

An Investigation of the Frequency and Reasons for Self-medication of COVID-19 Drugs in Students Referred to Tehran University Clinics since August 2021

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Abstract

This study examined the frequency and reasons for self-medication with COVID-19 drugs among students who have visited the Tehran University Clinics since August 2021. The research method was a descriptive survey, and the statistical population of this study consisted of 900 patients referred to the infectious diseases department of hospitals affiliated with Tehran University. The obtained results revealed the following explanations for self-medication among Tehran University students in COVID-19 in 2021: The most prevalent reason for self-medication was the protection against COVID-19 disease, accounting for 51.3% of all instances. Next, they self-medicated for other reasons, such as quarantining themselves at home and avoiding going out, not being able to afford to see a doctor, relying on their prior experience with taking medicine, and also heeding the recommendations of others to take a particular medication.

Key words; Self-medication, COVID-19, Epidemic, Quarantine

Introduction

Self-medication is a behavior in which a person attempts to treat an illness or health issue without the assistance of medical professionals (Taher, et al., 2022). Self-medication can be accomplished through the use of an industrial or artificial drug, the acquisition of drugs without a doctor's prescription, the sharing of drugs prescribed for one person among family members and friends, the use of additional and leftover drugs at home, and the refusal to act on the initially prescribed drugs, either through excessive use of medicine without a doctor's prescription or by not taking the medicine at all (Lalthanpuui, et al., 2022). According to the results of previous research, one of the major reasons for this phenomenon may be the previous use of the medication and its recovery, the inability to afford doctor visits and drug market purchases, the ease of obtaining medicine without a prescription (10), and the lack of health insurance.

As the number of people infected with the coronavirus increased, so did the number of visits to the doctor's office and medical centers. As a result, many people avoided going to the doctor out of fear of leaving their homes and being in the community. In the study by Felt et al., the fear of contracting COVID-19 was a barrier to doctor visits (Postol, Shchadilova, 2022). Taking into consideration the findings of the conducted studies, it is crucial to pay attention to the societal complications caused by self-medication. However, the issue of self-medication is more significant for patients with COVID-19 due to its high prevalence and widespread societal involvement. It is necessary to conduct preliminary research on the prevalence and influencing factors of this health-related phenomenon so that it can serve as the foundation for future interventions aimed at altering the behavior of society's members and promoting greater awareness of this issue.

The study conducted by Shamsi et al. on mothers referred to health centers in Arak in 2007 and the results of interviews with these mothers revealed that drug accessibility and prior treatment experiences are the primary reasons for self-medication.

In 2009, Amani et al. examined Ardabil University students and reported that keeping medicine at home, ensuring the safety of self-medication, not having enough time to see a doctor to solve the problem, and pharmacies delivering medicine without a prescription are significant factors in self-medication among Ardabil University students.

Kiran Rafigh et al. surveyed one thousand individuals in Pakistan, and their findings revealed that self-medication was surprisingly prevalent despite its potential health risks. Thus, 72.1% of individuals believe that self-medication is safe and beneficial, while 29.9% believe that it is dangerous and harmful. 67.3% of adults opted for self-medication, compared to 46.9% of adolescents. In this study, students and housewives preferred self-medication the most.

In a study conducted by Arnold J. Sadio et al., it was found that 34.2% of "Lome" residents self-medicate, with vitamin C (27.6%) being the most commonly used drug, followed by traditional drugs (10%). Self-medication was linked to being a woman, working in the health field, and having a bachelor's degree.

In a study conducted in Jordan in 2021 by Eman Elayeh et al., 80.4% of participants self-medicated to prevent or treat COVID-19. Vitamin C (576), acetaminophen (51.9%), zinc (44.8%), and vitamin D3 (32.5%) were the most prevalent medications. According to their findings, self-medication was associated with the female gender, employment in the healthcare industry, and a history of previous infection. In addition, the most common information sources were newspapers, pharmacists, friends, and internet search engines like Google.

Airong Zhang et al. found in an Australian study involving 2217 participants that 19.5% of the participants used antibiotics for COVID-19 prevention. Self-medication was significantly associated with mental distress brought on by the COVID-19 pandemic. In addition, there was a correlation between preventive antibiotic use and a lack of understanding of antibiotics, inappropriate antibiotic use, the nature of the patient-physician relationship, and demographic factors.

Masumoto et al. conducted a study in Japan, and their findings indicated that one-third of the elderly self-medicate. These differences are likely the result of demographic and socioeconomic differences between communities. The spread of the Coronavirus and its social and health-related consequences can be regarded as one of the most significant human social events of the 21st century, which has resulted in irrational social behavior. This study revealed that over 50% of the elderly self-medicate to prevent the spread of COVID-19.

Nichols et al. argued that self-medication is highly dependent on the prevailing social conditions. Exposure to the disease, access to numerous information networks, and the unknown nature of Corona disease were among the factors that caused emotional reactions in people, particularly the elderly, and led to an increase in self-medication among this demographic. The method by which the elderly took medication was another finding of this study. While the present study highlights the obvious self-medication of the elderly in this study, only a few of them had sufficient medical knowledge about the type of medication they were taking; their knowledge was limited to naming the medicine, sending a picture of the drug, and naming the drug category. For instance, they mentioned that one drug falls under the cardiac and digestive drug categories, but they lacked sufficient knowledge of the number of drug side effects and drug interactions.

Jafari et al. reported that the majority of elderly participants in their study had adequate drug knowledge. In continuation and confirmation of the present study's findings, they reported that the majority of the elderly participants in this study use medicines that are readily available at home. Self-medication is a noteworthy aspect of this study due to the near-expiration dates of the medicines available at home, particularly juvenia. However, drug poisoning, improper use, and drug interactions may pose a significant risk of endangering their lives.

Pemakoska et al. studied self-medication behaviors during the COVID-19 pandemic. This study's participants, like those in the present study, considered the widespread nature of Coronavirus transmission, caution, and fear of contracting the disease as factors that influence self-medication. According to global Google search volume, the coronavirus has become an enormous medical challenge due to its complexity.

Another effective factor in self-medication was home quarantine, which simultaneously created panic among the general public, which anxiously awaited positive news about the prevention and treatment

of this viral infection, thereby contributing to an increase in self-medication. Three months have passed in Poland since the beginning of quarantine (March 11) and the conclusion of data collection, according to Makuska et al.'s study.

Okan et al. argued that drug information, prior drug use experience, long wait times, and distance to medical centers all influenced self-treatment behavior.

In a review and comparison with the results of the current study, Ayaleo showed that the most common reason elderly people self-medicate is that they have used drugs in the past.

People's prior experience with self-medication is consistent across studies, and this may be dangerous given that the COVID-19 disease shares symptoms with a variety of other diseases that can be mistreated by individuals, especially the elderly. Moreover, geriatrics specialists may be the only ones capable of adjusting drug therapy for elderly patients. As the number of people infected with the coronavirus increased, so did the number of visits to the doctor's office and medical centers. As a result, the fear of being in the community prevented many individuals from visiting a doctor. In the study by Felt et al., fear of contracting COVID-19 was a barrier to medical care.

The findings of the study by Nichols et al. revealed that self-medication is less prevalent among those with a higher level of education. Contrary to the findings of the present study, a study conducted in Lebanon found that self-medication is significantly linked to a low level of education. According to the findings of this study, there is a significant direct relationship between self-medication and education, such that elderly individuals with a higher level of education are more likely to self-medicate. This issue merits considerable consideration. This trend may be explained by the increased access of the educated population to the Internet and their ability to comprehend the information related to the treatment of COVID-19 disease, which is frequently published in official languages on social networks, as well as the increased prescription and sale of anti-disease medications.

As a result of the epidemic Coronavirus and COVID-19 disease, self-medication can have far-reaching effects on the population. Therefore, it is necessary to design programs at the national level to educate the populace about the complications and repercussions of self-medication. In addition, the sale of drugs in pharmacies and the proper prescription by a physician, as well as emphasizing the role of pharmacies and pharmacists in educating consumers about the requirements of each drug before purchase, are crucial factors in preventing the spread of self-medication.

Also, given the high prevalence of COVID-19 disease among students at Tehran University, it is necessary to design programs at the national level to educate students at Tehran University about the dangers of self-medication.

To control the prevalence of self-medication, it is also necessary to regulate the sale of drugs in pharmacies and ensure that doctors write the appropriate prescriptions, as well as to emphasize the role of pharmacies and pharmacists in educating consumers about the purchasing requirements for each drug. Therefore, it is advantageous to conduct research in this area and report findings that can be applied to the management and supervision of pharmacies and physicians, as well as relevant educational and policy initiatives. Regarding the aforementioned, the present study was a cross-sectional investigation conducted in Tehran in 2021 to determine the factors influencing the self-medication of related drugs among COVID-19 patients.

Research Method

The present study is applied research in terms of its objective, and a descriptive, correlational survey in terms of its nature and methodology. This study's statistical population comprised 950 individuals referred to the infectious disease departments of Tehran hospitals. In this study, a simple random sampling method was used. In this type of sampling, each member of the population has an equal chance of being included in the sample. This determined the sample size to be 270 individuals.

Considering the comparison of the average drug consumption between different groups, descriptive statistics, including frequency, mean, percent, age, and standard deviation, as well as appropriate parametric tests, such as ANOVA (analysis of variance) or its non-parametric equivalent, were used to analyze the data. A significance level of 0.05 was taken into account.

Findings

According to the report of the students, 54.6% of them self-medicated to treat the COVID-19 disease, while 42.4% did not; therefore, the majority of the students resorted to self-medication to treat this disease. They were asked for the reason behind their self-medication, and the stated reason was investigated further.

51.3% of those who self-medicated with COVID-19 did so to prevent contracting the Coronavirus. Consequently, 50% of respondents self-medicated for this reason. One of the reasons for self-medication of COVID-19 disease, according to 50.4% of respondents, is to avoid going out. Consequently, the respondents self-medicated due to a fear of leaving their homes. Considering the costs of treating this disease, one of the reasons for self-medication can be the costs associated with this disease. However, in this study, only 26.4% of respondents cited the cost of COVID-19 as a reason for self-medication, indicating that costs were not a particularly strong reason for self-medication. Previous drug use was cited as the reason for self-medication by 24.3% of the respondents. Thus, one-fourth of respondents cited previous drug use as a reason for their self-medication.

22.5% of respondents cited the recommendations of others, pharmacies, and the media as the reason for their self-medication. According to this percentage, the recommendations of others and what the media has discussed and said are the reasons for self-medication among respondents. 18% of respondents indicated that lack of insurance coverage was the reason they self-medicated. Therefore, the respondents' lack of insurance coverage was not a major factor in their self-medication. According to 16.5% of respondents, the self-medication of the COVID-19 disease was due to the disease's mildness. Thus, approximately 15% of respondents self-medicated due to the mildness of their symptoms and a lack of perceived need to visit a physician or hospital. According to 14.5% of respondents, easy access to medication was a factor in the self-medication of this disease. Therefore, this accessibility cannot be a major factor in the respondents' self-medication.

10% of respondents cited a lack of faith in conventional treatment as one of the reasons for self-medication. Therefore, it cannot be an important factor in the respondents' self-medication. Being distant from the doctor's office was cited by 7.5% of respondents as one of the causes of self-medication. Therefore, the distance or proximity of the physician's office was not a significant factor in the respondents' self-medication.

Lack of knowledge about self-medication side effects was cited by 6.3% of respondents as one of the reasons for their self-medication. Therefore, it is not a decisive reason for the respondents' self-medication. 5.4% of respondents lacked sufficient time to visit a physician. Another reason for the respondents' self-medication for COVID-19 disease has been declared. Compared to other reasons for self-medication, it was the least significant among respondents.

Reasons for self-medication	Frequency	Percent	Significance
Protection against the Coronavirus	205	51.4	0.001
Avoid going out	202	50.4	
Inability to pay for treatment	106	26.4	
Previous drug use experience	97	24.3	
The recommendation of others, the pharmacy, and the media	90	22.5	
Lack of health insurance	72	18	
Mild symptoms of the disease	66	16.5	
Easy access to medicine	58	14.5	
Lack of faith in conventional treatment	40	10	
Being far from the doctor's office	30	7.5	
Lack of knowledge about the adverse effects of self-medication	25	6.3	
Not having enough time to see a doctor	22	5.4	

According to Table 1, the most important reasons for self-medication in the COVID-19 epidemic among students who self-medicate were, respectively, protection against the Coronavirus as the most common

reason (51.3%), then self-medication for other reasons including home quarantine and avoiding going out, inability to pay for treatment and to see a doctor, previous drug use experience, and also the recommendation of others.

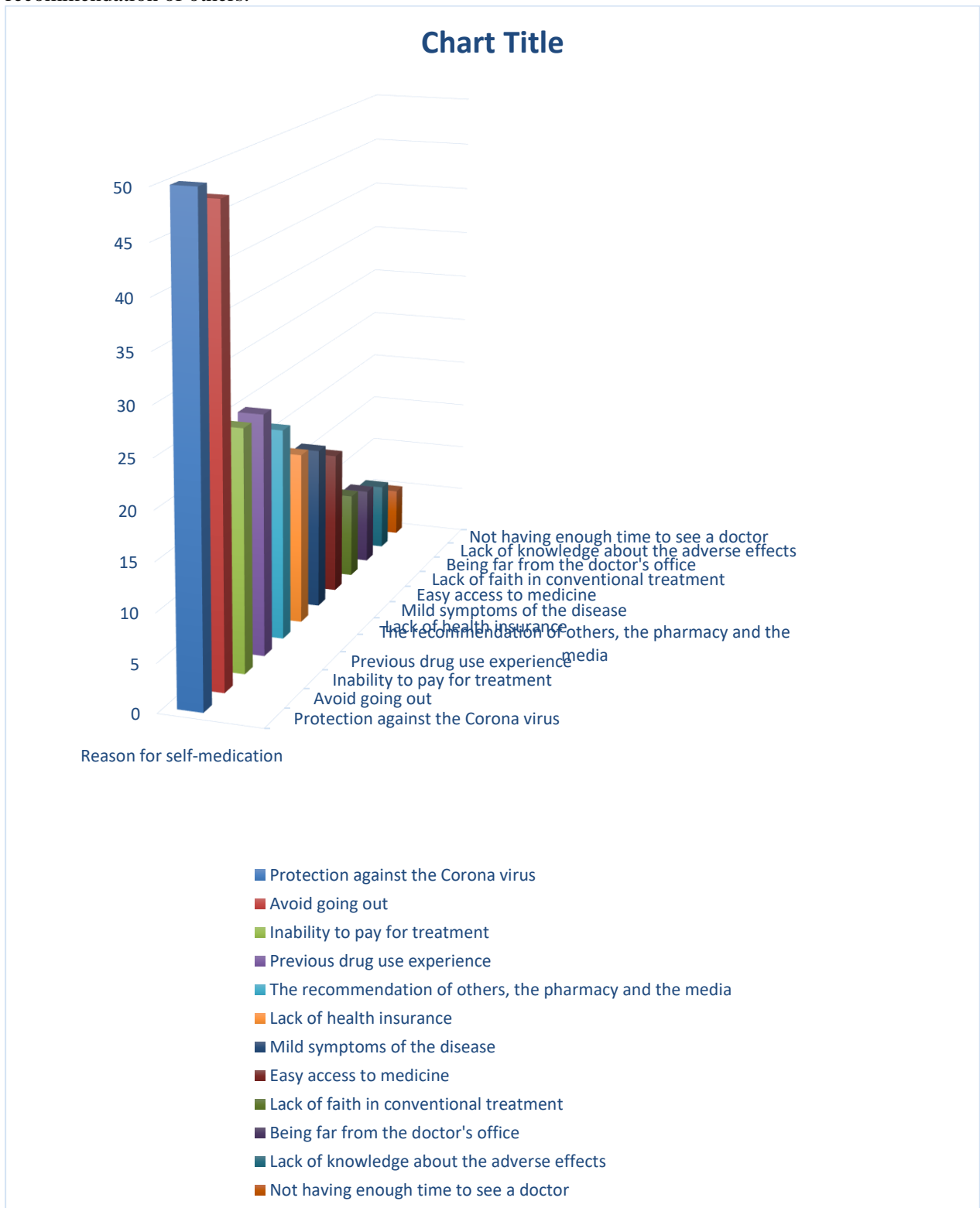


Figure 1. Comparison of the Reason for self-medication in Patients with COVID-19

Table 2. Self-medication according to the Type of Drug Used by Patients with COVID-19

Type of drugs in self-medication	Frequency	Percent	Significance
painkillers	204	51	0.01
strengthening supplements	192	48	
anti-cold	184	46	
sedatives	172	43	
antibiotics	166	41.5	
Gastrointestinal drugs	111	27.8	
Heart drug	69	17.2	

The results of table 2 show that self-medication according to the type of drug used in patients with COVID-19 in students of Tehran University, the most drug category in self-medication is related to painkillers (51%), strengthening supplements (48%), anti-cold (46%), sedatives (43%) and antibiotics (41.5%). These differences were statistically significant.

Table 3. Self-medication according to the form of drug used in patients with COVID-19 in Tehran University students

Drug Form	Frequency	Percent	Significance
Tablets or capsules	207	51.7	0.03
syrup	97	24.3	
ampule	52	12.9	
Others	44	10.9	

The results of table 3 showed that self-medication in terms of the form of medication used in patients with COVID-19 in students of Tehran University was self-medication by 51.7% of the respondents, tablets or capsules 24.3%, syrup 12.9% ampoules and 10.9% other forms of medicine. These percentages were statistically significant.

Table 4: Frequency Distribution of Self-medication according to Insurance Coverage in Patients with COVID-19

Insurance	Frequency	Percent	Significance
Insurance coverage	102	25.4	0.01
No insurance coverage	298	74.6	

According to table 4, 25.4% of patients with COVID-19 who self-medicated lacked insurance coverage, while 74.6% of patients with COVID-19 who self-medicated had insurance coverage.

Conclusion

The results of this study indicated that some individuals self-medicated during the COVID-19 epidemic, indicating their perception of coronavirus infection risk. Consequently, it is necessary to reduce people's fear by raising awareness and providing accurate information about COVID-19 through public and virtual media campaigns. In addition, self-medication is more prevalent among educated individuals without health insurance. It is advised that drug suppliers take precautions, such as refraining from selling over-the-counter medications and providing accurate information about self-medication at the time of purchase. Due to the potential problems and risks associated with self-medication in the context of the COVID-19 epidemic, it appears necessary to provide health centers with specialized educational programs for patients. Therefore, it is recommended that the authorities increase public awareness to mitigate this issue. Regarding the emerging nature of the COVID-19 disease and the numerous changes in its clinical manifestations over time, this factor can influence the choice of medicine and the prevalence of its use at the time of data collection. In addition, the unique circumstances of COVID-19 may have affected the method of data collection.

Since the majority of studies in this field have employed quantitative methods and only a few have utilized qualitative methods, it is recommended to employ a hybrid approach. Also, based on the fact -

that a single method was used to collect the necessary data in this study, it is recommended that future studies employ multiple methods for data collection and compare the statistics obtained from different methods.

By educating students about the irreversible side effects of self-medication and altering their attitudes, crucial steps can be taken to resolve this issue. Besides, through creating a campaign in public and virtual media to disseminate accurate information about COVID-19, the media should make greater efforts to allay the fears of the general public and raise their level of awareness. At the time of drug purchase, it is suggested that drug supply operators take into account all relevant factors, such as refraining from selling over-the-counter drugs and providing self-medication information. Due to the potential problems and risks associated with self-medication in the context of the COVID-19 epidemic, it appears necessary to implement special educational programs in health centers.

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