

Public Perceptions in Relation to the COVID-19 Outbreak - A Cross Sectional Survey

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ABSTRACT

BACKGROUND

The present study was done to evaluate the awareness and perceptions of the new coronavirus disease 2019 (COVID-19) among general population that is spreading rapidly around the world.

METHODS

This is a cross-sectional descriptive study conducted between 12th February and 11th March 2020 among 765 participants above 16 years of age in shopping malls of Jaipur, Rajasthan, using non-probability sampling technique. The study tool was interviewer administered modified pilot-tested structured questionnaire which included questions on general information, individual's awareness, perceived efficacy, perceived threat, and perceptions about preventive measures by public organizations, health agencies, and local government on COVID-19 disease.

RESULTS

Compliance with preventive measures among participants was found to be 45.88 % while 58.43% felt distressed and panicked regarding the situation of infection. Participants with rising age groups and those who were employed ($p < 0.05$), married ($p < 0.05$) showed significantly more awareness level and had positive perception in relation to the COVID-19 outbreak.

CONCLUSIONS

Despite the high positive perceptions of COVID-19 among general population, knowledge gap towards infectious disease still exist. Barriers could be addressed by raising a strong campaign that will increase awareness among community.

KEYWORDS

COVID-19, Perception, General Population

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BACKGROUND

Infectious diseases have once again emerged as a major public health challenge. The SARS epidemic of 2003 not only showed that there are new unknown viruses which can have severe health consequences, but also made clear how fast a disease can spread globally, what the societal and economic impact can be, as well as how the media may contribute to awareness and public concerns.¹ While SARS came as a surprise, since December 2019 the world is confronted with a new Corona Virus Disease 2019 (COVID-19). On 11th March, World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic.²

As on 28th March 2020, the global number of reported confirmed cases of COVID-19 stands at 5,71,678 with 26,494 deaths out of which western pacific region alone had 1,01,462 confirmed cases with 3592 deaths.³ Coronavirus is continuing its spread across the world and the number of deaths still climbing. In India as on 29th March 2020, 979 cases of COVID-19 have been reported: 931 Indian nationals and 48 foreign nationals; 87 were cured and 25 deaths reported so far. So far, 27 States/ Union Territory have detected COVID-19. The state of Rajasthan reported 54 confirmed cases, three of them got cured. Jaipur district in State of Rajasthan reported 8 positive cases.⁴

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol-based rub frequently and not touching your face.

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow). At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments. Standard recommendations to prevent infection and to slow transmission of COVID-19 include handwashing regularly with soap and water, or cleaning them with alcohol-based hand rub, avoiding close contact with people, avoiding touching our face, covering mouth and nose when coughing or sneezing, refraining from smoking and other activities that weaken the lungs, staying home and avoiding unnecessary travel.⁵

The Government of India has demonstrated strong commitment for preparedness and response to COVID-19. There is focus on point of entry screening, testing, confirmation, isolation and management of cases. The central government is working closely with the states on all aspects including contact tracing through the Integrated Disease Surveillance Programme. The WHO Country Office

for India has been working alongside Ministry of Health and Family Welfare (MoHFW), state authorities and key institutions on critical components such as surveillance, contract tracing, laboratory testing, infection prevention control, risk communications and training.⁶ India Prime Minister Narendra Modi prescribed lockdown of all State/Union Territories for containment of COVID-19 epidemic in the country for a period of 21 days with effect from 25 March, 2020. Government orders restriction on all public transport. Efforts to ensure availability of essential commodities through its uninterrupted freight services in place are carried out.⁷

As outbreaks emerge, public health agencies often implement a variety of pharmaceutical and non-pharmaceutical interventions to prevent epidemic expansion including vaccination and medical prophylaxis, hygienic precautions, school closures and other social distancing measures, voluntary isolation, travel restrictions and information campaigns to promote awareness. However, such measures require population adherence and failure to take recommended actions are often a hindrance. People tend to judge personal risk based on their impressions of overall disease prevalence and severity.⁸

Perception plays a powerful role in shaping health outcomes,⁹ when the perceived threat is sufficiently high, people take a measure that immediately affords full protection for the duration of the epidemic. Cluster of COVID-19 cases have been found in Jaipur and there is a lack of local data on perception with respect to the outbreak. This study therefore becomes important to examine the knowledge of the general population about the virus and the disease, their risk perception, their preventive behaviours and practices. Furthermore, it aims to identify the association between different sociodemographic backgrounds and the preventive behaviours. Additionally, this study was intended so that based on study findings significant information on the level of preparedness among the public and government agencies can be mapped out for improving the COVID-19 virus prevention programme.

Objectives

1. To study the awareness and perceptions of the new coronavirus disease 2019 (COVID-19) among general population that is spreading rapidly around the world.
2. To understand the association of level of perception with socio-demographic variables.

METHODS

A cross-sectional (descriptive) one-month time-based study was conducted between 12th February and 11th March 2020 before lockdown got declared by Prime Minister of India on national television on 24th March 2020. People in shopping malls were approached to undertake the survey. Given the urgency of the situation and the narrow window of opportunity to collect this type of data, we tried to approach one thousand people and seven hundred and sixty-five participants of both sexes agreed to participate using non-

probability sampling technique with non-response rate of 23.5%.

Eligible participants were 16 years of age or older. Participants were excluded if the researcher experienced communication difficulties with them or if they refused to participate in the study. As part of the formative stage of the study, it was found that participants hesitated to sign on written consent forms or for that matter any written document due to various types of inherent fears. In the interest of the study and considering paucity of time, study ethics committee was approached and an approval for informed verbal consent was taken.

The respondents were assured about the confidentiality and ethical principles that would be followed, and the background and purpose of the study was explained. A modified pilot- tested structured questionnaire was interviewer administered. It was written in Hindi language, as the majority of public would have difficulties in comprehending the English version. It consisted of three parts. The first part was general information describing the socio-demographic and medical determinants characteristic of the study subject which included gender, age, educational level, marital status, employment status, per capita income, and the presence of chronic illness.

The second part was related to the individual's awareness of COVID-19 disease indicated on a 5-point Likert scale (1. Not at all aware 2. Slightly aware 3. Somewhat aware 4. Moderately aware 5. Extremely aware). This section included questions pertaining to general information about the virus, modes of transmission, disease symptoms and people who are at higher risk due to the virus.

The third part of the questionnaire consisted on perceived efficacy of COVID-19 preventive measures, perceived threat, and perceptions about preventive measures by public organizations, health agencies and local government. The participants indicated their answers for this part on a five-point Likert scale (1 = I don't know, 2 = strongly disagree, 3 = disagree, 4 = agree and 5 = strongly agree).

Statistical Analysis

Statistical analysis will be performed using statistical software SPSS version 16. Categorical variables were expressed in actual numbers and percentages. Categorical variables were compared using Pearson's Chi-square statistics. $P < 0.05$ will be considered as statistical significance.

RESULTS

The total number of participants was 765 of whom 416 (54.37 %) were male and 349 (45.62 %) were female. The age of the participants varied from 16 to 73 years, mean age being 29 years. The maximum number of participants belonged to the age group 21-30 years 224 (29.28%) closely followed by 16 - 20 years 200 (26.14 %).

Of the total 765 participants, pre-existing morbidities recorded were: hypertension in 157 (20.52%), diabetes

mellitus in 93 (12.15%), COPD/asthma in 49 (6.40%), arthritis in 13 (1.69%), obesity and overweight in 16 (2.09%) and thyroid disease in 18 (2.35 %).

The primary source of knowledge was print media [newspapers/ magazines] 648 (84.70%). This was followed by television 626 (81.83%), colleagues/ friends/ relatives 436 (57%), other sources 398 (52%) which include parents, internet, and radio and lastly combinations of different sources 682 (89.15%).

Modes of COVID-19 Virus Transmission

Majority of participants 664 (86.79 %) had known at least one correct mode of transmission. The prevalence of identifying modes of transmission of the virus was as follows:

- Close contact with infected person who is coughing and sneezing – 643 (84.05%)
- Contaminated surfaces such as tables and door handles – 564 (73.72 %)
- Spread from products, letters or packages from China – 235 (30.71 %)
- Transmitted through insect bites –208 (27.18%)
- Spread through pets at home –197 (25.75%)

A high percentage of the participants 272 (35.55%) had at least one of the fore mentioned misconceptions 301 (39.34% with ≥ 2 misconceptions). The misconception which prevailed in the mind of the participants was like COVID-19 virus spreading through unclean surroundings, houseflies, eating Chinese or unnatural food like bats, insects, snakes, etc, and drinking contaminated unclean water.

COVID-19 Disease Symptoms

The majority of participants 602 (78.69%) correctly indicated that COVID-19 symptoms are similar to that of seasonal influenza.

Individuals at Higher Risk Due to COVID-19 Virus Disease

Most of the participants correctly identified the individuals at higher risk of serious complications due to COVID-19 such as children, old persons, persons suffering from heart and lung diseases –406 (53.07%). Myth prevailed among people that lean persons – 229 (29.93%) and those who fast frequently –138 (18.03%) are considered as high-risk individuals whom complication due to COVID-19 can occur.

Prevalence, and Perceived Effectiveness of COVID-19 Preventive Measures

The average compliance with preventive measures among participants assessed by parameters such as maintaining safe distance from person suffering from respiratory disease, wearing face mask, avoiding going to crowded public places like cinema halls, fairs etc. was 351 (45.88%). Most of the participants agree to consult a doctor immediately if they

develop flu like symptoms 537 (70.19%). A high percentage 554 (72.41%) think of taking antibiotics and 438 (57.25%) would like to take home remedies. A negative attitude was seen in 380 (49.67%) who were not willing to comply with quarantine procedures in case if they become infected.

Perceived Threat of COVID-19 Pandemic

About 584 (76.33%) of the participants thought there will be a sharp increase in the number of COVID-19 cases in India in the next six months. Many of the respondents 463 (60.52%) did not perceive themselves to be at risk of infection as many of them 366 (47.84%) feel outbreaks occur during winters and transmission ends with the advent of summer. Furthermore, 413 (53.98%) of the participants could not predict if a new emerging or re-emerging disease will occur in the next five years. 447 (58.43%) of the participants felt distressed and panicked regarding the situation of infection in India. 734 (95.94%) participants indicated that the COVID-19 pandemic had no impact on their daily life activities; however, 571 (74.64%) participants felt that it will affect India's economy. Four hundred and eighty-three (63.13%) believed in the conspiracy theory that international pharmaceutical companies are responsible for the pandemic.

Perceptions about Preventive Measures Taken Public Organizations and Agencies

Most of the participants 520 (67.97%) thought positively about the performance of the local health authorities in terms of the preventive measures applied to control COVID-19 infection. Overall, participants who were employed ($p < 0.05$) and married ($p < 0.05$) had significantly more positive perception towards the performance of the governmental and public organizations regarding COVID-19 pandemic. Moreover, the knowledge and perception improved with rising age group.

DISCUSSION

With the current outbreak of COVID-19 and in the absence of a vaccine at present, the only way to contain the virus is to get people around the world take precautionary measures. In a special editorial in the latest issue of the International Journal of Behavioural Medicine, Johannes Brug, Arja Aro, and Jan Hendrik Richardus show that there are three key parameters that convince people to take precautions. Firstly, they need to be aware of the risk to them. Secondly, they need to believe that effective protective actions are available and have confidence in them. Lastly, communications about risk need to be carefully managed so that they express the actual risk accurately to prevent mass scares.¹⁰

The entertainment zones in malls have become a favourite hangout for families willing to spend quality time together. About half of the participants are in the twenties as the study was conducted in malls where mainly

youngsters visit not only for shopping but chilling out with friends.

Majority of the participants had sufficient knowledge of the mode of spread of COVID-19. It is important as this knowledge will protect them and help prevent the spread of illnesses.¹¹ Understanding the infectious cycle is critical in order to identify accessible targets for control strategies, for example, direct person-to-person transmission may be inhibited by proper hygiene and sanitary conditions as well as education.¹²

However important knowledge gaps remain. For instance, misconception prevails like many people view goods from China as potential source of infected material. Thus, by raising public awareness, we can dispel some of these misconceptions.

Majority of participants felt symptoms of COVID-19 was more or less similar to seasonal influenza, finding which was consistent with reports from medical website.¹³

Essam Janahi in his study on swine flu observed that majority of participants found symptoms of swine flu similar to those of seasonal influenza.¹⁴ As we are probably first kind to study on the perception aspect of COVID-19, findings from similar other studies could not be made out.

Majority of participants rightly felt that people at extreme ends of life, those suffering from major systemic ailments are vulnerable to infection. However, some wrongly perceived that lean persons and persons who regularly underwent fasting are prone to catching the infection. This type of thinking could be attributed to overweight or obesity being considered as sign of health and prosperity in India.

It can well be postulated that as the number of cases goes up, it will create more panic and distress among people resulting in greater adoption of preventive measures by them. General public are not able to differentiate the type of infectious agent causing illness. There is a myth that antibiotics help to cure any respiratory infection. This leads to irrational antibiotic use especially if the sick patient doesn't visit the doctor which might cause more harm. Different studies have shown that 4.9% to 38.1% agreed to take antibiotics for speedy recovery.¹⁵

Many of the participants consider draconian measure of involuntary quarantine as unnecessary. Threats of involuntary quarantine often looks a lot like blaming the victim: punishing people for getting sick or treating people like criminals, not participants. That makes the target of disease-control efforts a person— instead of a pathogen. But when individuals are viewed as potential threats to public health, they may feel unfairly attacked and stigmatized.¹⁶

Significant number of participants foresees a sharp increase in the number of COVID-19 in the next couple months in India which appears to be valid. While India's numbers look tiny against a population of 1.3 billion, the World Health Organization has warned that new cases are appearing faster outside China than those within the country where the virus originated. India is cause for particular worry because of the density of its population, patchy health-care system and high rate of migration: 420 people live on each square kilometre (about 0.4 of a square mile), compared with 148 per square kilometre in China.¹⁷

In February 2020, the US President Donald Trump claimed in his speech that the new COVID-19 disease would go away by April as the rising temperatures would kill the virus. Ever since he made this claim, the debate over the role of weather in the spread of the epidemic has dominated the public discourse. India has fortunately seen a fewer number of confirmed cases of COVID-19, despite being the neighbour of the epicentre of the outbreak, China. Not just the present COVID-19 outbreak, even the earlier epidemics like MERS, SARS, Ebola and yellow fever, which killed thousands across Asia, America and Africa, had a minimal impact in India. Therefore, scientists suggest that the viral infections of this category may not spread as rapidly in India as they did in countries with colder climate as high temperature and humidity could be making it difficult for viruses to survive and remain potent.¹⁸

Although seasonality is one of the most familiar features of viruses, it is also one of the least understood. Indoor crowding during cold weather, seasonal fluctuations in host immune responses, and environmental factors, including relative humidity, temperature, and UV radiation have all been suggested to account for this phenomenon, but none of these hypotheses has been tested directly.¹⁹

Lion's share of participants could not predict future trend of new emerging infectious disease. India, being a country of extreme geo-climatic diversity, faces a constant threat of emerging and re-emerging viral infections of public health importance. There is a need for strengthening disease surveillance in the country focusing on the epidemiology and disease burden.²⁰

Large bulk of participants expressed panic and distress due to spread of COVID-19. This could be in part due to the bombardment of information on social media.²¹ Majority of participants (96%) declared that COVID-19 did not affect their daily life routine as study data was collected before the Indian Prime Minister declaring on 23rd March 2020 giving just 4 hours' notice period, that no one could leave home for 21 days — the most severe step taken anywhere in the war against the coronavirus. As coronavirus spreads across the world, India has to brace itself for an impact on public health and the economy.²² A UN report estimated a trade impact of USD 348 million on India due to the outbreak, making India one of the 15 worst affected economies across the world.²³ Asian Development Bank estimated that the outbreak could cause losses of up to USD 29.9 billion to India's economy.²⁴

On 12 March, Indian stock markets suffered their biggest single day collapse since June 2017 after WHO's declaration of the outbreak as a pandemic.²⁵ Even as the Indian economy strives to recover from a slowdown, the COVID-19 outbreak has further hit the possibility of revival given the negative impact on the various sectors of the economy like industry, stock and currency market.²⁶ On the other hand, Pankaj Bobade, Head- Fundamental Research, Axis Securities feels Indian economy would benefit from the outbreak as it would be benefiting from a fall in global crude prices, shift in supply chains away from China and fall in US Treasury bond yields.²⁷

For the moment, however, the bottom line is that we must fight the epidemic first, and then worry about the economy.²¹ There is a positive perception towards the

performance of the governmental and public organizations. The public acknowledges the role government is playing in managing the crisis. Places of mass gatherings like cinema theatres, malls, marriage halls, pubs, music fests, marathons, night-clubs have been closed.⁶ The government has ordered all telecom firms to make a 30-second audio clip on corona virus as a caller tune of mobile phone users to create awareness among masses about the epidemic-an order that state-owned BSNL and private service provider Reliance Jio have fully complied.²⁸

Community surveillance, quarantine, isolation wards, adequate personal protective equipment's, trained manpower, rapid response teams are being strengthened further in all States and UTs. All in coming travellers, including Indian nationals, arriving from or having visited China, Italy, Iran, Republic of Korea, France, Spain and Germany after 15 February 2020 will be quarantined for a minimum period of 14 days.

Limitations of the Study

Prior instructions were given to the participants as to how to answer the questionnaires. In spite of the efforts, understanding the questionnaire by all participants was doubtful as some were from non-Hindi medium background. This might have led to wrong selection of answer. Moreover, participants might have unwillingness to provide honest answers stemming from their natural desire to provide socially acceptable answers in order to avoid embarrassment or please the investigator conducting the study. Due to small sample size and different socio- demographic status, this study cannot be generalized to entire India.

CONCLUSIONS

This study serves as a reminder that a knowledge gap toward infectious disease still exists. Myths should be systematically studied and awareness should be guided specifically in different areas. Health workers and media have a great responsibility in involving public opinion on this important issue. Our article will explore the future requirements for more targeted education and research among general population worldwide.

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