Original Research Paper

Volume - 11 | Issue - 01 | January - 2021 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Community Medicine

A COMMUNITY BASED STUDY ON COVID-19 PREVENTIVE PRACTICES AND ASSOCIATED PROBLEMS AMONG THE URBAN POPULATION OF UJJAIN CITY

Dr Vidit Khandelwal	Assistant Professor, Department of Community Medicine, RD Gardi Medical College, Ujjain.
Mrs. Vandana Sisodiya	Tutor, Department of Community Medicine, RD Gardi Medical College, Ujjain.
Dr Col. Dinesh Bhatnagar	Professor & Head, Department of Community Medicine, RD Gardi Medical College, Ujjain.
Dr Vartika Katare*	Postgraduate, Department of Community Medicine, RD Gardi Medical College, Ujjain. *Corresponding Author
Dr Dileep Dandotiya	Senior Resident, Department of Community Medicine, RD Gardi Medical College, Ujjain.

ABSTRACT **Introduction:** On March 11, 2020, World Health Organization declared COVID-19 as a pandemic, caused by novel coronavirus called SARS CoV-2. To control the spread of COVID-19, certain preventive practices have been prescribed to be followed by the people from all over the countries.

Objectives: To study the preventive practices against COVID-19 prevalent among the general population of Ujjain and the problems in adherence of those practices.

Methods: Cross sectional study, conducted on 1600 participants (>18 years) residing in Ujjain city, during July- August, 2020, using purposive sampling. Data was collected using semi-structured questionnaire with scoring. Data collected was analysed using SPSS v.23.

Result: Mean age of the study participants was 38±12 years. Majority of participants were male (73.2%), literate (80%) and employed (82%). Approximately 94%, 93.7%, 82% and 87.3% participants were following preventive practices like regular hand-washing with soap, use of face mask, use of sanitizer and physical/ social distancing respectively.

Conclusion: COVID-19 infection can be controlled by practicing prescribed preventive measures by the general population. Missing to follow even a single practice can be hazardous to the individuals and their families. There's a dearth of good quality-low cost face masks in India, so the use of triple-layered face mask is effective without being uncomfortable and high cost.

KEYWORDS : COVID-19; SARS CoV-2; Preventive practices, face masks

INTRODUCTION:

On 30th January 2020, WHO announced the outbreak of pneumonia like disease, called COVID-19, as a public health emergency of International concern[1] and on 11th March 2020 declared as a pandemic[2]. As on 10th December, 2020, worldwide there have been approximately 69 million cases[3] and in India 9 million cases[4].

The Coronavirus Study Group of the International Committee on Taxonomy of Viruses named this virus as Severe Acute Respiratory Syndrome Coronavirus-2[5]. SARS CoV-2 belong to the family Coronavirus and genus Beta-coronavirus. It's an enveloped virus with positive sense, single stranded RNA. Its structure consists of S, M, N and E structural protein[6]. Studies found 96% and 90% genomic similarity in SARS CoV-2 with the bat coronavirus and the coronavirus found in pangolins respectively[7,8].

Knowledge for SARS-CoV-2 transmission is largely based on what is known from the similar coronaviruses, particularly SARS-CoV and MERS-CoV, in which human-to-human transmission occurs through droplets, contact and fomites. SARS-CoV is predominantly transmitted through indirect or direct contact with mucous membranes in the mouth, eyes, or nose[9].Based on the transmission mode of SARS-CoV and MERS-CoV, a serial of preventive measures have been recommended, including use of face mask, avoiding close contact with people suffering from acute respiratory infections and frequent hand-washing[10].

The first case of pneumonia like illness of unknown aetiology was recorded in December 2019, in Wuhan City of China[11]. The first case of COVID-19 in India was reported on 30 January, 2020 in Thrissur district of Kerela[12]. In Madhya Pradesh[13] and Ujjain[14], the first case of COVID-19 was reported on 20th March and 25th March respectively.

To control the spread of COVID-19 in India, the nationwide lockdown was imposed on 25th March 2020 for 21 days following the passenger air-travel suspension on 22nd March, 2020[15]. Since lockdown couldn't be continued for long, the process of unlocking was implemented in phases. However, to control and prevent COVID-19 spread, prescribed guidelines need to be followed strictly, yet it is observed that people are not adhering to the measures prescribed and hence, new cases are being detected regularly[16,17]. So, this study is an effort to assess the practices prevalent among the population and the reason for adherence and non-adherence to them by some people.

OBJECTIVES:

1. To study the preventive practices against COVID-19 prevalent among the general population of Ujjain.
2. To study the problems in adherence of those practices by people.

MATERIALS & METHODS:

***Study design and data collection*:**

This community based cross sectional study was conducted post unlock 1.0/ during unlock 2.0 in urban Ujjain which was divided into six sectors. Ujjain is a city of temples in Madhya Pradesh, a state of central India, with the total population of 5.15 lacs, sex ratio 945/1000 and average literacy 84.43% according to *census 2011.*

Sample size of 1600 was calculated using assumed awareness level of 50% at 95% confidence level and 5% relative error. Purposive sampling method was used. The study was carried out among the general population aged above 18years in urban area including markets and residential areas using pretested questionnaire by a team of doctors and para-medical staff. The questionnaire consisted of sociodemographic data, questions on- practices and their adherence to those practices for prevention of COVID-19, use of Arogya Setu mobile application and the fear of disease. Data was collected by interviewing the participants after taking their verbal consent. Simultaneously participants were educated and motivated to follow practice of prescribed preventive measures for the control of COVID-19.

***Data Analysis*:**

The collected data was compiled in MS excel 2016 and analysed using

Statistical Package for Social Sciences (SPSS V23.0). There were total of four questions under the "Preventive Practices" domain. A score of 1 was attributed to 'No' and 2 was allotted to 'Yes' for following the particular Preventive practice. The cumulative score ranged from 4-8, and the Practice score of ≤7 was considered inadequate practice and score of >7 was considered adequate.

Variables were summarised using proportions with 95% confidence intervals. Preventive practices were compared by demographic characteristics using Chi-square where appropriate and binary logistic regression was used to identify factors associated with practices. Statistical significance level was set at <0.05.

Prior approval for conducting this study was sought from the Institutional Ethics Committee.

RESULT:

Socio-demographic Characteristics:

A total of 1600 participants were included in the survey. The socio demographic characteristics of the study participants are presented in **Table 1**. The age of the participants varied from 18 years to 90 years with the mean age 38±12 years, with majority (55.3%) in the age group <40 years. Of all the respondents, 73.2% were males. Approximately 80% participants were literate, where most of them were graduate/ post-graduate and 82% participants were either employed or self-employed and earning.

Table 1. Sociodemographic Characteristics Of Study Participants:

		Frequency	Percentage
Age	<40 years	884	55.3%
	40-60 years	644	40.3%
	>60 years	72	4.5%
Gender	Male	1171	73.2%
	Female	429	26.8%
Literacy	Illiterate	297	18.6%
	Primary	138	8.6%
	Middle	194	12.1%
	High School	258	16.1%
	High Secondary	280	17.5%
	Graduate/Post grad	433	27.1%
Employment	Unemployed / Not earning	292	18.3%
	Employed/ Earning	1308	81.8%

Preventive Practices:

Table 2. depicts the preventive measures practiced by the participants. It was observed that 94.1%, 93.7%, 81.9% and 97.3% participants were following preventive practices like regular hand-washing with soap, use of face mask, use of sanitizer and physical/ social distancing respectively for the prevention of COVID-19.

Of those using face mask, 61.1% were using cotton mask whereas only 38.9% were using medical mask (triple-layered surgical/N-95 mask).

People who were not using face mask, majority stated that they feel uncomfortable (96%) in wearing face-masks while for some high cost of face-mask (4%) was the reason. Similarly, among those not using sanitizer, major reason was discomfort (52.8%) where most of the participants did not like the odour of the sanitizer (34.8%) and some were allergic to its use (17.9%). Approximately 38% participants gave no reason as to why they don't use sanitizer for prevention against COVID-19. As the participants needed to go to work, approximately 2.8% could not practice physical/ social distancing.

Table 2. Magnitude Of Preventive Measures Against COVID-19 Practiced By The General Population:

Preventive Practices	Answer	Score	Frequency	Percentage
Hand-wash with Soap & Water	No	1	95	5.9%
	Yes	2	1505	94.1%
Use of face-mask	No	1	101	6.3%
	Yes	2	1499	93.7%
Use of sanitizer	No	1	290	18.1%
	Yes	2	1310	81.9%
Physical/ Social Distancing	No	1	44	2.8%
	Yes	2	1556	97.3%

Table 3. Magnitude of preventive practices across various socio-demographic characteristics:

	Practice Score ≤ 7 (Inadequate Practice)	**Practice Score > 7 (Adequate Practice)**		
	Count	Count	χ^2 **(p)**	OR (95% CI) **(p)**
Overall	**1227 (76.7)**	**373 (23.3)**		
Age Groups				
<40 years	696 (78.7)	188 (21.3)	6.5 **(0.04)***	Reference category
40-60 years	473 (73.4)	171 (26.6)		1.015(0.55-1.8) **(0.9)**
>60 years	58 (80.6)	14 (19.4)		1.4(0.7-2.6) **(0.23)**
Gender				
Male	886 (75.7)	285 (24.3)	2.5 **(0.1)**	Reference category
Female	341 (79.5)	88 (20.5)		0.9 (0.7-1.3) **(0.9)**
Literacy				
Illiterate	249 (83.8)	48 (16.2)	10.4 **(0.001)***	Reference category
Literate	978 (75.1)	325 (24.9)		**1.8** (1.3-2.6) **(0.00)***
Employment				
Unemployed / Not earning	242 (82.9)	50 (17.1)	7.6 **(0.006)***	Reference category
Employed/ Earning	985 (75.3)	323 (24.7)		0.69 (0.47-1.01) **(0.05)**

In the present study, only 23.3% participants were taking adequate measures for the prevention of COVID-19, means they have Practice score >7. High Practice score (score >7) was observed among the participants belonging in the age group 40-60 years (26.6%). Among literates, only 24.9%participants were taking adequate measures and approximately 24.7% employed participants had higher practice score (>7) **(Table 3).** The statistically significant association was recorded between practice scores and age (p= 0.04), literacy (p=0.001) and employment status (p=0.006). Practice score was 1.8 times higher among literates (OR=1.8; CI=1.3-2.6) and has shown statistically significant association.

In the study it was observed that those who were afraid of contracting the disease (67.3%) had higher practice score than those who were indifferent (32.7%) to the present scenario. The difference in proportion of practice scores of both the groups who assent and dissent for being afraid of COVID-19 was statistically significant (χ^2= 4.76; p= 0.029). Of those who were afraid, approximately 89% were concerned about themselves and their family members contracting the disease or the possibility of dying while the rest of the participants (10.8%) were afraid about expanses during hospitalisation.

During the study, out of all the respondents, only 8.5% participants reported to have fever/cough/shortness of breath and among those having such complaints only 36.8% had consulted a doctor regarding their symptoms. The majority of participants (76.5%) with symptoms (fever/ cough/ shortness of breath) had lower practice score (≤7).

In this study it was found that 46.3% participants had installed Arogya Setu application on their mobile phones.

DISCUSSION:

This study was aimed to assess the preventive measures practiced by the population of Ujjain city during covid-19 pandemic Post-Unlock 1.0 / during Unlock 2.0. Thus this study would observe the engagement of population to stop the spread of the disease and the problems faced by them in adherence to the preventive practices. In the study, majority (76.7%) of participants obtained low practice score (**≤ 7**). Practice score was significantly low among elderly, illiterates and unemployed/ not earning participants. Social/ physical distancing (97.3%) followed by regular hand washing with soap and water (94.1%) were the most practiced preventive measures taken by the population of Ujjain city, beside these, face covering mask was used by 93% respondents and 82% participants were using hand sanitizers.

The high magnitude of social distancing practiced by the population

might be due to the lockdown imposed by the government to control the spread of disease. One of the reason for high magnitude of hand washing practice with soap and water might be due to the age old practice of washing hands regularly besides that staying home for the most part of the day might have increased this practice as it's convenient to use soap when at home.

The most common type of face mask used by the participating population was cotton or cloth mask. Easy availability and low cost of these masks favour their use by large number of participants without compromising the comfort. In this study, the proportion of those not using face cover mask was very low, and the main reason being discomfort. Wearing mask for long hours lead to itching, bad odour, excessive sweating, acne problems (maskne[18]), pain in ear pinna due to the elastic band, etc. Higher cost of masks due to low availability also discouraged the participants to use them. Some mask refusers see this issue only in terms of their comfort and personal safety; they don't understand that wearing a face mask can prevent the disease in them but also to their family members and community as well.

Before this pandemic struck, use of hand sanitizer was limited in our country. Though in the present study large number of participants were using hand sanitizers, there was a small proportion of population which was not using it. The supply of sanitizers in market before pandemic was limited, then the sudden increase in demand led to the shortage of stocks and spike in prices. The repeated use of hand sanitizer causes allergy (in some)/itching/drying of hands. Beside that the strong odour of the sanitizer is not favoured by many. Generally, fear of disease motivates people to follow preventive practices but interestingly, in this study it was noted that even the people were scared that they/ their family members might contract the disease, their practice score was still low.

The disaster, COVID-19, brought panic and stigma in its wake. Though people were symptomatic, they did not report their symptoms to the healthcare workers. The most probable reason for this avoidance might be the stigma associated with the disease. People are afraid of being cut off from the society and being restricted to their homes only for the time of quarantine/ isolation.

Recommendations:

First and foremost, there's a need to impart health education to the public regarding COVID-19 and the correct measures to prevent it. There's also a need to mandate the preventive practices. Making the face masks and hand sanitizers widely available and pushing back against blatant misinformation regarding the disease and its preventive measures. Along with that this disease needs to be de-stigmatized so that people report to hospitals in time.

In reducing discomfort due to face masks following measures/tips can help:

For bad odour control- Oral hygiene should be maintained; use of mouth fresheners would also help. To combat **breathing difficulties** and **excessive sweating/dampening** of mask- triple-layered cloth mask with high thread count should be used where outer layer should be breathable fabric and inner layer should be moisture-wicking fabric (nylon, polyester, silk, etc). **Pain in ear** due to the elastic bands of mask can be reduced by using adjustable ear straps or instead of elastic, use of cords or ties would also help. For **fogging** problem among the specs-wearer, masks with cushioned should be used to fit on the nose. Use of triple layered surgical mask would be comfortable, cost-effective and its ease to dispose makes it a perfect choice for daily use.

Limitations:

During COVID-19, due to limitation of movement, participants were selected using purposive sampling. The study was carried out in urban area where majority of population was literate, so the study population has limited representativeness and can't be generalised. Exaggeration/ over reporting and hiding are well recognised issues in self-report surveys as participants tend to report in individually convenient and socially desirable ways.

CONCLUSION:

The respiratory infection such as COVID-19 is a disaster which can only be controlled by taking preventive measures by the general population. Although individual magnitude of preventive practices was high, people were not following all the prescribed preventive measures and this has made all the difference. Missing even a single practice might result into a coronavirus infection. In the past, Indians have never used face masks, hand sanitizers and physical/ social distancing on the daily basis so including these practices in day to day life has made people uncomfortable. There's a dearth of good quality-low cost face masks in India. Policy makers should address this issue and the government should take steps to resolve the problem.

CONFLICT OF INTEREST: None

FUNDING: None

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