study design, acquisition of data, drafting the manuscript, supervision, final approval of the version to be published

MAA & ST: Drafting the manuscript, critical review, final approval of the version to be published

LA: Acquisition, analysis & interpretation of data, final approval of the version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE

NIL