ASIAN JOURNAL OF PHARMACEUTICAL AND CLINICAL RESEARCH

INNOVARE ACADEMIC SCIENCES
Knowledge to Innovation

Vol 16, Issue 3, 2023

Online - 2455-3891
Print - 0974-2441

Research Article

PREVALENCE AND PATTERN OF SELF MEDICATION TO PREVENT COVID-19 INFECTION: POPULATION-BASED SURVEY

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Received: 01 November 2022, Revised and Accepted: 12 December 2022

ABSTRACT

Objective: During COVID-19 pandemic, people have practiced one or more self-medication (SM) for prevention of the disease. This requires monitoring and evaluation to see the pattern of medicine used. Hence, in this study, we evaluated the prevalence and pattern of SM in various group of people.

Methods: A cross-sectional study was conducted as an online survey on individuals who were in contact through mobile phone from October 2020 to March 2021. A pre-structured questionnaire-based Google form that contain questions related to SM practiced was prepared and circulated on social media application and email. Submitted forms were analyzed using Microsoft excel.

Results: Out of 779 forms, 775 (99.4%) filled completely were considered in result. Majority (52%) of participants were in the age group of 20–40 year. Six hundred and fifty-two (84%) participants had taken medication, out of which 40% were modern medicine users and rest 44% had used other than modern medicine. In modern medicine, Vitamin C was taken by 72% and in other group, lemon water was taken by 99% of participants. The prevalence of SM was highest among urban population (43%) with education up to postgraduation (53%). Health worker (57%) were highest among users. SM advice was received by doctors in 60% participants with belief of effectiveness against COVID-19 infection.

Conclusion: SM was practiced by half of the participants that includes modern as well as other than modern medicine. It was mainly seen among people with higher education and who are associated with health-care system.

Keywords: COVID-19, Prevalence, Self-medication.

 DOI: http://dx.doi.org/10.22159/ajpcr.2023v16i3.46697. Journal homepage: https://innovareacademics.in/journals/index.php/ajpcr

INTRODUCTION

Self-medication (SM) is an important part in the health-care system with people having self-care behavior [1].The World Health Organization (WHO) defines SM as the selection and utilization of medicines to treat self-recognized symptoms or illness without consulting a physician [2].

COVID-19 is an infectious disease caused by novel coronavirus-2 (SARS-CoV-2) that causes a severe acute respiratory syndrome. In March 2020, it was declared as an international pandemic and public health emergency by the WHO [2]. As, it is rapidly spreading disease many countries like India makes general lockdown to prevent transmission of the virus [3]. It affects people's physical, mental, social, and economical part of life [4].

Clinically, it is presented as fever, cough, fatigue, and some gastrointestinal symptoms. Elderly and people having comorbid condition are more prone to get infection and complication [5].

At present, many medications are used for the treatment but not a single one is certified as definitive therapy for the disease [6]. This fear makes the people more conscious about their health and they start taking prophylactic-medicines for prevention of the disease [3]. Information regarding this medication is acquired through media, newspaper, neighbor, friends, and family [7].

In developing countries like India, not only allopathic (modern) medicine but our oldest therapies ayurvedic and homeopathic medicine including home remedies are also used commonly as prophylactic medicine [4].

Allopathic medicines used are mainly hydroxychloroquine, ivermectin, azithromycin, etc. though it has little evidence for prevention of COVID-19 [7]. Uses of Vitamin C and D, multivitamins, and zinc are also documented due to its role in providing immunity [8].

SM should be monitored properly, though it has several benefits if it is used correctly but on other hand, there is also some negative impacts such as incorrect dosage, polypharmacy, drug resistance, drug interaction, and adverse drug reaction. Consideration of all these consequences are necessary before starting SM [1].

Here, we designed this cross-sectional study to investigate prevalence and pattern of SM for prevention of COVID-19 infection in different groups of population.

METHODS

This cross-sectional study was conducted online on people who were connected to us through mobile phone from October 2020 to March 2021. The study was approved from the Institutional Ethics Committee. The data were collected by online sampling method due to epidemic of COVID-19. A pre-structured questionnaires-based Google form was prepared and circulated through social media application and E-mail. People who want to participate have to click the link, fill the answers, and submit to complete the form. Questionnaires includes people's sociodemographic characteristics, SM details, and history of chronic illness. In SM, information about type of medicine whether modern (allopathic), ayurvedic, homeopathic or home remedies, duration of therapy, and preference were also inquired. The online questionnaires was pre-tested and validated before data collection.

Submitted forms were checked and data were analyzed using Microsoft excel version 2019. Descriptive statistics such as percentage and frequencies were used for the analysis of the data mainly.

RESULTS

Total 779 participants submitted the responses through email verification. Out of 779 response, four incomplete were rejected and 775 (99.4%) filled completely were collected and considered for the final result.

In this study, 404 (52%) participants were in the age group of 20–40 year (mean age 24.5 year). Here, male and females were 302 (39%) and 473 (61%), respectively. Three hundred and seventy-three (48%) participants have level of education up to graduation, 643 (82%) residing in urban area. Four hundred and ninety (63%) respondents were students while health workers were 82 (11%) followed by teachers (8%), businessman (4%), engineer (2%), and others (10%) (Table 1).

Total number of SM taken was 652 (84%) in this study. Other than modern medicines were used by 342 (44%) participants and majority had used it for more than 1 month. Modern medicines were used by 310 (40%) participants for duration of more than 15 days mainly (Tables 2 and 3).

In other than modern medicines, lemon water was used most commonly by 99% of participants followed by haldi (75%), steam inhalation (69%), kadha (64%), and others (Fig. 1), while in modern medicine Vitamin c was preferred (72%) along with zinc (40%), multivitamins (29%), Vitamin D (24%), and some antibiotics (Fig. 2).

Table 1: Sociodemographic details

Variables	n (%)
Age	
<20	287 (37)
20–40	404 (52)
41–60	73 (9)
>60	11 (2)
Gender	
Male	302 (39)
Female	473 (61)
Residence	
Rural	132 (17)
Urban	643 (82)
Education	
School	207 (27)
Graduate	373 (48)
Postgraduate	195 (25)
Occupation	
Student	490 (63)
Teacher	64 (8)
Health worker	82 (11)
Engineer	14 (2)
Businessman	32 (4)
Unemployed	12 (2)
Others	81 (10)

Table 2: Type of medication practiced by participants

Type of medicine	n (%)
Modern medicine	310 (40)
Other than modern medicine	342 (44)
Total no. of self-medication taken	652 (84)

Table 3: Duration of self-medication

Modern medicine	n (%)
<15 days	139 (45)
>15 days	171 (55)
Other than modern medicine	
<1 month	160 (47)
>1 month	182 (53)

Regarding the prevalence of SM, it was 56% in the age group of 41–60 year while in residency and level of education, it was 43% in urban and 53% in postgraduate, respectively. In occupation, it was ranging from 35% in engineers to 57% in health workers (Table 4).

(N=no. of participants, n=average no. of participants who had practiced SM).

Advice of SM was acquired by doctors in 60% of participants and most common reason for using the SM was evidence of effectiveness in prevention of COVID-19 infection (42%) (Figs. 3 and 4).

DISCUSSION

SM is a common practice in which, people are using medications without prescription for either prevention or treatment of diseases [3]. During COVID-19 pandemic, this practice is significantly increased and reasons found mainly are unavailability of appropriate treatment, limitation of health-care facilities, advertisement on social media of having efficacy against COVID-19, and some sociocultural belief [9].

In our study, total SM taken was 84% that includes modern medicine, ayurvedic or home remedies and homeopathic medicines. Similar finding was also reported in other studies conducted in different countries. One study of Pakistan reported 87% incidence of SM among the medical students [10], in Kenya SM prevalence in healthcare workers was 60.4% [11] while in Togo, this prevalence was 34.2% among the people from a different sector that is comparatively less than finding of this study [12].

Several studies have suggested the effectiveness of Vitamin C in prevention and treatment of severe COVID-19 infection. It has antioxidant, anti-inflammatory, and immunomodulatory function which can resist the viral infection [8]. In this study, Vitamin c was used by 72% of the participants. This finding can be compared with the study

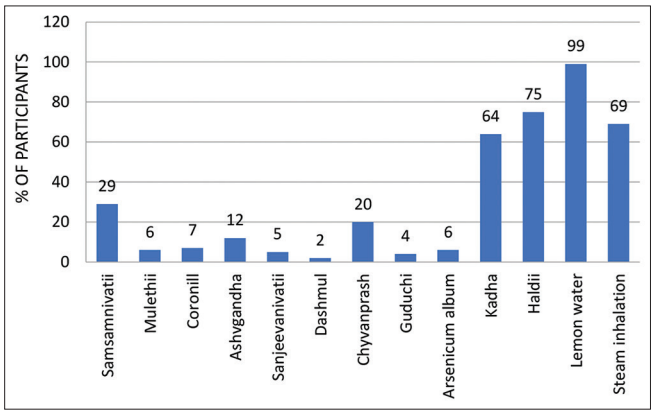

Fig. 1: Distribution of other than modern medicines (%)

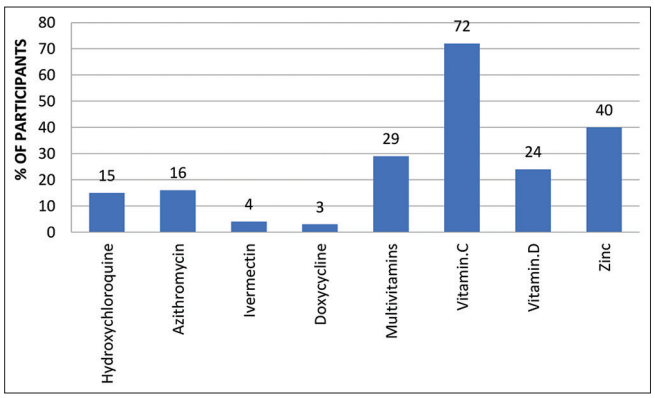

Fig. 2: Distribution of modern medicines (%)

Table 4: Prevalence of self-medication

Variables	N	n	Prevalence (%)
Age-group			
<20	287	85	30
20–40	404	195	48
41–60	73	41	56
>60	11	5	45
Residence			
Rural	132	50	38
Urban	643	277	43
Education			
School	207	65	31
Graduate	373	159	43
Postgraduate	195	103	53
Occupation			
Students	490	182	37
Teacher	64	29	45
Health worker	102	58	57
Engineers	14	5	35
Businessman	32	17	55
Unemployed	12	5	41
Others	61	27	44

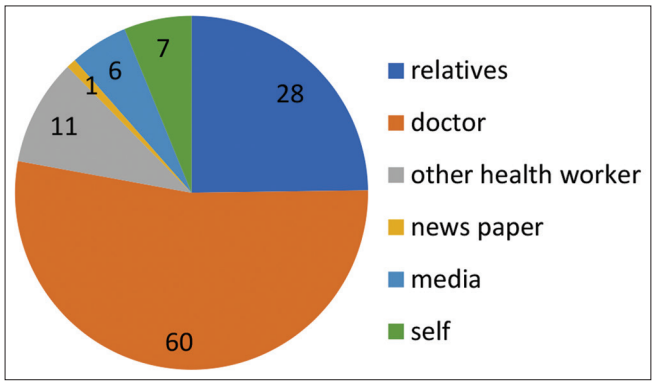

Fig. 3: Sources of advice for self-medication (%)

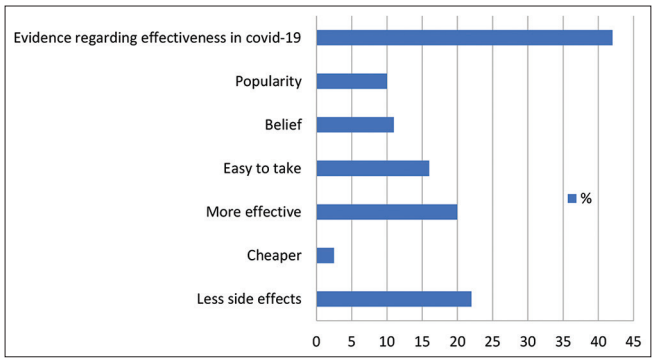

Fig. 4: Reasons for self-medication (%)

of Sadio *et al*. where consumption of Vitamin C was found in one third of the participants [12]. Another studies have also reported the role of high dose of Vitamin c in the management of COVID-19 but at higher doses, it has some side effects like risk of renal stones etc. [8,12].

Antibiotics like azithromycin was used by higher number of participants compared to ivermectin and doxycycline. One of the study has also reported the popularity of azithromycin as a SM among the medical students [10], also in another survey of Peru conducted in adult population, this drug was used commonly [3]. Unnecessary utilization of antibiotics has a risk of developing antimicrobial resistance and some serious side effects thus its intake and disposal must be regulated [10,13].

In the present study, hydroxychloroquine was taken by 15% of participants. One study published in march 2020 has reported the effectiveness of hydroxychloroquine in COVID-19 but on other hand, there is some messages of developing cardiac complication like arrythmias and related death. This can be the reason for its limited use here [14].

Our traditional system of medicine such as ayurvedic and homeopathic mainly deals with preventive and curative measures. Its antiviral and immunity boosting properties play important role in prevention of COVID-19 infection [15]. In our study, around half (44%) of participants has practiced these traditional methods of medicine and among this home remedies such as lemon water (99%), haldi (75%), and steam inhalation (69%) were used commonly. This finding can be due to its simplicity, cost-effectiveness, easy availability, and acceptability by the people [15].

In the present study, we have also evaluated the prevalence of SM in various groups. Among them, we found that prevalence was more in health workers (57%). Some studies conducted on them has reported that these people have more chances of getting infection as they communicate frequently with the patients. Moreover, these people have better knowledge about the medications and also ease of availability of drugs [10,11]. Similar finding was also observed by Sadio *et al*. [12].

Education level was also associated with SM practice, as they can easily acquire various information about the diseases and medication using internet. In this study also, we found higher prevalence (53%) among the participants with degree of postgraduates that is also related to results of other study of Onchonga *et al*. [11].

During this COVID-19 pandemic, several clinical trials are undertaken for treatment and prevention of infection. Our social media has also played major role for spreading information about medicine or substance having efficacy against COVID-19 [12,16]. In case of our study, participants has acquired the information from doctors and relatives mainly while in other study internet, friends, family, and media were the major sources of information [14].

In addition, we have also reported that majority (42%) of participants had used the medicines due to some evidence of effectiveness in COVID-19 infection.

CONCLUSION

During COVID-19 pandemic, SM remains the important health issue. In this study, nearly more than half of the participants has practiced one or more different types of medication. Vitamin C and other traditional system of medicine were used most commonly. People occupied in the health sector and students have relatively more prevalence than other group. Awareness regarding the proper use of medicine, risk involved, and dangerous side effects is required for the general population.

ACKNOWLEDGMENT

Parth Patel helped us with proof reading of the manuscript.

CONFLICTS OF INTEREST OR AUTHORS CONTRIBUTION

None.

AUTHORS FUNDING

None.

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