



Knowledge of the Novel Coronavirus (COVID-19) Outbreak and its Prevention and Control: A Population-Based Survey in Chennai Metropolitan City

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Abstract

Background: COVID-19 is defined as a new type of coronavirus that spreads rapidly from person to person and becomes a major epidemic that causes a great tragedy. The starting point of the virus is considered to be the Wuhan city of China, and the first fatal cases were reported in late 2019. At this point, this virus causes fatal effects, especially on the elderly and those with chronic diseases. As of May 7, 2020, COVID-19 has been confirmed in over 3.8 million individuals worldwide and has resulted in more than 268,000 deaths. Knowledge of disease transmission, public health person hygiene are vitally important for developing effective control measures. The objective of the study was to assess the awareness of COVID-19 transmission, prevention and control among general public.

Methods: In this cross-sectional, web-based survey, conducted during February 2020 to April 2020 among the general population of in and around Chennai, questions asked regarding the Knowledge of the population about COVID-19. Data collection form includes participants' socio demographic characteristics and source of information regarding COVID-19. Collected and analyzed by using SPSS-24.0.

Results: 96% of study subjects heard about COVID19 and caused by Virus. Around 85% knew that COVID19 spread through droplets and direct contact with infected person. 91% knew the symptoms of COVID19. 75% of the study subjects knew the prevention and control of the disease COVID19. Education and area of living play a significant role in adequate knowledge.

Conclusions: The present study highlights that the general public has adequate knowledge towards COVID-19 at the time of its pandemic outbreak.

Keywords: Awareness, COVID19, Chennai

Introduction

COVID-19 is defined as a new type of coronavirus that spreads rapidly from person to person and becomes a major epidemic that causes a great tragedy. COVID-19 has been identified from a family of zoonotic coronaviruses, such as the severe acute respiratory syndrome coronavirus (SARS-CoV) and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) seen in the past decade. The starting point of the virus is considered to be the Wuhan city of China, and the first fatal cases were reported in late 2019. At this point, this virus causes fatal effects, especially on the elderly and those with chronic diseases¹. In this concern, Government of India is taking all necessary steps to ensure that we are prepared well to face the challenge and threat posed by the growing pandemic of COVID-19 the Corona Virus. With active support of the people of India, we have been able to contain the spread of the Virus in our country. The most important factor in preventing the spread of the Virus locally is to empower the Indian citizens with the right information and taking precautions as per the advisories being issued by Ministry of Health & Family Welfare.²As per a statement issued by the Indian Health Ministry, India will be following a strategic approach taking into account different possible scenarios – travel-related cases, local transmission of COVID-19, large outbreaks amenable to containment, and widespread community transmission of COVID-19. COVID-19 crisis also provides opportunities. Countries may witness better healthcare – both management and facilities. New social and behavioural norms – “social distancing”, “wearing masks”, “maintaining hygiene”, etc., are the new normal, and countries have to adjust with such new normal amid the pandemic. Surely, vaccines and proper medicines to tackle the COVID-19 will be invented. However, there is no place of complacency. Countries have to be prepared to tackle another such shock in future. In order to implement effective control measures, having basic knowledge about disease transmission, symptoms and preventive measures is crucially important. To achieve a definitive success against the ongoing encounter against COVID-19 in India, people’s commitment to these control measures is necessary. Health authorities in India have made substantial efforts to control the disease through various measures. Public education is considered as a major effort to control the diseases. The main aim of the present study was to measure the level of knowledge, regarding COVID-19, and to associate with their socio demographic variables to the prevention of Coronavirus.

Methods

A cross-sectional, web-based survey, conducted during February 2020 to April 2020 among the general population of in and around Chennai, questions asked regarding the Knowledge of the population about the disease COVID-19. Online survey link was sent to all the voluntary participants. Through the link, the participants could view the questions simply by clicking on it and answer the questions. The questionnaire included a short introduction regarding the objectives, procedures, the voluntary participation, declarations of confidentiality and anonymity. The inclusion criteria was age above 15 years who would understand the content of the survey and agree to participate in the survey. Data collection form includes basic information of transmission, symptoms, incubation period, treatment, control and prevention about COVID-19, and participants’ socio demographic characteristics and sources of information regarding COVID-19. Collected data was entered in Microsoft excel and analyzed by using SPSS-24.0.

Statistical analysis

All the statistical analyses were performed by using statistical package for social sciences SPSS version 24.0. Data were presented as mean \pm SD and proportions as appropriate. The Chi-square test was used to compare categorical data. The statistical significance level was set at $p < 0.05$.

Results

Table-1 shows that almost gender was equally distributed among the study population. Most of the study subjects were single (64%), majority of them are from nuclear family (69%), around 63% of them are from urban Chennai, 69% of them are living in individual house, 57% of the participants were students, and 43% of them are employed. 47% were Undergraduates and 56% of them were in the age group of 17-20 years. The mean age of participants was 21.86 years old (SD-8.126, minimum 18 yrs and maximum 54 years) (Table-1)

Table 1: Socio-demographic profile of participants

Socioeconomic Status	Frequency (N)	Percentage(%)
Socioeconomic details		
Gender		
Male	243	50.2
Female	241	49.8
Marital status		
Single	308	63.6
Married	176	36.4
Type of family		
Nuclear family	333	68.8
Joint family	151	31.2
Place of living		
Urban	306	63.2
Rural	178	36.8
Type of house		
Individual	334	69.0
Apartments	150	31.0
Occupation		
Student	274	56.6
Employed	206	42.6
Unemployed	4	.8
Age group		
17-20	272	56.2
21-25	65	13.4
26-30	1	.2
31-35	15	3.1
36-40	23	4.8
41-45	69	14.3
45-50	25	5.2
51 and above	14	2.9
Education		
Undergraduate	231	47.6
Postgraduate	194	40.0
Professional	57	11.8
School level	2	.4

Knowledge of COVID-19

The questions regarding the knowledge of the participants about COVID-19 was divided into two sections, one regarding their basic knowledge about the characteristics of the disease(Section-1) and the other regarding what they knew about the transmission routes, groups are at higher risk for the disease,control and prevention of COVID19(Section-2) . Based on our results, the majority of the general population had good knowledge about the disease (87.5% for section A and 69.78% for section B). The mean knowledge score was 61.1 knew the correct answer for knowledge section A and B tests, respectively (Table 2). Knowledge scores of our study (both A and B) showed no difference among age groups, genders, marital status, occupation, education levels, type of living area, and the type of questions except few questions.

Table-2: Knowledge regarding COVID19

Knowledge questions		Frequency	Percentage
Have you heard about COVID 19	Yes	423	87.2
	No	61	12.6
Sources of information about COVID19	Television	275	56.7
	Social media	160	33.0
	News Paper	34	7.0
	Friends/Relatives	15	3.1
Is COVID19 a contagious disease?	Yes	462	95.3
	No	22	4.5
Incubation period of COVID19	10 days	9	1.9
	14 days	360	74.2
	24 days	41	8.5
	28 days	66	13.6
	Not yet confirmed	8	1.6
Which age group is affected more?	<15yrs	11	2.3
	20-40yrs	88	18.1
	Above 50yrs	385	79.4
Common symptoms of COVID19	Fever	14	2.9
	Cough	17	3.5
	Sore throat	11	2.3
	All the above	442	91.1
Covid19 transmitted through	Droplets	35	7.2
	Direct Contact	38	7.8
	Both 1&2	411	84.5
Do we have treatment for COVID19?	Yes	84	17.3
	No	163	33.6
	Only supportive therapy	237	48.9
Do we have vaccine for COVID19?	Yes	36	7.4
	No	385	79.4
	Don't know	63	13.0
How to prevent COVID19?	Wearing mask when we go out	31	6.4
	Social distancing and quarantine or isolation if we have symptoms	89	18.4
	All the above	364	75.1
Which persons can easily affected by COVID19?	Pediatric group	27	5.6
	Geriatric group	327	67.4
	Immune suppressive group	130	26.8
What type of disease COVID19 ?	Epidemic disease	16	3.3
	Endemic disease	75	15.5
	Pandemic disease	393	81.0

Knowledge of study subjects was assessed for causation, symptoms, treatment and prevention and control of COVID19 by using close ended question.

Table-3: Comparison of knowledge level with SES (only p-value is given)

Questions on Knowledge of COVID19	Age (p-value)	Gender (p-value)	Education (p-value)	Occupation (p-value)	Place of living (p-value)	Type of family (p-value)
Is COVID19 a contagious disease?	0.829	0.064	0.995	0.850	0.002	0.169
Incubation period of covid19?	0.895	0.885	0.002	0.001	0.170	0.284
Which age group is affected more?	0.032	0.866	0.189	0.356	0.772	0..540
Common symptoms of covid19	0.991	0.762	0.177	0.428	0.084	0..564
Covid19 transmitted through ...	0.953	0.039	0.307	0.000	0.052	0.029
Do we have treatment for covid19?	0.641	0.310	0.000	0.453	0.301	0.138
Do we have vaccine for covid19?	0.695	0.408	0.001	0.000	0.181	0.178
How to prevent covid19?	0.315	0.872	0.011	0.000	0/383	0.025
Which persons can easily affected for covid19?	0.049	0.002	0.017	0.000	0.687	0.713
What kind of disease is covid19?	0.797	0.825	382	0.612	0.031	0.518

While comparing knowledge with age group there was a significant difference observed with the questions on which age group affected more and which persons can easily affected. While comparing gender difference on knowledge, variations was observed in transmission and which persons can easily affected. Transmission knowledge was vary between gender, type of family, nooccupation and place of living (p-value<0.05). Knowledge on prevention was also differ between education, occupation and type of family. The question on who is at risk was significantly vary with age, gender, education and occupation. (pvalue<0.05) (Table-3)

Discussion

To the best of our knowledge, this is the first study conducted in India, assessing the knowledge towards COVID-19 amongst the general population. Based on our findings, the Knowledge towards COVID-19 score almost similar between gender, occupation, type of family, age group, education and type of family. Based on the knowledge scores of the participants, an overall correct rate of 85%, demonstrated that the majority of participants had adequate knowledge about COVID-19. Our results were similar to a previous study regarding the KAP towards COVID-19 in China³ which also showed an overall correct rate of 90% knowledge among the Chinese; however, an inadequate knowledge regarding the vaccine and incubation period. Majority of them gave correct answer rate regarding knowledge about COVID-19 symptoms, transmission and prevention. This may be due to many of the participants are students and social media usage is high among them. Another reason could be the fact that majority of the participants held an higher academic degree and responded actively to the severe condition of the pandemic and the overwhelming news reports, by collecting information from reliable sources. This is supported by the considerably positive correlation between the level of higher education and knowledge regarding COVID-19, and is similar to the results of study done in China. Compared to a study about KAP towards COVID-19 among the bordered population of northern Thailand in the early period of the outbreak, showed higher Knowledge towards COVID-19⁴.

But in contrast to our study, in Thailand, 73.4% had poor knowledge of disease prevention and control; while in our study majority of them knew how to control and prevent COVID-19. The possible reason for these score differences could be the period and the place in which the two studies were conducted. While in Iran, the study was done at the time of the main phase of the outbreak when the populations were exposed to a lot of information about the disease, its route transmission and prevention ways, in Thailand the study was done on the population of a place which was not seriously affected by the outbreak.

Furthermore, our study showed that higher knowledge score regarding COVID-19 was significantly associated with a higher likelihood of having positive attitude and good practice at the time of COVID-19 pandemic. These results show the significance of improving general population's knowledge regarding COVID-19 by health education programs which, in turn, would enhance their attitude and practice regarding COVID-19. Our findings

of the demographic variables related to Knowledge concerning COVID-19 are mostly similar to previous KAP studies regarding SARS and COVID-19 in China⁵.

Our study showed that the majority of participants (82.9%) obtained their information from social media and television. Zhou et al., via sensitivity analysis suggested that, during the early phase of the COVID-19 outbreak, enhancing the response rate of the social media reporting the severity of COVID-19, as well as increasing the response rate of the public awareness to the media reports, both can significantly convey the message on time and reduce the infection. These findings suggested that media coverage can be considered as an effective way to mitigate the disease spreading during the initial stages of an outbreak. A limitation is that since the COVID-19 can be transmitted via droplets or close contacts, a web-based survey was chosen to decrease the chances of transmission; however, some biases such as lack of internet access.

Conclusion

Most of the study population belongs to urban area, comprising of 63% of the study population. According to this study majority of study subjects were from the age group of 17 to 20 yrs. In this study male female ratio was almost equally distributed and majority of them were from urban area, this could be a reason for adequate awareness. Also many of them are living as a nuclear family and majority of them are students. The present study reveals general public had adequate knowledge regarding COVID19. Indian government has taken good initiative through social media and newspaper above COVID19 control and prevention. Creating awareness about disease causation, transmission and prevention through specific, effective and innovative programs reaches the community with a high impact.

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