

A Survey to Assess the Knowledge, Attitude and Practice about COVID-19 Pandemic from West Bengal, India

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ABSTRACT

Introduction: The Coronavirus Disease-2019 (COVID-19) that originated in China in December 2019 was declared a pandemic by the World Health Organisation (WHO) on 11th March, 2020. It has resulted in extensive lockdown measures in India and in the state of West Bengal. Both Central and State Governments have made considerable efforts to increase awareness about the pandemic among the general public.

Aim: This study was conducted to assess the Knowledge, Attitude, and Practice (KAP) among the general public of West Bengal about the pandemic as no such data is available till date.

Materials and Methods: The retrospective survey was undertaken among the general public of the state of West Bengal, India, by means of social media platforms (Facebook, Instagram, LinkedIn and WhatsApp) through a validated e-questionnaire containing 10 questions during 18th April, 2020

to 3rd May, 2020. Data was captured on Google Forms, which were analysed using appropriate tools.

Results: A total of 355 responses were obtained. A 97% of responders were completely aware of the pandemic with 92% practising preventive measures, such as social distancing, washing hands, and wearing a mask. Majority of the participants were young (18-30 years of age) with 51% being males. A 99% of the responders were literate and 86% were from urban dwelling. Total 61% of the participants stated that they have learnt something new after participating in this survey.

Conclusion: KAP about COVID-19 pandemic was found to be high in the general population of West Bengal. Involvement of various social media platforms is required for generating mass awareness about COVID-19 in rural West Bengal. Continuous communication and survey by the Government is necessary to spread public awareness as information about COVID-19 is constantly evolving.

Keywords: Awareness, Mask, Public awareness, Questionnaire, Social distancing

INTRODUCTION

The immense net-like spread of COVID-19 across the globe can be traced back to a cluster of atypical pneumonia cases of unknown cause, which were reported from the Chinese city of Wuhan on 31st December, 2019 [1]. The virus responsible for COVID-19 has been named Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) by the International Committee on Taxonomy of Viruses (ICTV) [2]. As of 12th June 2020, there have been 7,390,702 confirmed cases of COVID-19, including 417,731 deaths worldwide and 297,535 cases of COVID-19 with 8,498 deaths in India [3]. COVID-19 is highly infectious, and its clinical symptoms usually include fever, dry cough, fatigue, myalgia, and dyspnoea [4]. When COVID-19 progresses into the severe stage, it is characterised by Acute Respiratory Distress Syndrome (ARDS), septic shock, metabolic acidosis, bleeding and coagulation dysfunction [5,6]. As a response to the global distress, the World Health Organisation (WHO), on 30th January 2020, declared COVID-19 a Public Health Emergency of International Concern (PHEIC) and encouraged nations affected by COVID-19 to coordinate and investigate to understand the virus, contain the threat and to decrease the risk of further spread [7].

Currently, West Bengal ranks 8th among the Indian states affected with COVID-19 with a total of 5,338 active cases and 442 reported deaths. Of the 23 districts in West Bengal, Kolkata is the worst hit, followed by Howrah and North 24 Parganas [8]. The rapid and unprecedented transition of COVID-19 into a pandemic has led to the adoption of unconventional and strict preventive public health measures such as mandatory wearing of masks in public, social distancing and ever-extending lockdown phases to check the spread of the SARS-CoV-2 and also to prevent healthcare

services from being overwhelmed [9]. One of the main concerns currently is the dissemination of fake and exaggerated information regarding COVID-19. The ease of access to free, but usually harmful information from various social networking applications (e.g., Facebook, Instagram, WhatsApp etc.) can be held responsible for this “spread” [10]. Timely addressal of common myths and removing any spurious doubts from the minds of the public, regarding COVID-19, through proper communication channels and government education services, are immensely crucial to subdue any hype or unnecessary panic among the public as it can do more harm than good [11]. Here, the pandemic offers the opportunity to ascertain the level of awareness and perceptions of the public during this pandemic. The aim of this survey was to explore and analyse the Knowledge, Attitude, and Practice (KAP) among the general public of West Bengal about the COVID-19 pandemic.

MATERIALS AND METHODS

This retrospective survey was conducted after the Institutional Ethics Committee approval (Registration no: ECR/232/Inst/WB/2013/RR-19). The study site was Peerless Hospital, a private tertiary care hospital in Kolkata during the lockdown phase in India that lasted from 18th April, 2020 to 3rd May, 2020. A validated structured questionnaire was designed using a Google form and disseminated across the different social networking sites like WhatsApp, Instagram, LinkedIn and Facebook by the research team and shared by the participants. This study was confined to the state of West Bengal, India. Prior electronic consent from the participants was obtained before filling the questionnaire.

Total 355 responses were documented in the survey. The questionnaire was divided into three sections for assessing the

awareness of the responders. These sections were “Knowledge”, “Attitude” and “Practices”.

Knowledge section: The following question-items: “COVID-19 is caused by?”, “COVID-19 has been declared by WHO as?”, “Which of the following do you think are the symptoms of COVID-19?”, “What will you do if the above symptoms are developed in a person?”, and “What do you mean by social distancing?”

Attitude section: The questionnaire consisted of the following question-items: “Do you practice any preventive measures to avoid COVID-19 infection?” and “Are you aware of the various steps of hand washing recommended by the WHO?”

Practice section: The questionnaire consisted of the following question-items: “What preventive measures do you take?”, “How many times do you wash your hands?” and “During the lockdown what steps do you follow before entering your house from outside after buying groceries, daily use items, etc.,?”.

Each of these question-items, if correctly answered, awarded the responder 0.6 marks. Each question had only one correct answer which was decided by the authors. The total marks for these 10 questions of the e-questionnaire were 6.

As per the methodology, authors divided the entire questionnaire into 3 succinct sections, namely, KAP. As each correctly answered question-item rewarded 0.6 marks each, the total maximum marks obtainable were 6. We categorised the awareness into a scale i.e., “Mildly Aware” (score: 0-1), “Moderately Aware” (score: 2-3) and “Completely Aware” (score: 4-6).

The self-administered survey consisted of several socio-demographic question-items, followed by items to assess the awareness. Participants were sub-grouped on the basis of their age (18-30, 31-40, 41-50, 51-60, 61-70, 71-80, >80), sex, marital status, place of residence, education (illiterate, intermediate, high school, undergraduate, graduate, diploma, postgraduate, doctorate).

STATISTICAL ANALYSIS

Microsoft Excel version 2016 has been used to tabulate and analyse the data.

RESULTS

A total of 355 responses were captured with the help of e-questionnaire developed and distributed. Majority of responders belonged to the age group 18-30 (n=184; 52%). Around 51% of all responders were males (n=182), and 48% were females (n=171) and 1% (n=2) belonged to other gender classes. The greater proportion of the responders were unmarried (n=184; 52%) followed by married (n=162; 46%) and others (n=9; 2%). Majority of the responders were educated; 156 (44%) had a post-graduate degree followed by 139 participants (39%) with a graduate degree. A total of 27 participants (7%) with an Intermediate degree, 28 participants (8%) had a doctorate degree followed by 5 participants (1%) with a diploma degree.

Majority of responders resided in urban localities (n=305; 86%), consisting of Kolkata (n=140; 46%), followed by Howrah (n=79; 26%), followed by Darjeeling (n=63; 21%), followed by North 24 Parganas (n=13; 4%), and Hooghly (n=10; 3%). Whereas, just 50 (14%) resided in rural localities [Table/Fig-1].

Majority of responders stated that they lived with their families (n=317; 89%), followed by those who lived alone (n=28; 8%), followed by those who lived with friends (n=10; 3%). Majority of responders were employed (n=207; 58%), followed by students (n=93; 26%), followed by unemployed (n=41; 12%), and retired (n=14; 4%).

Authors further carried on the analysis of KAP with age-wise distribution, gender-wise distribution and area-wise distribution of awareness of the public regarding COVID-19 [Table/Fig-2-4].

Around 99% of the participants were aware of the fact that COVID-19 is caused by a virus. A 94% of the responders knew all the preliminary symptoms of COVID-19 while 92% of participants knew

District	Number	Percentage (%)
Urban (n=305)		
Kolkata	140	45.90%
Howrah	79	25.90%
Darjeeling	63	20.66%
North 24 Parganas	13	4.26%
Hooghly	10	3.28%
Rural (n=50)		
South 24 Parganas	12	24%
Birbhum	9	18%
Bankura	6	12%
Malda	6	12%
Purba Medinipur	5	10%
Dakshin Dinajpur	4	8%
Purulia	2	4%
Murshidabad	2	4%
Paschim Medinipur	2	4%
Purba Bardhaman	1	2%
Alipurduar	1	2%

[Table/Fig-1]: District wise responses.

Percentages are calculated based on population size of urban and rural dwellings separately

and practiced preventive measures to avoid COVID-19 infection. A 93% of participants admitted to being well versed with the various steps of handwashing recommended by WHO. A 61% of the participants agreed to have learnt something new from the survey-questionnaire [Table/Fig-5].

DISCUSSION

COVID-19 is a disease that spreads through the respiratory route when a person comes in close contact with another infected individual. It is extremely important to take necessary precautions at all times in order to “break the chain” of transmission of this deadly virus. This study was primarily done to assess the level of awareness among the general population in West Bengal, India. This study was conducted at a prime time when whole of India was in the middle of the lockdown. People were staying indoors while practising social distancing.

Increase in knowledge leads people to understand and have trust in the institution and principles of science [6]. As per the analysis of the data collected through the questionnaire, there were significant differences observed in knowledge levels of participants. A study conducted in China around eight weeks after the outbreak, the average knowledge score was found to be approximately 90% (10.8/12) [6].

The reason for such a high rate of knowledge among the Chinese population was their experience with the previous outbreak of SARS in 2002-2003 [12]. In another similar study conducted in the Union Territory of Jammu and Kashmir, India, it was observed that 89% of the responders knew about the modes of transmissions and the appropriate symptoms of COVID-19 [13]. In our survey, authors observed a similar knowledge score of approximately 90% (5.4/6). This is in corroboration with the same paper as we found that in our survey too the majority of the knowledgeable people belong to the age group 18-30 who can be considered as baby boomers. This is synonymous with the United Nations Educational, Scientific and Cultural Organization (UNESCO) findings that in India, the literacy rate among people of age groups 18-25 stands at approximately 91% as of 2018 survey [14]. In a similar survey conducted in Mumbai, India, less than half of the participants were able to define correctly, the specifics of ‘social distancing’ [15]. In contrast to this, we observed that around 88% (n=312) of the participants correctly defined what ‘social distancing’ means. In the same survey, the overall percentages of correct answers were 71.2%. Whereas, in

Questions	Age (years)													
	18 to 30 (n=184)		31 to 40 (n=72)		41 to 50 (n=54)		51 to 60 (n=25)		61 to 70 (n=13)		71 to 80 (n=4)		80 and above (n=3)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Knowledge													
COVID-19 is caused by virus	184	52.12	72	20.40	54	15.31	25	7.08	13	3.68	4	1.13	1	0.28
COVID-19 has been declared by WHO as pandemic	164	49.55	72	21.75	52	15.71	25	7.55	13	3.93	4	1.21	1	0.30
Which of the following do you think are the symptoms of COVID-19?	168	50.45	72	21.62	53	15.92	23	6.91	12	3.60	4	1.20	1	0.30
What will you do if the above symptoms are developed in a person?	173	51.03	71	20.94	54	15.93	24	7.08	12	3.54	4	1.19	1	0.29
What do you mean by social distancing?	161	51.60	66	21.15	49	15.70	24	7.69	9	2.90	3	0.96	0	0
	Attitude													
Do you practice any preventive measures to avoid COVID-19 infection?	164	50.15	71	21.71	53	16.21	24	7.34	12	3.67	3	0.92	0	0
Are you aware of the various steps of hand washing recommended by WHO?	172	51.96	70	21.15	52	15.71	23	6.95	12	3.63	2	0.60	0	0
	Practice													
What preventive measures do you take?	178	52.51	71	20.94	52	15.34	24	7.08	12	3.54	2	0.59	0	0
How many times a day do you wash your hand?	121	59.31	34	16.67	29	14.22	10	4.90	4	1.96	4	1.96	2	0.98
During the lockdown what steps do you follow before entering your house from the outside after buying groceries, daily use items, etc.,	147	52.31	61	21.71	43	15.30	13	4.63	12	4.27	4	1.42	1	0.36

[Table/Fig-2]: Age-wise responses of awareness.

The numbers are the total number of correct responders and their respective percentages for each specific question

Questions	Gender					
	Male (n=182)		Female (n=171)		Others (n=2)	
	No.	%	No.	%	No.	%
	Knowledge					
COVID-19 is caused by virus	181	51.27	170	48.16	2	0.57
COVID-19 has been declared by WHO as pandemic	174	52.57	156	47.13	1	0.30
Which of the following do you think are the symptoms of COVID-19?	168	50.45	164	49.25	1	0.30
What will you do if the above symptoms are developed in a person?	173	51.03	165	48.67	1	0.30
What do you mean by social distancing?	149	47.76	162	51.92	1	0.32
	Attitude					
Do you practice any preventive measures to avoid COVID-19 infection?	169	51.68	157	48.01	1	0.31
Are you aware of the various steps of hand washing recommended by WHO?	168	50.76	162	48.94	1	0.30
	Practice					
What preventive measures do you take?	171	50.44	166	48.97	2	0.59
How many times a day do you wash your hand?	109	53.43	93	45.59	2	0.98
During the lockdown what steps do you follow before entering your house from the outside after buying groceries, daily use items, etc.,	142	50.53	138	49.11	1	0.36

[Table/Fig-3]: Gender-wise responses of awareness.

The numbers are the total number of correct responders and their respective percentages for each specific question

Questions	Area			
	Urban (n=305)		Rural (n=50)	
	No.	%	No.	%
	Knowledge			
COVID-19 is caused by virus	305	86.40	48	13.60
COVID-19 has been declared by WHO as pandemic	290	87.61	41	12.39
Which of the following do you think are the symptoms of COVID-19?	290	87.09	43	12.91
What will you do if the above symptoms are developed in a person?	294	86.73	45	13.27
What do you mean by social distancing?	269	86.22	43	13.78
	Attitude			
Do you practice any preventive measures to avoid COVID-19 infection?	286	87.46	41	12.54
Are you aware of the various steps of hand washing recommended by WHO?	287	86.71	44	13.29
	Practice			
What preventive measures do you take?	295	87.02	44	12.98
How many times a day do you wash your hand?	172	84.31	32	15.69
During the lockdown what steps do you follow before entering your house from the outside after buying groceries, daily use items, etc.,	245	87.19	36	12.81

[Table/Fig-4]: Area-wise responses of awareness.

The numbers are the total number of correct responders and their respective percentages for each specific question

Variables/questions	Options	Determination (n)	Total N (%)
COVID-19 is caused by virus	a. Virus b. Bacteria c. Parasite d. None of the above	Correct (353) Incorrect (0) Not determined (2)	99%
COVID-19 has been declared by WHO as	a. Endemic b. Epidemic c. Pandemic d. Not known	Correct (331) Incorrect (0) Not determined (24)	93%
Which of the following do you think are the symptoms of COVID-19?	a. Fever b. Sneezing and coughing c. Difficulty in breathing d. All of the above	Correct (333) Incorrect (0) Not determined (22)	94%
What will you do if the above symptoms are developed in a person?	a. Take self medication to relive from symptoms b. Visit government center/private hospital for screening COVID-19 Infection c. Perform prayer and stay inside your house d. Do not know what to do	Correct (339) Incorrect (0) Not determined (16)	95%
What do you mean by social distancing?	a. Limiting face-to-face contact with others b. Do not gather in group c. Physical distancing Stay at least 6 feet (2 meters) from other people d. All of the above	Correct (312) Incorrect (0) Not determined (43)	88%
Do you practice any preventive measures to avoid COVID-19 infection?	a. Yes b. No c. Maybe d. Do not know about the preventive measures	Correct (327) Incorrect (0) Not determined (28)	92%
Are you aware of the various steps of handwashing recommended by WHO?	a. Yes b. No c. Not Sure	Correct (331) Incorrect (0) Not determined (24)	93%
What preventive measures do you take?	a. Wash your hands with soap and water every 2-3 hrs b. Practice social Distancing c. Wear a mask while going out d. All of the above	Correct (339) Incorrect (0) Not determined (16)	95%
How many times a day do you wash your hand?	a. <5 b. 5 to 10 c. >10	Correct (204) Incorrect (0) Not determined (151) (>10-204 responses)	57%
During the lockdown what steps do you follow before entering your house from the outside after buying groceries, daily use items, etc	a. Do not touch anything>Remove your footwear>Remove clothes for washing>Wash your hands, wrist, arms, neck b. Wash your hands, wrist, arms, neck>Remove your footwear>Remove clothes for washing c. Remove your footwear>Wash your hands, wrist, arms, neck>Remove clothes for washing d. Do not know the steps	Correct (281) Incorrect (0) Not determined (74)	79%

[Table/Fig-5]: Total responses of awareness among the participants.

Distribution of total number of responders into correct, incorrect and non-determined categories that shows the awareness percentage

our survey the percentage of correct answers were around 63%. The reason for this could be the less involvement of healthcare professionals in our survey with respect to the other.

There was no significant difference between awareness amongst the male and female participants of this survey. In male participants' awareness was observed to be 51% and in females, 48%. Hence, authors can say no such gender disparity was noted. Finally, the area-wise data was taken into consideration. The 86% (n=305) participants belonged to urban setting compared to 14% (n=50) which belonged to rural setting. An average correct response (awareness) of 87.29% was recorded by participants who belonged to urban settings as compared to just 12.71% (awareness) correct responses from the participants who belonged to rural settings. This suggests that the awareness among the urban dwellers is significantly greater when compared to rural people. Many reasons can result in this situation, but the most probable of them could be the distant and relatively more isolated conditions of rural West Bengal, both in terms of location as well as access to information. As the pandemic continues, this survey will be of help for public health professionals who can conduct more awareness initiatives focussed in the rural areas of the state.

The results found in this survey can be utilised for both policy-making as well as patient or public education purposes. It is clearly evident from this survey that due to lockdown, as people are forced to stay indoors, they are spending more time on the web. As we all know, owing to the global breakout of the pandemic, internet is full of information about this disease. The high percentage of people

being aware of the current global scenario can be attributed to the fact that people have been constantly educating themselves from the information available online. As seen, gender-wise distribution of correct answers were equal among both the sexes. Although the same couldn't be said about the different age-groups in this survey. Authors saw a significant difference between the age groups in terms of awareness. Younger participants were more aware in contrast to the elder participants of the survey. This could be due to the fact that the younger generations are more tech-savvy compared to the elders. Lastly, we deduced that urban participants had a better awareness when compared to the rural participants, primarily due to the relatively less permeation of government and health authorities' related services to the rural areas.

Limitation(s)

The short survey period assigned to collect adequate responses for the questionnaire might have resulted in a smaller number of responses. Secondly, this questionnaire was limited to the people who had access to smartphones, laptops, and other devices connected to internet to view and fill the questionnaire. This questionnaire was also limited to people with valid e-mail IDs and who were able to read and understand English.

CONCLUSION(S)

Knowledge, Attitude, and Practice (KAP) about the COVID-19 pandemic was found to be high among the general population in West Bengal in this survey. This reflects the constant communication about the preventive strategy of the disease from government sources. The

decisive planning and execution of planned lockdown, guidance about adopting social distancing norms and making wearing of masks in public mandatory by the government have played an augmentative role in this increased knowledge among the public in the state. There is a requirement for conduction of regular survey among the general public using social media platforms as the information about COVID-19 is constantly evolving. A larger survey involving a greater number of rural participants in the state should be conducted in the coming days. To the best of our knowledge, this KAP survey is the first survey from the state of West Bengal from Eastern India. Its results would motivate and help the public health professionals in the state to design awareness strategy more effectively.

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