



A CROSS SECTIONAL SURVEY TO ASSESS KNOWLEDGE, ATTITUDE AND PRACTICES OF INDIAN POPULATION ABOUT COVID-19: AN ONLINE SURVEY

Community Medicine

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ABSTRACT

Background: COVID-19 (corona virus disease-2019) is a highly infectious respiratory disease originated from China. It has rapidly infecting people throughout the whole world including India. People's commitment to preventive guidelines is highly affected by their knowledge, attitude and practice towards COVID-19. Present survey was conducted online during COVID-19 pandemic lockdown to assess the Knowledge, attitude and practice of Indians about COVID-19.

Material and methods: It was a web-based cross-sectional survey conducted among general population of India by administering a self-structured questionnaire consisting of 23 KAP questions. Data was collected by a non-probability snow ball sampling technique from 24th April 2020 to 1st May 2020. A total 1352 responses were received. The data was analysed by using descriptive and inferential statistics in SPSS-20.

Results: This survey found that out of 1352 respondents 1199 (88.7%) were between age group of 15-30 years, 804 (59.5%) were females, 796 (58.9%) graduates, 1063 (78.6%) unmarried, and 1202 (88.9%) were Hindus. For COVID-19 information, survey completers were relying on various online and offline information modalities like television (72.7%), social media (72.6%), Newspaper (42.6%), Aarogya Setu Mobile Application (35.1%) etc. 1206 (89.2%) respondents exhibited good knowledge, whereas 1219 (90.2%) respondents were having optimistic high attitude about COVID-19 pandemic. About 90% (1213) of participants reported good practices towards COVID-19 infection prevention. A weak positive correlation among knowledge, attitude and practices about COVID-19 among Indian population with a high statistically significant correlation at $p < 0.01$ level was found.

Conclusion: Literate Indian population have good knowledge, high attitude and good practices towards COVID-19 at the time of its outbreak. However Due to limited sample representativeness, one must be prudent in generalization of survey findings to non-literate Indian population.

KEYWORDS

Knowledge, Attitude, Practices, COVID-19, COVID-19 in India, KAP COVID-19

INTRODUCTION

Coronaviruses are a large group of viruses that can cause illness in humans, ranging from common cold to Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Corona Virus Disease-2019 (COVID-19).

COVID-19 is an infectious disease caused by the most recently discovered Novel corona virus named SARS-CoV-2 (SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS-2). This new virus was first identified in Wuhan, China, in December 2019. World Health Organization declared that the SARS-CoV-2 outbreak created a Public Health Emergency of International Concern, and was declared as a global pandemic on March 11, 2020.

COVID-19 is a highly contagious respiratory infection which has been effected around 212 countries. Globally by May 13, 2020 (9:49am CEST) there have been 4,139,794 confirm cases of COVID-19 including 285,328 deaths, as reported by World Health Organization. The first case of the coronavirus pandemic in India was reported on 30 January 2020, in Kerala. 47,480 active cases, 24,385 cured and 2,415 deaths had been reported in India by May 13, 2020, 8:00AM (Ministry of health and family welfare, Government of India, 2020).

The COVID-19 virus spreads primarily through droplets of saliva or nasal discharge when an infected person sneezes or coughs. Its incubation period ranges from 2-14 days. It can lead to mild to moderate respiratory illness. The most common clinical manifestations of COVID-19 are fever, dry cough, and tiredness. Other less common symptoms include nasal congestion, headache,

conjunctivitis, sore throat, diarrhea, loss of taste or smell or skin rash or discoloration of fingers or toes (CDC, 2020).

Approximately 80% patients recover from the COVID-19 without requiring hospitalization. Around 1 out of every 5 people who gets COVID-19 becomes seriously ill and develops difficulty in breathing. Older people, and patients with comorbidities like cancer, diabetes, hypertension, cardiac and respiratory problems, are at higher risk of developing serious illness. However, anyone can catch COVID-19 and become seriously ill. Serious complications of COVID-19 include Acute Respiratory Failure, Acute Respiratory Distress Syndrome (ARDS) and Pneumonia etc. (WHO, 2020).

COVID-19 has been emerged as an emergency health crisis worldwide. There is no medication or vaccine available for COVID-19 treatment till now. Breaking the chain of COVID-19 transmission is one of the major prevention modality available. The most effective ways to protect oneself and others against COVID-19 is to have sufficient knowledge and to perform preventive activities like to clean hands frequently and thoroughly with soap or with alcohol sanitizer, not touching eyes, mouth and nose, following respiratory etiquettes i.e. covering the mouth with the bend of elbow or tissue while coughing or sneezing and if a tissue is used discard it immediately and maintaining social distancing i.e. keeping a distance of at least 1 metre from others.

Several countries around the globe have been following lockdown to prevent COVID-19 transmission. The Government of India under Prime Minister Narendra Modi ordered a COVID-19 pandemic lockdown in India on 24 March 2020. Purpose of lockdown was to

contain the spread of coronavirus outbreak in India. Health care workers, Government websites, newspapers, news channels etc. are providing awareness to people about COVID-19.

Investigators conducted an online survey during COVID-19 pandemic lockdown in India from 24th April 2020 to 1st May 2020. The objective of the survey was to assess knowledge, attitude and practices of Indians about COVID-19.

MATERIAL AND METHODS

It was a web-based cross sectional survey. Self-structured questionnaire was prepared by using google forms. Link of google form was sent through emails, Facebook, Whatsapp and Instagram. Non probability snow ball sampling technique was used for data collection. Participants were encouraged to forward the survey link in their circle. Informed consent was taken from each participant before enrolling in the survey. Respondents answered the questions only after giving agreement of participation. Total 1352 participants responded from 24th April 2020 to 1st May 2020.

Web-based questionnaire consisted of four sections related to demographic information, knowledge, attitude and practices related to COVID-19. Total 23 questions were included in KAP questionnaire.

Section 1: Demographic information: Demographic variables included age, gender, education, occupation, marital status, religion and area of residence.

Section 2: Knowledge about COVID-19: There were 10 multiple choice questions related to COVID-19 with each question carrying 1 mark. Knowledge about COVID-19 was further categorised into below average (0-3score), average (4-6 score) and good knowledge with score range 7-10.

Section 3: Attitude about COVID-19: Attitude about COVID-19 was assessed by 7 items that to be rated in three point Likert scale (ranging from agree:1, neutral:2 and disagree:3). Attitude was further classified into low, moderate and high attitude based upon scores i.e. 7-11, 12-16 and 17-21 respectively.

Section 4: Practices about COVID-19: 6 questions were used to assess practices about COVID-19 prevention and transmission. Each right answer consisted of 1 mark and no mark for wrong answer. Based upon scores, practices was further categorised into below average (0-2score), average (3-4score) and good practices (5-6score).

Descriptive and inferential statistics was used to analyse the study finding. Frequency, percentage and mean of variables was calculated with correlation among knowledge, attitude and practice scores.

RESULTS

In the present survey, out of 1352 respondents, all were Indians and were between age group of 15-68 years. Average age was 24.67 years. Majority of participants (88.7%) were between 15-30 years of age. 59.5% participants were females. Among the participants more than half of the participants were graduates and majority of the participants (1063) were single. 88.9% of participants were Hindu, followed by Sikh (6.8%). Participants belong to 21 states/union territories. However majority of respondents were from Himachal Pradesh (43.7%) and more than half (55.3%) were residing in rural area.

Table 1 Sociodemographic profile of respondents

N=1352

Variables	Frequency (f)	Percentage (%)
Age*		
15-30years	1199	88.7
31-45years	122	09
46-60years	27	02
>61years	04	00.3
Gender		
Male	548	40.5
Female	804	59.5
Educational Status		
Higher secondary and below	205	15.2
Diploma	46	03.4
Graduate	796	58.9
Post graduate	294	21.7
PhD	11	00.8

Occupation		
Student	513	37.9
Government employee	96	07.1
Private employee	358	26.5
Own business	68	05
Labourer	04	0.3
Retired	01	0.1
Homemaker	27	02
Unemployed	285	21.1
Marital status		
Single	1063	78.6
Married	283	20.9
Other	06	00.5
Religion		
Hindu	1202	88.9
Sikh	92	06.8
Muslim	36	02.7
Christian	14	01
Jain	01	00.1
Buddhist	01	00.1
Prefer not to say	06	00.4
State		
Himachal Pradesh	591	43.7
Uttarakhand	218	16.1
Haryana	143	10.6
Rajasthan	95	7.1
Punjab	83	6.1
Chandigarh	62	4.6
Delhi	57	4.2
Uttar Pradesh	54	4
Others	49	3.6
Residence type		
Rural	748	55.3
Urban	604	44.6

*Mean±SD (Range)= 24.67±6.71 (15-68)

For majority of participants, source of information was television and social media (about 73%), followed by newspaper. Out of 1352 participants, 475 participants were using Government of India recommended Aarogya Setu mobile Application for COVID19 information. Other sources of COVID19 information included radio, webinar, health care providers, peers etc. Majority of respondent were using multiple sources for COVID-19 information.

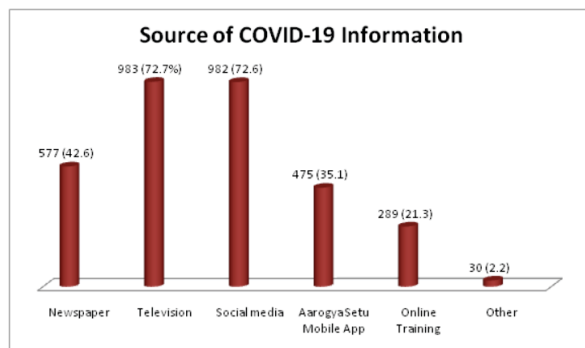


Figure 1: Source of COVID-19 information among participants

Part A: Knowledge about COVID-19

Majority of participants in this survey were having good knowledge about COVID-19. 1036 (76.6%) participants were aware that COVID-19 is an abbreviation of Corona Virus Disease-2019, however 22.4% participants answered China Originated virus in December-2019. 1230(91%) participants knew that COVID-19 is a viral infection. About 97% participants were well aware that common symptoms of COVID-19 are fever, dry cough and tiredness. 1198 (88.6%) participants acknowledged that older people and people with underlying medical conditions are at higher risk of developing COVID-19. 93% of participants knew the route of transmission of corona virus is droplet whereas 6.6% participants reported transmission by airborne route. More than half of participants (50.6%) knew that antibiotics are not effective in treatment of COVID-19 and 636(47.1%) participants were aware that corona virus can survive for up-to 72hours on plastic and stainless steel items (figure 2)

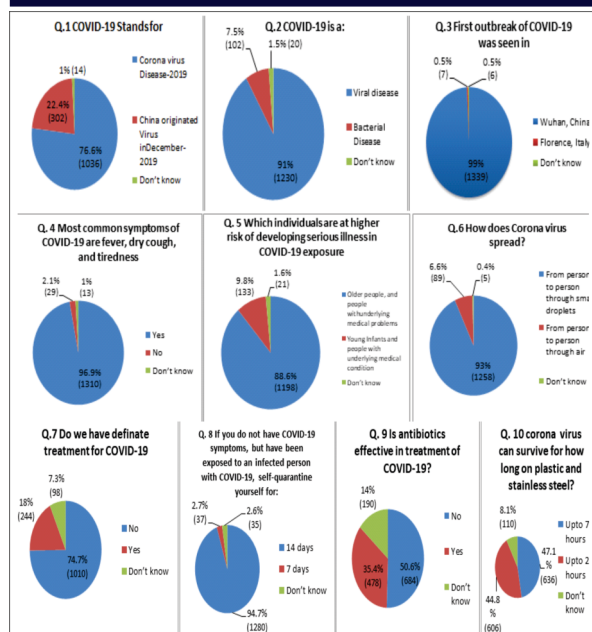


Figure 2: Pie charts showing knowledge percentage of study participants about COVID-19

Table 2: Distribution of knowledge related to COVID-19
N=1352

Knowledge (Max. score=10)	Frequency (f)	Percentage (%)
Below average (0-3)	11	0.8
Average (4-6)	135	10
Good (7-10)	1206	89.2
Mean $\pm$ SD(Range)= 8.14 $\pm$ 1.37 (0-10)		

From the survey, it was reported that 1206 (89.2%) participants had good knowledge about COVID-19 whereas 135 (10%) participants had average knowledge about COVID-19. Mean knowledge scores for COVID-19 were 8.14 with standard deviation 1.37 and 0-10 range (Table 2).

Part B: Attitude about COVID-19

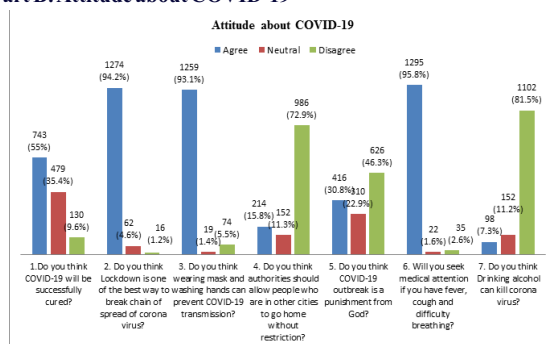


Figure3: Bar graph showing attitude of study participants about COVID-19

By the present survey, it was found that 743 (55%) respondents believed that COVID-19 will be successfully cured and 94.2% respondents agreed that Lockdown can break chain of transmission of this infection. 1259 (93.1%) respondents believed that wearing mask and washing hands regularly can prevent novel corona virus spread. Although 30.8% of respondents believed that COVID-19 pandemic is a punishment from God to human beings and 7.3% also assumed that alcohol consumption can kill corona viruses (Figure 3).

Table 3: Distribution of attitude related to COVID-19
N=1352

Attitude (Max. score=21)	Frequency (f)	Percentage (%)
Low (7-11)	01	0.1
72	International Journal of Scientific Research	

Moderate (12-16)	132	9.7
High (17-21)	1219	90.2
Mean $\pm$ SD(Range)= 18.74 $\pm$ 1.81 (10-21)		

1219 (90.2%) participants had high attitude about COVID-19 pandemic. Mean attitude score reported from present survey was 18.74 with Standard deviation 1.81 and range 10-21 (Table 3).

Part C: Practices related to COVID-19

In current survey it was found that majority of respondents were following guidelines for COVID-19 Prevention. 1216 (89.9%) participants were following cough etiquettes i.e. covered their mouth and nose with bent elbow or tissue while coughing or sneezing. 1243 (91.9%) participants stayed home during COVID-19 pandemic and 94.3% participants wash their hand thoroughly with soap and water or with alcohol hand-rub. More than 90% of participants were following social distancing and were covering their mouth and nose with mask or cloth while going outside (table 4).

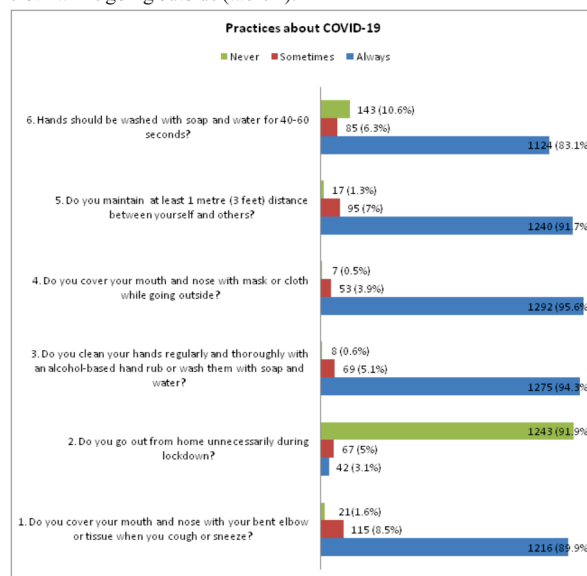


Figure 4: Bar graph showing practices of study participants about COVID-19

In present survey 1213 (89.7%) participants were following good practices whereas 121 (9%) and 18 (1.3%) participants were following average and below average practices respectively. Mean practice scores was 5.48 with Standard deviation 0.89 and range 0-6 (Table 4)

Table 4: Distribution of practices related to COVID-19

Practices (Max. score=6)	Frequency (f)	Percentage (%)
Below average (0-2)	18	1.3
Average (3-4)	121	9
Good (4-6)	1213	89.7
Mean $\pm$ SD(Range)= 5.48 $\pm$ 0.89 (0-6)		

A low positive correlation was found between knowledge, attitude and practice scores about COVID-19. Correlation was statistically significant with p value <0.001 (Table 5).

Table 5: correlation among knowledge, attitude and practices about COVID-19
N=1352

Parameter	Pearson Correlation coefficient (r)	p-value
Knowledge-Attitude	0.31	<0.001*
Knowledge-Practices	0.20	<0.001*
Attitude-Practices	0.24	<0.001*

*Correlation is significant at the 0.01 level

DISCUSSION

The aim of present survey was to assess knowledge, attitude and practices of Indian population about COVID-19.

This survey showed that out of 1352 participants, the average age was 24.67 years (SD: 6.71 and range:15-68years), 804(59.5%) were females, 796 (58.9%) were graduates,1063 (78.6%) participants were unmarried, 1202 (88.9%) were Hindus and 748 (55.3%) were residing in rural area.

For COVID-19 information, participants were relaying on various online and offline information modalities like television (72.7%), social media (72.6%), newspaper (42.6%), Aarogya Setu Mobile Application (35.1%) etc.

In present survey, we found that majority of participants were knowledgeable about COVID-19.1206(89.2%) showed that they were having good knowledge, whereas 135 (10%) participants were having average knowledge and only 11 (0.8%) participants were having below average knowledge regarding COVID-19 disease. 1219 (90.2%) respondents were having optimistic high attitude about COVID-19 pandemic whereas only 132 (9.7%) and 01(0.1%) participant were having moderate and low attitude towards COVID-19 disease respectively. About 90% (1213) of participants exhibited good practices, whereas 121(9%) and 18 (1.3%) participants followed average and below average practices towards COVID-19 disease. This survey revealed a positive correlation among knowledge, attitude and practices about COVID-19 among Indian population with a high statistically significant correlation at $p < 0.01$ level.

Result of present survey matches with an online survey done on Chinese population by Zhong L B et al from January 27 to February 1, 2020. Survey done on 6910 respondents revealed that 90% of participants were knowledgeable about COVID-19 and vast majority of participants held optimistic attitude and good practices toward COVID-19.

Another online study conducted by Roy D et al (2020) on 662 participants, demonstrated moderate level of knowledge about COVID-19 infection, adequate knowledge about preventive strategies.

Similar results were found by Erfani A et al (2020) on Iranians at the time of COVID-19 pandemic. The result of study revealed that the total achieved knowledge score regarding COVID-19 characteristic was 90% with 60.8% of general population having moderate knowledge towards this disease an total score regarding attitude and practice of COVID-19 was 90% and 80% among the general population, this proved that Iranian population demonstrated decent knowledge, appropriate practice and positive attitude towards COVID-19 at the time of its outbreak.

Study done on Nepalese residents by Hussian A et al (2020) to examine the current level of awareness, attitude and practices towards COVID-19 also revealed similar result with total score for knowledge 60-98.7%, for attitude 77.7-96.4% and for practice 78.2-95%.

Therefore, current research survey and studies mentioned above demonstrates that citizens of various countries around the globe are fully knowledgeable about COVID-19. People have an optimistic attitude about COVID-19 pandemic and they are following preventive measure for COVID-19 prevention and transmission.

Limitations

This survey was a web-based survey. Therefore only the people having smartphones and capable of reading English was included in the study by default the literate section of the community was the representatives of this survey.

CONCLUSION

With this research survey we can conclude that educated population of India is fully aware about COVID-19, have high attitude regarding COVID-19 pandemic and is demonstrating good practices to eliminate COVID-19 infection. With this knowledge, optimistic attitude and good practices India will definitely win the battle against COVID-19 soon in future.

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