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Covid -19 pandemic Diseases effect on Self-Medication practices among community of Bedelle city and its surrounding, Buno Bedelle Zone, south west of Oromia, Ethiopia

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Abstract

Introduction

There is a clear link between self-medication practice and ongoing pandemic diseases like COVID-19, According to studies conducted globally and the general Ethiopian population turned to self-medication and symptomatic treatment as a result of inadequate COVID-19 treatment and also about 80% of the population amassed drugs for pandemic use. ***Objective:*** The objective of this study was to assess self-medication practice for treatment of Covid-19 and reason to use self- medication among residents in Bedelle city and its surrounding, Southwest Oromia, Ethiopia. ***Methodology:*** A cross sectional study design was employed and the standardized questionnaire was developed by reviewing relevant literatures then the data was collected using face to face interview. Final data was analyzed by using SPSS version 23. ***Result:*** The final study contained 415 respondents in total, with a response rate of 98.5%. The majority of responses were females and between the ages of 18 - 25 Category. In this study population, the use of self-medication since the onset of the Covid-19 epidemic was reported by participants were around 50.6%. Analgesics (42.4%) and cold medicines (29.5%) were the most frequently used medications for treatment of COVID-19. Also the reported uses of these drugs included treatment of Covid-19 symptoms like the Headache (22.2%), Fever (13.2%), respiratory infective (14.3%), and cold (21.4%) were the most frequently reported symptoms for self-medication. Self-medication methods were used more frequently by women than Men. ***Conclusion:*** According to this study, analgesics and cold medications are commonly self- medicated drugs used for Covid-19 therapy. It is a serious health concern, particularly when COVID-19 symptoms are present, and high consumption of self-medication has been linked to COVID-19 prevention or treatment.

Key words: Covid-19, Medicine, Practice, Bedelle city, Self-Medication

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Introduction

Since the first coronavirus outbreak in Wuhan, China, the COVID-19 pandemic has drastically altered people's way of life in most of the world including Ethiopia Country. Lockdowns have been implemented in countries all over the world in order to manage the pandemic[1, 2]. Because of many local clinics and treatment centers have shut down due to COVID-19, and the public has been left without access to timely medical advice or assistance when they need it, which has contributed to a rise in self-medication[3]. Self-medication, according to the definition from World Health Organization(WHO), is the use of medications to treat self-diagnosed illnesses and, in some situations, symptoms of chronic or recurrent illnesses that have been recommended by a doctor[4]. Contrarily, discordant self-medication refers to the reckless use of medication by individuals[5].

This sort of self-medication also includes the use of old medicines, drugs prescribed for different symptoms or conditions, drugs used without a doctor's prescription, drugs shared amongst friends and family, and pharmaceuticals that have expired[6]. Lockdown procedures, restricted access to hospitals and health facilities owing to COVID-19, and concern over contracting an infection from staff or patients at a healthcare facility are some other variables that may drive the use of self-medication among the community[3]. Self-medication habits need to be carefully monitored, especially in low- and middle-income nations that frequently have low educational standards and inadequate healthcare infrastructure and are currently experiencing an economic crisis as a result of COVID-19[7]. For instance, self-medication in African nations like Ethiopia has reached a crisis and threat level as people use and take drugs without considering how toxic they might be as long as an unqualified person recommends it as a treatment for their health issue. The circumstances that result from self-medication have become a burden in Africa as a result of factors like ignorance, poverty, and the ineffectiveness of the healthcare sectors, as well as unlicensed and unqualified practitioners. Because so few individuals have access to qualified medical professionals who can provide the proper prescription, self-medication is common in African nations like Ethiopia as the report indicated. In Africa, self-medication is a crucial first line of defense against sickness[8] and because more than 80% the population rely on traditional medicines most frequently used to treat or prevent disease. Some Africans may choose to self-medicate in order to prevent and manage COVID-19 because of the false belief that traditional African medicines can treat/prevent all illnesses and also traditional medicine is more accessible compare to modern medicine for the community. As a result, self-medication

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has become more common during the COVID-19 epidemic globally, with significant Google trends for searches related to potential treatments and cures[9].

Additionally, research has shown that developing nations, where healthcare systems are expensive and challenging to access, have high rates of self-medication. Despite WHO's emphasis on sensible prescribing practices and the general public's avoidance of over-the-counter medications (OTM), this practice is constantly expanding. Self-medication (SM) use can lead to microbial resistance, major health hazards from drug interactions, and an extension of morbidities[10]. Ethiopia had a poor doctor-to-patient ratio compared to other industrialized nations, and researchers and medical professionals are always looking for ways to counteract COVID-19's symptoms[11]. People could only rely on social media for updates and information about the pandemic because the majority of countries throughout the world went into lockdown, relegating the general public to their homes [12-14].

The most frequently self-prescribed medications for Covid-19 pandemic diseases are analgesics, antipyretics, antitussives, antidiarrheal, calcium and vitamin supplements, anabolic steroids, sedatives, certain antibiotics, and many herbal and homeopathic remedies and a portion of global health practices lack control over self-treatment with prescription medicines[15]. Antibiotic resistance is the most major problem of self-medication with antibiotics (SMA), which has also been linked to negative side effects, unsuccessful treatment, and other issues [16-18]. Factors like age, sex, economic level, and educational attainment are only a few of the characteristics linked to SMA in the community as most scholars stated in the previous literature and additionally, people's irrational usage of antibiotics was caused by a lack of accurate knowledge regarding their function in treatment[16]. This resulted in ineffective practices such as shorter treatment durations, incorrect dosages, and drug consumption for the wrong indication, such as the use of antibiotics to treat viral illnesses[19].

Self-medication is currently a hot topic of research due to its increasing prevalence worldwide and issues like incorrect self-diagnosis, ineffective treatment that causes disease progression and adverse events, drug interactions, antibiotic resistance, and most importantly, the waste of public resources, particularly during the Covid19 pandemic disease[9, 20] and the fact that a large percentage (80%) of Ethiopians rely on traditional medicine may be the cause of the country's high rate of self-medication[21]. As a result, the main goal of this study was to observe the current situation of self-medication with regard to the management or prevention of COVID-19 in the Bedelle city and its surrounding community. The secondary goal was to evaluate the most common illnesses associated with

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this practice as well as the causes of self-medication, sources from which these medications were obtained, and the type of medication used as self-medication for managing COVID-19 pandemic diseases in the study area.

Methods and materials

Study area and period

The study was conducted in Bedelle town which is located in Buno-Bedelle zone of Oromia regional state in south western of Ethiopia and 480 km away from the capital city of Ethiopia, Finfinne. According to 2007 censes total population of Bedelle town was 32,149 people and it covers 5,856.5 square kilometers of which 1,126.6 square kilometers are covered by forests. Out of 9 districts and 1 town (Bedelle town) found in Bedelle zone, this study focuses specifically on community of Bedelle city and its surrounding. It has longitude and latitude of $8^0$27'N $36^0$21'E and elevation between 2,012- 2,162 meter above sea level. The study was conducted from July to October 10, 2021 GC.

Study Design and study population

A cross-sectional study was conducted among clients who visited drug retails during study period. All residents of Bedelle town and its surroundings were the source populations and all clients who visited selected private drug retail outlets for self-medication within the study period were the study populations. Participants aged greater than 18 years who purchased medication without prescription were included in the study.

Sample size and sampling technique

The sample size was determined by using simple population proportion formula.

$$n = \frac{(z\ a/2)^2 * p\ (1-p)}{D^2}$$

For single population proportion by assuming 5% marginal error, 95% confidence interval, ∂ (alpha) = 0.05, and 50% of the prevalence rate of self-medication. Stratified random sampling technique was used to select representative drug retail outlet and for each selected drug retail outlets, number of the participants to be interviewed was allocated based on patient flow to the selected outlets. After that we added 10% non-response rate and the final sample size used were n=384+38=422.

Data Collection and Analysis

Data collection questionnaire was developed by reviewing relevant literatures and data collection instrument (questionnaire) was developed in English which then translated in to

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Afan Oromo on paper and the participants was interviewed based on questionnaire during the data collection period. The data was coded, edited and cleaned to ensure accuracy, consistency and completeness and finally, the clean data was entered and then the data was analyzed by statistical package for social science (SPSS) version 23 software.

Ethical Consideration.

This study was approved by the research and ethics committee of pharmacy department, college of health science, Mattu University with a study approval number of Phar 14/112/2021 and informed consent was obtained and the confidentiality of the participants' information was respected and all the concerned authorities (Bedelle town and kebeles administrators) were informed before the implementation of the survey. Respondents were free to accept or refuse to participate at any time. They assured of anonymity and that any information provided was kept confidential and also informed that only aggregate data is going to be reported.

Operational definition

Self-medication: Use of modern drugs without the advice of a health professional for treatment of Covid-19 pandemic diseases

Rational use of drugs: is a process of involving appropriate prescribing, dispensing, and patient use of drugs

Left-over drugs: Medicines left from past treatment which were prescribed or purchased (OTC)

Results

Socio demographic characteristics of the study participants.

A total of 422 houses were included in the study during that time, and of them, 415 individuals (98.34%) agreed to take part in the study. The majority of responders (53.3%) were female, and 104 (25.1%) of them were in the 18–25 age range. Regarding religion, orthodox respondents contributed 191 (46.0%), whereas 272 (65.5%) of the participants were married, according to the distribution of respondents by ethnicity, 288 (68.4%) of the respondents were Oromia. In terms of educational attainment, 132 respondents (31.8% of the total participants) were illiterate, while 141 (40% of the total participants) were in primary school (1-8) (Table 1).

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Table 1: **Socio-demographic characteristic of Participants in Bedelle city and its surroundings, Buno Bedelle zone, Ethiopia, July 2021**

Variable	Frequency	Percentage (%)
Age(years)		
18-25	104	25.1
26-33	115	27.7
34 and above	196	47.2
Gender		
Female	221	53.3
Male	194	46.7
Total	415	100
Ethnicity		
Oromo	284	68.4
Amhara	80	19.3
Guraghe	51	12.3
Total	415	100.0
Religions		
Orthodox	191	46.0
Muslim	120	28.9
Protestant	104	25.1
Total	415	100.0
Educational		
Illiterate	132	31.8
Primary school(1-8)	141	34.0
Secondary school(9-12)	86	20.7
College and above	56	13.5
Total	415	100.0
Marital status		
Single	127	30.6
Married	272	65.5
Divorced	16	3.9
Widowed	415	100.0
Occupations		
Merchant	226	54.5
Employee	64	15.4
Daily labour	109	26.3
House wife	2	0.5
Unemployee	14	3.4
Total	415	100.0

Communication between the respondent and healthcare providers about self-medication in the context of Covid-19 pandemic diseases

Regarding to patients communication with health professionals, among the study participants, 261 (62.9%) of them said that they would not inform the prescriber or the

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dispenser about the medicines they were already using at the time of visits for treatment of Covid-19 pandemic disease which is self- medicated. Among the participants 313 (75.4%) of respondents would not ask about side effects of the medication and 75 (18.1%) of them stated they wouldn't ask how to take drugs for treatment of Covid-19 pandemic diseases. In addition to that, About 175 (42.2%) of them stated they wouldn't ask when to take drugs and 383 (92.3%) of the respondents did not raised the question about how to deal with left over drugs (Figure 1).

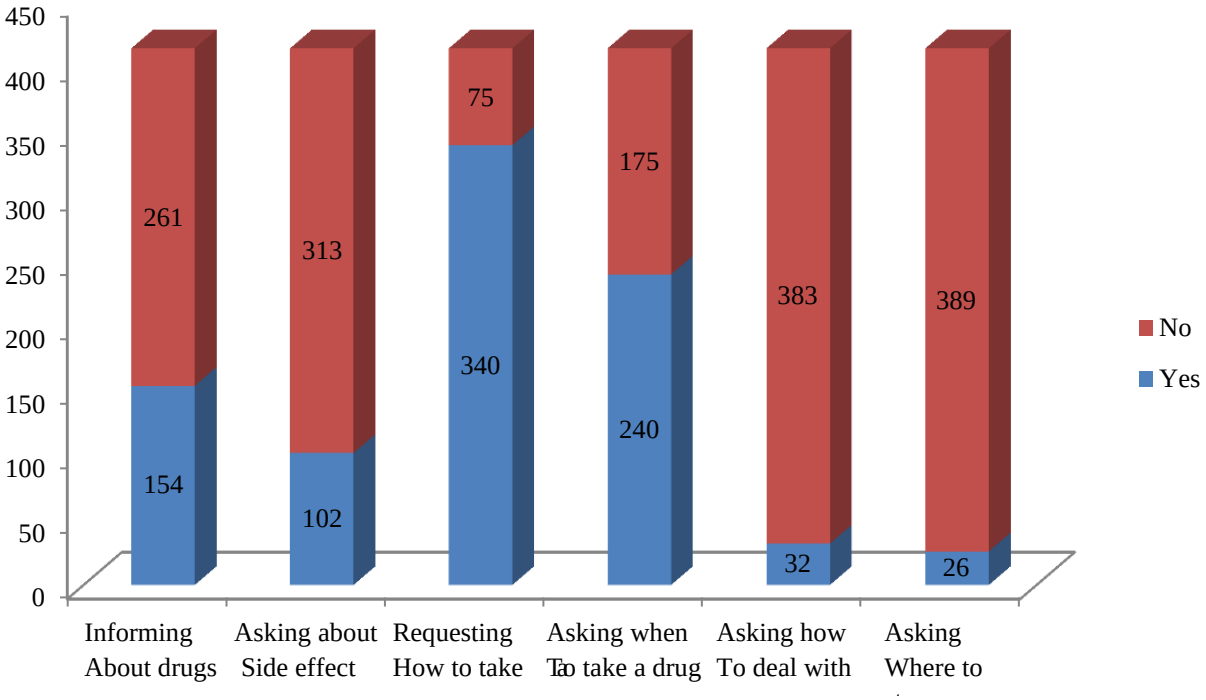

Figure 1: **Respondents communication with health providers about medication used for treatment of Covid- 19 pandemic diseases, Buno Bedelle Zone, Ethiopia by July 2021.**

Information from respondents on medicines available in the households for treatment of Covid-19 pandemic disease

Among 415, the total participant 152 (36.6%) of them had medicine available at their home and analgesics, contributes to the highest score which is 38 (34.5%). Seventy-two (65.2%) of the respondents get their medicine from private clinic and 29 (26.4%) of the respondent from public pharmacy for treatment of Covid-19 pandemic disease. About 74 (67.3%) of medicine available at home is due to current treatment on Covid-19 and 29 (26.4%) is from the left over of the past treatment, from them 90 (81.8%) knows how to use the medicine, 83 (75.5%) of them knows the frequency of administration, 44 (40.0%) of them the duration of the therapy, and 15 (13.6%) of them knows the side effect of the medicines, (Table 2)

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Table 2: Information on medicines available in the households for treatment of Covid-19 pandemic disease, Buno Bedelle Zone, Ethiopia by July 2021.

Variable	Variables	**Frequency**	**Percentage (%)**
Do you have any medicines Used for treatment of Covid-19?	Yes	152	36.6
	No	263	63.4
	Total	415	100.0
Types of medicine used for treatment of Covid-19 pandemic disease?	Analgesics	38	34.5
	Cold medicine	22	20.0
	Antibiotics	16	14.5
	Antiretroviral	14	12
	Azithromycin	12	11
	Hydroxychloroquine	5	4
	Other	4	3.6
	Total	110	100.0
From where did you get the medicine for covid-19 pandemic diseases?	Family	7	6.4
	Friend	2	1.8
	Public clinic	72	65.5
	Private pharmacy	29	26.4
	Total	110	100.0
If you have medicine in home, for what reason you have stored in home?	Current treatment for Covid-19	74	67.3
	Left from past treatment of Covid-19	29	26.4
	Fear to get Covid-19	7	6.4
	Total	110	100.0
Do you have on Knowledge on drug used for Covid-19?	Yes	90	81.8
	No	20	18.2
	Total	110	100.0
Do you have Knowledge on frequency of administration?	Yes	83	75.5

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	No	27	24.5
	Total	110	100.0
Do you have Knowledge on duration of treatment for covid-19?	Yes	44	40.0
	No	66	60.0
	Total	110	100.0
Do you have Knowledge on side effect?	Yes	15	13.6
	No	95	86.4
	Total	110	100.0
Do you have Knowledge on Situation of expiry date?	Not expired	79	71.8
	Expired	15	13.6
	Not known	16	14.6
	Total	110	100.0

Knowledge and perception on self-medication for treatment of Covid-19 pandemic diseases

About half 210 (50.6%) of the respondents mentioned that they practiced self-medication for treatment or preventative to covid-19 pandemic disease and among the respondents 103 (49.0%) of them chose self-medication from their previous experience. About 103(49.0%) of the respondents practiced self-medication, two times have practiced self-medication for the past three months. From the self-administer medicines, the most common used were analgesics 89 (42.4%) and Cold remedies 62(29.5%) for covid-19 treatment or preventive purpose. Regarding to formulation, one hundred ten (52.4%) of the self-practiced medicines were tablets formulation. Concerning sharing of drugs, 16.9% of the study participants admitted to sharing or exchanging medicines with others for use of Covid-19 pandemic disease treatment (Table 3).

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Table 3: Respondents knowledge and perception on self-medication for treatment of Covid-19 pandemic disease, Buno Bedelle Zone, Ethiopia by July 2021

Variable		Frequency	Percentage (%)
Self-medication for treatment of Covid-19?	Yes	210	50.6
	No	205	49.4
	Total	415	100
How do you choose self-medication for Covid-19 Pandemic disease?	Experience	103	49.0
	Advice from others	37	17.6
	Promotions	18	8.6
	From dispenser	52	24.8
	Total	415	100
Frequency of self-medication per three month?	1	54	25.7
	2	103	49.0
	3	30	14.3
	>3	23	11.0
	Total	415	100
Therapeutic class of self-medication for Covid-19 treatment?	Analgesic	89	42.4
	Cold remedies	62	29.5
	Antibiotics	56	26.7
	Hydroxychloroquine	3	1.4
	Total	415	100
Formulation	Tablets	110	52.4
	Capsule	86	41.0
	Syrup	12	5.7
	Suppository	2	1.0
	Total	415	100.0
Sharing of mediation with others for treatment Covid-19?	Yes	70	16.9
	No	345	83.1
	Total	415	100.0

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Reason of self-medication in the context of Covid-19 pandemic disease

The majority of individuals (22.2%) mentioned using various over the counter (OTC) medicines for headaches and seasonal cough and cold symptoms. However, the majority also reported using antibiotics for coughs, and respiratory tract infections, including sore throat. Few respondents used SM with sedatives because they had trouble falling asleep, but 9.4% did so because they suffered also muscle pain (Table 4).

Table 4: Reason of self-medication for Covid-19 pandemic disease treatment, Buno Bedelle Zone, Ethiopia by July 2021

Reason	Symptoms	Frequency	Percentage (%)	p-value
OTC products for common illness	Headache	160	22.2	0.003
	Cold	138	21.4	0.004
	Fever	102	13.2	0.032
	Allergy	30	5.7	0.0131
Use of Antibiotics for infective symptoms	Cough	43	5.5	0.002
	Respiratory infective	95	14.3	0.005
	Sore throat	40	5.8	0.021
Others	Sleeping problems	20	3.3	0.033
	Muscle pain	66	9.4	0.001

Factors of self- medication in the context of COVID-19

Respondents were questioned about the primary causes behind using medication without a prescription during the pandemic. The majority of them expressed fear of contracting an infection if they went outside and sought medical attention, and 31.5% expressed fear of contracting the COVID-19 infection. About 21.5% of respondents agreed that one reason for the rise in SM use was the lockdown that many countries experienced during the height of the pandemic, which kept people confined to their homes for months. Another reason given by

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5.4% of respondents was the lengthy wait times at clinics, while 11.4% practiced SM based on prior knowledge and experience with the disease (Table 5).

Table 5: Factors of self- medication for Covid-19 pandemic disease treatment, Buno Bedelle Zone, Ethiopia by July 2021

Factors	Frequency	Percentage (%)
Due to minor problem	86	11.7
lockdown	147	21.5
Busy schedule of health care professionals	66	9.6
Fear to get Covid-19	215	31.5
Previous knowledge regarding the problems	84	11.4
High fees	62	9.3
Time wastage	37	5.4

Discussion

Self-medication is a serious problem that makes health-related problems worse, and it is more prevalent in country like Ethiopia where healthcare systems are less effective due to long wait times at facilities, difficulty getting doctor appointments, a lack of essential medicines in stock, delays in care, and a lack of beds or space in facilities[22]. Healthcare personnel or health care professionals are now experiencing more anxiety, discomfort, and general psychological burden as a result of the long hours they have been working under challenging and stressful conditions during the COVID-19 pandemic epidemic[23] and in order to cope with the stress, pressure, discomfort, and anxiety associated with employment, it has been claimed that these circumstances lead to self-medication[24, 25]. Not only health care professional, but also the community experiencing stress, anxiety, and sadness as a result of the high number of physician deaths caused by COVID-19, according to a study[23] and recently, several nations in the world have experienced the greatest rates of death due to covid-19 outbreak [22].

To the best of our knowledge, this study is the first of its type to assess self-medication within the people of Bedelle city and its surroundings in the context of COVID-19, which includes the majority of Ethiopia's provinces. Our findings show a prevalence of self-

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medication is 50.6%, which is close to rates of self-medication during COVID-19 reported in studies conducted in other countries. For instance, a study examining the prevalence of self-medication in the Nigerian population during the pandemic revealed a result of 41%[26], in Togo, the healthcare division had the highest rate of self-medication (51.9%) compared to all other sectors, with 34.1% of individuals belonging to the healthcare, air transport, police, road transport, and informal sectors reporting this[27]. On the other hand, in Peru, respondents who did not use self-medication outnumbered those who did for all medications tested, including Acetaminophen, Ibuprofen, Azithromycin, Hydroxychloroquine, Penicillin, and Antiretroviral [22]. The outcomes are nearly identical to those found in related publications. Regarding to the recommendation of self-medication practice For the treatment of Covid-19 pandemic infections, 17.7% of the study populations chose self-medication based on recommendation from friends and family and in a household survey done in Saudi Arabia and other Gulf nations, about 43.5% of all households bought drug or self- medicate based on the recommendations of friends and family[28]. There is a significant difference between these two findings, which may be caused by a lack of information on how to choose medications for self-medication in the study area. Respondents in the age range of 18 to 25 had exhibited a higher pattern of self-medication, and female participants tended to self-medicate more than male participants, which may indicate that the community lacks knowledge about drug selection for the treatment of Covid-19 pandemic diseases and female fear to get covid-19 more than male [29].

The most common class of pharmaceuticals used in our study was analgesics and respondents older than 18 years, those who had already contracted COVID-19, and those who reported symptoms of headache, fever, and cold significantly employed self-medication practices as the finding indicating. Results from Saudi Arabian nursing undergraduate students are consistent with the high use of analgesic medicines like paracetamol (17) and from the Peru adult population (16) where it was also the most consumed drug for treatment of Covid-19 pandemic diseases. From pharmacology concept, Paracetamol is known analgesic medication with a very weak anti-inflammatory effect (28) and it can be used to treat minor COVID-19 symptoms when treating patients at home, according to guidelines given during the early months of the pandemic (29) or to treat oneself, particularly for fever or headache (30). This is in line with our findings regarding the usage of analgesics, which were widely utilized to alleviate headaches in our study sample. However, some reports claim that the medication like paracetamol can worsens COVID-19 symptoms and the possible reason may be because

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it activates prothrombotic mechanisms, which are one of the main pathogenic causes of COVID-19(29).

In our investigation, we have also discovered that consumption of Hydroxychloroquine, whose sales increased globally as a result of COVID-19, was low[30]. In addition antibiotics and cold medications were some other commonly utilized medications for treatment of COVID-19 symptoms. In Pakistan, the usage of antibiotics for self-medication has often included drug like azithromycin[31] and has additionally used as a substitute for self-medication in other nations, including Saudi Arabia[32] and Peru[22]. The WHO advises taking precautions during the pandemic but does not advise using SM for COVID-19 and related causes' symptoms[33]. Despite this, the community under study was shown to often utilize antibiotics[34].

The main contributor to antimicrobial resistance is the use of antibiotics for self-medication. [35] Consequently, its consumption must be controlled, and health care professionals should ensure that it is used and disposed of properly is one of our recommendation. In contrast to findings from research with Iranian medical students, "Headache" was the most frequently cited cause for using the corresponding medicine[36] and Brazil[37]. One of the most typical COVID-19 symptoms is "headache." [38], the most frequent symptomologies associated with medication usage in the research area were "muscular pain" and "headache." The use of analgesics for muscular pain at any location was also very prevalent among Indian undergraduate medical and paramedical students. Additionally, using self-medication gave the pupils freedom to manage their health and wellness, fostering an independence[39]. The widespread stressful situations that cause anguish and lead people to seek OTC medications can be blamed for the community of Bedelle City and its surroundings' high overall rate of self-medication[40]. Another Polish study found that these actions became more frequent when there was a lockdown[1]. According to a study from Jordan, self-medication was apparently linked to elements including female gender, anxiety about getting Covid-19, and lockup, which is consistent with our findings[41].

The connection between the patient and the healthcare practitioner (prescriber and dispenser) is unquestionably important for the proper use and storage of medications as well as for the delivery of healthcare, particularly during the crucial period of Covid-19 pandemic infections. Around 62.9% of the participants in the study's overall sample failed to tell medical staff what medications they were taking at the time of their visit. Compared to a research conducted in Kuwait, where 49.3% of patients correctly told healthcare providers about their prescription,[20]. A lack of information about drug-drug interactions,

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which can have serious negative effects on a user's health and economic situation, or a lack of concern for disclosing the drugs they were taking at the time of visits may have contributed to the respondents' poor communication with their healthcare providers in this study. Prior to utilizing any medicine, make sure to verify the expiration date when getting it. When utilizing the medications to treat the Ovid-19 pandemic sickness, 70.9% of the participants in this study failed to verify the expiration date on the prescriptions[28]. The probable reason for this difference can be the difference in knowledge of the study community.

Conclusion

The study sought to assess the prevalence of self-medication during COVID-19 and Self-medication use is a serious health concern, particularly during pandemic periods, with high consumption reported as a means of preventing or treating COVID-19 symptoms. In this survey, the most frequently utilized products for self-medication were analgesics and cold medications. In order to better understand the community's attitude toward self-medication, their knowledge of drug dosage and potential side effects, and the role of health care professionals, additional actions are required to improve healthcare policies regarding awareness and sensitization about the risks of self-medication.

Abbreviations

COVID-19 Corona virus Diseases

CI Confidence interval

SM Self –Medication

SM A Self –Medication with antibiotics

HCP Health care provider

OTC Over the counter

SD Standard deviation

WHO World Health Organization

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Data Sharing Statement

The corresponding author will provide the datasets used and/or analyzed during the current work upon reasonable request.

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Author Contributions

All authors contributed significantly to the work that will be published, whether it be in the ideation, study design, execution, data collection, analysis, and interpretation, or in all of these areas. They also participated in writing, revising, or critically evaluating the article, gave their final approval for the version that would be published, decided on the journal to which the article would be submitted, and agreed to be responsible for all aspects of the work.

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