Google Knowledge and Awareness of COVID-19 Among the General Public - A Questionnaire Survey

Anu Iswarya Jaisankar, L. Keerthi Sasanka, Venkatesh Kommi, D. Ezhilarasan

Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences [SIMATS], Saveetha University, Chennai - 600077, Tamilnadu, India;

ABSTRACT

Background: COVID-19 pandemic is a dreadful pandemic that has spread worldwide. COVID-19 pandemic has affected more than 188 countries and territories across the globe. Coronaviruses are a family of enveloped, single-stranded, positive-strand RNA viruses classified within the nidovirales order. The underlying biological mechanisms and functional constraints that determine the evolution and conservation of the unique activities of the virus remains to be elucidated. Researchers are testing a variety of possible approaches and treatment methodologies for eradicating this novel coronavirus. No antibiotics are effective against the virus. No medication is currently available that can be recommended to treat COVID-19 and is, therefore, no cure available. We all know that Prevention is always better than cure. But in this case, Prevention is the only option left.

Aim: The aim of the current study is to measure the knowledge and awareness of COVID-19 among the people residing in the locality of Chennai and to provide detailed statistical data.

Methodology: A survey had been conducted among 115 people residing in the locality of Chennai. A survey questionnaire had been used to collect data from the people. An online survey platform “Google forms” had been used for this purpose. The questionnaire comprised of 24 questions. The questionnaire had been distributed through digital platforms and the answers were recorded. SPSS Software had been used in the analysis and the results are described in pictorial charts.

Results: The results show that about 82.57% of the study population had complete knowledge and awareness on the symptoms of the COVID-19 infection and the precautionary measures that help in preventing the infection. The results also show that females have higher knowledge and awareness of the ongoing pandemic than males.

Conclusion: From our study, we can conclude that the people of Chennai have got significant knowledge and awareness of the COVID-19 pandemic. Educational Interventional Programs can be conducted to enhance the knowledge and awareness of the people.

Key Words: COVID-19, Knowledge, Awareness, Coronavirus, Virus, Immunity

INTRODUCTION

The great thing that shook the whole world of 2020 is the coronavirus pandemic. COVID-19 pandemic is a dreadful ongoing pandemic that has spread worldwide. The pandemic has terribly affected people residing over more than 188 countries and territories. As of May 2020, more than 4.68 million cases of COVID-19 have been reported resulting in more than 3,13,000 deaths. Corona viruses are members of enveloped, single-stranded, positive-strand RNA virus family classified within the nidovirales order. Six coronavirus species are known to cause diseases in humans. 229E, OC43, NL63, and HKUI are the four viruses that are prevalent and cause common cold symptoms in immunocompetent people. There exist two more strains termed as severe acute respiratory syndrome coronavirus (SARS-CoV) and...
the other was Middle East respiratory syndrome coronavirus (MERS-CoV)\textsuperscript{5}. They are zoonotic in origin and have been linked to fatal illness. SARS-CoV was responsible for severe acute respiratory syndrome outbreaks in 2002 and 2003 in Guangdong province, China\textsuperscript{6}. SARS-CoV virus had been first identified in 2002\textsuperscript{6}. SARS-CoV likely originated in wild bats. Then they were known to spread to palm civets and similar mammals\textsuperscript{7}. The virus then mutated and adapted itself in these animals until it eventually infected humans. SARS had spread to more than 24 countries until health authorities worldwide had managed to contain it\textsuperscript{6}. Between November 2002 to July 2003, there were 8,098 cases worldwide and 774 deaths recorded\textsuperscript{8}. SARS-CoV had been added to the national select agent registry. It regulates the handling and possession of viruses, bacteria, or toxins that have the ability to pose a severe threat to public health and safety\textsuperscript{7}. The SARS outbreak control solely owes to the usage of public-health measures, such as wearing surgical masks, washing hands, maintaining proper self-hygiene, and isolation of infected patients\textsuperscript{8}. As history repeats itself, several local health facilities had reported clusters of patients with pneumonia of unknown cause, epidemiologically linked to sea food and wet animal wholesale market in Wuhan, Hubei province, China in late December 2019\textsuperscript{9}. The virus had been provincially named as COVID-19 by WHO\textsuperscript{10}. Later, the International Committee on Taxonomy of virus announced “Severe acute respiratory syndrome coronavirus-2” (SARS-CoV-2) as the name of the novel coronavirus on 11 February 2020\textsuperscript{11}. Phylogenetic analysis of the novel coronavirus indicated that it is different (~80% nucleotide identity) but related to SARS-CoV virus\textsuperscript{12}. The viral infection had been estimated to have a mean incubation period of about 6.4 days and a basic reproduction number of 2.24-3.58\textsuperscript{13}. The common symptoms of the virus are fever, cough, fatigue, and shortness of breath\textsuperscript{14}. The symptoms may develop into more complicated pneumonia and acute respiratory distress syndrome\textsuperscript{15}. Bilateral lung involvement with ground-glass opacity was the most common finding from computed tomography images of the chest\textsuperscript{16}. The extraordinary size of the coronavirus replicase (poly) proteins, their generally large phylogenetic distance from those of other RNA viruses, and the presence of several predicted RNA processing activities that are not found in other positive-strand RNA viruses indicate that coronavirus replicas are of an unparalleled complexity\textsuperscript{17}. The precise strategy used by the virus for genome replication is not yet known\textsuperscript{18}. The underlying biological mechanisms and functional constraints that determine the evolution and conservation of these unique activities remain to be elucidated\textsuperscript{19}. On that note, researchers are testing a variety of possible approaches and treatment methodologies for eradicating this novel coronavirus. No antibiotics are effective against the virus. No medication is currently available that can be recommended to treat COVID-19 and is, therefore, no cure available\textsuperscript{20}. We all know that prevention is always better than cure. But in this case, prevention is the only option left. Authorities worldwide have responded by implementing travel restrictions, lockdowns, workplace hazard controls, and facility closures\textsuperscript{21}. Recommended preventive measures include hand washing, covering one’s mouth while sneezing and coughing, maintaining social distance, wearing gloves and face masks in public settings, monitoring, and self-isolation of infected people\textsuperscript{22}. Speaking about the terms, knowledge, and awareness, they may sound similar but they are not. Knowledge is a remembrance of facts, information and skills acquired through experience or education\textsuperscript{23}. Awareness is perceiving, knowing, feeling, or being conscious of events, objects, thoughts, emotions, or sensory patterns\textsuperscript{24}. In simple words, knowledge is the fact and awareness is the perception of the knowledge and usage of that knowledge in practical life\textsuperscript{25}. The knowledge and awareness of COVID-19 play a very crucial role in restricting the spread of the infection. As the previous similar outbreaks of 2003 were controlled mainly by preventive measures, as we said earlier. A survey had been conducted among 115 people residing in the locality of Chennai.\textsuperscript{26} It is quickly becoming the number one tool that market researchers use to gather data\textsuperscript{27}. It is the most convenient form of collecting data\textsuperscript{28}. It is cost-effective\textsuperscript{29}. It provides high representativeness\textsuperscript{30}. It has also got good statistical significance\textsuperscript{31}. But it has also got some disadvantages\textsuperscript{32}. The interpretation and analysis issues can be time-consuming for the respondents\textsuperscript{33,34}. So, the current study aims to measure the knowledge and awareness of COVID-19 among the people residing in the locality of Chennai and to provide detailed statistical data.

**MATERIALS AND METHOD**

A survey had been conducted among 115 people residing in the locality of Chennai. A survey questionnaire had been used to collect data from the people. Google forms software had been used for this purpose. The Questionnaire link has been enclosed here https://docs.google.com/forms/d/e/1FAIpQLScIr8rXbqN0_XhmMWCTZ7Sny9i0pSrDGrynjTyBxmQDWvmlyxA/viewform?usp=sf_link. The questionnaire comprised 24 questions. The questionnaire had been distributed through digital platforms and the answers were recorded. The ethical clearance was obtained from Institutional Review Board, the IEC letter no: SRB/SDC/BDS/002/04.

**STATISTICAL ANALYSIS**

SPSS software had been used in analysis and the results are described in pictorial graphs.
QUESTIONNAIRE

1. Name
2. Age
3. Gender
   Male
   Female
4. Do you know that COVID-19 disease is a pandemic? (Pandemic - disease spreading world wide)
   Yes
   No
   Maybe
5. Do you think that the number of COVID-19 cases is increasing day by day?
   Yes
   No
   Maybe
6. What are the major symptoms of COVID-19?
   Fever
   Cough and sore throat
   Trouble breathing
   All the above
7. Do you think that maintaining a safe distance from anyone who is sneezing or coughing is healthy?
   Yes
   No
   Maybe
8. Do you wear gloves while going out?
   Yes
   No
   Maybe
9. Who has to wear a mask?
   Sick people
   People related to the sick
   Health care workers
   General public
   All
10. Do you wear masks while going out?
    Yes
    No
    Maybe
11. Do you maintain social distance while shopping?
    Yes
    No
    Maybe
12. Do you dispose your gloves and masks after coming home?
    Yes
    No
    Maybe
13. Do you take shower after returning home?
    Yes
    No
    Maybe
14. Do you use sanitizers or hand washes frequently?
    Yes
    No
    Maybe
15. Going out frequently is not good in this pandemic condition. Do you agree?
    Yes
    No
    Maybe
16. Touching your eyes, nose and mouth often is not good for health. Do you agree?
    Yes
    No
    Maybe
17. Who are more sensitive to this COVID-19 disease?
    Children
    Pregnant women
    Senior citizens
    All the above
18. Taking food rich in proteins and vitamins build up the Immunity. Do you agree?
    Yes
    No
    Maybe
19. Do you rinse the fruits and vegetables at least three times before taking them into your house?
    Yes
    No
    Maybe
20. Do you keep the pantry products in the sunlight for at least 2 hours before taking them into your house?
    Yes
    No
    Maybe
21. Do you cover your nose or mouth with your bent elbow or a tissue when you cough or sneeze?
    Yes
    No
    Maybe
22. Maintaining Social distance, Washing hands frequently and Following lockdown is good for health. Do you agree?
    Yes
    No
    Maybe
23. What is the best way out COVID-19?
    Panic
    Follow every information that you find on social media
    Follow lockdown and authentic information put forth by the Government
24. Have you got Arokhya setu app installed in your devices?
    Yes
    No
    Maybe

RESULTS AND DISCUSSION
Figure 1: The pie chart represents the gender of the study population. The chart shows that 31.3% of the study population is male [Blue] and 68.7% are female [Green].

Figure 2: The pie chart represents the percentage of the study population who maintain a safe distance from people who sneeze or cough. 92.2% of people have answered that they maintain the same [Blue]. 2.6% of people answered that they don’t maintain a proper safe distance [Green] while 5.2% of people were not sure [Grey].

Figure 3: Bar chart representing the association between gender and awareness on maintaining a safe distance from people who sneeze or cough. X-axis represents the gender of the respondents and Y-axis represents the number of responses on the awareness of maintaining a safe distance. From the graph, it is evident that females have higher awareness than males. However, the association between the gender and awareness on maintaining a safe distance was not significant (Chi-square test, P-value = 0.157, p<0.05, statistically not significant).

Figure 4: The pie chart represents the awareness of wearing gloves. Only 59.1% of the people have stated that they wear gloves [Blue]. 28.7% answered that they don’t wear gloves [Green] while 12.2% were not sure [Grey].

Figure 5: Shows Bar chart representing the association between gender and awareness on wearing gloves. X-axis represents the gender of the respondents and Y-axis represents the awareness of wearing gloves. From the graph, it is evident that females have higher awareness than males. Association between the gender and awareness of wearing gloves was done using the Chi-square test (p-value = 0.011) and was found to be statistically significant.

Figure 6: The pie chart represents the awareness of people on wearing face masks. The majority of the people, about 93.9% of them wear face masks [Blue] while 1.7% of people have stated that they don’t wear face masks [Green] while 4.3% of people were not sure [Grey].
The study population comprises 115 people residing in the locality of Chennai. Of the 115 people, 68.7% are females and 31.3% are males [Figure 1]. The survey was open to people of the age group of 7 - 70 years. 94.8% of the people have stated that they knew COVID-19 was a dreadful pandemic. Whereas 5.2% of the people have stated that they hear the term pandemic for the first time. This confirms that the majority of the people had awareness about a Pandemic crisis and knew that COVID-19 is a pandemic. The majority of the people i.e. 89.6% of the survey population felt that the number of COVID-19 cases is increasing day by day while 10.4% did not. Then when they were asked about the major symptoms of COVID-19, 82.6% of the re-

**Figure 7:** Shows Bar chart representing the association between gender and awareness of wearing masks. X-axis represents the gender of the respondents and Y-axis represents the awareness of wearing masks. The Graph shows that females have higher awareness than males. Association between the gender and awareness of wearing masks was done using the Chi-square test (p-value = 0.768) and was found to be statistically insignificant.

**Figure 8:** The pie chart represents the percentage of people who use hand washes and sanitizers frequently. About 82.6% of people use hand washes and sanitizers frequently [Blue]. While 6.1% don't use them frequently [Green]. 11.3% of people were not sure [Grey].

**Figure 9:** Shows Bar chart representing the association between gender and awareness of frequent usage of hand washes and sanitizers. X-axis represents the gender of the respondents and Y-axis represents the awareness of frequent usage of hand washes and sanitizers. The Graph depicts that females have higher awareness than males. Association between the gender and awareness on frequent usage of hand washes and sanitizers was done using the Chi-square test (p-value = 0.640) and was found to be statistically insignificant.

**Figure 10:** The pie chart represents awareness of self-hygiene. 88.7% of the people knew that touching one's eyes, nose and mouth frequently is not good for health [Blue]. While 2.6% didn't know the same [Green]. 8.7% of the people were not sure [Grey].

**Figure 11:** Shows Bar chart representing the association between gender and awareness of maintaining self-hygiene. X-axis represents the gender of the respondents and Y-axis represents the awareness on maintaining self hygiene. From the graph, it is evident that females have higher awareness than males. Association between the gender and awareness on maintaining self-hygiene was done using the Chi-square test (p-value = 0.722) and was found to be statistically insignificant.
A study conducted in Mumbai reports that some lack extra precautionary measures to protect themselves and their patients from the infection. Dentists had awareness of the symptoms, mode of transmission, and infection control of the novel coronavirus but the study reports that some lack extra precautionary measures to protect themselves and their patients from the infection. A study by Srikanth et al., states that there is an urgent need for educational interventions to improve the knowledge and perception of COVID-19 among the people. The study has got some limitations. The study cannot be generalized as the survey population includes only 115 people residing in the locality of Chennai. Secondly, the survey is limited to people who had smartphones or electronic gadgets and had the ability to understand English.

CONCLUSION

Within the limitations of the study, the following conclusion can be drawn that the majority of the people residing in the locality of Chennai have good knowledge and awareness of the COVID-19 pandemic.

Author contributions

Author 1 (Anu Iswarya Jaisankar), carried out the study by collecting the data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Dr. L. Keerthi Sasanka) aided in conception of the topic, has participated in the study design, statistical analysis and supervised in preparation of the manuscript. Author 3 and 4 (Dr. Venkatesh Kommi, Dr. D. Ezhilrasan) has participated in the conception of the topic, has participated in the study design and has coordinated in developing the manuscript. All the authors have discussed the results among themselves and contributed to the final manuscript.
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Conflict of interest

None declared.

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REFERENCES

1. Al-Samkari H, Karp Leaf RS, Dzik WH, Carlson JC, Fogerty AE, Waheed A, Goodarzi K, Bendapadi P, Bornikova L, Gupta S, Leaf D. COVID and Coagulation: Bleeding and Thrombotic Manifestations of SARS-CoV2 Infection. Blood. 2020 Jun 3.
2. Bersano A, Kraemer M, Touze E, Weber R, Alamowitz S, Sibon I, Panton L. Stroke care during the Covid-19 pandemic: Experience from three large European countries. European Journal of Neurology. 2020 Jun 3.
3. Girija ASS, Shankar EM, Larsson M. Could SARS-CoV-2-Induced Hyperinflammation Magnify the Severity of Coronavirus Disease (CoVID-19)? Leading to Acute Respiratory Distress Syndrome? Front Immunol. 2020;11:1206.
4. Archana R, Varadharaju B. The Corona care--Prevention is better than cure. International Journal of Research in Pharmaceutical Sciences. 2020;11(SPL1):81–5.
5. Paramasivam A, Priyadharsini JV, Raghuunandhakumar S, Elumalai P. A novel COVID-19 and its effects on cardiovascular disease. Hypertension Research. 2020 Apr 30;1:2.
6. Barrocas A, Schwartz DB, Hasse JM, Seres DS, Mueller CM. Ethical Framework for Nutrition Support Resource Allocation During Shortages: Lessons From COVID-19. Nutrition in Clinical Practice. 2020 Jun 3.
7. Mahajan C, Kapoor I, Prabhakar H. Psychological Effects of COVID-19 on Children of Health Care Workers. Anesthesia & Analgesia. 2020 Sep 1;131(3):e169-70.
8. Yang L, Liu J, Zhang R, Li M, Li Z, Zhou X, et al. Epidemiological and clinical features of 200 hospitalized patients with coronavirus disease 2019 outside Wuhan, China: A descriptive study. J Clin Virol. 2020 May 26;129:104475.
9. Gao K, Song Y-P, Chen H, Zhao L-T, Ma L. Therapeutic efficacy of Qingfei Paidu decoction combined with antiviral drugs in the treatment of coronavirus disease 2019: A protocol for systematic review and meta analysis. Medicine . 2020 May 29;29(92)(2):e20489.
10. Balasubramanian DM. COVID-19 - The New Age Pandemic. Notion Press; 2020. 128 p.
11. Liu X, Shi S, Xiao J, Wang H, Chen L, Li J, et al. Prediction of the severity of CoronaVirus Disease 2019 and its adverse clinical outcomes. Jpn J Infect Dis [Internet]. 2020 May 29.
12. Quadri MFA, Jafer MA, Alqahtani AS, Al Mutahar SAB, Odabi NI, Daghriri AA, et al. Novel coronavirus disease (COVID-19) awareness among the dental interns, dental auxiliaries and dental specialists in Saudi Arabia: A nationwide study. J Infect Public Health. 2020 Jun;13(6):856–64.
13. Mustari S, Rahman MZ. The Effect of the Corona Disaster on Women: lock down and Corona virus from the lens of Social science. SocArXiv. May. 2020 May;23.
14. Mrudula O. Impact of Corona Virus – A Statistical Evaluation [Internet]. Vol. 12, Journal of Advanced Research in Dynamical and Control Systems. 2020. p. 399–407.
15. Salem SB, Jagadeesan P. COVID-19 from Food Safety and Biosecurity Perspective. The Open Food Science Journal. 2020 Jun 2;12(1).
16. Rababand R. Understanding Coronavirus. Cambridge University Press; 2020 Jul 9.
17. Feldstein LR, Rose EB, Horwitz SM, Collins JP, Newhams MM, Son MB, Newburger JW, Kleiman LC, Heidemann SM, Martin AA, Singh AR. Multisystem inflammatory syndrome in US children and adolescents. New England Journal of Medicine. 2020 Jul 23;383(4):334-46.
18. Parikh S, Desai M, Parikh R. The Coronavirus: What you Need to Know about the Global Pandemic. Penguin Random House India Private Limited; 2020. 224 p.
19. Girija AS, Shoba G, Priyadharsini JV. Accessing the T-Cell and B-Cell Immuno-Dominant Peptides from A. baumannii Biofilm Associated Protein (bap) as Vaccine Candidates: A Computational Approach. International Journal of Peptide Research and Therapeutics. 2020 Apr 17:1-9.
20. Chakrabarti SS, Kaur U, Banerjee A, Ganguly U, Banerjee T, Saha S, et al. COVID-19 in India: Are Biological and Environmental Factors Helping to Stem the Incidence and Severity? Aging Dis. 2020 May;11(3):480–8.
21. Kumar S, Lavanya XX. Knowledge and practices regarding cross infection control among dental students. J Pharm Sci Res. 2016;8:360–6.
22. Gayathri MM. Knowledge, Awareness and Attitude among dental students about hepatitis B infection. Res J Pharm Biol Chem Sci. 2016;8(3):168.
23. Premnath P, John J. Knowledge attitude and practice toward preventive dental care among dental professionals in Chennai. Journal of Education and Ethics in Dentistry. 2015 Jan 1;5(1):20.
24. Mahesh R, Arthi C, Victor S, Ashokkumar S. Hepatitis B infection awareness among dental graduate students: A cross sectional study. International scholarly research notices. 2014;2014.
25. Meenapriya M, Gayathri R, Priya VV. Effect of regular exercises and health benefits among college students. Drug Invention Today. 2018 Jul 1;10(7).
26. Malay KK, Duraisamy R, Brundha MP, Kumar MP. Awareness regarding anemia among 1 st year dental undergraduate students. Drug Invention Today. 2018 Aug 1;10(8).
27. Prakash MS, Ganapathy DM, Mallikarjuna AV. Knowledge awareness practice survey on awareness of concentrated growth factor among dentists. Drug Invention Today. 2019 Mar 1;11(3).
28. Subashi A, Maheshwari TN. Knowledge and attitude of oral hygiene practice among dental students. Research Journal of Pharmacy and Technology. 2016;9(11):1840–2.
29. Govindaraju L, Jeevanandan G, Subramanian EMG. Knowledge and practice of rotary instrumentation in primary teeth among indian dentists: A questionnaire survey. Journal of International Oral Health. 2017 Mar 1;9(2):45.
30. Ravikumar D, Jeevanandan G, Subramanian EMG. Evaluation of knowledge among general dentists in treatment of traumatic injuries in primary teeth: A cross-sectional questionnaire study. Eur J Dent. 2017 Apr;11(2):232–7.
31. Naizya KB, Kumar RP, Arumugham IM, Sakthi DS. Measuring the buffering capacity of commercially available soft drinks in India: An in vitro study. Journal of Advanced Pharmacy Education & Research Apr-Jun [Internet]. 2017;7(2). Available
from: https://japer.in/storage/models/article/JJSeIGjArSdvVvYWucFd07L8JNeXYIj6ezwhvz5IRlJKzv5A6cPiDIBW83by/measuring-the-buffering-capacity-of-commercially-available-soft-drinks-in-india-an-in-vitro-study.pdf

32. Kengadaran S, Srisakthi D, Arumugham IM, Pradeepkumar R. Knowledge, attitude, and practice regarding dental unit waterline disinfection among dental practitioners of India. Journal of Advanced Pharmacy Education & Research, Jul-Sep. 2017;7(3).

33. Mp SK, Rahman R. Knowledge, awareness, and practices regarding biomedical waste management among undergraduate dental students. Asian J Pharm Clin Res. 2017;10(8):341–5.

34. Kumar MPS. Knowledge, Attitude and Practices towards Oral Health among Law Students in Chennai. Res J Pharm Biol Chem Sci. 2016;8(7):650.

35. Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental health need in Indian population during COVID-19 pandemic. Asian J Psychiatr. 2020 Apr 8;51:102083.

36. Modi PD, Nair G, Uppe A, Modi J, Tuppekar B, Gharpure AS, et al. COVID-19 Awareness Among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. Cureus. 2020 Apr 2;12(4):e7514.

37. Khader Y, Al Nsour M, Al-Batayneh OB, Saadeh R, Bashier H, Alfaqih M, Al-Azzam S. Dentists’ awareness, perception, and attitude regarding COVID-19 and infection control: cross-sectional study among Jordanian dentists. JMIR Public Health and Surveillance. 2020;6(2):e18798.

38. Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Novel coronavirus (COVID-19) knowledge and perceptions: a survey on healthcare workers. MedRxiv. 2020 Jan 1.