American Journal of Health Research
2023; 11(1): 13-17
http://www.sciencepublishinggroup.com/j/ajhr
doi: 10.11648/j.ajhr.20231101.12
ISSN: 2330-8788 (Print); ISSN: 2330-8796 (Online)

A Cross-Sectional Assessment of Self-Medication Among University Students of Lahore, Pakistan

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To cite this article:

Muhammad Ans, Sameen Abbas, Anosh Sana, Mishal Bajwa, Kalsoom Jehan Khan, Waqas Abdul Aziz, Asima Bibi, Mujahid Hussain. A Cross-Sectional Assessment of Self-Medication Among University Students of Lahore, Pakistan. *American Journal of Health Research*. Vol. 11, No. 1, 2022, pp. 13-17. doi: 10.11648/j.ajhr.20231101.12

Received: November 10, 2022; **Accepted**: December 26, 2022; **Published**: January 17, 2023

Abstract: *Background*: Symptoms or ailments that a person is aware of and chooses to treat on their own are referred to as self-medication. The idea of self-medication has been influenced by awareness of individual responsibility for own health and unnecessary professional care for mild illnesses. Self-medication is common practice around the globe. Gradually, it is becoming a form of self-care. Lot of research has been done in the area and the result revealed that the self-medication is more common among the literate people as compared to the illiterate. Trend is rather prominent among the young population who tend to have more knowledge of drugs and their use, have lower risk perception, therefore are more influenced by self-medication. *Objective*: A cross-sectional study was conducted to assess the knowledge about self-medication among engineering, arts & humanities students in Lahore during a period of 7 months (December 2018-June 2019). *Methodology*: A self-administered questionnaire was designed after the extensive review of previous research and was reviewed by an expert panel of professors & lecturers of clinical pharmacy of Punjab University College of pharmacy. Human ethics committee of Punjab University College of Pharmacy, University of the Punjab approved the study protocol. A total sample of 1000 students were calculated by sample size calculator. All statistical analysis was done by SPSS version 23. *Results:* A total of 1000 questionnaire were received with overall response rate of 63%. In this study, younger age, male, and unmarried students residing in hostels and those who have access to nearby pharmacy tended to self-medicate more than their peers with significant difference. About 43.4% of respondents followed their doctor's advice, while about 37.2% took their own advice or that of friends, family members, or the media. *Conclusion*: Self-medication misuse or abuse can be dangerous and endanger lives; if practiced impulsively, it may also be a health issue that requires education and attention from Pakistan's health care authorities. Future research is also required to determine how self-medication affects Lahore and Pakistan's non-medical students' health.

Keywords: Self-Medication Practice, Medication, Behavioural Response, Knowledge, Lahore, University Students

1. Introduction

Treatment of disorders or symptoms through self-diagnosis is known as Self-Medication. Self-medication comprises getting medications without a prescription, reusing an old prescription to buy new medications, sharing medications with family or friends, or using unused medications that have been stored at home [1, 2]. There are two different types of

medication i.e., OTC (over the counter medicine) and prescription medicine (Rx Product). No prescription is required for OTC medicines and can be purchased from pharmacies, supermarkets, and other authorized outlets. On the other hand, Rx medicines do require a doctor's prescription, therefore, cannot be purchased over the counter without it [3].

According to WHO recommendations, appropriate self-medication can lessen the demand on medical services for the treatment of minor disorders, especially when resources are scarce, and can help treat and prevent diseases that don't require medical consultation [4]. When used correctly, self-medication can be more practical, ease acute pain, and cut down on treatment costs and doctor visits. However, when used improperly, self-medication without any of the support of trustworthy medical information can endanger human well-being and cause severe health-related difficulties, waste resources, raise pathogen susceptibility, and pose significant health concerns like prolonged morbidity and adverse drug reactions [1, 5]. Research suggests that self- medication is a person's first reaction towards combating the early symptoms of sickness [6]. It is deemed as a primary tool to fight the minor ailments which do not necessitate doctor's visit. Studies also reflect that in majority of the cases where healthcare facilities are scarce or out of reach of masses, self-medication is relied on to treat serious illnesses as well [7]. According to a survey of Jordanian householders, 39.5% of respondents admitted to using antibiotics without a prescription [8]. Self-medication is on the rise around the globe due to socioeconomic, political, and cultural causes, which has made it a significant public health issue [9].

Despite elaborate research and advancement in the field of medicine, Self-medication is widespread in developed nations too; however, the extent is not as high as in the low- and middle-income countries. Lot of research has been done in the area and the result revealed that the self-medication is more prevalent among the literate people compared with the illiterate [10]. Trend is rather prominent among the young population who tend to have more knowledge of drugs and their use, have lower risk perception, therefore are more influenced by self-medication [2]. Some of the reasons behind that are poverty, lack of health services, ease of access to the drugs, and feeling of sympathy within communities and families for their beloved ones [11, 12].

In developing nations like Pakistan, where a massive range of medications and drugs are easily accessible, insufficient health services lead to an increase in the use of drugs for self-medication [13]. Self-medication is common among undergraduate students also [9]. Such exercise is particularly crucial for students considering that they are subjected to knowledge, information and understanding about disorders, symptoms, and medications more specifically non-medical ones. Hence this study was undertaken to assess knowledge, practice, and awareness of self-medication among engineering, arts & humanities undergraduate students of seven institutes in Lahore, Pakistan.

2. Methodology

Over the course of seven months, this cross-sectional survey was conducted among Pakistani engineering, arts, and humanitarian students (December 2018-June 2019). After a thorough evaluation of prior research, a self-administered questionnaire was created. An expert panel composed of two pharmacy professors and two clinical pharmacy lecturers from Punjab University College of Pharmacy assessed the questionnaire. The study protocol was accepted by the human ethics council of Punjab University College of Pharmacy, University of the Punjab. The sample size for this study was determined using the sample size calculator at (http://www.raosoft.com/samplesize.html). A 50% response distribution was assumed, the margin of error was kept at 5%, and the confidence level was set at 95%. A sample of 377 students from each of the two study groups was necessary. We collected extra samples from each group in order to prevent biases, and a total sample size of 1000 was determined to be the minimum necessary. Data of engineering students were gathered from:

1) University of Engineering and Technology
2) University of Lahore, and
3) The University of Punjab

Data of arts and humanitarian students were gathered from:

1) Punjab University College of Arts and Design
2) National College of Arts
3) Oriental College and
4) University of Management and Technology

University students were approached and explained the aims and objectives of current studies and those consented were administered the questionnaire. While categorical data were shown as numbers and percentages, continuous variables were expressed as Mean ± standard deviation (SD). Analysis of continuous variables was performed by ANOVA whereas of categorical variables was done by the Chi-Square test. All statistical analysis was done by SPSS version 23 for Windows.

3. Results & Discussion

A total of 1100 questionnaire were administered and 1000 were collected, with an overall response rate of 63%. This study concentrated in particular on university students who were not studying medicine. Demographics characteristics of study sample are shown in Table 1. The average age of the population studied was 21.11±2.37 years, with significant difference of age among participant categories ($p=0.05$). Our study's key findings were that 63% of university and college students in Lahore frequently self-medicate. In two similar investigations, it was discovered that almost 80% of university students in Karachi used self-medication [1, 14]. In this study, younger age, male, and unmarried students residing in hostels and those who have access to nearby pharmacy tended to self-medicate greater than their colleagues with significant differences among them.

Table 1. *Demographic Characteristics.*

Characteristics	Overall (n=1000)	Engineering Students (n=500)	Arts and Humanities students (n=500)	P-Value
Age (Mean ±S. D yrs.)	21.11 ± 2.37	20.48 ± 2.3	21.73 ± 2.4	0.05*
Gender				
Male	680 (67.9)	406 (81.2)	274 (54.8)	<0.01**
Female	320 (32.0)	94 (18.8)	226 (45.2)	
Economic Status	72 (7.2)	40 (8)	32 (6.4)	
Lower Class Middle Class	818 (81.7)	413 (82.6)	405 (81.0)	0.287
Upper class	110 (11.0)	47 (9.4)	63 (12.6)	
Residence				
Day scholar	427 (42.7)	255 (51.0)	172 (34.4)	<0.05*
Hostel	573 (57.3)	245 (49.0)	328 (65.6)	
Marital Status				
Married	78 (7.8)	19 (3.8)	59 (11.8)	0.13
Single	922 (92.1)	481 (96.2)	441 (82.2)	

* Significant with P≤0.05; ** Significant with P≤0.01

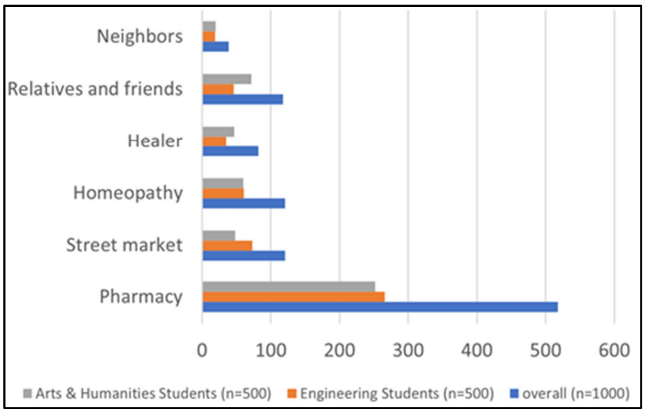

Figure 1. *Obtaining drugs and remedies for self-medication in history.*

The majority of the time, pharmacies were used to purchase OTC drugs as shown in Figure 1. Most respondents (approximately 51.8%) mentioned convenience, ease of access, and time savings as their top three justifications for self-medicating, and they acknowledged having done so in the past when experiencing the symptoms listed by their doctors. Common factors associated with self-medication were the perception that the disease was mild, previous experience with the same medication and symptoms. This was in accordance with the study in the Tanzania [15].

By rating from 1 to 7, the identified reasons were asked related to self-medication that were important near the respondents (1 meaning that the reason was not important and 7 represents that the reason was very important). The results showed that respondents followed the advice of relatives, friends, media that assure him he could manage such symptoms on his own with significance. This was in accordance with a review done by Ayalew that patients mostly follow the advice of relatives or the person who already suffered from same symptoms and recovered [16]. However, the current study also discovered a second, less often reported cause for self-medication, which was waiting a lot for healthcare professionals with significance level of 0.02 as shown in Table 2. This may be connected to the unregulated drug dispensing practices that characterized developing nations [10].

Table 2. *Perception of Self-Medication.*

Overall (n=1000)	Engineering Students (n=500)	Arts and Humanities students (n=500)	P-Value
I don't want to burden my physician because my problems are not important			
1.94±1.16	1.79±1.11	2.08±1.19	0.31
My physician told me that I can manage such symptoms on my own			
3.22±1.98	3.09±1.94	3.35±2.02	0.068
I want to play an active role in my health			
4.28±2.17	4.26±2.13	4.30±2.21	0.772
My relatives, friends, media told me that I can manage such symptoms on my own			
3.71±1.99	3.59±1.92	3.83±2.07	0.045*
I don't want to go to my physician due to a long waiting period			
3.90±2.02	3.75±1.96	4.05±2.06	0.020*
The prescribed treatment from my physician was not successful			
3.59±2.03	3.58±2.01	3.61±2.06	0.604
I don't trust my physician			
2.43±1.27	2.41±1.31	2.44±1.24	0.879

* Significant with P≤0.05; ** Significant with P≤0.01

67.4% students took professional help when symptoms were not relieved for more than one week in the past, 52.3% took in case of severe pain that was a significant point as of in study by Ahmad et al [17], 47.2% took in case of severe health problems, and 46.0% self-medicated due to worsening of health condition or symptoms as depicted in figure 2. But most common self-medication was found to be due to previous experience the respondents feel that condition can improve considering the nature of issue as before.

36.6 % students claim that herbals have side effects, 28.3% claim that it can be hazardous to increase medicine dosage, 24.1% claim that in the event of side effects, medical professional should be consulted, 26.7% claim that it is extremely risky to administer medications with unknown ingredients to those who have liver and renal problems as shown in Table 3.

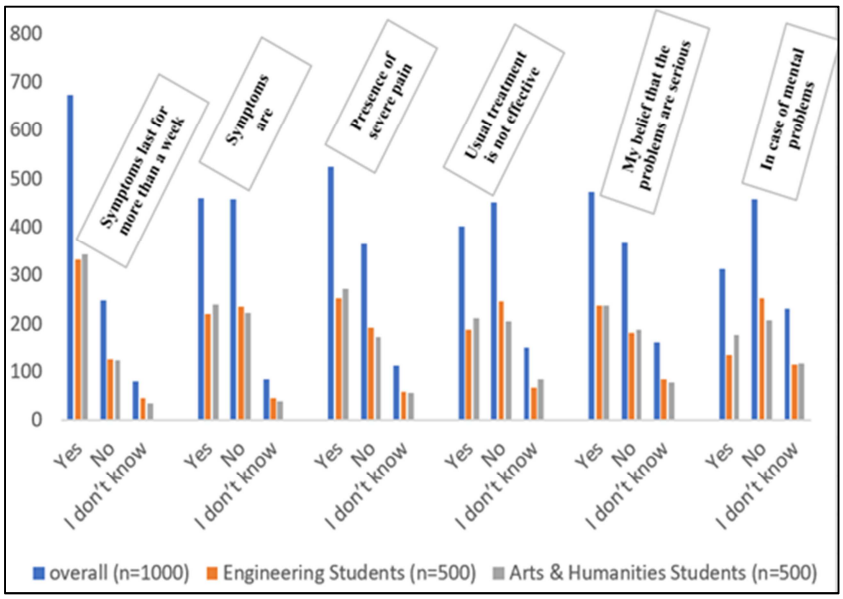

Figure 2. *Number of respondents seeking professional help in the past.*

Table 3. *Knowledge about Self-Medication.*

Overall (n=1000)	Engineering Students (n=500)	Arts and Humanities students (n=500)	P-Value
Any drug, including herbal ones, has side effects			
3.30±2.29	3.26±2.30	3.34±2.29	0.601
Simultaneous use of drugs, including herbal ones, can be potentially dangerous			
3.93±2.10	3.92±2.12	3.93±2.09	0.928
Increasing drug dosage can be dangerous			
4.43±2.11	4.40±2.07	4.45±2.14	0.719
Lowering drug dosage can be dangerous			
3.76±1.91	3.64±1.87	3.89±1.95	0.42
In case of side effects physicians' help must be sought			
4.49±1.99	4.46±1.93	4.52±2.06	0.675
Using drugs with unknown substances with patients having liver and kidney disease is extremely dangerous			
4.58±2.04	4.51±2.00	4.64±2.07	0.314
No drug can be used during pregnancy			
4.23±2.06	4.21±2.03	4.25±2.10	0.748
Mild medical problems do not need drug treatment			
4.25±1.97	4.33±1.89	4.16±2.05	0.169
Self-treatment can mask the symptoms and signs of diseases so the physicians can easily overlook them			
4.17±2.03	4.13±1.95	4.20±2.10	0.565

* Significant with P≤0.05; ** Significant with P≤0.01

4. Conclusion

Self-medication is an emerging problem and can be fatal and put lives at stake. Frequent usage of OTC drugs can have major side effects, including incorrect dose, drug duplication, drug interactions, therapeutic failure, masking of health problems and symptoms, and delaying the prescription of the right treatment. It is important to note that despite efforts to restrict it, the tendency of self-medication is always growing.

By reestablishing trust between the prescriber and the students, health professionals must raise students' understanding of the intake of prescription-only medications, such as antibiotics, and its effects on their health. Federal and provincial health care authorities must regulate the distribution of pharmaceuticals through the development of efficient preventative and interventional methods in order to ensure the proper use of medications.

Limitations

This study had several limitations. The study was conducted in academic institutes of one city of Pakistan. So, our findings may not be generalizable to the whole Pakistani universities' population. Furthermore, we did not use the probable sampling method (randomization), so we had drawbacks such as non-generalizability and assortment bias. Cross-sectional nature of this study is another restriction. Participants were evaluated only for once and study was not composed to reveal recent shifts in viewpoint.

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