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KNOWLEDGE, ATTITUDE AND PRACTICE OF SELF-MEDICATION DURING COVID-19 PANDEMIC: A QUESTIONNAIRE BASED STUDY

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ABSTRACT

Objective: To evaluate knowledge, attitude and practice of self-medication during COVID-19 pandemic **Material and methods:** In this cross-sectional study, knowledge, awareness and practices about self-medication during COVID-19 pandemic were recorded among adult population. Prevalence of self-medication during last 3 months was calculated. **Results:** A total of 630 participants (mean age 22.04 years; 69.21% females and 87.78% students) were included. A total of 106 (16.83%) study participants consumed medication without a prescription from qualified doctor in the last 3 months. Mean age of participants who consumed medications was significantly higher than those who did not consume self-medication [27.25 ($\pm$10.79) v/s 21.18 ($\pm$3.75); p<0.001]. The difference between male and female participants who consumed self-medication was statistically significant (p=0.0087). A total of 96 (90.57%) consumed allopathic medication and 103 (97.16%) used oral medicines. Common causes of self-medication included pain 56 (53.8%), menstrual problem 22 (20.8%), muscle cramp 21 (19.8%), fever 20 (18.9%) and abdominal pain/burn/acidity 19 (17.9%). A total of 102 (96.22%) reported improvement in symptoms after self-medication and 5 (4.71%) reported side effects. Two important reasons cited by study participants for self-medication included minor health problem 70 (66%) and easy availability of medicines at the medical store 44 (41.5%). According to 422 (66.98%) study participants, penalty for self-medication should be based on the type of drug consumed. **Conclusion:** A total of 16.83% study participants consumed self-medication during previous three months. Increased awareness about self-medication is community is important to avoid complications associated with self-medication.

KEYWORDS: Awareness, COVID-19, general population, self-medication.

INTRODUCTION

Self-medication is a common phenomenon, not only restricted to one country, but known world-wide.[1] With the increasing awareness and influence of the internet, it is not uncommon to see people consuming over the counter medications, before visiting the healthcare provider. Self-medication of drugs which are allowed by the country's regulation has its own benefits including reducing burden on healthcare services especially where they are scarce resources. It may help to reduce absenteeism from work due to minor symptoms and cost and time saving. However, increase in the self-medicines is a matter of concern because of potential risks of incorrect self-diagnosis, incorrect dosage, incorrect choice of therapy, masking of severe disease, drug interactions and development of adverse reactions.[2] With use of antimicrobial agents as self-medication, there is risk of emergence of resistance.[3] Drugs having effect on endocannabinoids in the brain have potential for being abused.[4]

Currently on-going COVID19 pandemic has imposed several restrictions on people including that of domestic and international travelling.[5,6] Patients may be finding it difficult or scared to visit the healthcare practitioners for their minor or long term but manageable health related issues for which otherwise they would have visited the doctor. It is possible that people may consume medicines with unknown effect for prevention against COVID-19.

There are many studies which examined knowledge and practices of self-medication in Indian population in non-COVID-19 period.[7-11] In COVID-19 pandemic, it is possible that general population may use interventions having non-trustworthy source and suffer from adverse events.[12]

According to best of our knowledge, there are no studies which evaluated knowledge and practices related to self-

medication of people in India during COVID-19 pandemic.

Objective
The objective of this study was to evaluate the knowledge, attitude and practice of self-medication during COVID-19 pandemic

MATERIAL AND METHODS
In this cross-sectional survey based study general population above 18 years of age who understand English were included. The study participants were included by convenience sampling as well as snow ball method. The study participants were administered a Google Form based questionnaire with two parts. In the first section, demographic data were collected whereas second part consisted of questions related to knowledge, awareness and practices about self-medication during COVID-19 pandemic. The questionnaire was validated before sending to study participants. The study was approved by the Institutional Ethic Committee.

Statistical Analysis
Electronic data captured were exported from the database into Microsoft excel sheets. Categorical data are presented as number and percentages whereas continuous data are presented as mean and standard deviation. Sub-group comparison is performed using chi-square test for discrete data. Un-paired t test was applied to compare continuous data between two groups.

RESULTS
A total of 630 participants were included in the study. The mean age of participants was 22.04 (6.03) years. The age group wise distribution of study participants is shown in table 1. The study included 436 (69.21%) females and 553 (87.78%) students.

A total of 106 (16.83%) study participants consumed medication without a prescription from qualified doctor in the last 3 months. Mean of participants who consumed medications was 27.25 ($\pm$10.79) whereas those who did not consume medication had mean age of 21.18 ($\pm$3.75). There was significant difference in the age group between two groups (p<0.001).

Among those who consumed self-medication 44 (41.51%) were males and 62 (58.49%) were females. Out of those who did not take self-medication 150 (28.63%) and 374 (71.37%) participants were males and females respectively.

The difference between male and female participants who consumed self-medication was statistically significant (p=0.0087; Figure 1).

Out of 106 study participants who consumed self-medication, 96 (90.57%) consumed allopathic medication whereas 21 (19.81%) and 18 (16.98%) consumed ayurvedic and homeopathy medications respectively (table 2). A total of 53 (50%) participants who consumed self-medication directly purchased it from the pharmacy whereas 29 (27.35%) used a previous prescriptions for purchasing it. Frequency and duration of self-medication use is shown in table 2.

A total of 103 (97.16%) participants used oral medicines for self-medication whereas 3 (2.83%) used topical formulations. Family members of 100 (94.33%) study participants were aware about the self-medication by study participants.

The common causes of self-medication included pain 56 (53.8%), menstrual problem 22 (20.8%), muscle cramp 21 (19.8%), fever 20 (18.9%), abdominal pain/burn/acidity 19 (17.9%), loose motion 15 (14.2%), cough 13 (12.3%) and constipation 11 (10.4%). The other causes are listed in table 3.

Out of those who used medicines, 102 (96.22%) reported improvement in symptoms after self-medication. After taking the medicine, majority of the study participants did not suffer from any side effects. A total of 5 (4.71%) participants stated reported side effects of headache, nausea and bowel/bladder disturbances.

Important reasons cited by study participants for self-medication included minor health problem 70 (66%), easy availability of medicines at the medical store 44 (41.5%), habit 27 (25.5%), scared to go out during the COVID-19 pandemic 23 (21.7%) and difficulty in travelling to a doctor 15 (14.2%). Other reasons cited by the study participants are listed in table 4.

Out of all study participants (n=630), a total of 623 (98.89%) reported that they are aware that not all drugs can be sold without prescription from a registered medical practitioner. Awareness of adverse events with medication was reported by 624 (99.05) study participants whereas 371 (58.89%) study participants reported that they keep update about list of medicines banned in India. A total of 78 (73.58%) study participants who consumed self-medication reported that they have knowledge of composition of medicine used for self-consumption.

Table 5 shows influencers for self-medication. Out of 106 participants who consumed self-medication, 81 (76.4%) reported that no one influenced them to consume the medication. In 44 (41.5%) of the study participants, family was influencer for self-medication. Other influencing factors for self-consumption of medicine are listed in table 5.

Source of updates for medication related information is given in figure 3 whereas opinions of study participants regarding regulating self-medication are given in figure 4.
According to 92 (14.60%) study participants everyone should have a right to buy medicines as they wish. A
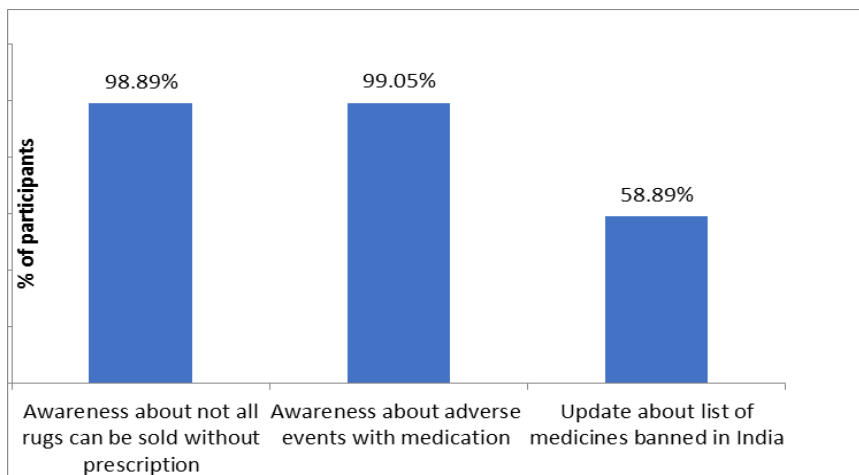
total of 46 (7.30%) study participants reported that pharmacists should have a right to issue medicines without prescription. According to 422 (66.98%) study participants, penalty for self-medication should be based on the type of drug consumed.
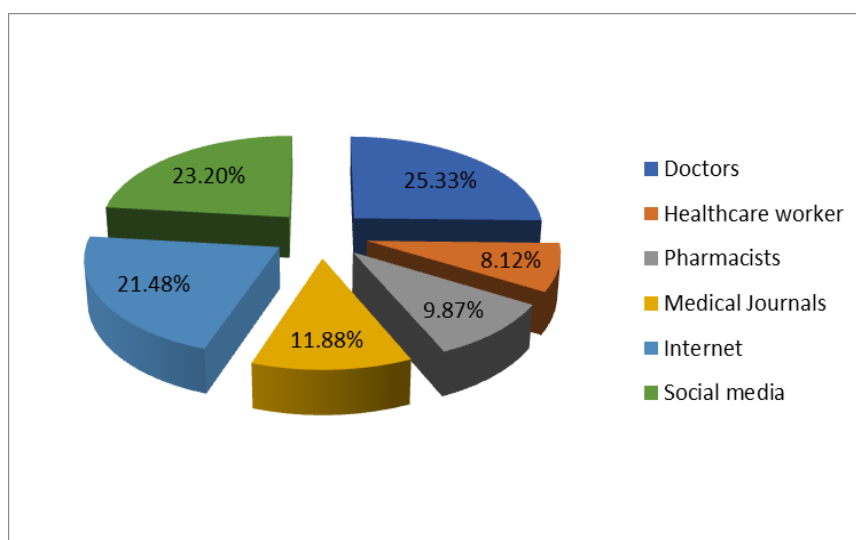
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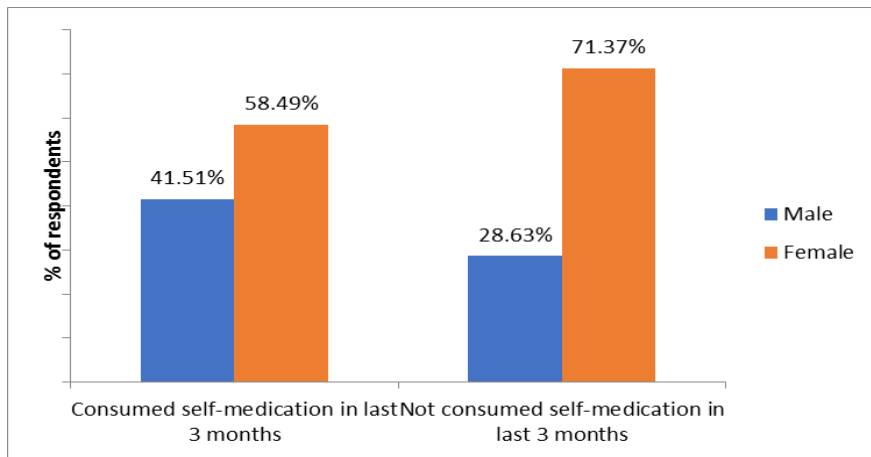
Figure 1: Consumption of self-medication in previous three months.

Figure 2: Awareness about medicines used for self-consumption.

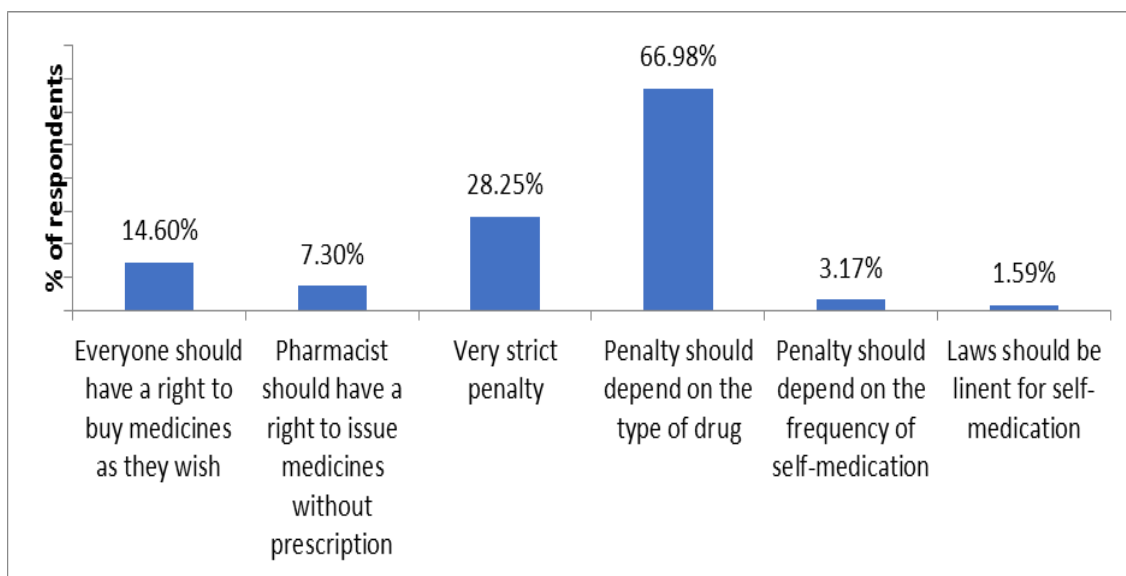**Figure 3: Sources of update on medications.**

Figure 4: Opinions of study participants regarding regulation for self-medication.

Tables
Table 1: Demographic details of study participants.

Parameter	Result
Mean (SD) years	22.04 (6.03)
Age	
18-22 years	527 (83.65%)
23-27 years	59 (9.36%)
28-32 years	05 (0.79%)
>33 years	39 (6.19%)
Gender	
Male	194 (30.79%)
Female	436 (69.21%)
Education	
Up to 12th Standard	32 (5.08%)
Undergraduate/undergraduate students	515 (81.75%)
Graduate	34 (5.40%)
Post-graduate	49 (7.78%)
Profession	
Student	553 (87.78%)
Homemaker	7 (1.11%)
Unemployed	13 (2.06%)
Self-employed	7 (1.11%)
Public sector	7 (1.11%)
Private sector	41 (6.51%)
Other	2 (0.32%)

Table 2: Details of self-medication consumed in last 3 months (n=106).

Parameter	Result n (%)
Type of medication	
Allopathy	96 (90.57%)
Ayurveda	21 (19.81%)
Homeopathy	18 (16.98%)
Source of medication	
Direct purchase from pharmacy	53 (50%)
Previous prescription	29 (27.35%)
Drugs used by a family member	13 (12.26%)
Prescription written to a family member	2 (1.88%)
Drugs used by a friend	1 (0.94%)
Other	8 (7.54%)

Frequency of self-medication	
Only once	34 (32.07%)
Once a week	5 (4.71%)
More than once a week	32 (30.18%)
Once in 2 weeks	7 (6.60%)
Once a month	12 (11.32%)
Once in 3 months	3 (2.83%)
As required	13 (12.26%
Duration of self-medication	
Only once	54 (50.94%)
1-3 days	39 (36.79%)
>3 days	13 (12.26%)
Route used for self-medication	
Oral	103 (97.16%)
Topical	3 (2.83%)
Awareness of family about self-medication	100 (94.33%)

Table 3: Causes of self-medication (n=106).

Cause of self-medication	N (%)
Pain	56 (52.8%)
Menstrual problem	22 (20.8%)
Muscle cramp	21 (19.8%)
Fever	20 (18.9%)
Abdominal pain/burn/acidity	19 (17.9%)
Loose motion	15 (14.2%)
Cough	13 (12.3%)
Constipation	11 (10.4%)
Skin rash/acne	5 (4.7%)
Shortness of breath	4 (3.8%)
Wheezing	3 (0.9%)
Allergies	2 (0.9%)
Wound	2 (1.9%)
Allergic rhinitis (Sneezing, running nose)	2 (1.9%)
Dental problem	1 (0.9%)
Vitamin D	1 (0.9%)
Anxiety	1 (0.9%)
Sore throat	1 (0.9%)
Infection	1 (0.9%)
Multivitamin and multimineral supplement	1 (0.9%)
Resumed depression medication	1 (0.9%)
Toothache	1 (0.9%)

Table 4: Causes of self-medication without prescription from a registered medical practitioner

Reason	N (%)
Minor problem	70 (66%)
Easily available at the medical store	44 (41.50%)
It is a habit	27 (25.50%)
Scared to go out to visit doctor during the COVID-19 pandemic	23 (21.70%)
Difficulty in traveling to a doctor	15 (14.20%)
Lack of time to visit a doctor	6 (5.70%)
Unavailability of a doctor	8 (7.50%)
Parents are doctor	2 (1.90%)
Lack of effectiveness of medicine prescribed by the doctor	2 (0.90%)
Did not need a prescription	1 (0.90%)
I am medical student and have knowledge of medicine	1 (0.90%)
Previously consulted a doctor	1 (0.90%)
Doctor told to use previous prescription	1 (0.90%)
Financial issues	1 (0.90%)

Table 5: Influence for self-medication (n=106).

Influencer for self-medication	N (%)
Self	81 (76.4%)
Family	44 (41.5%)
Internet	22 (20.8%)
Friends	15 (14.2%)
Mass media	14 (13.2%)
Colleagues	9 (8.5%)
Neighbour	5 (4.7%)
Previous doctor	1 (0.9%)
Doctor told not to change medicines	1 (0.9%)

DISCUSSION

Self-medication is a practice of using medications without prescription by registered medical practitioner. Such practice can have different problems including risk of adverse events, drug interactions and other serious complications among patients using self-medications.[14]

COVID-19 pandemic has resulted in changes in life-style of people of all age groups. Restrictions imposed by COVID-19 pandemic have resulted in compromise in different activities including visiting healthcare professionals during otherwise normal period. In this study, we evaluated knowledge and practices of self-medication in last three months among people from India. Out study included 630 participants, mostly younger population with mean age of 22.04 years and majority were students. This is most likely because of convenience sampling used in the study for participant selection.

A systematic review and meta-analysis has reported high prevalence (53.57%) of self-medication practices in India.[14] In our study, the prevalence was much lower than the findings reported in meta-analysis. This difference could be explained by the profile of study participants in our study. It has been reported that non-steroidal anti-inflammatory drugs (NSAIDs) and drugs for management of allergic symptoms are most commonly used self-medicated drugs.[14] Our findings are in line with this observation. In our study, pain was most common symptom for which self-medication was used. However, our observations differed for the drugs for allergic symptoms. In our study, second common reason for self-medication was menstrual symptoms. This can also be explained by the profile of study participants. In our study, there were almost 70% female participants. A study reported 42% prevalence of self-medication for primary dysmenorrhea.[10] Our study was not focussed on primary dysmenorrhea which provides explanation of lower rates in our study population. The most common symptoms for self-medications include headache and cold and cough.[14] If we consider different symptoms by the study participants including cough, allergy, sore throat then in our study also, the prevalence of using anti-cold and cough medicines is considerable among the medicines used for self-consumption. Antipyretics are another commonly used self-medications.[2] In our study, fever was the fourth

commonest cause of consumption of self-medication. A satisfactory observation from our study is very less self-medication for treatment of infection. Only one participant reported self-medication for treatment of infection.

It is important to not top three causes of self-medication reported by study participants i.e. minor problem, easy availability of medicines at medical store and habit of self-medication these are not related to COVID-19. Considering this, increased awareness of people should done to reduce complications associated with self-medication.[14]

The important reasons for self-medication contributed by COVID-19 pandemic were fear to visit hospital due to risk of acquiring infection, difficulty in travelling and unavailability of doctor, in the order of sequence.

It is important to bring this topic into light, especially with the ongoing pandemic because several factors have contributed in amplifying the rates of self-medication during the COVID-19 Pandemic. Self-Medication involves use of drugs, consumption of which without any prior knowledge can increase the risk of adverse events, and instead of being beneficial can make the situation grim. Misuse and long run use of medicines might have disastrous consequences, and can exaggerate the pre-existing conditions.[15]

Satisfactory awareness about adverse events and need of a prescription from a registered medical practitioner for buying medicine was observed among our study population. Although, student population was predominant, awareness about keeping update about banned medicine was not satisfactory. Self-influence was most common for medication followed by family members and internet. Our study participants provided varied opinions regarding regulations for medicines usage. Very few suggested that pharmacists should have a right to issue medicines without prescription.

Our study has some limitations. It was a cross-sectional questionnaire based study. The study population was dominated by students and younger people. The study was conducted only among those who understand English. This component could also influence the

awareness about self-medication. Considering these limitations, it is difficult to generalize the study findings.

CONCLUSION
In our study, a total of 16.83% participants consumed self-medicine, during previous three months. Common reasons for self-medication included pain, menstrual problems, muscle cramps and fever. Increased awareness about self-medication in community is important to avoid complications associated with self-medication.

Conflict of interest: None

Support: None

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