Original Research Article

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Awareness of the Indian population regarding COVID-19 pandemic: a questionnaire-based survey

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ABSTRACT

Background: The quick and widespread of the COVID-19 virulent disease has become a significant cause of concern among the general public and likely to adapt to this situation. People's adherence to control measures is affected by their knowledge of COVID-19. This study aims to assess the awareness of the Indian population regarding the COVID-19 pandemic.

Methods: A cross-sectional web-based anonymous survey conducted through an online platform (Google form) among the Indian population. A structured questionnaire was prepared to collect data about 5 minutes required to complete the questionnaire, and a total of 351 responses were received. Descriptive (frequency, percentage, mean, standard deviation) and inferential (chi-square) statistics used to analyze the collected data.

Results: A total of 351 respondents have participated in this survey from different states/union territories were included in the analysis. 68.9% were had an adequate level of awareness, and 19.9% of was had an inadequate level of awareness. 78.6% were answered that the virus spreads through touching, coughing, sneezing; also, 78.3% were had knowledge regarding symptoms of COVID-19. Level of awareness was not associated with age, gender and variables were shown association.

Conclusions: There is a need to intensify the awareness of people during this COVID-19 pandemic.

Keywords: Awareness, General public, COVID-19, Pandemic, Coronavirus

INTRODUCTION

Novel coronavirus disease (COVID-19) originated from China has rapidly crossed borders. It is quickly spreading and infecting people across the globe, and the number of cases is mounting rapidly. The media has been reporting continuously across borders to keep all informed about the pandemic situation.²

India is a developing country, and the present generation did not expose to such a massive pandemic ever. The rapidly growing number of positive cases and urgency of this situation is alerted India to actions, like other countries. The country has started taking action(s) including preparing and circulating the awareness

material like posters in English and other vernacular languages, formulating guidance documents for awareness of the general public, guidance documents for healthcare professionals, formulating comics to create awareness among children, and finally locking-down the region(s) completely or partially. Further, setting up a network of "Arogaya setu" for self-assessment. Also, caller tones in mobile phones, mass media education throughout the country. However, it takes wide steps in educating the public about how to reduce the risk of transmission like maintaining social distancing (stay home and stay safe) using tissues when sneezing, wearing mask washing hands regularly with soap and water.³

Inspiring the public to adopt such behaviors can be difficult. Studies of how people responded to the outbreak

of severe acute respiratory syndrome in 2002 suggest that awareness about an explosion may be vital in determining compliance with formal advice. Literature portrays human behaviors influenced by people's understanding and opinion to decide whether to adopt precautionary practices in response to an outbreak.⁴ The act of the general public will probably have a significant bearing on the course of the coronavirus disease 2019 pandemic.

Despite several efforts made at the administration level, the cases of COVID-19 are increasing globally (though the rate of rising is relatively lower in India), one of the reasons could be the lack of awareness among the population about precautionary measures for the prevention of transmission and/or lack of sensitization about the seriousness of the situation. Without making efforts at the personal level by the general public, the steps taken by the administration may not prove to be fully effective. Knowledge and attitude at the personal level may affect the practice followed and thus in turn the spread of the disease in the community.⁵ To assess awareness relating to COVID, we carried out a crosssectional online survey from a representative sample of the population of India. This survey provided a snapshot of the knowledge, at the beginning of the coronavirus outbreak, during a period of scientific uncertainty about the risks posed by the virus.

METHODS

Survey instrument and dissemination

A cross-sectional web-based survey was carried out using a survey instrument to obtain responses from among the general population of India during the second week of 9 April-21 June 2020. A 9-item survey instrument was developed on the basis of WHO public awareness material regarding COVID 19. An online structured questionnaire was developed by using Google forms, with a consent form appended to it. Nine randomly selected experts, and the general public read the questionnaire to assess the readability. Then the pilot web survey was conducted among 14 randomly selected general populations to determine clarity, relevance, and acceptability. These participants were excluded from the research. Modifications were made in the questions as organize and facilitate to to comprehension before the final survey.

We were able to collect data from across various states of India. A Snowball sampling technique was used to locate the responders. The link to the questionnaire was sent through e-mails, WhatsApp, and other social media to the contacts of the investigators from the different geographic areas of India. Thus, the link was forwarded to people apart from the first point of contact and so on. Since it was an online survey, Participants with access to the internet only could participate. Participants with age more than 18 years, able to understand English, and willing to give informed consent included. On receiving and

clicking the link, the participants got auto directed to the information about the study and informed consent. After they agreed to take the survey, they filled up the details of the personal characteristics and so on.

Content of the survey instrument and scoring system

The survey instrument consists of 30 closed-ended and open-ended questions and took just about 5 minutes to complete. The 30-item questionnaire separated into 2 sections, section I contains socio-demographic variables like age, gender, state, district, habitat, education, occupation, family monthly income, religion, source of awareness, history of quarantine, etc. Section II contains 14 items of multiple-choice responses regarding awareness of COVID-19.

Awareness of the public was assessed by the items focusing on COVID-19, including etiology, transmission, signs and symptoms, risk prevention, and management with options of true/false/don't know. Each correct response scored as "1" and wrong as "0" with a score ranging from 1 to14. The level of awareness was considered as adequate (11-14) moderately adequate (7-10) and inadequate (0-6) regarding coronavirus infection.

Data analysis

The received data were coded and entered in Microsoft excel sheet and analyzed using statistical package for the social sciences for Windows, version 23.0. Descriptive statistics have been used in the study to calculate frequencies, mean, standard deviation and proportions have been used to estimate the results of the study. The chi-square test was applied to examine the level of association among variables. A p value<0.05 was considered statistically significant.

Ethical considerations

Written permission was taken from the institutional ethical committee (AIIMS/IEC/2020/268). Participation in this survey was voluntary and was not compensated; online informed written consent was obtained from the responder before the commencing of the survey. The responders were assured of their rights to refuse to participate in the study or withdraw their consent at any stage and promised anonymity and confidentiality of data.

RESULTS

An online (Google) survey was conducted related to awareness among the Indian population during COVID-19 pandemic. A total of 351 were responded, in that all the participants were from Indian origin and above 18 years of age and Indian origin. The study included only those responders who understood English and had access to the internet. Hence, by default, all individuals with a higher level of education were included in the study. The lowest educational level in this study was observed to be

standard 8th, and the highest qualification of the population was graduation and above (60%). Approximately 43.30% of the population were healthcare professionals. The mean age of the participants was 36.2±6.36 years. Among the respondents, 54.7% were females, and 41.3% were males, the remaining were not preferring to mention their gender. More than 50% of respondents were from urban

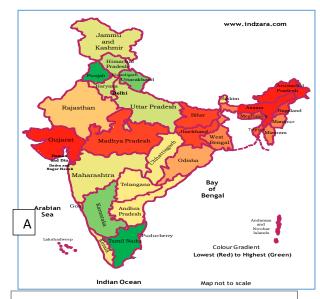
areas. The respondents belong to 27 states or union territories of the country with maximum representation from Tamil Nadu, Punjab, followed by Uttarakhand, Gujarat, Himachal Pradesh, and Haryana (Figure 1). Approximately 68% of respondents were Hindus, 13.96% were Sikh, and 11.96% belonged to Muslim community.

Table 1: Responders characteristics (n=351).

Profile	F (%)
Age (Years)	
18-19	198 (56.41)
30-40	99 (28.20)
41-50	38 (10.82)
>50	16 (4.55)
	36.2±01.369
Gender	
Male	145 (41.31)
Female	192 (54.70)
Prefer not to say	14 (3.98)
Habitat	
Village	77 (21.93)
Town	96 (27.35)
City	178 (50.71)
Educational status	,
Secondary education	51 (14.52)
Higher secondary education	57 (16.23)
Graduate and above	238 (67.80)
Occupational status	
Unemployed/Homemaker	85 (24.21)
Labourer	29 (8.26)
Self-employed/Business	43 (12.25)
Private sector	99 (28.20)
Government sector	95 (27.06)
Family monthly income (Rupees)	, , , , , , , , , , , , , , , , , , ,
10000	64 (18.23)
10001-20000	67 (19.08)
20001-30000	75 (21.36)
>30001	145 (41.31)
Religion	
Hindu	239 (68.09)
Muslim	19 (5.41)
Christian	42 (11.96)
Sikh	49 (13.96)
Others*	2 (0.56)
Awareness about COVID-19?	
Yes	325 (92.59)
No	26 (7.40)
Source of information (n=325)	
Family/friends	51 (15.69)
Mass media	198 (60.92)
Healthcare workers	102 (31.38)
Health care worker	
Yes	152 (43.30)
No	199 (56.69)
Role of Health care worker (n=152)	
· · ·	

Continued.

Profile	F (%)
Nurse/student nurse	72 (47.36)
Doctors	36 (23.68)
Pharmacist	24 (15.78)
Technician	20 (13.15)
Are you in quarantine	
Yes	79 (22.50)
No	272 (77.49)
Witnessed persons affected with coronavirus infection?	
Yes	23 (6.55)
No	328 (93.44)
Look after coronavirus affected or suspected persons	
Yes	17 (4.84)
No	334 (95.15)
Relationship of the person with you (n=17)	
Family members	3 (17.64)
Relatives	3 (17.64)
Neighbours	2 (11.76)
Colleague	2 (11.76)
Patients	7 (41.17)



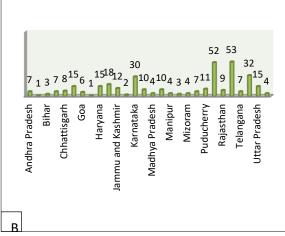


Figure 1: Distribution of responders across various states of India.

Awareness about COVID-19 pandemic

A considerable number of responders were passably aware of the basic elements of the disease, as shown in the Table 1. Out of the 351 participants, 68.9% were had an adequate level of awareness, and 19.9% of was had an inadequate level of awareness. Among 351 responders, 78.6% were answered that the virus spreads through touching, coughing, sneezing; also, 78.3% were had knowledge regarding symptoms of COVID-19. Majority of responders 81.5% convinced of the notion of avoiding going to crowded places. Only 28.4% of responders regarded children, and older adults need to take measures to prevent COVID-19 infection. Most participants (79.7%) acknowledged that washing hands frequently, covering the nose and mouth, could stop spread of infection.

Table 2: Level of awareness regarding COVID-19 among general public (n=351).

Level of awareness	Score	F (%)	Mean±SD
Adequate	11-14	242 (68.9)	
Moderately adequate	7-10	70 (19.9)	10.74±2.776
Inadequate	1-6	39 (11.2)	

Median: 11, Range: 3-14.

Association of awareness with demographic variables of responders

There was a significant association seen between the level of awareness with habitat (p<0.013), educational status (p<0.016), occupational status (p<0.000), family income (p<0.004), religion (p<0.001), and previous awareness about COVID-19 (p<0.000), health care workers (p<0.000) who are already experienced quarantine

(p<0.001) and who have already taken care of patients affected with COVID-19 (p<0.000). As shown in Table 4,

remaining variables were not statistically significant.

Table 3: Area wise analysis of awareness regarding COVID-19 among general public (n=351).

Items	True f (%)	False f (%)	Don't know f (%)
Concepts and causes			
It is correctly spreading worldwide.	302 (86.03)	30 (8.54)	19 (5.41)
First confirmed case of COVID-19 was reported in Italy.	41 (11.68)	278 (79.20)	32 (9.11)
This infection can be confirmed by testing nasopharyngeal secretion or blood of an infected person.	252 (71.79)	43 (12.25)	56 (15.56)
Mode of transmission and clinical symptoms			
The main clinical symptoms of COVID-19 are fever, sore throat, dry cough, and body pain.	275 (78.34)	48 (13.67)	28 (7.97)
The COVID-19 virus spreads through the coughing sneezing of infected individuals.	276 (78.63)	37 (10.54)	38 (10.82)
Coronavirus can live in the human body for 2-14 days.	253 (72.07)	54 (15.38)	44 (12.53)
Eating or contacting wild animals would result in infection by the COVID-19 virus.	105 (29.91)	171 (48.71)	75 (21.36)
Management and prevention			
Supportive care is the current treatment for COVID-19	246 (70.08)	56 (15.95)	49 (13.96)
Hand hygiene, covering nose and mouth while coughing, and avoiding sick contacts can help in the prevention of COVID-19 transmission.	280 (79.77)	47 (13.39)	24 (6.83)
Being within approximately 10 feet (3 meters) of a patient with COVID 19 can prevent the spreading of coronavirus.	240 (68.37)	62 (17.66)	49 (13.96)
People who have contact with someone infected with the COVID-19 virus should be immediately isolated for 14 days.	280 (79.77)	37 (10.54)	34 (9.68)
Children and older adults don't need to take measures to prevent the infection by the COVID-19 virus.	100 (28.49)	223 (63.53)	28 (7.97)
Ordinary people can wear general medical masks to prevent the infection by the COVID-19 virus.	228 (64.95)	84 (23.93)	39 (11.11)
To prevent infection by COVID-19, individuals should avoid going to crowded places such as train stations and avoid taking public transportations.	286 (81.48)	41 (11.68)	24 (6.83)

Table 4: Association of the level of awareness with demographic variables of responders (n=351).

	Level of awareness		
Variables	Mean±SD	F	P
Age (in years)			
18-29	10.35±3.54		
30-40	9.96±3.70	1.628	0.192
41-50	8.85±3.89	1.028	0.183
>50	9.67±4.47		
Gender			
Male	10.04±3.55		0.797
Female	10.09±3.71	0.227	
Prefer not to say	8.67±4.93		
Habitat			
Village	11.20±2.88		
Town	9.55±3.53	4.394	0.013*
City	9.81±3. 91		
Educational status			
Illiterate	8.50±4.20		
Primary education	5. 00±1. 73		
Secondary education	8.18±4.24	3.113	0.016*
Higher secondary education	9.84±3.73		
Graduate and above	10.30±3.55		

Continued.

Variables	Level of awareness		
variables	Mean±SD	F	P
Occupational status			
Unemployed / Homemaker	9.66±3.86		0.000*
Laborer	6.89±3.69		
Self-employed/Business	8.43±3.57	5.815	
Private sector	10.47±3.26		
Government sector	10.93±3.60		
Family monthly income (Rupees)			
10000	8.86±3.53		0.004*
10001-20000	9.44±3.57	4.525	
20001-30000	10.28±3.78	4.525	0.004*
>30001	10.76±3.57		
Religion			
Hindu	9.71±3.84		
Muslim	7.78±3.15		
Christian	10.31±3.61	4.557	0.001*
Sikh	11.93±1.90		
Others*	11.67±1.16		
Awareness about COVID-19?			
Yes	10.25±3.59	22 115	0.000*
No	5.73±2.81	23.115	
Source of information (n=325)			
Family/friends	9.40±2.93		0.016*
Mass media	9.86±3.87	4.198	
Healthcare workers	11.06±3.24		
Health care worker			
Yes	11.88±2.23	50.00	0.000*
No	8.86±3.94	58.90	
Are you in quarantine			
Yes	11.50±2.59	11.270	0.001*
No	9.70±3.80	11.370	
Witnessed persons affected with corona			
Yes	11.06±3.47	1.40	0.238
No	9.98±3.68	1.40	
Look after of coronavirus affected or sus			
Yes	12.26±1.96	12.001	0.006
No	9.29±3.90	12.991	0.000*
*Significant			

^{*}Significant

DISCUSSION

COVID-19 is a global concern of consultation among the public. COVID-19 transmission is scaling up; creating massive stress to the government, public including all the medical personnel and systems. So, we conducted this study to identify the public understanding of COVID-19 in the pandemic situation. In this study, approximately 43.30% of the population were healthcare professionals.

The mean age of the participants was 36.2±6.36 years. Among the respondents, 54.7% were females, and 41.3% were males, the remaining were not preferring to mention their gender. More than 50% of respondents were from urban areas. The respondents belong to 27 states or union territories of the country with maximum representation from Tamil Nadu, Punjab, followed by Uttarakhand, Gujarat, Himachal Pradesh, and Haryana (Figure 1).

Approximately 68% of the respondents were Hindus, 13.96% were Sikh, and 11.96% belonged to the Muslim community.

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frequently, covering the nose and mouth, could stop the spread of infection. Our finding is close to the study done in Chinese residents where (73.2%) Chinese residents responded accurately.⁶ The value is slightly underneath the value reported by Olum and et al was (80%) 5 respondents reported sufficient knowledge on coronavirus disease. Nearly (78.6%) of respondents said respiratory droplets as a major route of transmission whereas near to this findings study conducted among health care workers 89.2% of respondents reported similar answers.⁷ Regarding the most common symptoms (78.3%) of people said fever, cough, and shortness of breath which is almost identical to the study conducted among the public in Nepal where (92%) respondents reported similarity.⁸

In the context of scientific prevention and benchmark, particularly the general public should know about the removal of personal protective equipment sequentially. Due to the limited availability of resources and the lock down in India, we could not involve all the people of the country. Also, regarding intensive literature search, there was very little study done of similar nature to date. We tried to cover the maximum out of that.

Limitations

The study is limited to the citizens who had smartphones, e-mail ids, and the ability to understand English. It represents the educated population of the country; hence it cannot be generalized to the entire community. The awareness, perception, mental healthcare concern in uneducated people may be diverse from the findings of our study.

CONCLUSION

The general public of the Indian population appears to have awareness of important conceptions about COVID-19.

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Ethical approval: The study was approved by the Institutional Ethics Committee, (AIIMS/IEC/2020/268).

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