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Rising epidemic of COVID-19 in India – knowledge, attitude and practices among general population

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ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) is an emerging disease caused by a novel corona virus, Severe Acute respiratory syndrome coronavirus 2 (SARS CoV2). It was first detected in December 2019 in Wuhan, China. The rapid spread and the novel nature of the disease has created an environment of confusion and panic among people. **Methods:** A cross-sectional study was conducted using web-based questionnaire in different languages, the link of the online questionnaire shared as text message was shared/posted/reposted through author's social media accounts and emails. It consisted two parts: Demographic details and KAP containing total 19 questions (K-13, A-3, P-3). Data analysis was conducted using SPSS-20 statistical software.

Results: It was found that higher education level has associated significantly with higher knowledge score (β = -0.213: p=0.00). Multiple regression analysis showed that attitude of people avoiding Chinese restaurants was significantly associated with younger age group (Exp β =0.975: p=0.021). The practice of wearing mask while leaving home was found significantly associated with education (p=0.024) and occupation (p=0.000) in univariate analysis. Similarly, the practice of washing hands was significantly associated with age in both univariate (p=0.049) and multivariate analysis (Exp β =0.932: p=0.049).

Conclusions: The practice of majority of Indian residents was very cautious. But correct response rate for knowledge score was only 72.54% and positive attitude about COVID-19 control in India was demonstrated by 74.18% respondents, thus reflecting inadequate information about COVID-19 and lower confidence on its control. Information, education and communication (IEC) campaigns by various sources needs to be optimized across various sociodemographic groups to address those at higher risk.

Keywords: Knowledge, Attitude, Practices, COVID-19

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an emerging disease caused by a novel corona virus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV2). It was first detected in December 2019 in Wuhan, China. The disease being newly originated, much of its natural history is lately being studied. People with COVID-19

have had a wide range of symptoms reported.² Older people, and those with underlying medical problems are more likely to develop serious illness.³ Also, till date, there is no approved medicine to cure COVID-19, whereas, vaccine development efforts are going on high priority with several countries including India rolling out huge vaccine drives.^{4,5}

The rapid spread and the novel nature of the disease has created an environment of confusion and panic among people. Public Health Departments worldwide has come up with several guidelines and Standard Operating Procedures regarding prevention, containment, testing etc. India reported its first case on January 30, 2020. As on 3rd March 2021, 1,11,39,516 laboratory-confirmed infections and 1,57,346 deaths were recorded in India.⁶

As the battle against COVID-19 continues in India, the final success depends on the people's adherence to control measures which is largely affected by their knowledge, attitudes, and practices (KAP) towards COVID-19 in accordance with KAP theory.^{7,8} The best way to prevent and slow down transmission is to be well informed about the COVID-19 virus, the disease it causes and how it spreads.³

Lessons learned from the SARS outbreak in 2003 suggest that knowledge and attitudes towards infectious diseases are associated with level of panic emotion among the population, which can further complicate attempts to prevent the spread of the disease.^{9,10}

Particular concern in this regard is the spread of misinformation on social media sites which has affected the general public's beliefs about the disease and the prevailing situation. This has even led the WHO to host a page "myth busters" on their website and engage in discussions with social media companies. ¹² Also, the Indian Ministry of Health and Family Welfare (MOHFW) along with state-level health departments have been providing information on COVID-19 through both subnational communication channels and through a mobile application, Aarogya-Setu. ¹³

The speed with which COVID-19 is spreading across the world calls for rapid assessments of the population's knowledge and perceptions of this infection. 14,15 Understanding what the general public knows about COVID-19 and which misperceptions they hold is important for the public health authorities as well as the media to design effective information campaigns.

With this background we are undertaking a KAP survey among general population of India.

METHODS

This cross-sectional study was conducted from 1st June to 31st August 2020. A community-based national sampling survey was not feasible during this special period, therefore it was decided to collect the data online. Relying on the authors' networks with people throughout the country. Predesigned, pretested, semi-structured webbased questionnaire in different languages (English, Hindi, Marathi and Urdu) was shared/posted/reposted through their social media accounts and e-mails. A brief introduction on the background, objectives, voluntary nature, eligibility of participation, declaration of confidentiality as well as the link of the online

questionnaire shared as text message. Persons who were of Indian nationality, aged 16 years or more and agreed to participate in the study were instructed to complete the questionnaire. Participants had to answer a yes-no question to confirm their consent to participate willingly.

The questionnaire consisted of two parts: demographics and KAP. Demographic variables included age, gender, marital status, education and occupation. Using the guidelines for clinical and community management of COVID-19 by ICMR, CDC India and the myth-busters published by WHO, a COVID-19 KAP questionnaire was developed. There were 13 questions on knowledge: 3 regarding Clinical presentation (K1,K2,K3), 3 regarding Transmission route (K5,K6,K7), 5 regarding Prevention and Control (K8,K9,K10,K11,K12) and 2 regarding Misbeliefs (K4,K13). A correct answer was assigned 1 point and an incorrect/unknown answer was assigned 0 points. Higher score denoted a better knowledge. Attitudes towards COVID-19 were measured by 3 questions (A1, A2, A3) and practices were assessed by 3 behaviours within the past 14 days (P1, P2, P3). (Table 1)

Frequencies of correct knowledge answers and various attitudes and practices were described. These were compared to demographic characteristics with appropriate tests of significance; independent samples t test, one-way analysis of variance (ANOVA) and multivariable linear regression analysis. Data analysis was conducted using Statistical package for social sciences (SPSS) 20 statistical software. The statistical significance level was set at p<0.05 (two-sided).

RESULTS

Socio-demographic profile

A total of 603 participants responded to the online survey questionnaire. Of these, 173 questionnaires were excluded in lieu of unspecified answers and missing parameters. Hence, the final sample consisted of 430 respondents.

Among the respondents, greater number were males 264 (61.4%). The survey reached a population ranging from 16 to 72 years with a mean of 34.5 years (\pm 11.8 years). Most of the respondents were graduates 206 (47.91%), married 228 (53%), and belonged to age group of 26-39 years 214 (49.77%). (Table 2)

Knowledge

The mean knowledge score was 9.43 (SD: 0.46, range: 1-13), suggesting an overall correct rate of 72.54% (9.43/13×100).

Out of 430 participants, 315 (73.25%) were aware of the main clinical symptoms of COVID-19. Most of the participants believed that early symptomatic and supportive treatment can help most patients recover from the infection 370 (86%) and that not all persons with COVID-19 will develop severe disease 305 (70.93%).

Table 1: Questionnaire of knowledge, attitude and practices towards COVID-19.

Questions	Responses
Knowledge (correct rate, % of the total sample)	
K1. Main clinical symptoms of COVID-19 (73.25)	Fever, weakness, dry cough, body ache, all of them
K2. Early symptomatic and supportive treatment can help most patients recover from the infection (86)	True, False, I don't know
K3. Not all persons with COVID-19 will develop severe disease but only those who are elderly, have underlying illnesses, and are obese (70.93)	True, False, I don't know
K4. Eating or coming in contact with wild animals would result in infection by COVID-19 virus (67.91)	True, False, I don't know
K5. Can a COVID-19 positive case not having fever/cough transmit the infection to others? (86.74)	True, False, I don't know
K6. The COVID-19 virus spreads via (tick your answer) (29.07)	Food, respiratory droplets, saliva, sex, mosquito, all, none
K7. The COVID-19 virus cannot be transmitted in hot and humid climate. (71.63)	True, False, I don't know
K8. Ordinary residents can wear cloth masks to prevent the infection by COVID-19 virus. (78.84)	True, False, I don't know
K9. To prevent the infection by COVID-19, individuals should avoid going to crowded places such as railway stations and avoid taking public transportations. (96.51)	True, False, I don't know
K10. People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days. (95.12)	True, False, I don't know
K11. Complete recovery is possible from COVID-19. (86.51)	True, False, I don't know
K12. There are specific medicines to treat COVID-19? (68.84)	True, False, I don't know
K13. COVID-19 is a bioweapon developed by a government or terrorist organization. (30.46)	True, False, I don't know
Attitude	
A1. Do you have confidence in the government of India on winning the battle against the COVID-19?	Yes, No
A2. Will you avoid eating in Chinese restaurants for the next few weeks to reduce the risk of getting infected with the new coronavirus?	Yes, No
A3. Will you avoid eating in Chinese restaurants for the next few weeks to reduce the risk of getting infected with the new coronavirus?	Yes, No
Practice	Yes, No
P1. In recent days, have you gone to any crowded place?	Yes, No
P2. In recent days, have you worn a mask when leaving home?	Yes, No
P3. In recent days, have you washed your hands before and after any activity?	Yes, No

Majority (86.74%) were aware that COVID-19 positive case not having fever/cough can also transmit the infection to others but only 29.07% participants correctly answered the mode of transmission. Most of the participants believed that COVID-19 virus can be transmitted in hot and humid climate (71.63%) and that ordinary residents can wear cloth masks to prevent the infection by COVID-19 virus (78.84%).

Almost all the participants were aware of avoiding crowded places and public transport (96.51%) and

isolation of contacts (95.12%) as measures of prevention. Majority (86.51%) of study subjects believed that complete recovery was possible from COVID-19 and 68.84% were aware that there are no specific medicines to treat COVID-19. However, most participants did not know whether COVID-19 is a bioweapon developed by a government or terrorist organization (43.72%).

Univariate analysis with knowledge level significantly varies with education, and occupation. (Table 2) In multiple regression analysis, higher education level has

associated significantly with higher knowledge score (β = -0.213: p=0.00) (Table 3).

In multiple regression analysis, higher education level has associated significantly with higher knowledge score (β = -0.213: p=0.00) (Table 3).

Attitude

Majority (74.18%) of the participants had confidence in the government of India on winning the battle against COVID-

19. This attitude did not differ significantly across demographic groups. (Table 4)

Half of the participants (50.5%) said that they would avoid eating in Chinese restaurants for the next few weeks to reduce the risk of getting infected, signifying misconception of higher prevalence in Chinese origin people. Multiple regression analysis showed that this attitude was significantly associated with younger age group (Exp β =0.975: p=0.021). (Table 5)

Table 2: Univariate analysis of knowledge score.

		No. of participants (%)	Knowledge score (Mean±SD)	t/F	P
Gender	Male	264 (61.40)	9.43 ± 1.98	0.203	0.809
	Female	166 (38.60)	9.44 ± 1.96		
Age group	Young adult (16-25)	099 (23.02)	9.41 ± 1.99	1.154	0.233
	Adult (26-39)	214 (49.77)	9.46 ± 1.96		
	Middle age (40-59)	099 (23.02)	9.44 ± 1.97		
	Elderly (60+)	018 (04.19)	9.47 ± 1.98		
Marital Status	Married	228 (53.03)	9.44 ± 1.97	0.209	0.971
	Unmarried	202 (46.97)	9.42 ± 1.98		
Education	Post Graduate	180 (41.86)	9.45 ± 1.96	5.238	0.000*
	Graduate	206 (47.91)	9.43 ± 1.97		
	Secondary School	036 (08.37)	9.44 ± 2.00		
	≤ Middle School	008 (01.86)	9.36 ± 2.03		
Occupation	Professional	105 (24.42)	9.44 ± 1.97	2.286	0.027*
	Semi-professional	010 (02.32)	9.43 ± 1.99		
	Skilled worker	116 (26.98)	9.45 ± 1.96		
	Semi-skilled	058 (13.49)	9.43 ± 2.00		
	Unskilled	004 (00.93)	9.39 ± 2.18		
	Unemployed	055 (12.79)	9.44 ± 1.99		
	Student	082 (19.07)	9.42 ± 1.98		

Table 3: Multivariate analysis of knowledge score.

Model		Unstandardiz Coefficients	ed	Standardized Coefficients	t/F	Sig.
		В	Std. Error	Beta		
	(Constant)	9.660	0.674		14.326	0.000
	Gender	0.009	0.194	0.002	0.044	0.965
	Age	0.012	0.010	0.074	1.214	0.226
I	Marital status	0.054	0.232	0.014	0.231	0.817
	Education	-0.474	0.109	-0.213	-4.347	0.000*
	Occupation	0.019	0.035	0.027	0.545	0.586

Dependent Variable: knowledge score. *significant association

A high proportion of participants (42.55%) reported that they would not mingle normally with a COVID-19 patient who has been discharged from the hospital, showing high prevalence of stigma attached to it. This attitude was found significant with occupation in univariate analysis (p=0.044) (Table 4); however, no such association was established in multiple regression analysis.

Practices

The vast majority of the participants had worn masks when going out (96.5%) and washed hands frequently (95.6%) in recent days. Around three fourth of participants (87.67%) had not visited any crowded places.

The practice of wearing mask while leaving home was found significantly associated with education (p=0.024) and occupation (p=0.000) in univariate analysis (Table 5) but no such association was noted in regression analysis.

However, the practice of washing hands was significantly associated with age in both univariate (p=0.049) and multivariate analysis (Exp β =0.932: p=0.049). (Table 5,6)

Table 4: Univariate analysis of attitude.

		A1: confidence in the GOI on winning the battle against the COVID-19 [n (%)]		t/F P		A2: avoid eating in Chinese restaurants [n (%)]		t/F P		A3: mingle with recovered COVID 19 patients [n (%)]		t/F	P
		Yes	No			Yes	No			Yes	No		
Gender	Male	197	67	0.266	0.795	133	131	0.009	0.964	157	107	3.501	0.285
	2Female	122	44			84	82			90	76		
Age group	Young adult (16-25)	79	20	1.135	0.258	52	47	1.746	0.002*	46	53	1.239	0.142
	Adult (26- 39)	143	71			87	127			130	84		
	Middle age (40-59)	79	20			66	33			58	41		
	Elderly (60+)	18	00			12	06			13	05		
Marital Status	Married	175	53	1.41	0.245	127	101	2.704	0.068	142	86	2.47	0.086
	Unmarried	144	58			90	112			105	97		
Education	Post Graduate	134	46	0.526	0.789	76	104	1.733	0.112	105	75	0.569	0.755
	Graduate	150	56			116	90			117	89		
	Secondary School	27	09			21	15			19	17		
	≤ Middle School	08	00			04	04			06	02		
Occupation	Professional	76	29	1.62	0.128	57	48	0.786	0.599	65	40	2.081	0.044*
	Semi- professional	06	04			04	06			04	06		
	Skilled worker	93	23			63	53			66	50		
	Semi-skilled	40	18			26	32			37	21		
	Unskilled	03	01			03	01			04	00		
	Unemployed	41	14			28	27			34	21		
	Student	60	22			36	46			37	45		

Table 5: Multivariate analysis of A2 and P3.

		A2: Avin Chin				P3: Wash before an activities			
		В	Std. Error	Exp (B)	Sig.	В	Std. Error	Exp (B)	Sig.
	(Constant)	1.019	0.716	2.770	0.155	0.050	2.012	1.051	0.980
	Gender	-0.039	0.204	0.962	0.849	-0.356	0.514	0.701	0.488
1	Age	-0.025	0.011	0.975	0.021*	-0.070	0.036	0.932	0.049 *
	Marital status	0.015	0.244	1.015	0.951	-0.727	0.627	0.483	0.246
	Education	-0.180	0.121	0.835	0.320	0.293	0.253	1.340	0.248
	Occupation	0.036	0.036	1.037	0.320	0.033	0.091	1.034	0.717

Table 6: Univariate analysis of practices.

		P1: go	rowded	t/F	P	mask leavir		t/F	P	your	vashed hands e and any	t/F	P
		(%)]				home (%)]				activi (%)]			
		Yes	No			Yes	No			Yes	No		
Gender	Male	36	228	4.467	0.298	255	9	0.051	0.91	251	13	1.667	0.521
Age group	Female Young adult (16-25)	8	91	0.807	0.818	16095	4	0.828	0.786	93	6	1.393	0.049*
	Adult (26-39)	31	183			208	6			205	9		
	Middle age (40- 59)	14	85			94	5			95	4		
	Elderly (60+)	0	18			18	0			18	0		
Marital status	Married	27	201	0.377	0.686	218	10	0.694	0.500*	219	9	0.201	0.818
	Unmarrie d	26	176			197	5			192	10		
Education	Post Graduate	24	156	1.602	0.145	174	6	2.425	0.024*	173	7	1.173	0.32
		22	184			201	5			198	8		
	Secondar y School	6	30			33	3			32	4		
	≤Middle School	1	7			7	1			8	0		
Occupation	Professio nal	12	93	1.131	0.342	100	5	0.484	0.000*	99	6	1.12	0.349
	Semi- professio nal	0	10			10	0			10	0		
	Skilled worker	14	102			115	1			115	1		
	Semi- skilled	12	46			56	2			55	3		
	Unskilled	0	4			2	2			4	0		
	Unemplo yed	5	50			53	2			52	3		
	Student	10	72			79	3			76	6		
		place	owded [n (%)]	t/F	P	mask leavin [n (%)	P2: worn a mask when leaving home [n (%)]		P	P3: w your l before after a activi (%)]	nands e and any ty [n	t/F	P
		Yes	No			Yes	No			Yes	No		
Gender	Male	36	228	4.467	0.298	255	9	0.051	0.91	251	13	1.667	0.521
	Female	17	149			160	6			160	6		
Age group	Young adult (16-25)	8	91	0.807	0.818	95	4	0.828	0.786	93	6	1.393	0.049*
	Adult (26-39)	31	183			208	6			205	9		
	Middle age (40- 59)	14	85			94	5			95	4		

Continued.

		P1: gone to any crowded place [n (%)]		t/F	P	P2: w mask leavin home (%)]	when ng	t/F P		P3: washed your hands before and after any activity [n (%)]		t/F	P
	Elderly (60+)	0	18			18	0			18	0		
Marital status	Married	27	201	0.377	0.686	218	10	0.694	0.500*	219	9	0.201	0.818
	Unmarrie d	26	176			197	5			192	10		
Education	Graduate	24	156	1.602	0.145	174	6	2.425	0.024*	173	7	1.173	0.32
	Graduate	22	184			201	5			198	8		
	Secondar y School	6	30			33	3			32	4		
	Middle School	1	7			7	1			8	0		
Occupation	Professio nal	12	93	1.131	0.342	100	5	0.484	0.000*	99	6	1.12	0.349
	Semi- professio nal	0	10			10	0			10	0		
	Skilled worker	14	102			115	1			115	1		
	Semi- skilled	12	46			56	2			55	3		
	Unskilled	0	4			2	2			4	0		
	Unemplo yed	5	50			53	2			52	3		
	Student	10	72			79	3			76	6		

DISCUSSION

COVID-19 has wreaked chaos to lives and economies around the world. The role of Government in formulating policies and maintaining decorum in this emergency, and the role of public in adopting precautionary behaviours and harbouring positive attitude is vital. Proper knowledge, positive attitude and good practices are foreground for public cooperation and backbone for implementing any health policy.¹⁶

This survey was an initiative to understand KAP among the Indian citizens towards COVID-19. Carried out during the peak of epidemic in India, this study could highlight the extent and effectiveness of health education strategies by the government and ideas and beliefs held by the general public amidst the emergency. Based on our findings, the study significantly consists of males, married and well-educated population which is similar to other such online surveys. ¹⁶⁻¹⁸

Though there was predominance of graduates and higher qualified population who had access to real-time information, the correct response rate was 72.54% for knowledge score, reflecting incomplete awareness regarding COVID-19. It could be attributed to the spread of myths and misinformation driven by fear, blame and

stigma. Another study conducted in India, earlier during the pandemic shows higher correct rate of 80.64%. ¹⁹ This could be due to the studies being carried out on different population or dilution of newsfeed from various sources around the world since the beginning of pandemic. The general population of China had high knowledge regarding COVID-19 whereas nearly half of the population of Bangladesh were not well aware about COVID-19 and the pandemic situation. ^{1,18}

Knowledge score was associated significantly with higher education level in multiple regression (β =-0.213: p=0.00). This finding was similar with other surveys where higher knowledge scores were significantly associated with higher education level. ^{1,16,18} However, in yet another study, no such association was established. ¹⁹

Participants were aware regarding clinical symptoms, general recovery, prevention and control of disease. However, much to the dismay, only 29.07% correctly knew respiratory droplets as the mode of transmission. Both respiratory droplets and saliva were believed to be main mode of transmission by 21.86% participants, followed by 10.47% who believed it to spread by respiratory droplets, saliva, food, mosquito and sex. The CDC confirms that virus of COVID-19 spreads mainly from person to person, via respiratory droplets produced

when an infected person coughs or sneezes, possibly be inhaled into the lungs of people who are nearby within about 6 feet.²⁰

In similar studies, the general public appeared to be well informed regarding the common symptoms of COVID-19 and were aware regarding transmission, prevention and control of disease. ^{15,16,21}

A high proportion (78.84%) of respondents believed that ordinary residents can wear cloth masks to prevent the infection by COVID-19 virus. It was in accordance with the recommendation of CDC that people wear a cloth face-covering in the community setting in addition to other everyday preventive actions. ^{21,22}

To date, there is no specific medicine recommended or approved to prevent or treat the new coronavirus, although some have been tried.^{21,23} A substantial proportion (31.16%) of participants believed that specific medicines were available for treating COVID-19.

The origin and early transmission of the disease in China led to widespread speculation and formation of many conspiracy theories. ^{17,24} In line with this, most participants (43.72%) retorted they did not know if COVID-19 was a bioweapon developed by a government or terrorist organization while 25.82% believed it to be. In a survey conducted in UK and US, about one in five participants believed it to be 'slightly', 'moderately' or 'extremely likely', that SARS-CoV-2 is a bioweapon. ¹⁵ In a survey conducted in India, majority of the respondents partially or strongly blamed China for causing this pandemic (78.57%). ¹⁷ This led to several episodes of xenophobia in the country that targeted certain North-East Indians around the nation. ²⁵

Majority of the participants held an optimistic attitude towards COVID-19 epidemic; 74.18% had confidence in the government of India on winning the battle against COVID-19. In similar studies conducted earlier in pandemic, as high as 84.42% and 98.33% participants were optimistic about disease control and India wining war against COVID-19. 19,16 The confidence seems to be diminished over time which could be due to continuing incidences and extended lockdowns. However, in another survey conducted around same time early in pandemic, only nearly half (46.14%) of the respondents were certain that COVID-19 will be successfully controlled in India. 17 Vast majority of participants (97.1%) in China had confidence of winning the battle against COVID-19.

A significant proportion (50.5%) of participants in this study said they would avoid eating in Chinese restaurants. Similar findings were seen in another study conducted in US and UK where a substantial proportion thought they should refrain from frequenting Chinese restaurants. ¹⁵ This points towards the fact that people are likely to overestimate the prevalence of COVID-19 among East-Asian individuals. Multiple regression analysis showed

that this was significantly associated with age $(Exp\beta=0.975$: p=0.021), signifying that younger population had more propensity for this attitude.

It is noteworthy that nearly half (42.56%) of the respondents retorted they would not mingle normally with a COVID-19 patient discharged from the hospital. Shame and stigma surrounding contagious diseases are well known to create barriers to treatment-seeking and case finding. Similarly, in another study conducted, only 28.43% believed that they will not be targeted nor will they harass those affected by the disease. ¹⁷ Subsequently, the fear of being stigmatized in society due to contraction of the disease was found prevalent in yet another survey. ²⁶

The practice of Indian residents was very cautious: nearly all wore masks when leaving home (96.5%), washed their hands frequently (95.6%) and avoided going to crowded places (87.67%). This was similar with several other studies. ^{1,16-18}

Still, 12.33% participants took public transport or visited crowded places during this time. In another study, it was found that despite lockdown, around 80% participants came out of their houses.19 This risky behaviour is detrimental as it can effectuate into silent community transmission.²⁷

The practice of wearing mask was found significantly associated with higher education (p=0.024) and occupation (p=0.000) in univariate analysis. Similarly, the practice of washing hands was significantly associated with younger age in both univariate (p=0.049) and multiple variate analysis (β =-0.124: p=0.044).

CONCLUSION

To conclude, the practice of majority of Indian residents was very cautious. But correct response rate for knowledge score was only 72.54% and positive attitude about COVID-19 control in India was demonstrated by 74.18% respondents, thus reflecting inadequate information about COVID-19 and lower confidence on its control. The higher knowledge score was associated significantly with higher education level. Likewise, practice of proper preventive measures was significantly associated with higher education and younger age.

It is noteworthy that 43.72% respondents did not know if covid19 was a bioweapon; half of the participants would avoid eating in Chinese restaurants and nearly half of the respondents would not mingle normally with a recovered COVID-19 patient. This displays high level of misconception and stigma around this disease. In our study, younger population had more propensity for negative attitude.

The presence of low level of knowledge and prevalence of misconceptions despite large information, education and communication (IEC) campaigns by various sources, signifies that the message needs to be optimized across various sociodemographic groups to address those at higher risk. Also, the public requires to be educated to seek information from reliable sources.

This study's findings could relay relevant information for campaigns by public health authorities and the media and imply that a collective initiative by policymakers and community would help India fight COVID-19.

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Institutional Ethics Committee

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