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RESEARCH ARTICLE

KNOWLEDGE AND ATTITUDE OF SELF-MEDICATION AMONG HEALTHCARE AND NON-HEALTHCARE STUDENTS OF LAHORE, PAKISTAN

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Abstract

Introduction: Self-medication is regarded as the system of taking medicines without the consultation of licensed medical practitioner. Self-medication leads to irrational use of medical drugs which is hazardous for health. The prevalence of this crucial issue is rapidly increasing worldwide. The present study was aimed to assess the pattern of self-medication trends in healthcare students and non-healthcare students of Lahore, Pakistan.
Methods: A cross-sectional survey based observational study has been conducted to access the knowledge along with the attitude of medical and non-medical students regarding self-medication. The study settings included different universities and medical colleges of Lahore, Pakistan. A total of 301 students from medical department and other departments were included in the study. A validated self-medication assessment questionnaire was used to access the knowledge along with attitude pattern of self-medication among healthcare students as well as non-healthcare students.
Results: The findings of the present study presented that medical students are more aware of the potential side effects and adverse reactions of the self-medicated drug as compared to the non-medical students. Whereas, trends of self-medication was observed to be slightly higher in healthcare students as compared to the non-healthcare students. Moreover, the frequency of antibiotic use was comparatively more frequent in medical students as compared to the non-medical graduates. Whereas, the use of painkillers without prescription was more prevalent in non-medical students as compare to the medical graduates.
Conclusion: There has been a significant difference in knowledge of healthcare students and non-healthcare students of Lahore, Pakistan. Although both healthcare and non-healthcare students have high prevalence of self-medication but differences have been observed in case of drugs taken. Healthcare students practice self-medication more as compared to the non-health-care students.
Keywords: Antibiotics; health-care students; non-healthcare students; painkillers; self-medication.

INTRODUCTION

The process of self-medication involves taking medication without consulting the physician. The practice of self medication is very common through the general populations all over the world. The people may take a medication to cure minor ailments which may affect their health[1]. Self-medication leads to "irrational use of drugs" which means the patient is taking medication that is inappropriate for his clinical needs and in doses that do not meet his requirement[2].

Self-medication prevalence is very high globally i.e., about 68.07% in Europe, 92% in Kuwait, 31.02% in India as well as 59.4% in Nepal. A few studies from Pakistan have been conducted that confirmed that prevalence of self-medication in Pakistan is around 51.02%[3]. Self-medication leads to the irrational usage of medical drugs which is considered hazardous for health. The WHO defines self-medication as "use of

the over the counter (OTC) drugs to cure self-diagnosed symptoms as well as control the persistent use of previous prescription medication for current diseases. Self-medication is not done only in the form of medicines as tablets, capsules or syrups. Many people use herbs to cure themselves without any proper guidance. This leads to health problems[4]. Self-medication may be considered significant if done appropriately for mild ailments. WHO has introduced the term "responsible self-medication". Responsible self-medication is the phenomenon of obtaining OTC drugs and taking them to treat minor ailments as directed. In this way self-medication proves to be beneficial for health[5]. It is considered a form of self care. OTC cessation products help people quit smoking, about 300,000 people avoid emphysema, lung cancer risk and stroke[6]. The non-healthcare students are not well informed of antibiotics as compared to healthcare students so they may take antibiotic as self-medication[7]. The antibiotics acquired as self-medication is causing a major problem i.e. antimicrobial resistance. The students are unaware of the indication of antibiotic and may take it for minor or self limiting infections leading to pathogenic resistance[1].

The efficacy of antibiotic is greatly affected because of antimicrobial resistance. According to a survey of 2014, the mortality because of antimicrobial resistance in 700,000 and may increase to 10 million by 2050 if the inappropriate use of antibiotics is not corrected. Medical students may have a better attitude toward self medication because of their knowledge. Other student's lack of knowledge leads to antibiotic misuse[8]. If self-medication is not appropriate, it may cause serious health problems. Taking OTC medications for minor ailments maybe beneficial for those whose problem is not so serious e.g. for a minor headache or a migraine, the students takes paracetamol. But if he took an inappropriate medication, it may have harmful effects by delaying a hospital visit or increasing the misuse of the drug[9]. The OTC drugs stand for over-the-counter drugs and these are sold at pharmacy without a prescription. The availability of OTC drugs encourages the self-medication in a way. The OTC drugs are safe to use, they are used to treat minor to moderate illness and are very efficacious[10]. Two factors contribute to self medication viz., economic reluctance and behavior of the population. The OTC drugs are easily available to public. In addition, some of the prescription drugs are also available without prescription in Pakistan. This is another major factor for increasing self-medication practices[11]. Self-medication with antibiotics is always inappropriate. No antibiotic should be taken without physician's advice, the drug may be taken in inadequate dosage and the drug could be invalid for the presented indication which increases the risk of antimicrobial resistance[12].

The aim of this study is to determine of pattern of self-medication among healthcare and non-healthcare students.

MATERIALS AND METHODS

Study design and settings

The ethical approval from the Institutional Ethical Review Board (ERB) of Lahore Pharmacy College, LMDC was obtained with a protocol number; REC/ LPC/2021/112 before conducting this study. An observational survey based research study has been conducted to access the knowledge long with the attitude of medical students and non-medical graduation students towards self-medication. Study settings included different universities and medical colleges of Lahore, Pakistan. The Medical colleges had students that were studying in different professional years and belonged to different medical fields i.e. MBBS, BDS, Pharm-D and DPT. The non-healthcare student's data was collected from universities that had students studying in Engineering, Business, Accountancy and Commerce. The duration of the research was of 3 months approximately, from; June, 2022 to August, 2022. Since it was the duration for regular classes in medical universities, therefore this time frame was selected.

Inclusion and exclusion criteria

The healthcare students were studying in 1st, 2nd, 3rd, 4th and final professional year of medical sciences (MBBS, BDS, Pharmacy and Physiotherapy) belonging to different medical colleges, willing to participate in this study were included. Moreover, the non-medical students of miscellaneous disciplines willing to be a part of the study were included. Whereas, the students with chronic illnesses taking drugs on regular basis were excluded from this study along with the students not at consent to freely participate in this project. Study Sample was set at 301 study subjects involving health care students and non- health care students from different medical and non-medical universities. The sample size was calculated based upon stratified convenient sampling technique.

Data collection method

Data was collected from healthcare and non-healthcare students. A signed consent form was provided to the study subjects and data was collected after consent to participate. The questionnaire contained two portions, first one was demographic data parameters and the second one dealt with KAP (Knowledge, Attitude and Practices) of self-medication.

Data collection tool

The study tool: "Self-medication questionnaire" developed by Al-Wora *et al.*,[13] was used to access the knowledge and attitude towards self-medication among students. Three professors from clinical faculty reviewed the survey form for the content validation. A pilot study has been conducted to check survey reliability, it was administered to 10 faculties and 20 students and the study was repeated. Crohnbach's alpha coefficient had a value of 0.73 so the questionnaire was eligible to be used in this study. We emailed the author and asked for permission to use his questionnaire and the permission was granted[13].

Statistical analysis

It has been conducted utilizing SPSS version 21. To analyse the statistical parameters, chi-square test has

been utilized. The *p*-value which was*<0.05* has been considered significant.

RESULTS

Demographics of students

Table 1 presents demographic characteristics of the study subjects recruited for the current study. Total301 students has been included belonging to different universities and colleges of Lahore, Pakistan.

Knowledge of study subjects towards self-medication

Table 2 demonstrates the knowledge of study subjects (students) towards self-medication. Results of current study presented that the medical students are more aware of possible side effects and adverse reactions of self-medicated drug as compared to non-medical graduation students.

Frequency towards self-medication

Table 3 presents the frequency of the self-medication drugs. The study results that the frequency of antibiotic use was comparatively more frequent in the medical graduation students in comparison to the nonmedical graduation students. Whereas, use of painkillers without prescription was comparatively more prevalent in nonmedical graduation students as compare to the medical graduation students.

Table 1: Demographic characteristics of study subjects (N=301).

Variables	Total responses	Medical students N (%)	Non-medical students N (%)	*p* value*
Gender				
Male	137	51 (37.2)	86 (62.8)	<0.001*
Female	164	104 (63.4)	60 (36.6)	
Age in years				
18-23 years	224	118(52.7)	106 (47.3)	0.483
24 years or above	77	37 (48.1)	40 (51.9)	
Area of living				
Urban	229	124 (54.2)	105 (45.9)	0.982
Rural	72	31 (43.1)	41 (56.9)	
Nearness to hospital				
5-25 min	214	124 (57.9)	90 (42.1)	0.002*
25-60 min	62	22 (35.5)	40 (64.5)	
>60 min	25	9 (36.0)	16 (64.0)	
Socio-economic status				
Lower class	15	4 (26.7)	11 (73.3)	0.115
Middle class	257	134 (52.1)	123 (47.9)	
Upper class	29	17 (58.6)	12 (41.4)	
Level of Study				
1st year	23	12 (52.2)	11 (47.8)	0.000*
2nd year	48	29 (60.4)	19 (39.6)	
3rd year	50	24 (48.0)	26 (52.0)	
4th year	75	32 (42.7)	43 (57.3)	
5th year	66	47 (71.2)	19 (28.8)	
Intern year	39	11 (28.2)	28 (71.8)	
Medical History				
Positive	144	77 (53.5)	67 (46.5)	0.511
Negative	157	78 (49.7)	79 (50.3)	
History of self medication				
Once	93	51 (54.8)	42 (45.2)	0.263
Twice	43	22 (51.2)	21 (48.8)	
3 times	17	9 (52.9)	8 (47.1)	
>4 times	97	54 (55.7)	43 (44.3)	

Chi square test*

DISCUSSION

This study was conducted in Lahore among healthcare and non-healthcare graduation students to evaluate their knowledge, attitude and practices towards self medication trends. This present study could serve as baseline to evaluate the effects of interventions and seminars upon the rational use of medications. About 97% of students were engaged in self-medication. These results are comparatively better than the research study from Karachi university according to which 76% of the students self-medicated[3]. Moreover, across-sectional study conducted in India presented prevalence of the self-medication to be 76.3%[14]. A study conducted in Saudi Arabia in King Khalid University showed that 98.7% of students self-medicated[13]. Another study conducted in Jordan presented the self-medication prevalence to be 78.5%[5]. The results of the present study presents that the medical graduation students are involved in self-medication comparatively more than the non medical graduate students. It is detailed by few parameters like; knowledge along with the exposure, area of residence, hospital facilities availability in their surroundings. The study conducted in Saudi Arabia showed that the drugs used as self-medication by study subjects in the highest ratio in previous six months duration has been following; pain relieving agents (81.42%), cold and flu

medications (29.43%), the use of antibiotic medications (28.24%), eye drops/nasal drops (26.75%), cough syrups (25.87%) and the use of antipyretic drugs was around 20.85%. Utilization of some of drug classes were observed to be significantly raised in medical graduation students like painkiller drugs (91.67% vs 70.53%, *p*=0.000), antihistamines (17.23% vs 9.87%, *p*=0.014). Moreover, the utilization of antibiotic drugs (35.42% vs 21.57%, *p*<0.001), the use of antipyretic drugs (25.63% vs 16.45% *p*=0.010) and the appetizer drugs were (4.37% vs 0.73%, *p*=0.008) were comparatively raised with the non-medical graduation students[13]. The study from Karachi showed pattern of the self medication in graduation students be the painkiller drugs (88.33%), the fever relieving medication drugs (65.17%), the anti-allergic drugs (44.17%) and the antibiotic drugs (35.26%) were amongst the highly used drugs[3].

Table 2: Knowledge of study subjects towards self-medication.

Questions		Medical students N (%)	Non medical students N (%)	*p*-value
Do you know the medicines you consumed need prescription or not?	Yes	136(62.4)	82(37.6)	<0.05*
	No	19 (22.9)	64(77.1)	
Do you know the potential adverse reaction of the drug by which you self medicated?	Yes	114(70.8)	47(29.2)	<0.05*
	No	41(29.3)	99(70.7)	
When you treat yourself with a medication, do you read the leaflet before using it?	Yes	113(57.7)	83(42.3)	<0.05*
	No	42(40.0)	63(60.0)	
Do you prefer antibiotic obtained as self-medication?	Yes	55(46.2)	64(53.8)	0.139
	No	100(54.9)	82(45.1)	
Do you think self-medication is safe?	Yes	49(41.9)	68(58.1)	<0.05*
	No	106(57.6)	78(42.4)	

Chi square test*

According to this study, 22.2% students self-medicated for headache, 19.2% for fever, 17.3% for cough and cold, 4.5% for infection, 14.9% for body pain, 3.0% for tooth pain, 3.1% students self-medicated for skin problems, 5.5% students had indications of GIT disorder. Headache (75.92%), cough and cold (53.53%), raised temperature (35.63%), body pain and temperature (24.63%) as well as tooth pain (22.33%) being the indications for which students self-medicated according to the research study that has been conducted in King Khalid University, KSA (Kingdom of Saudi Arabia)[13]. The current study reveals that the knowledge of healthcare students was better than non-healthcare students. About 62.4% of healthcare students knew that a certain medication requires prescription or not whereas only 22.9% of non healthcare students knew about this. In addition, 70.8% of healthcare students knew the potential adverse effect of the medication that they took whereas only 29.3% of the non healthcare students knew the potential adverse effect. Total 41.9% of healthcare students considered self medication safe whereas 57.6% of non healthcare students considered self medication safe. This shows that the knowledge of medical graduation students was much improved than non-healthcare graduation students. About 53.8% of non health care students obtained antibiotic as self-medication which shows that they have poor knowledge about medicines.

Table 3: Frequency of Self-medicated drugs.

Variables	Medical students N (%)	Non-medical students N (%)	*p*-value*
Painkillers	102 (50.5)	53 (53.5)	0.620
Antibiotics	42 (53.8)	36 (46.2)	0.629
Anti-allergy	39 (45.9)	46 (54.1)	0.222
Drugs for fever	68 (60.7)	44 (39.3)	0.014
Anti-emetic	27 (64.3)	15 (35.7)	0.074
Cough syrup	71 (53.4)	62 (46.6)	0.560
Topical agent	20 (66.7)	10 (38.5)	0.08
Cold and Flu preparation	38 (52.1)	35 (47.9)	0.912
Drugs for constipation	16 (61.5)	10 (38.5)	0.284
Drugs for diarrhea	14 (58.3)	10 (41.7)	0.485
Nasal/Eye/Ear drops	14 (45.2)	17 (54.8)	0.456

Chi square test*

The findings of the study conducted in Saudi Arabia suggests that personal knowledge (51.23%), relatives (30.33%), pharmacists (26.24%) and friends (20.34%) were the sources of drug information about medicines[13]. The other possible reasons like quick relief (36.93%), cost of disease treatment (26.73%) and the previous experience also play important reasons that push the students towards self-medication[14]. Another study that was conducted in Nepal suggested that (25.33%) of respondents felt that the illness was too mild and don't need the services of physicians. 19.33% of the respondents felt that they had previous experience of treating a similar illness and even if visit doctor they would be prescribed the similar medications[15]. This is a single-center study, conducted in Lahore only. Due to which, the results cannot be generalized nationwide. Furthermore, the sample size of the current study was not large. Comparatively

greater sample size could have provided more accurate results.

CONCLUSIONS AND RECOMMENDATIONS

The findings of current research study conclude that there has been a statistically significant difference in the knowledge of healthcare graduation students and non-healthcare graduation students of Lahore, Pakistan. Although both healthcare and non healthcare students have high self-medication prevalence but differences have been observed in case of drugs taken. Healthcare students practice self-medication more as compared to the non healthcare students.

Future research studies with greater study sample sizes should be directed in other areas of Pakistan. So that the study results could be concluded nationwide.

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AUTHOR'S CONTRIBUTION

Shahid S: writing original draft, study conception and design. **Ahmed F:** conceptualization, methodology. **Khan R:** formal analysis, research design. **Bajwa A:** data analysis, interpretation of results. **Sana A:** research design, data collection. **Ibtsam M:** writing, review, and editing. **Iqbal MZ:** methodology, data collection. All the authors reviewed the results and approved the final version of the manuscript.

DATA AVAILABILITY

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

CONFLICT OF INTERESTS

None to declare.

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