

Investigating Performance of Self-Medication in Multan During the COVID-19 Pandemic

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Abstract

This study examines the frequency and determining factors that impact using self-medication among academic professionals in Multan during the COVID-19 epidemic. Self-medication, which refers to the use of over-the-counter medications without the supervision of a medical expert, has gained significant attention during the pandemic due to limited access to healthcare facilities and heightened health anxieties. Employing a case study methodology, data was gathered from academic workers in Multan via questionnaires and interviews to investigate the extent of self-medication and ascertain the variables that contribute to it. The findings provide insight into the prevalence of self-administered treatment practices, frequently utilized drugs, motivations for self-medication, and influential sources of information guiding these choices. Potential predictors of self-medication behavior include factors such as the perceived intensity of symptoms, accessibility of pharmaceuticals, past experiences, and socioeconomic position. The implications of these findings for public health policies, healthcare delivery systems, and health education initiatives are examined, focusing on the significance of tackling the underlying reasons behind self-medication to guarantee secure and efficient healthcare practices during health crises such as the COVID-19 epidemic.

Keywords: Self-medication, Academic Professionals, COVID-19 Pandemic.

Introduction

The COVID-19 virus has presented considerable obstacles to healthcare systems globally and highlighted some socioeconomic and behavioral consequences, such as alterations in healthcare-seeking behavior. A vital occurrence that has arisen during this crisis is the heightened occurrence of self-medication, when individuals turn to the use of over-the-counter pharmaceuticals without the direction of medical professionals. The emergence of this pattern has sparked apprehension among healthcare practitioners and policymakers owing to its inherent hazards, such as unfavorable medication responses, treatment ineffectiveness, and the development of antibiotic resistance. Comprehending the determinants behind self-medication habits is essential for formulating efficient interventions to encourage the safe and suitable use of medicine, especially during public health crises like the COVID-19 epidemic.

Multiple studies considering the COVID-19 virus have shown a substantial rise in self-treatment activities. Salman et al. (2020) conducted research for Lahore City, revealing that sixty-five percent of the participants acknowledged self-medication during the pandemic. Similar patterns have been observed worldwide. In a study conducted by Singh et al. (2020), it was discovered that 71.5% of the subjects engaged in self-medication throughout the pandemic.

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In a research done by Heshmatifar et al. (2021), it was shown that 61.7% of Iranian participants engaged in self-medication to alleviate symptoms related to COVID-19.

The COVID-19 virus has posed unprecedented challenges to healthcare systems worldwide. Amidst these challenges, self-medication has emerged as a prominent practice for symptom management and psychological relief. This review aims to investigate the literature on self-care in the era of COVID-19, focusing on its benefits, risks, influencing factors, and regulatory responses.

Self-medication offers several advantages during the pandemic. Firstly, it enhances accessibility to essential healthcare products, particularly in areas with overwhelmed healthcare systems (Ahmed et al., 2019). Over-the-counter medications effectively manage mild COVID-19 symptoms, relieving individuals without immediate medical attention (Almohammed et al., 2021). Additionally, self-medication may alleviate psychological distress associated with the pandemic, offering a sense of control and empowerment to individuals (Bennett & Glasziou, 2009).

However, self-medication also entails risks and challenges. Misuse of medications is a significant concern, with instances of inappropriate use or overdose due to self-diagnosis and misinformation (Vellingiri et al., 2020). Moreover, self-medication may lead to delayed medical care, as individuals may postpone seeking professional help, resulting in worsened health outcomes (Almohammed et al., 2021). Drug interactions and adverse effects pose additional risks, especially when self-medicated treatments are combined with prescription medications or other over-the-counter drugs (Ahmed et al., 2019).

Several factors influence self-medication behavior during COVID-19. Information sources, including social media and internet resources, significantly shape individuals' medication choices (Bennett & Glasziou, 2009). Socioeconomic factors such as income and education level impact access to healthcare services and influence self-medication practices (Ahmed et al., 2019). Fear and uncertainty surrounding COVID-19 contribute to psychological factors driving self-medication as individuals seek ways to mitigate anxiety and perceived risks (Vellingiri et al., 2020).

Governments and health authorities have implemented various regulatory measures to address self-medication during the pandemic. Policies and regulations have been introduced to monitor the sale of over-the-counter medications and promote responsible self-medication practices (World Health Organization, 2000). Public health campaigns have also been launched to educate the public about appropriate medication use and seek professional medical advice when necessary (Almohammed et al., 2021).

Various drugs such as analgesics (e.g., paracetamol), antipyretics, antitussives, and vitamins are commonly employed for self-treatment activities in the era of the COVID-19 epidemic. These medicines are widely used to alleviate COVID-19 symptoms such as fever, cough, and body aches. There have been reports of people using over-the-counter medications, herbal therapies, and conventional pharmaceuticals to self-medicate during the COVID-19 virus.

Various reasons contribute to individuals resorting to self-treatment activities in the era of the COVID-19 epidemic. The apprehension and concern around the virus and its potential repercussions have motivated individuals to assume responsibility for their well-being by adopting self-care practices. Individuals have been compelled to self-administer medication due to misleading information on potential therapies, preventive measures, and the efficacy of certain pharmaceuticals.

The restricted availability of reliable healthcare providers has also impacted the use of self-medication to manage symptoms. A significant number of individuals hold the belief that self-administering medication is a comparatively cost-effective and pragmatic alternative to seeking medical assistance from a doctor. Individuals may choose self-medication as a means of economizing on medical consultations and prescriptions, given the widespread availability of

over-the-counter medications and natural remedies. Individuals with a history of self-medication are more prone to persist in this practice during the epidemic. They may possess the knowledge and information to self-diagnose and treat their issues accurately. Several socio-demographic factors have been associated with self-care during the period of the COVID-19 virus. Various factors can affect access to healthcare.

Self-medication refers to independently choosing and utilizing drugs to treat health conditions and signs detected without consulting a medical professional (Baracaldo et al., 2022). Furthermore, self-treatment is associated with incorrect dosage, improper administration, prolonged usage, inadequate storage, drug interactions, polypharmacy, and the potential for reliance and misuse, rendering it a significant worldwide public health concern (Aitafo et al., 2022; Alsaad et al., 2022).

The COVID-19 era during the global shutdown highlighted the advantages and dangers of self-treatment as the sole means of diagnosing and treating the coronavirus (Quispe-Cañari et al., 2021). The prevalence of self-care practices is significantly higher in developing nations than in developed countries. Research studies have revealed that the incidence of self-care is 84% in Pakistan and 78% in Saudi Arabia (Raza et al., 2022).

In response to the onset of the COVID-19 virus, the World Health Organization (WHO) instructed individuals to safeguard themselves from its impacts. The advice encompassed the following measures: adhering to social distancing, using masks when venturing outside, periodically employing sanitizers, and self-isolating upon experiencing slight symptoms (Rafiq et al., 2021). Over time, as the COVID-19 epidemic escalated, several healthcare experts and research institutions embarked on developing a vaccine to mitigate the virus's detrimental impact and restore global normalcy.

A significant proportion of families engaged in self-care, indicating a high frequency of this practice. The key variables encompassed factors such as convenient availability of medications, prior utilization of self-prescription, and apprehension about visiting a hospital due to the pandemic (Al et al., 2020). Previous research investigations indicate the prevalence of self-prescription during the era of the COVID-19 epidemic. The study done in Kenya revealed a notable prevalence of self-treatment among urban residents, particularly those who had pharmaceuticals readily available at home, had previously engaged in self-treatment, and had experienced mild symptoms of COVID-19 (Mutua et al., 2021).

The study done in Brazil revealed a "notable prevalence of self-treatment behaviors. Variables associated with an increased likelihood of self-care encompassed the presence of a chronic ailment, the ability to identify signs of COVID-19, and a fear of seeking medical care at healthcare institutions amidst the pandemic (Pitta et al., 2021). The cross-sectional study conducted in the United Arab Emirates examined the prevalence of self-care during the COVID-19 epidemic and the factors contributing to it. The results revealed a notable prevalence of self-care practices, with factors such as being male, having previous experience with self-prescription, and perceiving symptoms of COVID-19 being associated with an increased likelihood of engaging in self-prescription (Sarfraz et al., 2021). The South African study examined the prevalence of self-administered treatment during the COVID-19 virus. The findings revealed a notable prevalence of self-medication practices, wherein individuals frequently employ non-prescription medications and traditional therapies. The study identified factors that impact self-prescription, such as self-reported COVID-19 symptoms, apprehension of contracting the virus in healthcare settings, and limited availability of healthcare services (Ismail et al., 2021). This online cross-sectional study conducted in China aimed to investigate the frequency and factors associated with self-care behavior during the COVID-19 epidemic. The study revealed a notable surge in the practice of self-care, which was shown to be associated with certain attributes such as individuals having chronic ailments, being able to identify symptoms of COVID-19, and harboring skepticism towards the healthcare system.

These factors were identified as contributing to an elevated likelihood of engaging in self-care. The study emphasized increasing public knowledge and promoting judicious drug utilization (Hu et al., 2022). Various research papers indicate a notable prevalence of self-medication among individuals during the COVID-19 virus, along with the associated causes. Commencing self-treatment involves self-diagnosis, which raises the probability of inaccuracy. Therefore, it is crucial to acknowledge that self-treatment is not advisable for severe health conditions, illnesses, and viruses that need expert medical guidance and intervention (Chaudhry et al., 2022)."

The Multan city, situated in the Punjab region of Pakistan, is a city that embodies a varied urban environment characterized by a blend of socio-economic disparities and obstacles in accessing healthcare. During the COVID-19 epidemic, people in Multan, as well as in other places, have experienced interruptions in healthcare services, anxiety about becoming infected, and uncertainty about the accessibility of appropriate treatments. These variables could have affected the inclination of academic professionals to resort to self-treatment as a coping mechanism or as a way to handle perceived health hazards.

This paper seeks to achieve the following objectives:

- To determine the frequency of self-administered treatment among academic professionals in Multan during the COVID-19 epidemic.
- The objective is to ascertain the determinants of self-treatment practices, encompassing socio-demographic attributes, health attitudes, availability of healthcare providers, and sources of health information.
- To investigate the regularly utilized drugs for self-administration and the perceived effectiveness of these therapies.
- To examine the consequences of self-treatment behavior on public health interventions, healthcare policies, and health education programs aimed at academic professionals and the broader population in Multan.
- This study analyzes the frequency and factors influencing self-treatment among academic professionals in Multan. Its objective is to enhance the current knowledge of medication usage patterns during health emergencies and provide evidence-based recommendations for promoting safe and suitable healthcare practices.

Data Collection and Methodology

This research study employed a cross-sectional methodology, utilizing a questionnaire-based approach to gather data on the prevalence and determinants of self-care during the COVID-19 epidemic in Multan. The study was conducted using qualitative methods with a sample size of 100 respondents. The data has been collected, converted into a qualitative format, and subjected to statistical analysis and evaluation. Utilizing previous research and literature studies, a survey was created using Google Forms and disseminated via social media platforms. Participants were provided with explicit instructions on how to complete the survey.

Questionnaire Development

A systematic questionnaire was developed to gather relevant data on self-care practices, demographic characteristics, educational level, access to healthcare facilities, and other factors influencing self-care behavior. The study objectives, existing literature, and expert input informed the project's design. The questionnaire design was adapted from a study questionnaire developed by Abdelwahed et al. in 2023. Consequently, doing pilot testing to assess its dependability was unnecessary.

The questionnaire ultimately had five sections. The initial segment addressed data about demography. The second component evaluated the frequency of self-care. The third part pertains to the factors that influence self-prescription. The participants were assessed on their

overall health and level of awareness in the fourth portion. In the fifth session, we acquired suggestions and feedback from the participants. Have you ever self-administered any medication or drugs without seeking advice from a qualified doctor during the COVID-19 epidemic? The responses "never" were classified as NO and marked as 0, whereas the reactions "once," seldom (2-3 times a year), sometimes (once every few months), often (once every few weeks), always" were deemed YES for Self-Medication and coded as 1.

Sampling Technique

The participants were selected from different areas of Multan by simple random selection. We determined the sample size to be 100 using the Yamane formula with a precision level of 10% (Determining Sample Size, n.d.). A deliberate attempt was made to incorporate individuals from diverse backgrounds to enhance the sample's representativeness.

The research's target audience comprised individuals from several universities in Multan, Pakistan. The institutions attract a diverse range of students and teachers from many academic disciplines and educational backgrounds, reflecting a broad cross-section of the city's population. The project's objective is to collect diverse perspectives and firsthand accounts of the self-administration of medicine during the COVID-19 epidemic by engaging participants from other universities.

Data Analysis and Interpretation

The qualitative data collected from the questionnaires was evaluated using appropriate statistical techniques. Descriptive statistics, such as frequencies and percentages, were used to summarize self-prescription prevalence and demographic data. Inferential techniques such as chi-square tests were employed to examine the relationship between various factors such as demographic features and self-prescription behavior. The findings derived from the data analysis were evaluated about the research goals and the current body of literature. The ramifications of the findings were examined and compared to relevant research to determine any parallels, discrepancies, or new insights.

Findings and Discussions

In order to gather data for our case study, we conducted a survey in Multan with 100 participants. The survey was conducted using a structured questionnaire. The variables included in the study were gender, age, employment, and prior experience with self-prescription prior to the epidemic. Out of the 100 respondents, 60% were girls and 40% were males, belonging to various age categories. Additional outcomes are displayed in the table provided below.

Table 1: Gender distribution

	Frequency
Male	40
Female	60
Total	100
Age	
18-30	60
31-45	20
46-54	10
55 and above	10
Total	100

Occupation

Employed	36
Self-employed	13
Unemployed	11
Student	40
Total	100

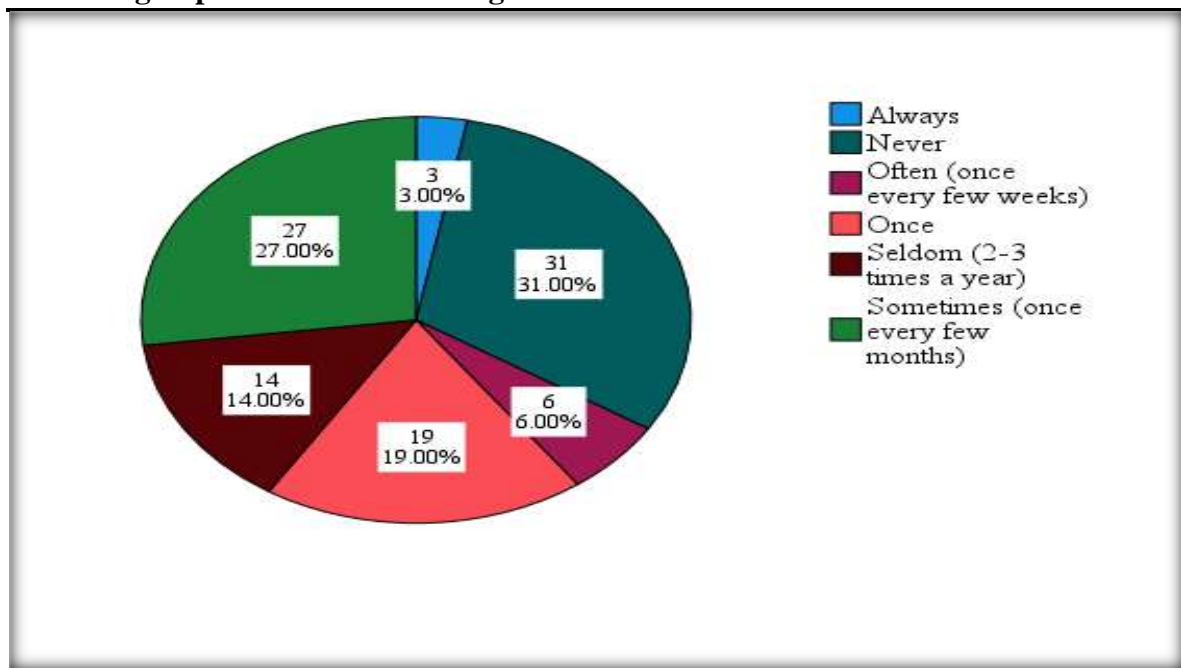
Previous experience with self-treatment before pandemic

Yes	55
No	45
Total	100

Prevalence of Self-treatment

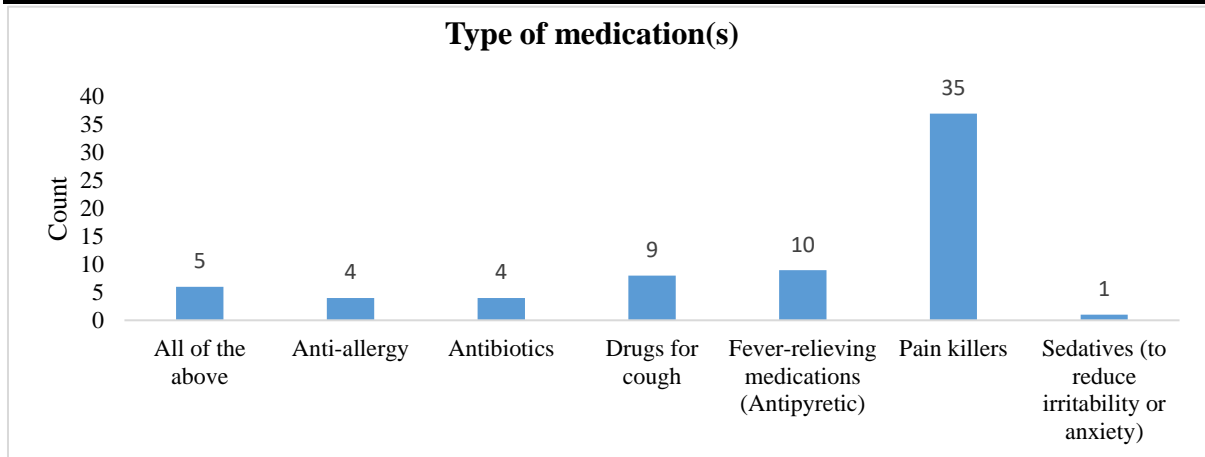
The second section of the questionnaire pertained to the prevalence of self-treatment. 31% of the respondents refrained from self-medicating without seeking guidance from a qualified doctor during the COVID-19 epidemic. During the COVID-19 epidemic, 3% of individuals consistently used medicine, 6% took medication regularly (once every few weeks), 19% took medication once, 14% took medication seldom (2-3 times a year), and 27% took medication occasionally (once every few months).

Figure 1: The percentage of respondents who ever taken any medication without consulting a specialist doctor during COVID-19



The self-treatment practices during the COVID-19 virus involved the use of many types of pharmaceuticals. Painkillers were used by 53.6% of individuals, antipyretic pills for fever relief were used by 13.0% of individuals, drugs for cough were used by 11.6% of individuals, anti-allergy medications were used by 5.8% of individuals, antibiotics were used by 5.8% of individuals, sedatives for reducing irritability or anxiety were used by 1.4% of individuals, and 8.7% of individuals used a combination of all the aforementioned medications. Painkillers are more widely utilized than other categories of drugs during the COVID-19 virus.

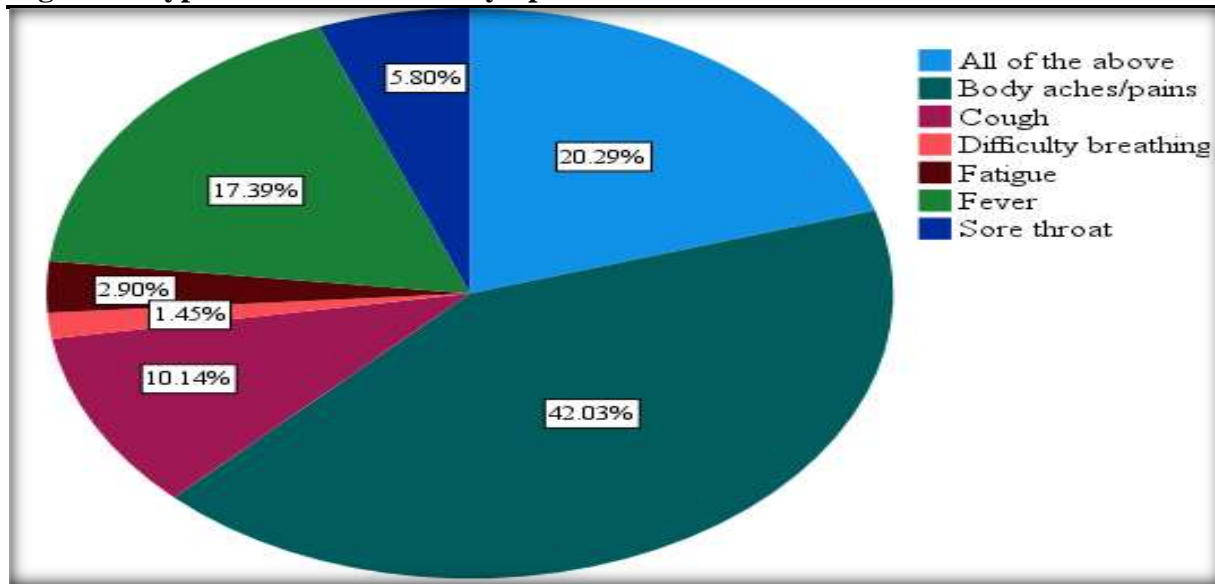
Figure 2: Types of medication(s) used during COVID-19



The primary factor hindering individuals from seeking professional medical advice is the challenge of accessing healthcare facilities, as indicated by 31.9% of respondents. This percentage is higher than the proportions of other reasons, such as 23.2% expressing a lack of trust in the healthcare system. Additionally, 24.64% of respondents reported experiencing all the aforementioned reasons for not seeking professional medical advice.

The majority of respondents reported experiencing physical aches or pains, which prompted them to self-medicate. This accounted for 40.6% of the participants. Additionally, 17.4% of the respondents reported feeling fever, while 20.3% experienced all of the above causes.

Figure 3: Type of health issues or symptoms lead to self-treatment

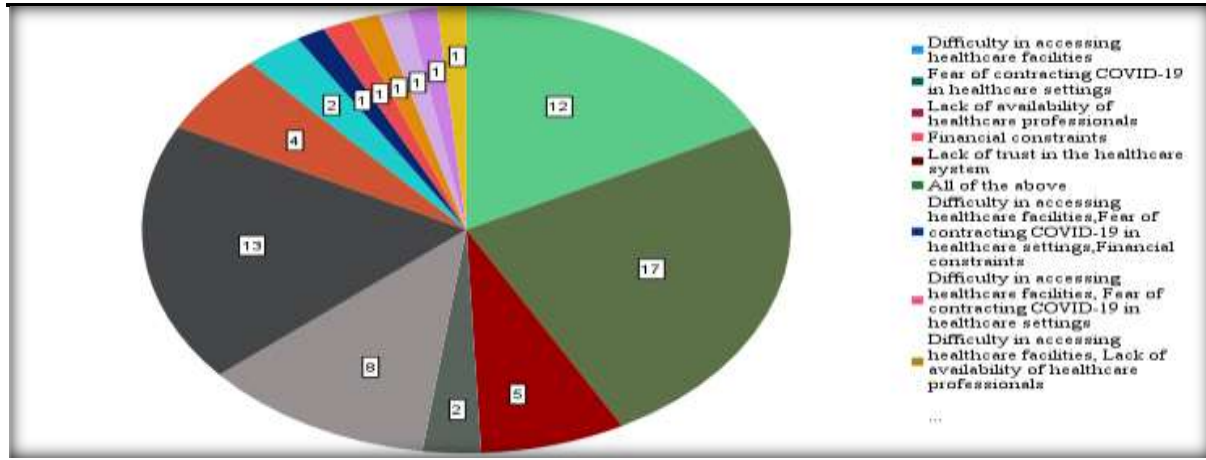


Factors influencing self-prescription

Section 3 explores the motivations and reasons behind the adoption of self-prescription during the Covid-19 outbreak. The causes contributing to healthcare access issues are as follows: difficulties in accessing healthcare facilities (12%), financial restrictions (2%), lack of availability of healthcare experts (5%), and fear of contracting COVID-19 in healthcare settings

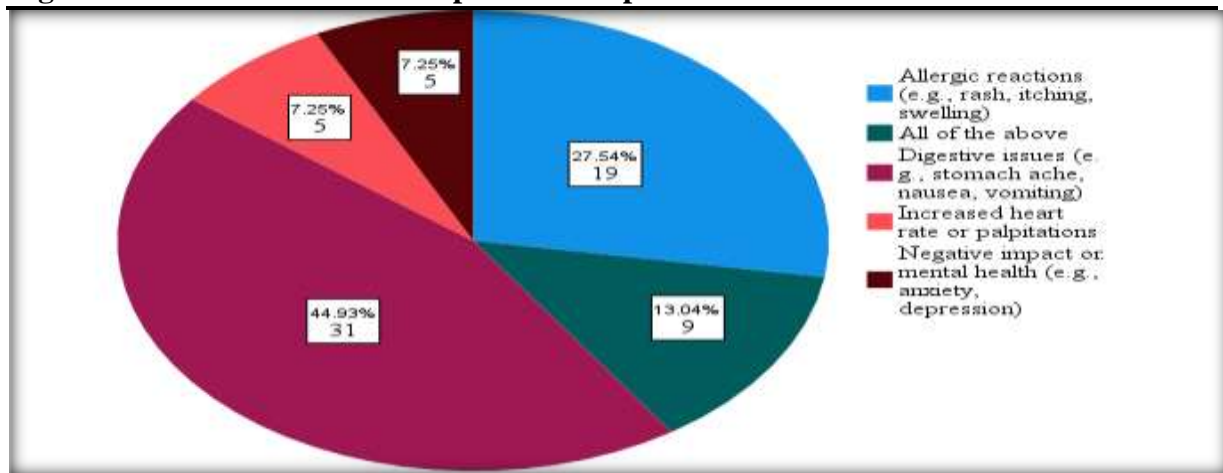
(17%). Additionally, several individuals provided various justifications for choosing self-prescription.

Figure 4: The reasons for opting for self-prescription during the COVID-19 epidemic



For the purpose of acquiring the experience and information required to make judgments on self-prescription Sixty-one percent of those who participated in the survey sometimes relied on information gained from the internet or social media when making judgments on self-prescription medicine. Eight percent, on the other hand, relied on information obtained from the internet on a continuous basis. In addition, twenty-four percent of the people who participated in the survey predominantly used medical websites or blogs for the aim of self-prescription. In addition, twenty-one percent of the people who participated in the survey relied on a variety of sources, which included online groups and forums, social media platforms like Facebook and Twitter, as well as medical websites or blogs. 31 percent of those who participated in the survey said that they had no faith whatsoever in the quality and dependability of the information that they acquire from internet sources. The percentage of those who had a moderate degree of confidence was 16%, while 43 percent had just a small amount of optimism. This suggests that respondents, in general, did not have trust in the accuracy of the information that they obtained from internet sources.

In contrast, 55% of respondents said that they sometimes had detrimental effects or problems as a consequence of self-care, while 14% of respondents routinely face negative effects or difficulties as a result of self-care. A total of 31 persons, which accounts for 44.9% of the total responses, reported experiencing gastrointestinal issues, which included stomach discomfort, nausea, and vomiting. This was the majority of the participants who reported experiencing these symptoms.

Figure 5: Adverse effects or complications experienced

General Health and Awareness

A sampled participants had preexisting health issues during the covid-19 epidemic. 11% of the participants exhibited hypertension, 2% experienced chronic pain or musculoskeletal illnesses, 13% had mental health issues such as anxiety or depression, and 17% reported allergies. The majority of respondents did not have any preexisting health issues during the COVID-19 epidemic. A significant majority, specifically 69% of individuals, actively sought information regarding safe self-care practices. The results indicate that 34.8% of respondents relied on healthcare professionals as their main source of information, 15.9% relied on official government guidelines, 13% relied on trustworthy online sources, and 36.2% relied on all of the aforementioned sources. The majority of respondents utilized all of the provided main sources of information. Chi-square tests were employed to examine the relationship between various variables. The correlation between self-care and gender is a significant finding, since females exhibit a higher percentage of engagement in self-care practices. This gender-related diversity can enable healthcare authorities to tailor therapies specifically for certain demographic groups. The poll further shown that younger individuals had a greater propensity to rely on the internet and social media for information when making decisions on self-care. This underscores the need of directing public health awareness campaigns towards younger age groups and disseminating accurate information on drug consumption via digital platforms. Nevertheless, there was no correlation observed between self-care and either occupation or age.

Table 2: Association between different variables

		Gender	Age	Occupation	What type of health conditions or symptoms led you to self-medicate
Self-medication Status	Pearson Chi-square	5.004 ^a	2.456 ^a	6.27 ^a	100.000 ^a
	df	1	3	3	7
	Asymp. Sig. (2-sided)	0.037	0.52	0.110	<.001
Did you rely on information from the internet or social media for self-medication decisions	Pearson Chi-square		15.14 ^a		
	df		6		
	Asymp. Sig. (2-sided)		0.024		

The chi-square test yielded a p-value of 0.0347, which is below the significance level ($\alpha = 0.05$), indicating a significant relationship between self-treatment and gender. The chi-square test yielded a p-value of 0.024, lower than the significance threshold ($\alpha=0.05$). This indicates a statistically significant connection between age and social media usage and the internet for self-treatment decisions. The chi-square statistic has a p-value of less than .001, much lower than the significance level ($\alpha=0.05$). This indicates a strong link between self-treatment status and health complaints. It infers that individuals resort to self-treatment when they experience specific health issues or symptoms. The findings of this study provide a basis for further investigation into self-treatment habits and public health interventions during health crises. By prioritizing safe and informed healthcare practices, we can collectively safeguard the public's health and well-being throughout challenging periods.

Conclusion

A significant influence has been made on healthcare and public health as a result of the COVID-19 epidemic, notably in the area of self-treatment behavior. This research aimed to explore the incidence of self-treatment during the COVID-19 epidemic in Multan, as well as the variables that were connected with it. We could effectively acquire helpful feedback from a sample of one hundred participants by utilizing a technique based on questionnaires. This helped us throw light on the patterns and repercussions of self-treatment against the backdrop of an unparalleled health crisis.

The research discovered several aspects that impacted patients' options to self-medicate. These features included concern about contracting COVID-19 in hospital conditions and restricted access to medical facilities, which appeared as significant determinants. Upon doing an investigation of the patterns of self-treatment, it was shown that painkillers are the medicines that are used the most often. This highlights the need to be aware of the precise types of pharmaceuticals that patients frequently depend on without seeing a medical expert. In addition, a sizeable majority of participants reported having adverse effects or difficulties as a consequence of self-administered therapy, which highlights the need to disseminate awareness about pharmaceutical procedures that are both secure and responsible.

A notable result is the association between self-treatment and gender. This is because females have a greater rate of involvement in self-treatment behaviors. The results of the survey also revealed that persons in younger age groups were more likely to rely on the internet and social media as sources of information when making choices about self-treatment. In light of this, public health awareness programs must be directed toward younger age groups, and correct information on drug usage must be disseminated via digital platforms.

The feedback that the participants provided makes it abundantly clear that increasing the availability of healthcare facilities, intensifying public awareness campaigns, and enforcing stricter regulations on non-prescription drugs are all effective measures that can be taken to reduce the prevalence of self-care in medical situations. It is essential for those in charge of healthcare and policy-making to carefully analyze these ideas to improve public health results and reduce the possible hazards linked with self-care.

The data obtained from this research give a solid foundation for future exploration into self-care habits and the public health actions that correspond to those behaviors during times of health crisis. By making safe and well-informed healthcare practices a top priority, we can jointly protect the health and well-being of the general people during potentially difficult times.

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