



**KNOWLEDGE AND AWARENESS OF GENERAL POPULATION DURING COVID-19:
A CROSS SECTIONAL SURVEY BASED STUDY**

*Suhani Agarwal¹, Dr. Anant Patil² and Dr. Vaishali Thakare³

¹Nandita Hostel, D. Y. Patil University Navi Mumbai Maharashtra India 400706.

²Asst. Professor, Department of Pharmacology, Dr. DY Patil Medical College, Navi Mumbai.

³Associate Professor, Department of Pharmacology, Dr. DY Patil Medical College, Navi Mumbai.

*Corresponding Author: Suhani Agarwal

Nandita Hostel, D. Y. Patil University Navi Mumbai Maharashtra India 400706.

Article Received on 20/02/2021

Article Revised on 10/03/2021

Article Accepted on 30/03/2021

ABSTRACT

Objective: To evaluate knowledge and awareness about Coronavirus Disease (COVID-19) **Material and Methods:** In this cross sectional study, a pre-tested questionnaire comprising of questions related to knowledge and awareness about COVID-19 was administered adult people in India. **Results:** A total of 241 people (mean age 30.45 years; 56.85% male) participated of whom 214 (88.80%) were aware that COVID-19 is a primarily respiratory illness and 237 (98.34%) were aware about spread of corona virus from person to person. A total of 235 (97.51%) were aware that recovery is possible from COVID-19 and 225 (93.36%) were aware that there is no vaccine for protection against it. A total of 221 (91.70%) participants mentioned that coronavirus can spread by coughing, sneezing as well as touching the contaminated objects. According to 221 (91.70%) participants, person with positive test for corona virus is a confirmed case and 189 (78.42%) reported that patient having positive rest for coronavirus but no symptoms are asymptomatic carrier. According to 223 (92.53%) elderly people are at higher risk of developing more complications due to COVID-19. According to 239 (99.17%) participants washing hand with soap and water for ≥ 20 seconds and avoiding close contact with sick people is important for prevention of spread of virus. According to 210 (87.14%), mask helps in protection of self and others. According to 180 (74.69%) participants lockdown is useful for breaking chain of transmission of virus. **Conclusion:** Knowledge and awareness about most of the aspects of COVID-19 disease is good among the study participants.

KEYWORDS: Awareness, COVID-19, knowledge.

INTRODUCTION

Coronaviruses (CoVs) are group of RNA viruses. Severe acute respiratory syndrome (SARS)-like CoVs i.e. namely SARS-CoV and Middle-East respiratory syndrome coronavirus (MERS-CoV) can cause fatal outbreaks.^[1] In the past SARS-CoV and the MERS-CoV have affected humans.^[2] Now, it is severe acute respiratory syndrome-coronavirus-2 (SARS-CoV) has affected human causing coronavirus disease-19 (COVID-19) and it has spread worldwide. It appears that the disease started with a single animal-to-human transmission which then followed by sustained human-to-human spread.^[3]

The coronavirus causing COVID-19 can spread from person to person. Symptoms of COVID-19 can range from mild or no symptom to severe illness resulting in mortality.^[4]

A cross-sectional survey among adults with chronic conditions at the onset of the U.S. outbreak reported lack of critical knowledge about COVID-19 among many adults with comorbid conditions.^[5] Cross sectional web

based studies are conducted to know the awareness of healthcare workers.^[2,6] A study evaluated awareness among healthcare students and professionals in Mumbai metropolitan region.^[2]

Involvement of community is critical in activities for prevention of spread of infection from person to person. Government of India and respective state governments have taken several initiatives to increase awareness about COVID-19 to prevent the spread of disease. Some of the important initiatives include awareness message on the mobile phone, awareness campaigns in social and print media. Timely understanding knowledge and awareness of people is important because measures can be taken if there are some misconceptions or lack of knowledge among people. However, there is limited published literature about the impact of these initiatives on knowledge and awareness about COVID-19 in Indian population.

OBJECTIVE

The objective of this study was to evaluate knowledge and awareness about Coronavirus Disease (COVID-19) in general population in India.

MATERIAL AND METHODS

In this cross sectional study, a pre-tested questionnaire comprising of questions related to knowledge and awareness about COVID-19 was administered to English speaking adult people more than 18 years of age.

Demographic details and responses to questions related to country in which disease was first reported, spread of virus, risk factors for complications, precautions to be taken for avoiding acquisition of virus and spread of disease were collected. Responses were collected from participants of both gender and people from different professions. The study was approved by Institutional Ethics Committee.

Statistical analysis

Continuous data are presented as mean and standard deviation whereas categorical data are presented as frequency and percentages.

Table 1: Baseline characteristics.

Parameter	Result
Age	
Mean (SD) in years	30.45 (14.95)
Range	13-71
Median (IQR)	22 (20-40)
Gender	
Male	137 (56.85%)
Female	104 (43.15%)
Residence	
Rural	021 (8.71%)
Semi-urban	048 (19.92%)
Urban	172 (71.37%)
Education	
Up to 10 th	007 (2.90%)
Up to 12 th	062 (25.73%)
Graduate	137 (56.85%)
Post-graduate	035 (14.52%)
Occupation	
Student	134 (55.60%)
Self employed	055 (22.82%)
Private sector	025 (10.37%)
Public sector	009 (3.73%)
Homemaker	009 (3.73%)
Other	009 (3.73%)
Profession related to healthcare/essential services	
Healthcare workers	
Medical student	042 (17.43%)
Involved in essential services during COVID-19 lockdown	106 (43.98%)
	075 (31.12%)

A total of 240 (99.59%) study participants were aware that first case of COVID-19 was detected in China. A total of 214 (88.80%) study participants were aware that COVID-19 is a primarily respiratory illness whereas 20 (8.30%) were not aware about it (Figure 1). A total of 237 (98.34%) study participants were aware about spread of Corona virus from one person to another person. Only 2 (0.83%) were not aware that it can spread from person to person whereas other 2 (0.83%) participants were not

RESULTS

In this study, a total of 241 participants with mean age of 30.45 years were involved. A total of 137 (56.85%) males participated in this study. Participants from urban, semi-urban and rural areas were 172 (71.37%), 048 (19.92%) and 021 (8.71%) respectively.

In terms of education, a total of 137 (56.85%) participants in the study were graduates whereas 35 (14.52%) were post-graduates. Students comprised of 134 (55.60%) of the study population and medical students were 106 (43.98%) in number. Other demographic details of study participants are given in table 1.

sure about the answer (Figure 1). A total of 235 (97.51%) study participants were aware that recovery is possible from COVID-19. A total of 225 (93.36%) participants were aware that currently there is no vaccine available for prevention of COVID-19 (Figure 1).

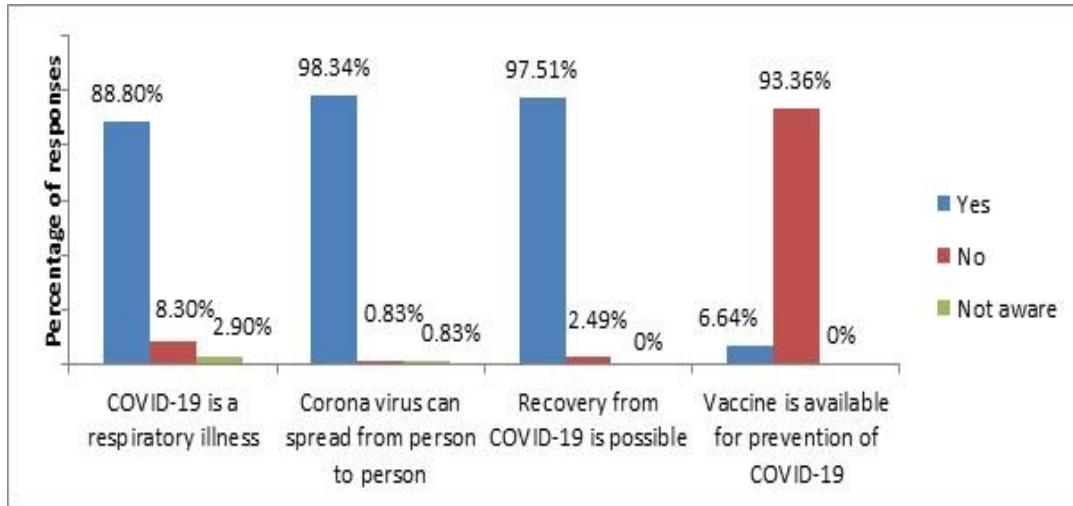


Figure 1: Awareness of people about COVID-19 and corona virus.

A total of 221 (91.70%) participants mentioned that coronavirus can spread by coughing sneezing as well as touching the contaminated objects. Ten participants reported that virus can spread by coughing and sneezing whereas six (2.49%) participants mentioned that it can spread by touching the contaminated objects. Only three (1.24%) participants were not aware about any mode of virus transmission. According to 221 (91.70%) participants, person with positive test for corona virus is

a confirmed case. A total of 101 (41.91%) and 64 (26.56%) participants said that person with fever and cough and person who has travelled outside India respectively is a confirmed case of COVID-19. According to 29 (12.03%) person with negative test but having respiratory symptoms can be asymptomatic carrier whereas 189 (78.42%) reported that patient having positive rest for coronavirus but no symptoms are asymptomatic carrier (Table 2).

Table 2: Awareness about spread of virus and COVID-19 cases.

Awareness	Result
Spread of coronavirus	
Touching the objects	006 (2.49%)
Coughing and sneezing	010 (4.15%)
Both	221 (91.70%)
Do not know	003 (1.24%)
Confirmed case	
Person with fever and cough	101 (41.91%)
Patient with positive test	221 (91.70%)
Person who has travelled outside India	064 (26.56%)
Asymptomatic carrier	
Person with negative test but having respiratory symptoms	029 (12.03%)
Positive test but no symptoms	189 (78.42%)
Both	023 (9.54%)

According to 223 (92.53%) study participants elderly people are at higher risk of developing complications due to COVID-19. A total of 186 (77.18%) participants reported that people with comorbidities of diabetes and hypertension are more at risk for developing complications. Percentage of participants reporting other high risk population for developing complications are shown in figure 2.

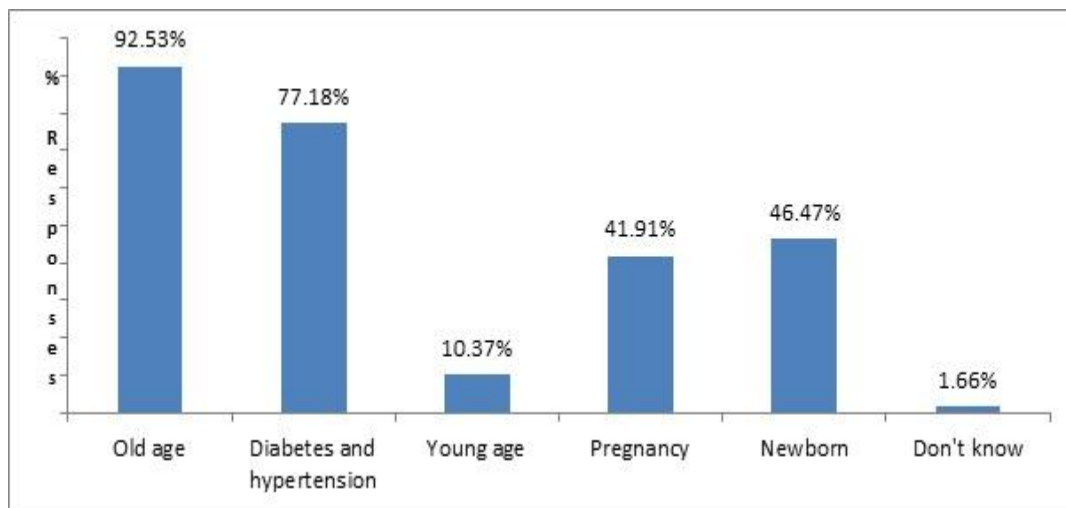


Figure 2: Percentage of responses for risk factors for COVID-19 related complications.

A total of 239 (99.17%) participants mentioned that washing hand with soap and water for at least 20 seconds and avoiding close contact with sick people is important for prevention of acquisition of virus and its spread. According to 210 (87.14%) study participants, wearing

mask can help protection of self as well as others (Table 3). A total of 180 (74.69%) participants reported that lockdown is useful for breaking the chain of transmission of virus whereas according to 123 (51.04%) participants lockdown helps to avoid travel to red zones.

Table 3: Awareness about precautions to prevent acquisition of virus and its spread.

Awareness/perceptions	Result
Precautions	
Avoid close contact with sick people	001 (00.41%)
Wash your hands with soap and water for at least 20 sectors	001 (00.41%)
Both of the above	239 (99.17%)
Reason for wearing mask	
To protect self	023 (9.54%)
To protect others	008 (3.32%)
To protect both	210 (87.14%)
Reason for lockdown	
Break the chain of virus transmission	180 (74.69%)
People do not travel to red zones	123 (51.04%)

DISCUSSION

In this cross-sectional, questionnaire based study, we evaluated knowledge and awareness of general population regarding COVID-19. Overall, knowledge and awareness about COVID-19 among study population was satisfactory. An outbreak of pneumonia with unknown etiology was reported in late 2019 in Wuhan, Hubei province, China.^[7,8] The pathogen causing this pneumonia was named as 2019 novel coronavirus. In our study, almost all study participants were aware that the outbreak originated in China.

Confirmed case is defined as a person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.^[9,10] In our study, 91.70% participants were aware about this. However, there are some misconceptions among people about confirmed case. Educational activities are important to improve awareness of people about it.

The disease can spread by close contact with a person having COVID-19. The virus spreads from person to person via respiratory droplets through cough or sneezes or talk by an infected person. It can also be transmitted by touching contaminated surface or object having virus on it and touching mouth, nose or eyes.^[4] In our study most of the participants were aware of spread via coughing, sneezing and touching the objects.

Being a communicable disease, its prevention is utmost important to avoid its widespread. In this COVID-19 pandemic, vaccination is the best measure to prevent an infection. Effective vaccine against SARS-CoV-2 can help to reduce the morbidity, mortality and economic impact associated with it.^[11] People are looking forward to receive vaccine when it is available,^[12] but today, there is no vaccine for prevention of COVID-19.^[4,13] This was known to most of the participants in our study. In the absence of vaccine, other preventive measures are the

current approach for restriction of disease transmission.^[13] These protective measures include hand hygiene, social distancing and wearing masks. Recommendations for use of face masks differ from country to country and its use increases with beginning of local epidemic.^[14] Mask wearing by people in the community may contribute in spread of infection by reducing exposure to infected saliva and respiratory droplets from people with subclinical or mild infection.^[15]

An online cross-sectional survey from China during COVID-19 outbreak also reported good knowledge score and precautionary practices such as wearing a mask while going out and not visiting crowded places during by the residents.^[16] Similarly, in our study also we observed good knowledge about the preventive practices such as avoiding close contact with sick people and hand hygiene. The responses in our study also suggest that importance of wearing mask while going out during COVID-19 pandemic is understood by people.

SARS-CoV and MERS-CoV have been known to affect human.^[2] Assessment of the awareness toward Middle East Respiratory Syndrome-coronavirus showed good knowledge among dental colleges in Jeddah.^[17] Another questionnaire based study in relation to the MERS-CoV pandemic reported utilization of precautionary measures by majority of the participants.^[18] A study among healthcare students and professionals in Mumbai metropolitan region reported adequate awareness about COVID-19.^[2] Our study also involved 17.43% healthcare workers and 43.98% medical students. Awareness observed in our study could be related to constant exposure to the information related to COVID-19 during discussions and in media or literature. Most of the activities are halted over last two months and people are confined mostly to their homes. During this time, there is constant exposure to information about COVID-19 through social media or television. Improved awareness about the disease may be result of several government initiatives and campaigns as well as news related to corona virus on television or self-reading by the people.

Elderly with underlying comorbidities are more likely to develop severe infections. Outcome of the disease may be correlated with age and disease severity. The awareness of higher risk of complications in elderly and those with diabetes and hypertension was observed in majority of participants in our study.^[19] Asymptomatic carriers can be a source of COVID-19 infection for the community.^[20] In our study majority of participants were aware about meaning of asymptomatic carrier. However, some people were not aware about the definition. Educational interventions are required for improvement of awareness.

Lock down in one of the measures to reduce the spread of virus.^[21] In our study almost two third participants

opined that lock down is useful for breaking the chain of virus transmission. Close to half of the participants also reported that aim of lockdown is to prevent traveling of people to red zones.

Although awareness about spread and preventions seems satisfactory, increase in awareness about meaning of confirmed cases and asymptomatic carriers of COVID-19 is required.

Cross-sectional study with small sample size selected by convenience sampling method is major limitation of our study. Larger studies are required for confirmation of our observations.

CONCLUSION

Knowledge and awareness about COVID-19 disease including spread and precautions for its prevention is good among the study participants. Improvement in awareness related to confirmed cases and asymptomatic carrier are required.

REFERENCES

1. Raoult D, Zumla A, Locatelli F, Ippolito G, Kroemer G. Coronavirus infections: Epidemiological, clinical and immunological features and hypotheses. *Cells Stress*, 2020 doi: 10.15698/cst2020.04.216
2. Modi P D, Nair G, Uppe A, et al. COVID-19 Awareness Among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. *Cureus*, 2020; 12(4): e7514. DOI 10.7759/cureus.7514
3. Meng L, Hua F, Bian Z. Coronavirus Disease 2019 (COVID-19): Emerging and future challenges for dental and oral medicine *Journal of Dental Research*, 2020; doi 10.1177/0022034520914246
4. CDC. What you should know about COVID-19 to protect yourself and others. Available at <https://www.cdc.gov/coronavirus/2019-ncov/downloads/2019-ncov-factsheet.pdf> Accessed on 26th May 2020.
5. Wolf MS, Serper M, Opsasnick L, O'Connor RM, Curtis LM, Benavente LY, et al. Awareness, attitudes, and actions related to covid-19 among adults with chronic conditions at the onset of the U.S. outbreak A cross-sectional survey. *Ann Intern Med*. 2020; doi:10.7326/M20-1239
6. Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Knowledge and perceptions of COVID-19 among health care workers: Cross-sectional study. *JMIR Public Health Surveill*, 2020; 6(2): e19160.
7. Su L, Ma X, Yu H, Zhang Z, Bian P, Han Y, et al. The different clinical characteristics of corona virus disease cases between children and their families in China – the character of children with COVID-19. *Emerging Microbes & Infections*, 2020; 9: 707-13.
8. Harapan H, Itoh N, Yifika A, winardi W, Keam S, Te H, et al. Coronavirus disease 2019 (COVID-19):

- A literature review. *Journal of Infection and Public Health*, 2020; 13: 667–673.
9. WHO. Coronavirus disease 2019 (COVID-19) Situation Report – 56. Available at https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200316-sitrep-56-covid-19.pdf?sfvrsn=9fda7db2_6 Accessed on 26th May 2020
 10. WHO. Coronavirus disease 2019 (COVID-19) Situation Report – 66. Available at https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200326-sitrep-66-covid-19.pdf?sfvrsn=9e5b8b48_2 Accessed on 26th May 2020
 11. Ella KM, Mohan VK. Coronavirus vaccine: Light at the end of the tunnel. *Indian Pediatr*, 2020; 57: 407-410.
 12. Abdelhafiz AS, Mohammed Z, Ibrahim ME, Ziady HH, Alorabi M, Ayyad M. Knowledge, perceptions, and attitude of egyptians towards the novel coronavirus disease (COVID-19). *Journal of Community Health* 2020 <https://doi.org/10.1007/s10900-020-00827-7>
 13. Beiu C, Mihai M, Popa L, et al. (April 02, 2020) Frequent Hand Washing for COVID-19 Prevention Can Cause Hand Dermatitis: Management Tips. *Cureus*, 12(4): e7506. DOI 10.7759/cureus.7506
 14. Feng S, Shen C, Xia N, Song W, Fan M, Cowling MJ. Rational use of face masks in the COVID-19 pandemic. *The Lancet*, 2020; 8: 434-6.
 15. Kharma MY, Alalwani MS, Amer MF, Tarakji B, Aws G. Assessment of the awareness level of dental students toward Middle East Respiratory Syndrome-coronavirus. *J Int Soc Prev Community Dent*, 2015; 5: 163-69.
 16. V.C.-C. Cheng, S.-C. Wong and V.W.-M. Chuang et al., The role of community-wide wearing of face mask for control of coronavirus disease 2019 (COVID-19) epidemic due to SARS-CoV-2, *Journal of Infection* 2020 <https://doi.org/10.1016/j.jinf.2020.04.024>
 17. Zhong B-L, Lou W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int. J. Biol. Sci.*, 2020; 16: 1745-52.
 18. Kharma MY, Alalwani MS, Amer MF, Tarakji B, Aws G. Assessment of the awareness level of dental students toward Middle East Respiratory Syndrome-coronavirus. *J Int Soc Prev Community Dent*, 2015; 5: 163-69.
 19. Almutairi KM, Al Helih EM, Moussa M, Boshaiqah AE, Alajilan AS, Vinluan JM, Almutairi A. Awareness, Attitudes, and Practices Related to Coronavirus Pandemic Among Public in Saudi Arabia. *Fam Community Health*, 2015; 38: 332-40.
 20. Lai C-C, Liu YH, Wang C-Y, Wang Y-H, Hsueh S_C, Yen M-Y, et al. Asymptomatic carrier state, acute respiratory disease, and pneumonia due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2): Facts and myths, *Journal of Microbiology, Immunology and Infection*, <https://doi.org/10.1016/j.jmii.2020.02.012>
 21. Yu X, Yang R. COVID-19 transmission through asymptomatic carriers is a challenge to containment. *Influenza Other Respi Viruses*, 2020; DOI: 10.1111/irv.12743
 22. Jribi S, Ismail HB, Doggui D, Debbabi H. COVID-19 virus outbreak lockdown: What impacts on household food wastage? *Environment, Development and Sustainability* <https://doi.org/10.1007/s10668-020-00740-y>