

Knowledge, attitude, and perception of Indian population toward coronavirus disease (COVID-19)

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ABSTRACT

Background: Coronavirus disease (COVID-19) has spread very fast worldwide as a pandemic causing unprecedented morbidity and mortality. Most countries in the world have undergone emergency lockdown in an attempt to flatten the curve and reduce the load on healthcare systems. **Objective:** This study was done to assess the knowledge, attitude, and perception toward the disease among the home-bound Indian population during the lockdown. **Methodology:** This was a questionnaire-based descriptive cross-sectional study conducted online. Compilation and assessment of the online data in the form of responses were done as for descriptive studies. **Results:** Among the 320 participants of the study, the awareness about the epidemiological features, including the signs and symptoms of the disease, was very good (more than 99% in some aspects). The attitude toward the measures for prevention of disease at home and outside was also very good (more than 97%) in some aspects, with a scope of improvement in a few others. Only one-third had the knowledge of online (e-consultation) services floated by governments and hospitals for medical advice. Ten percent had the potential to misuse drugs as prophylaxis. Most of the participants perceived that they had no predictable idea about the shape of disease epidemiology in the near future and only hoped for things to get better. **Conclusion:** This study reflects that aggressive awareness drives have played an important role in the dissemination of knowledge and the development of informed positive attitude toward COVID-19. Few gaps in knowledge and practices related to disease epidemiology, safe practices, mobile app for tracking and the availability of e-resources for medical advice, still remain. These should be addressed more aggressively, to strengthen the efforts to overcome this unprecedented crisis.

Keywords: COVID-19, coronavirus, Indian population

Introduction

The world is currently facing a new crisis in the name of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) which originally emerged in Wuhan City, Hubei province in China in December 2019, but has now found its way across

the globe, affecting over 32 lakh people worldwide and killing thousands.^[1] This outbreak has been termed Coronavirus Disease 2019 (COVID-19) and was officially declared a pandemic by the World Health Organization (WHO) on March 11, 2020.^[2] Till May 8, 2020 India had reported 59,881 active cases, with 1990 reported deaths.^[3] This is a highly contagious and rapidly spreading disease; hence, in the absence of a definitive treatment and vaccine trials still underway, most countries in the world have undergone a compulsory lockdown in an attempt to flatten the curve and reduce the load on healthcare systems. The Indian Government also issued orders for a complete lockdown of the country on March 25, 2020 which has been extended till May 17,

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2020.¹⁴ Orders for temporary suspension of all nonemergency services like OPD and elective surgeries have also been issued across the country. Government bodies in India are developing various strategies and propagating the same via official channels to generate and increase the awareness in the general population regarding the epidemiology and clinical features pertinent to COVID-19 pandemic. The government has also taken various efforts to educate the masses about mandatory and necessary precautionary measures that are to be followed both in public places and at homes, to break the chain of transmission.

People's awareness and perception, related to a pandemic like this, are the key primary care factors during such times of crisis, because the fight against the present situation is mostly dependent on responsible behavior of the society. Hence, it is important to understand the perception and attitude of people toward this global pandemic, to correctly identify how well the strategies to spread awareness have been working. This study was planned to assess these aspects to help us analyze the issues that may still need to be addressed, in order to fight the disease in a better way.

Materials and Methods

Objective

This study was planned to assess the basic knowledge, attitude, and perception of the urban Indian population under national lockdown toward the ongoing COVID -19 pandemic.

Methodology

It was a cross-sectional, descriptive study based on a questionnaire-survey administered online via mail and social media platforms, assessing a representative sample of the urban adult population confined at home due to the COVID-19 pandemic. Prior approval for the study was taken from the Institutional Ethical Committee, via an IEC meeting conducted online due to the limitation of lockdown (Ref. No. SU/SMS&R/76-A/2020/07). The participation in the study was voluntary and an informed consent was obtained from all the subjects before participation in the study. Participants were provided with an information sheet with the questionnaire, and only those voluntarily consented to be part of the study were included in the study. The questionnaire was framed to understand:

- The basic knowledge about the epidemiology and clinical features of COVID-19 through an assessment on the origin of the virus, methods of spread, clinical features, and incubation period for COVID-19
- The attitude of the population toward the pandemic, through information about the safeguard measures taken at home and public places, the preferred source of information related to the disease, and the approach toward remedies/medications used to protect themselves and their family members from COVID-19
- The general perception of the masses toward the lockdown and suspension of nonessential medical services, by allowing

participants to type in their answers to questions on these aspects as part of the semistructured questionnaire.

All questions except the demographic and subjective answer types gave participants the chance to select more than one option if multiple options were thought of as correct answers.

Study design

Due to the mandatory national lockdown, the questionnaire was circulated via mail and WhatsApp groups of friends and acquaintances of the authors with a request to further disseminate it, to include as many participants as possible. Collection of data was done for 10 days. Individuals above the age of 18 years who could respond to the questionnaire on phone or mail within the territory of India were included in the study. Foreign nationals stuck within the Indian territory were excluded from the study.

Statistics

The questions of this survey were all structured to allow responders to choose as many options as they found fitting to their understanding, and the analysis of the data was done with the help of Excel sheets. The statistical analysis to relate the different variables was not applicable to these data; hence, the assessment and interpretation were based on the number and percentage of different types of responses.

Results

The questionnaire was administered to 323 people, and 320 (99.1%) of them responded by participating voluntarily. The mean age of the participants was 33.8 years (youngest participant was 18 years old and the oldest participant was 86 years old). The male participants were 146 (45.6%) and female participants were 174 (54.4%) in number.

Figure 1 depicts the knowledge of the participants about the place of origin of the virus. Out of 320 participants, 318 (99.37%) knew the correct origin of the disease. Figure 2 shows the awareness of the signs and symptoms of the disease in the participants. A total of 317 (99.06%) people had a correct idea about this aspect of the disease. Figure 3 depicts

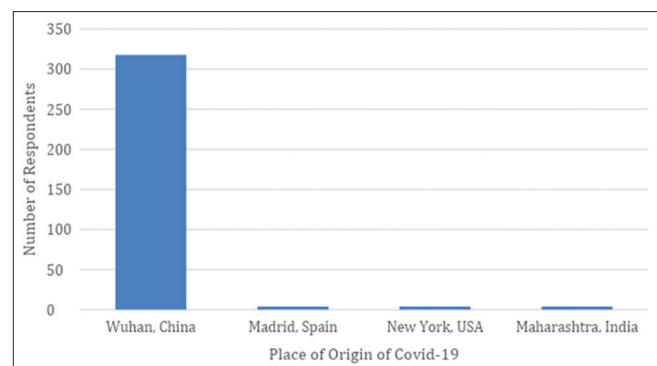


Figure 1: Knowledge about place of origin of COVID-19 ($n = 320$)

the knowledge about the incubation period of the disease. Only 52 (16.25%) participants thought that the incubation period is less than 15 days. Figure 4 shows the awareness of people related to the availability of e-OPD services started by the government and other hospitals for medical advice. Only

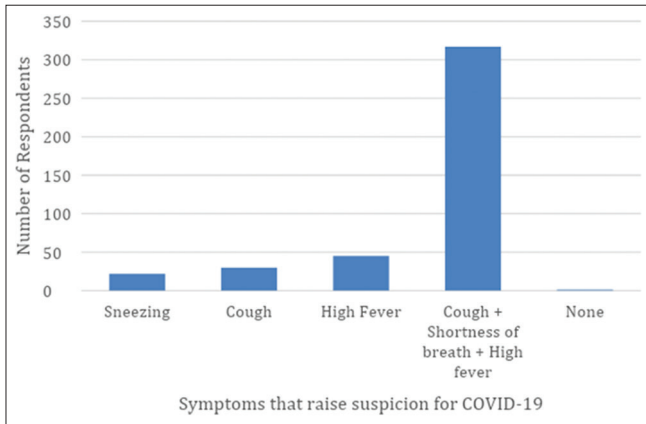


Figure 2: Knowledge about symptoms that raise suspicion for COVID-19 (n = 320)

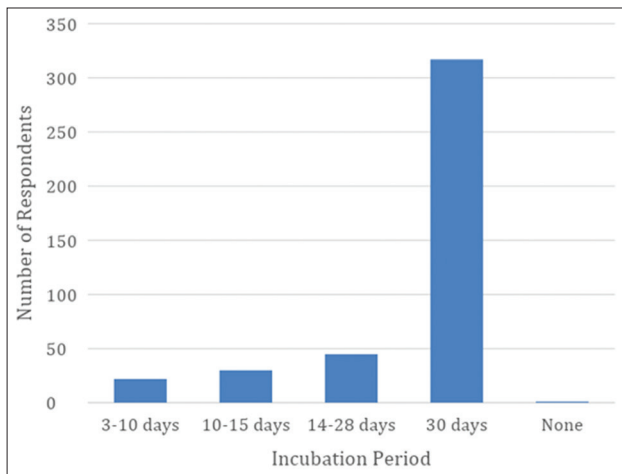


Figure 3: Knowledge about incubation period of COVID-19 virus (n = 320)

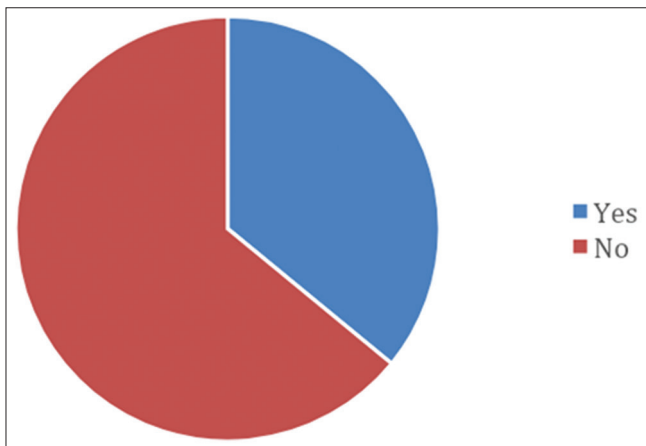


Figure 4: Awareness of provision for e-OPD Services by the government

36% of the people knew about such services having been made available to the public.

Table 1 shows the knowledge of participants about the modes of transmission/spread. Spread of the infection by droplets was the most common (95%) known fact. Table 2 shows the attitude of the population toward the safeguard measures to be taken in public places. Social distancing as one of the measures was known to most of the respondents (97.5%). Table 3 shows the attitude toward the measures to be taken at home. Washing hands after coming home from outside was the most common accepted way of fighting the pandemic (97.8%). Table 4 reflects the attitude toward prophylactic or preventive therapies to be followed at home against infection. A balanced diet, including fruits and vegetables, was the most common method (81.6%) that people advocated for warding off the infection. Table 5 shows the sources of information that participants use to update themselves about COVID-19. Television news channels topped among the various sources, being relied upon by 61.6%. Table 6 is the compilation of the summary of common feelings in the subjective answers in response to the open question about the perception of the disease.

Table 1: Knowledge about mode of transmission of COVID-19

Responses of participants (n=320)	Number (%)
Droplets from infected person	304 (95)
Handshakes	209 (65.3)
Surfaces/Things	241 (75.3)
Touching face and nose	166 (51.9)

Table 2: Measures taken to safeguard from COVID-19 in public (outside home)

Responses of participants (n=320)	Number (%)
Social distancing	312 (97.5)
Mask when going outside	272 (85)
Handshakes whenever necessary	28 (8.8)
Touching face as minimally as possible	166 (51.9)

Table 3: Measures taken to safeguard from COVID-19 at home

Responses of participants (n=320)	Number (%)
Washing hands when coming from outside	313 (97.8)
Cleaning surfaces regularly	269 (84.1)
Maintaining social distancing from family members	128 (40)
Wear gloves all time	30 (9.4)

Table 4: Remedies /Medications that can prevent COVID-19

Responses of participants (n=320)	Number (%)
A balanced diet including fruits and vegetables	261 (81.6)
Vitamin C	269 (84.1)
Home-based remedies	128 (40)
Hydroxychloroquine	30 (9.4)
Ayurveda, Unani, Siddha, Homeopathy	17 (5.3)

Table 5: Sources of information for COVID-19

Responses of participants (n=320)	Number (%)
Television news channels	197 (61.6)
News apps on phone	156 (48.8)
Website for Ministry of Health and Family Welfare	143 (44.7)
Arogya Setu App	137 (43.3)
WHO Website	133 (41.6)
Google	126 (39.4)
Newspaper	77 (24.1)
WhatsApp	47 (14.7)
Instagram	44 (13.8)

Table 6: Perception toward the lockdown and the suspension of nonemergency services**Top 6 commonly observed responses**

Hesitation to visit hospital without any emergency due to fear of getting infected with disease.

Willingness to follow and comply with social distancing guidelines and stay at home orders and various self-protective measures like washing hands, wearing masks, etc.

Trusting the Government to make right decisions to curb the spread despite facing hardships.

Realization of the magnitude of the problem and hence willingness to use modern technology like video conference or phone calls, without venturing out, to contact doctors in case of urgent need.

Sympathy toward the doctors, nurses, and essential services workers.

Accepting to bear minor symptoms in the larger interest till the lockdown continues.

Discussion

The present study was conducted as an effort to understand the knowledge, attitude, and perception of the Indian population toward COVID-19 disease in the early days of the global pandemic.

The study shows that nearly all the participants had the correct idea about the place of origin and the signs or symptoms of COVID-19. The government and local authorities had been carrying out massive awareness campaigns using many novel strategies to disseminate information on COVID-19, such as broadcasting messages via cell phone caller tunes, and the success of the efforts is evident from the data.^[5,6]

Knowledge about the incubation period of the disease was not as satisfactory. This point needs to be disseminated more because the isolation, quarantine, and lockdown policies are based on the knowledge of the incubation period.^[7] A better knowledge of the same would help the people understand and follow the government directives properly.

With the mandatory shutdown of all nonessential OPD services and nonemergency services across the nation, the government of India has worked toward providing the facility for e-OPDs by online registration. Online Registration System (ORS) is a framework to link various hospitals across the country for

medical advice and healthcare related appointments.^[8] Two-thirds of the patients were unaware of these facilities started by the government hospitals. This fact needs to be taken up seriously so that proper medical advice can be made available during the lockdown to home-bound people, who might need the health care services, but are unaware of the existence of the e-facilities.

Most of the people were aware of the actual mode of transmission through the droplets from an infected person. The correct knowledge about this aspect was much higher than seen for previous pandemics.^[9] In previous studies on other epidemics, done even in healthcare persons, the reasonable knowledge was in about 80% participants.^[10] Nearly all the 320 participants, except eight, knew the value of social distancing during the pandemic. This was again much higher than in studies conducted on other previous epidemics where a reasonably good knowledge was reported in up to 61.5% participants.^[10,11] Nearly all the participants being highly aware of different epidemiological aspects of the pandemic in the present study reflects sweeping concern of this unprecedented global problem in the current living population and the awareness efforts by various state, national, and international agencies at war footing.

Still, some other aspects, such as completely doing away with handshakes or using masks every time one goes outside, need to be driven a little more. Furthermore, the knowledge about other facilitating factors of transmission such as touching the face and nose still needs to be reinforced. Nearly everyone (except seven out of 320) knew about the value of washing hands when coming from outside. The clarity about some other measures to be taken at home, such as social distancing, when to wear gloves and cleanliness of surfaces, as compared to the measures to be taken outside the home, was lacking. The people need to be educated more on proper practices to be adopted at home.

Most of the respondents rightly appreciated the importance of a balanced diet including fruits and vegetables, for boosting immunity against the disease. About ten percent of the participants believed that hydroxychloroquine should be taken to prevent this disease. Hydroxychloroquine has been used as an option with some benefits in prophylaxis and management of COVID infection as no proven effective drug for the same is available till now.^[12] The Government of India advisory recommended the drug to be used only by health care professionals in the hospital taking care of suspected or confirmed COVID-19 cases or by contacts of confirmed cases.^[13] Ten percent of the educated Indians in this study have a potentially harmful misconception about the indications of the drug. This could lead to some healthy individuals misusing the drugs with the underlying risks for adverse reactions.

Media has an important role in the transmission of knowledge during these pandemic times. Television news channels were the most common source of information and other authentic sources were also being used by many participants. The results were similar to a recent study done in Jordan about media's effect

on shaping people's knowledge in the pandemic.^[14] Thankfully, WhatsApp and Instagram, which sometimes may propagate even false information, were the least reliable sources of information in the study. The printed newspapers did not fare high in the list. The reason could be the nonavailability or restricted availability of the medium during the lockdown. The Arogya Setu App floated by government of India for tracking the disease spread has become known to nearly half of the participants, but its importance needs to be further emphasized for covering a majority of the population.^[15]

The overall perception of the participants about the disease emerged from the facts and the threats related to the disease. Most of the participants agreed that they had no predictable idea about the shape of disease epidemiology in the near future and only hoped for things to get better. Realizing the magnitude of the problem, most people appreciated the hardships of the workforce involved in fighting the disease. Because of the uncertain times, with no clear-cut strategy against the disease, most of the participants were eager to comply with all the directives by the government officials, in an effort to overcome the pandemic.

Conclusion

This study reflects that aggressive awareness drives from credible sources like local government bodies, Health Ministry, and WHO, have played an important role in the dissemination of awareness and the development of informed positive attitude in the general population toward COVID-19. A few gaps in knowledge and practices related to disease epidemiology, safe practices, mobile app for tracking, and the availability of e-resources for medical advice still remain. These can be addressed more aggressively to strengthen the efforts to overcome this unprecedented crisis.

Limitations

All the participants included in the study were well educated and could respond to an English questionnaire administered online; hence, the sample population may not have been representative of the uneducated people of poor socioeconomic status.

Declaration of patient consent

The authors certify that they have obtained all appropriate participant consent forms. In the form, the participants have given their consent for other clinical information to be reported in the journal. The participants understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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