

Assessment of Self-Medication Practices among Undergraduate Students Before and During COVID-19

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Abstract

Objective: To assess self-medication knowledge, prevalence, reasons, and conditions among undergraduate medical students.

Material and Methods: A survey was conducted among 329 undergraduate healthcare students in tertiary care hospitals & IOD using a self-administered questionnaire. Descriptive statistics were used to summarize the data, and categorical variables were analyzed with Chi-square and logistic regression tests at a significance level of $p < 0.05$.

Results: Self-medication was prevalent among 202 (61.4%) participants: 54 (26.7%) before COVID-19, 16 (7.9%) during COVID-19, and 132 (65.3%) both periods. Knowledge levels varied: 179 (54.4%) with poor knowledge, 150 (45.6%) with good knowledge regarding self-medication. Painkillers 176 (87.1%) were commonly self-administered class of drug, with fever 166 (82.6%) being the most treated condition. Individuals often used their own prior prescriptions 125 (62.5%) as a source of information for self-medication. The predominant reason for self-medication was fear of contact with the infected person during the pandemic, along with fear of quarantine or isolation.

Conclusion: In conclusion, this study reveals concerning self-medication practices among undergraduate healthcare students, particularly with painkillers for common ailments. Field of study, academic year, and personal background influenced self-medication tendencies, while highlighting knowledge gaps. The COVID-19 pandemic exacerbated these behaviours, necessitating immediate attention. Healthcare education must adapt to equip future professionals with decision-making skills amid rising self-medication practices.

Keywords: Coronavirus, SARS, Self-Medication, Self-Administration

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Introduction

Self-treatment is a world-wide health concern.¹ Self-medication is defined as the intake of drug by a person to treat self-analyzed illnesses/symptoms and

irrational use of OTC drugs without any expert advice from a health professional. Medications most often used for self-care are analgesics, antipyretics, antitussives, anti-diarrheal and calcium and vitamin supplements, steroids, sedatives and herbal and homeopathic remedies.² Self-care implementation is of great interest in both developed and under-developed countries however, greater in under-developed countries where human resources are discreet.³ Self-intake of drugs, if unguided, may have negative impacts on the life of individuals, medicines may be used for a period more than prescribed, which may lead to increased drug dependence, incorrect use of drug regimen which increases chances of drug resistance due to the improper use of medicines.⁴ Perso-

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nal intake of drugs among students of medical institute may result due to their habit of being easily compelled by the electronic and print media, which encourages self-intake of drugs.⁵ They are upcoming healthcare workers, so their perspective might impact their practices and the risk associated with the use of drugs.⁶ In December 2019, the first case of corona virus disease emerged in Wuhan, China. The disease is documented in more than 215 countries since that period.⁷ On March 2020, it was announced a world-wide pandemic by WHO.⁸ COVID 19 is an infectious respiratory disease that can be transmitted easily by sneezing, coughing or when the affected person may come in close contact with another person.⁹ Enhanced prevalence of the disease led to fear & anxiety among the general public all around the world, which is made worse by having no proper knowledge of its vaccination and medication for its treatment.¹⁰ They may have found it easy to get relief by self-medicating in order to avoid getting the virus from healthcare workers and hospital environments, to save their money and time, to get quick relief, in dealing with mild illnesses or due to difficulty in securing appointments with a physician.¹¹ Undergraduate students of medical college being future healthcare workers are an integral part of convincing patients regarding self-treatment and can help to educate the public about the sensible intake of drugs in the future.¹² The main goal was to evaluate the practices & reasons of self-treatment among students before and during COVID 19 and to assess their knowledge regarding personal intake of drugs.

Material and Methods

This study was conducted from July 2022 to March 2023 in CMH Lahore Medical College. The approval to conduct this research was obtained from CMH Lahore Medical College and Institute of Dentistry Ethical Review Committee (Case#.703 /ERC/CMH/LMC). All the respondents were well-versed on the study intentions and were required to consent before admission to the study. The study was an academic cross-sectional study using a validated self-administered questionnaire. It was conducted in CMH Lahore Medical College and Institute of dentistry in Punjab, Pakistan among undergraduate students of Medicine, Dentistry, Nursing and Allied Health Sciences. Sample Size was calculated using Cochran's formula using a confidence level of

95% and margin of error set at 5%. The formula yielded a required sample size of 329.

The questionnaire used for this study was designed by the researchers following an extensive review of similar studies.¹³ The questionnaire was approved after a Cronbach's alpha score of 0.773. The questionnaire consisted of 5 sections, Section A evaluated the demographic characteristics of the participants involved, Section B asked questions about knowledge of self-medication, Section C and D consisted of questions about practices of self-medication and the medications used, conditions and sources used for self-medication, Section D asked questions about reasons for self-medication either before COVID-19 or during COVID-19. The questionnaire used a 5-point Likert rating scale, with responses ranging from strongly agree⁽⁵⁾ to strongly disagree⁽¹⁾. To determine the students' level of knowledge, a total score of at least 32 out of 40 ($\geq 80\%$) was considered "good" knowledge, while a score below 32 ($<80\%$) was categorized as "poor" knowledge. An informed written consent was obtained from individuals after explaining the purpose of the study and involvement was voluntary. The privacy of participants was respected and there will be no identification of anyone partaking in this study. Students were informed that their responses would be anonymous and confidential.

Data was analyzed by using Statistical Package Programme for Social Science (SPSS) version 26 by IBM. Chi-square test was done with associations with $p < 0.05$ was considered significant.

Results

Mean age was 21 ± 0.8 years $SD=1.44$, Individuals 20 years old or older 176(63.5%) engaged in self-medication compared to those who are less than 20 years old 26(50%). Prevalence of self-medication was more among males 65 (67.7%). The prevalence of self-medication practices among the respondents was 202 (61.4%) among them 54(26.7%) self-medicated only before COVID-19, 16(7.9%) self-medicated only during COVID-19 while 132(65.3%) self-medicated both during and before COVID-19. (Table-1) Results indicate that out of a total of 329 respondents, 179(54.4%) Cutoff score < 80 , had poor knowledge about self-medication practices out of which 97(54.2%) practiced self-medication while 82(45.8%) did not practice self-medication.

150 (45.6%) Cutoff score > 80 had good knowledge out of which 105 (70.0%) were involved in self-medication practices and 45 (30%) were not practicing self-medication. The chi-squared test was performed on the data, with a p-value of 0.003, suggesting that there is a statistically significant association between knowledge and practice of self-medication. (Table 2) Pain killers 176(87.1%) was the class of medication most often used, followed by antibiotics 152 (75.2%) (Fig-1.1). The most commonly treated conditions by using self-medication were fever 166 (82.6%) followed by headache 165 (82.1%). The most common source of self-medication was an individual's own prior prescription 125 (62.5%). The percentage of people who had fear of contact with a person with infection was higher during the pandemic 63 (44.4%) than it was before 57 (31.3%). Fear of being in quarantine or isolation if they contracted the disease was more prevalent during the pandemic 40 (28.2%) than before 34 (18.7%). The percentage of people self-medicating due to a delay in receiving treatment at health facilities was higher during the pan-demic 16 (11.3%) than before 19 (10.4%) (Fig-1)

Table 1: Distribution of respondent's demographic characteristics based on the practice of self-medication (n = 329)

Variable	Engagement in self-medication, YES n (%) n = 202 (61.4)	No self-medication n=127 (38.6)	Chi-square	p-value
Gender				
Male	65 (67.7)	31 (32.2)	2.277	0.131
Female	137 (58.8)	96 (41.2)		
Age				
<20	26 (50.0)	26 (50.0)	3.386	0.066
≥20	176 (63.5)	101 (36.5)		
Field of study				
Medicine	112 (70.9)	46 (29.1)	30.859	0.000*
Dentistry	44 (73.3)	16 (26.7)		
Allied Health Sciences	33 (47.1)	37 (52.9)		
Nursing	13 (31.7)	28 (68.3)		
Year of education				
1st Year	39 (52.0)	36 (48.0)	52.879	0.000*
2nd Year	29 (36.7)	50 (63.3)		
3rd Year	66 (90.4)	7 (9.6)		
4th Year	62 (69.7)	27 (30.3)		
5th Year	6 (46.2)	7 (53.8)		
Background				
Urban	174 (64.4)	96 (35.6)	5.895	0.015*
Rural	28 (47.5)	31 (52.5)		

*Statistically significant (p<0.05)

Table 2: Knowledge about self-medication practice among respondents (n = 329)

Knowledge question ^a		SD	D	U	A	SA
1	Self-medication is defined as “the taking of drugs, herbs or home remedies on one's own initiative, or on the advice of another person, without consulting a doctor or pharmacist.”	10 (3.0)	16 (4.9)	27 (8.2)	131 (39.8)	145 (44.1)
2	Using an old prescription to treat a recurring condition is self-medication	9 (2.7)	42 (12.8)	50 (15.2)	169 (51.4)	59 (17.9)
3	Using left-over medications from a prior properly diagnosed illness to treat a recurrent one is self-medication	18 (5.5)	55 (16.7)	66 (20.0)	152 (46.2)	38 (11.6)
4	A physician's prescription is necessary before the purchase of any medication	5 (1.5)	40 (12.2)	40 (12.2)	114 (34.7)	130 (39.5)
5	It is possible to correctly treat illnesses without the physician's prescription	48 (14.6)	97 (29.5)	88 (26.7)	86 (26.1)	10 (3.0)
6	Using prescription only medications without the doctor's prescription can cause complications	8 (2.4)	13 (4.0)	54 (16.4)	157 (47.7)	97 (29.5)
7	Self-medication can lead to drug dependence and adverse drug reaction	9 (2.7)	8 (2.4)	53 (16.1)	127 (38.6)	132 (40.1)
8	Self-medication can cause pathogen resistance	8 (2.4)	14 (4.3)	39 (11.9)	120 (36.5)	148 (45.0)
Cut-off score	Remark	Self-medication	No self-medication			
<80	Poor knowledge	97 (54.2)	82 (45.8)			
>80	Good knowledge	105 (70.0)	45 (30.0)			
		$\chi^2 = 8.607$		$p\text{-value} = 0.003$		

^a Maximum obtainable score = 40; % individual score = score obtained by an individual ÷ by total obtainable score × 100. Strongly agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2, strongly disagree (SD) = 1

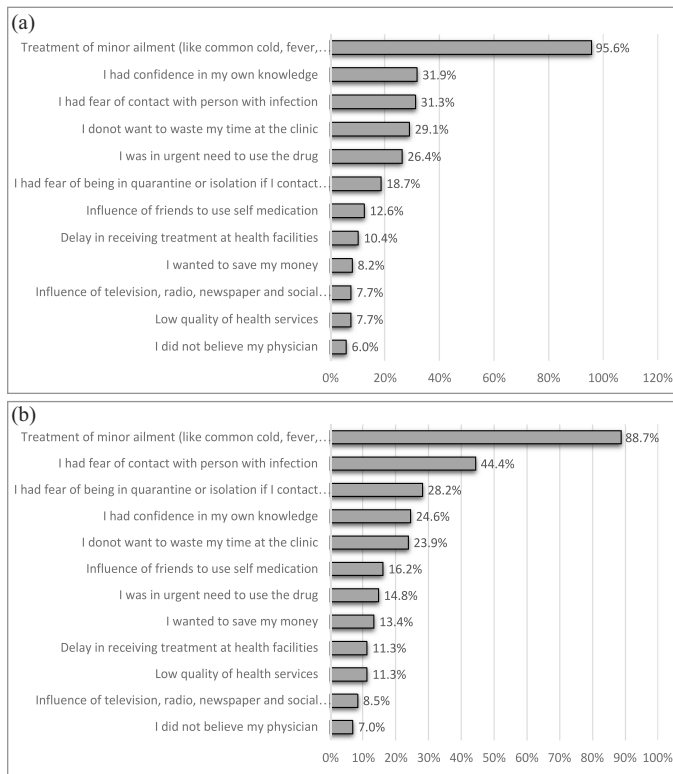


Fig-1: (a) = Reasons of self-medication before COVID-19, (b)= Reasons of self-medication during COVID-19

Discussion

In this study, we are investigating the prevalence of self-medication and the reasons of self-medication before and during COVID-19 as well as the knowledge among undergraduate students of CMH Lahore medical college and Institute of dentistry. Important finding of this study is that self-medication is a common practice among undergraduate healthcare students of CMH LMC & IOD, with a prevalence of 61.4%. The results of our prevalence study are consistent with earlier studies of university students and the general population from various countries.¹⁴ The study found that Dentistry and Medicine students engaged in self-medication more frequently than those in Allied Health Sciences and Nursing. This finding may indicate that these groups of students require specific education on the proper use of medications.

The study also found that 3rd and 4th-year students were more involved in practicing self-medication. This could be related to their increased exposure to patient care and prescription medication during this stage of

their training. Therefore, it is important to address medication use early in healthcare training to promote safe and responsible practices.¹⁵ The results of this study highlight an important issue in healthcare education. The significant association between knowledge and self-medication practices underscores the importance of education in promoting safe and responsible medication use. Specifically, the finding that a higher proportion of individuals with good knowledge engaged in self-medication practices suggests that education alone may not be sufficient to address self-medication practices, and that interventions targeting other factors, such as attitudes and beliefs, may also be necessary.¹⁶

According to this study, painkillers were the most commonly used class of medication. This is consistent with earlier studies that have also identified painkillers as the most frequently used medication in cases of self-medication.¹⁷ Antibiotics and anti-cough medications were also commonly used, indicating a potential misuse of these medications.¹⁸ The study also found that fever and headache were the most commonly treated conditions through self-medication. This may be due to the fact that these are common symptoms that individuals can easily recognize and self-treat. However, it is important to note that self-treatment of these conditions can potentially mask underlying health issues, leading to delayed diagnosis and treatment.¹⁹ The study shows a concerning result that the most common source of self-medication was an individual's own prior prescription, as this can lead to the misuse and overuse of medications. The fact that over half of the participants relied on their own academic knowledge to self-medicate is also alarming, as it suggests that healthcare professionals may not be immune to engaging in unsafe self-medication practices. It is encouraging to note that a significant proportion of participants sought counselling from a pharmacist, as this indicates a recognition of the importance of seeking professional advice. However, it is important to note that social media was also identified as a common source of information for self-medication, which raises concerns about the accuracy and reliability of information obtained through these channels.²⁰ The findings of this study highlight the impact of the COVID-

19 pandemic on self-medication practices. The fear of contracting the disease and the resulting need to avoid contact with others was identified as a significant factor influencing self-medication during the pandemic. This is not surprising, given the need for social distancing and the strain on healthcare facilities during the pandemic. The fear of being quarantined or isolated if they contracted the disease was also a prevalent reason for self-medication during the pandemic.²¹

Another noteworthy finding is decrease in reliance on personal knowledge. This could be due to the overwhelming amount of information available on social media and other sources, leading to confusion and uncertainty about which medications to take.²² It is also interesting to note that, despite the changes brought about by the pandemic, the most common reason for self-medication before and during the pandemic was the treatment of minor ailments such as the common cold, fever, and cough. This highlights the need for education on safe self-medication practices, as these are common conditions that individuals may attempt to treat on their own.²³ Recall bias is a common limitation in self-report studies where participants may not remember events accurately. Another limitation is the potential for respondents to discuss the questionnaire with others, which could affect the responses. This is a common limitation of self-administered questionnaires, and future studies could consider using other data collection methods to minimize this limitation. The numbers of participants were not equal in all the fields of study involved in the research. While the study findings are valuable, it is important to exercise caution when generalizing them to the broader population of healthcare students in the region.

Conclusion

The study found that self-medication was a common practice among the study population, with painkillers being the most commonly used class of medication. The study also identified that Medical and Dental students engage in self-medication more frequently than those in Allied Health Sciences and Nursing.

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Authors Contribution

JAM: Conceptualization of Project

JAM: Data Collection

JAM: Literature Search

SNA: Statistical Analysis

SZ: Drafting, Revision

MK: Writing of Manuscript