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RESEARCH ARTICLE

COVID - 19: AN EXPLOSION IN THE WORLD

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ABSTRACT

Background: Coronavirus disease 2019 (abbreviated “COVID-19”) is an emerging respiratory disease that is caused by a novel coronavirus. The disease is highly infectious, and its main clinical symptoms include fever, dry cough, fatigue, myalgia, and dyspnea. To guarantee the final success, people's adherence to these control measures are essential, which is largely affected by their knowledge, attitudes, and practices towards COVID- 19. **Objective:** This study aims to investigate the knowledge about public’s awareness about COVID-19 during the pandemic spike. **Method:** The method used is a survey based questionnaire. **Result:** The mean COVID-19 knowledge score was 10.8 (SD: 1.6, range: 0-12), suggesting an overall 90% correct rate on this knowledge test. **Conclusion:** In summary, our findings suggest that Indian residents of a relatively high level of socioeconomic status, have had good knowledge, optimistic attitudes, and appropriate practices towards COVID-19 during the rapid rise period of the COVID-19 outbreak. Hopefully, under the combined efforts of Indian authorities and all Indian residents, India surely will win the battle against COVID-19 in the near future.

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INTRODUCTION

Coronavirus disease 2019 (abbreviated “COVID-19”) is an emerging respiratory disease that is caused by a novel coronavirus and was first detected in December 2019 in Wuhan, China. The disease is highly infectious, and its main clinical symptoms include fever, dry cough, fatigue, myalgia, and dyspnea. In China, 18.5% of the patients with COVID-19 develop to the severe stage, which is characterized by acute respiratory distress syndrome, septic shock, difficult-to-tackle metabolic acidosis, and bleeding and coagulation dysfunction [Centers for Disease Control and Prevention, 2020; Chen *et al.*, 2020]. Empirical clinical data have shown that the overall case fatality rate of COVID-19 is 2.3% in China, much lower than those of SARS (9.5%), MERS (34.4%), and H7N9 (39.0%) [Munster, 2020].

The ongoing COVID-19 epidemic has spread very quickly, and by February 15, 2020, the virus had reached 26 countries altogether, resulting in 51,857 laboratory-confirmed infections and 1669 deaths, with nearly all infections and deaths occurring in China [World Health Organization, 2019]. In response to this serious situation, the World Health Organization (WHO) declared it a public health emergency of international concern on January 30 and called for collaborative efforts of all countries to prevent the rapid spread of COVID-19 [World Health Organization, 2019]. Hubei Province, in particular its capital city Wuhan, has been seriously hit by the COVID-19 epidemic. Some unprecedented measures have been adopted to control the COVID-19 transmission in Hubei and other provinces of China, including the suspension of public transportation, the closing of public spaces, close management of communities, and isolation and care for infected people and suspected cases. Until January 27, government authorities had locked down the whole province of Hubei, and Chinese residents, both inside and outside of Hubei, were also required to just stay at home to avoid contacting with others.

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The battle against COVID-19 is still continuing in China. To guarantee the final success, people's adherence to these control measures are essential, which is largely affected by their knowledge, attitudes, and practices (KAP) towards COVID-19 in accordance with KAP theory [Ajilore, 2017; Tachfouti, 2012]. 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 [Person, 2004; Tao, 2003].

The high number of cases and the many countries which are affected define COVID-19 as a global pandemic. India too braces for the COVID-19 pandemic; healthcare workers on the frontlines are particularly vulnerable to this infection. Following the WHO declaration, countries around the globe, including the India, have been leaning on response plans to respond to the pandemic and contain the virus by imposing nation wide lockdown, schools colleges being shut except for the grocery stores and pharmacy stores. Despite the unprecedented national measures in combating the outbreak, the success or failure of these efforts is largely dependent on public behavior. Specifically, public adherence to preventive measures established by the government is of prime importance to prevent the spread of the disease. Adherence is likely to be influenced by the public's knowledge and attitudes toward COVID-19. Evidence shows that public knowledge is important in tackling pandemics [Chirwa, 2020; Chirwa, 2019]. Assessing public knowledge is also important in identifying gaps and strengthening ongoing prevention efforts. Thus, this study aims to investigate the knowledge about public's awareness about COVID- 19 during the pandemic spike.

MATERIAL & METHODS

Materials: This cross-sectional survey was conducted from April 4 to May 24, which was between a lockdown period in India. Because it was not feasible to do a community-based national questionnaire survey during this special period, we decided to collect the data online. The survey was prepared in the form of an online form and was distributed using social platforms like WhatsApp, Facebook, Twitter accounts. The form was also posted on the websites. This form contained a brief introduction on the background, objective, procedures, voluntary nature of participation, declarations of anonymity and confidentiality, and notes for filling in the questionnaire, as well as the link and quick response (QR) code of the online questionnaire. Persons aged 15 years or more, understood the content of the form, and agreed to participate in the study were instructed to complete the questionnaire via clicking the link or scanning the QR code. Residents of every province in India were eligible for this survey if they were willing to participate.

Methodology

The questionnaire consisted of two parts: demographics and knowledge about infection control practices related to COVID-19 disease adapted by people. Demographic variables included age, gender, marital status, education, occupation, and place of current residence. The questionnaire containing demographic information was Part A and then there were 17 questions in Part B: 6 regarding clinical presentations (1-6), 6 regarding transmission routes (7-12), and 5 regarding prevention and control (13-17) of COVID-19. These questions were answered

on a true/false basis with an additional "I don't know" option. A correct answer was assigned 1 point and an incorrect/unknown answer was assigned 0 points. The total knowledge score ranged from 0 to 17, with a higher score denoting a better knowledge of COVID-19.

QUESTIONNAIRE

PART –A

1. Name
2. Age
3. Gender
 - a.Male
 - b.Female
 - c.Other
4. Marital Status
 - a. Married
 - b. Unmarried
5. Education
6. Occupation
7. Residential Place

PART – B

1. The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia.
 - True
 - False
 - I don't know
2. There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection.
 1. True
 2. False
 3. I don't know
3. Not all persons with COVID-2019 will develop to severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases.
 - a. True
 - b. False
 - c. I don't know
4. Who is at risk for severe COVID-19
 - a. True
 - b. False
 - c. I don't know
5. Pregnant ladies are at higher risk for severe disease caused by COVID-19.
 1. True
 2. False

3. I don't know
6. Do patients with confirmed or suspected COVID-19 need to be admitted to the hospital.
- True
 - False
 - I don't know
7. Eating or contacting wild animals would result in the infection by the COVID-19 virus.
- True
 - False
 - I don't know
8. Persons with COVID-2019 cannot infect the virus to others when a fever is not present.
- True
 - False
 - I don't know
9. The COVID-19 virus spreads via respiratory droplets of infected individuals.
- True
 - False
 - I don't know
10. When is someone infectious?
- True
 - False
 - I don't know
11. Which body fluids can spread infection?
- True
 - False
 - I don't know
12. Can people who recover from COVID-19 be re-infected with SARS- CoV-2
- True
 - False
 - I don't know
13. Ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus.
- True
 - False
 - I don't know
14. We should wash hands with soap or sanitize them specially when came from outside.
- True
 - False
 - I don't know
15. We should wash the vegetables/fruits/any food material properly before using it.
- True
 - False
 - I don't know
16. To prevent the infection by COVID-19, individuals should avoid going to crowded places such as train stations and avoid taking public transportations.
- True
 - False
 - I don't know
17. 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.
- True
 - False
 - I don't know

Statistical analysis: Frequencies of correct knowledge answers were described. Knowledge scores of different persons according to demographic characteristics were compared with independent-samples t test, one-way analysis of variance (ANOVA), or Chi-square test as appropriate. Multivariable linear regression analysis using all of the demographic variables as independent variables and knowledge score as the outcome variable was conducted to identify factors associated with knowledge. Factors were selected with a backward stepwise method. Data analyses were conducted with SPSS version 17.0. The statistical significance level was set at $p < 0.05$ (two- sided).

RESULT AND DISCUSSION

Result

A total of 6910 participants completed the survey questionnaire. Among this final sample, the age range was 16-87, 4542 were women while 2368 were men, 4387 held a bachelor's degree or above, 3881 engaged in mental labor, and 3810 were from Uttar Pradesh state. Other demographic characteristics are shown in Table 1. The correct answer rates of the 17 questions on the COVID-19 knowledge questionnaire were 70.2 - 98.6%.

The mean COVID-19 knowledge score was 10.8 (SD: 1.6, range: 0-12), suggesting an overall 90% ($10.8/12 \times 100$) correct rate on this knowledge test. Knowledge scores significantly differed across genders, age-groups, categories of marital status, education levels, and residence place. The majority of the respondents agreed that COVID-19 will finally be successfully controlled (90.8%). Rates of reporting "disagree" and "I don't know" were 1.9% and 7.3%, respectively. In additions, respondents reporting "disagree" and "I don't know" had significantly lower knowledge scores than those reporting

Table 1. Demographic Characteristics Of Participants And Knowledge Score Of Covid-19 By Demographic Variables

Characteristics		Number of participants	Knowledge score (mean \pm standard deviation)
Gender	Male	2368	10.5 \pm 2.0
	Female	4542	10.9 \pm 1.3
Age-group (years)	16-29	2821	10.4 \pm 1.9
	30-49	3574	11.1 \pm 1.2
Marital status	50+	515	10.9 \pm 1.3
	Married	3836	
	Unmarried	2744	10.4 \pm 1.9
	Others	330	11.0 \pm 1.2
Education	Middle school and below	1217	9.7 \pm 2.4
	Associate's degree	1306	10.8 \pm 1.5
	Bachelor's degree	3043	11.0 \pm 1.2
	Master's degree and above	1344	11.2 \pm 1.0
Occupation	Physical labour	1191	10.7 \pm 1.6
	Unemployed	451	10.6 \pm 1.8
	Students	1387	10.1 \pm 2.1
	Mental labor	3881	11.1 \pm 1.2
Residential place	Uttar Pradesh	3810	10.7 \pm 1.8
	Other states in India other than Uttar Pradesh	3100	10.9 \pm 1.3

“agree”. The vast majority of the participants had not visited any crowded place (96.4%) and wore masks when going out (98.0%) in recent days. There was still a small portion of the participants who had visited crowded places (3.6%) and had not worn masks when leaving home (2.0%) recently.

DISCUSSION

To the best of our knowledge, this questionnaire based knowledge test towards COVID-19 was a great experience among Indian residents. In this predominantly female and well-educated population, we found an overall correct rate of 90% on the knowledge questionnaire, indicating that most respondents are knowledgeable about COVID-19. The vast majority of the participants also held an optimistic attitude towards the COVID-19 epidemic: 90.8% believed that COVID-19 will finally be successfully controlled, and 97.1% had confidence that India can win the battle against the virus. Despite this, the practices of Indian residents were very cautious: nearly all avoided crowded places (96.4%) and wore masks when leaving the home (98.0%) during the rapid rise period of the COVID-19 outbreak. These findings of the questionnaire were useful for public health policy-makers and health workers to recognize target populations for COVID-19 prevention and health education.

The finding of a high correct rate of COVID-19 knowledge in Indian residents was unexpected, because of high illiteracy rate in the country. We consider that this result is also due to the serious situation of the epidemic and the overwhelming news reports on this public health emergency. Due to limited access to internet and online health information resources, vulnerable populations of Indian society under the COVID-19 epidemic such as older adults and rural people at grass-root level are more likely to have poor knowledge, negative attitudes, and inappropriate preventive practices towards COVID-19. Therefore, the questionnaire towards COVID-19 of vulnerable populations deserves special research attention in today's India for a more better outcome. In summary, our findings suggest that Indian residents of a relatively high level

of socioeconomic status, have had good knowledge, optimistic attitudes, and appropriate practices towards COVID-19 during the rapid rise period of the COVID-19 outbreak. In addition, good COVID-19 knowledge is associated with optimistic attitudes and appropriate practices towards COVID-19, suggesting that health education programs aimed at improving COVID-19 knowledge are helpful for encouraging an optimistic attitude and maintaining safe practices. Hopefully, under the combined efforts of Indian authorities and all Indian residents, India surely will win the battle against COVID-19 in the near future.

Conclusion

This new virus pandemic has challenged the economic, medical, and public health infrastructure of the world. Crowd sourced epidemiological data can be useful to monitor emerging outbreaks, such as COVID-19. Our knowledge of most of the bat CoVs is scarce, as these viruses have not been isolated and studied, and extensive studies on such viruses are typically only conducted when they are associated with specific disease outbreaks. Presently, licensed antiviral drugs or vaccines against SARSCoV, MERS-CoV, and SARS-CoV-2 are lacking. However, advances in designing antiviral drugs and vaccines against several other emerging diseases will help develop suitable therapeutic agents against COVID-19 in a short time. Until then, we must rely exclusively on various control and prevention measures to prevent this new disease from becoming a pandemic for which the awareness of the public about their knowledge on its facts and prevention is the most important thing.

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ETHICS APPROVAL: Is in compliance with Ethical Standards.

Consent to Participate: All the participants had their full consent for participation in this survey.

Conflict of Interest: None

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