Awareness and knowledge about COVID-19 among Dental students in Chennai - A cross-sectional study

Pawan Kumar Earasi[1], Dr. Sanyukta Singh*[2]

[1]Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India.

[2]Department of Conservative Dentistry and Endodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India. Corresponding author; Dr. Sanyukta Singh, Department of Conservative Dentistry and Endodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India.

Abstract

Introduction: Late 2019, a mysterious virus, mimicking pneumonia, associated with symptoms such as fever, sore throat, dry cough, shortness of breath was first witnessed in Wuhan, Hubei, China. The initial epidemic was detected at the Wuhan market in late December 2019 and it affected over 50% of the workforce. ***Aim:*** To spread knowledge and awareness of COVID-19. ***Materials and Methods:*** The study to evaluate knowledge and awareness about COVID-19 among Dental students in Chennai, India. The targeted population for the study was 104 dental students within the age groups of 18-24. In this study, there was a formulation and distribution of a survey/ questionnaire, which was conducted among the students. The questionnaire consisted of ten general questions to test not only their knowledge but also their awareness of the issue. ***Results:*** As asked, what were the following indications that were found useful in order to prevent the spread of the virus, 59.6% had thought all of the above included washing your hands with alcohol-based disinfectant, covering your nose and mouth when sneezing or coughing, and avoiding social contact. ***Conclusion:*** The COVID-19 epidemic has had an immediate influence on how dental treatment may be safely and effectively given, and it is probable that lasting changes are required in how dental services are provided.

Keywords: transmission, diagnostic, treatment

Introduction

Late 2019, a mysterious virus, mimicking pneumonia, associated with symptoms such as fever, sore throat, dry cough, shortness of breath was first witnessed in Wuhan, Hubei, China. The initial epidemic was detected at the Wuhan market in late December 2019 and it affected over 50% of the workforce (1). In the following months, this virus spread not only to thousands of people in China, but also to other countries around the world (2).

The virus responsible for the outbreak was finally identified as a "novel beta-coronavirus", designated "COVID19" (2019-nCoV), and recalled everyone about the horrible memories of SARS-2003, induced by another beta-coronavirus, which happened 17 years earlier (3).

Flash forward to 2021, the coronavirus continues to ravage both the developed and developing countries. According to the World Health Organization, the virus has affected nearly 200 million people with around 4 million deaths worldwide (4).

1.1. Epidemiology

At the time of writing, the World Health Organization has received notification of 28637 952 laboratory-confirmed human cases of COVID-19, with 917417 fatalities (WHO). With 286297 infections and 35603 fatalities, Italy has one of the highest infection rates in Europe (4,5).

1.2. Route of Transmission

The COVID-19 epidemic began with a single animal-to-human transmission, followed by human-to-human diffusion mostly by respiratory droplets and contact transmission, according to genetic and epidemiologic data (6).

The danger of fecal-oral transmission has been recognised since researchers discovered SARS-CoV-2 in the stool of patients from China and the United States (7,8). Controlling COVID-19 infection is particularly difficult because, while symptomatic patients are the major source of transmission, asymptomatic patients and patients in their incubation period are also carriers of SARS-CoV-2 (5).

1.3. Incubation Period

The incubation time for SARS-CoV-2 is expected to be 2 to 14 days (at 5 to 6 days on average). This time-frame should be considered for quarantine and perhaps medical observation in possibly exposed people (7).

1.4. Diagnosis

The Centers for Disease Control and Prevention (CDC) advised health care workers to collect samples from both the upper and lower respiratory tracts. COVID-19 pneumonia can be diagnosed using a combination of epidemiologic data (i.e., 14 days of residency or travel in affected areas), clinical symptoms, computed tomography imaging results, and laboratory testing (9). The major diagnostic standard is reverse transcriptase-polymerase chain reaction (RT-PCR) testing. A single negative RT-PCR test result in a possibly infected patient, on the other hand, does not rule out COVID-19 infection (10).

1.5. Treatment and Prevention

Controlling the infection source, as well as using personal protective precautions to limit the chance of transmission, and providing early diagnosis in order to isolate infected individuals, are the current approaches to COVID-19 (11,12). The need for supportive treatment has been highlighted because there is presently no scientific evidence to prescribe particular COVID-19 therapy. Tocilizumab, a humanised anti interleukin-6-receptor (IL-6R) monoclonal antibody, has

Pawan Kumar Earasi[1], Dr. Sanyukta Singh*[2]

been given intravenously in patients with COVID-19 with promising outcomes in China and Italy (13,14).

All healthcare workers caring for patients with acute respiratory tract infections should follow WHO recommendations (15). When treating patients with known or suspected COVID-19 pneumonia, conventional measures, such as respiratory and eye protection, were suggested. However, removing precautions should be based on a professional review by expert healthcare workers as well as laboratory, radiological, and clinical data (16).

Materials and Methods

The study to evaluate knowledge and awareness about COVID-19 among Dental students in Chennai, India. The targeted population for the study was 104 dental students within the age groups of 18-24. In this study, there was a formulation and distribution of a survey/ questionnaire, which was conducted among the students. The questionnaire consisted of ten general questions to test not only their knowledge but also their awareness of the issue. The questionnaire was reviewed and amendments were made to improve clarity of pertinent questions and eliminate ambiguous responses. The survey instrument was a structured questionnaire with both open and close ended questions. The participants did the survey voluntarily and no incentives were given to them. The study was approved by the institutional review board. Informed consent from the participants were obtained. Only completely filled online forms were included in the study. The filled responses were verified by two reviewers and the collected data was entered on the same day. The entered data was analysed using SPSS. Descriptive analysis was performed to calculate frequencies of categorical variables.

Results

Approximately 59.6% of the students knew "Severe Acute Respiratory Syndrome Coronavirus 2" virus whereas 26% had the perception that it is a disease caused by a coronavirus and 14% thought it was an influenza virus (Graph 1). Approximately, 59.6% of the students agreed that it was a disease caused by SARS-CoV-2, 26% identified as coronavirus and 14.4% had chosen all of the above acronyms (Graph 2). Roughly 59.6% believed that COVID-19 a contagious disease whereas 40.4% disagreed (Graph 3). Approximately, 59.6% of students believed all of the above are the symptoms of COVID-19 which includes fever and cough, gastrointestinal symptoms, and respiratory failure. 26% thought symptoms of COVID-19 were only gastrointestinal symptoms, and 14.4% were only respiratory failure (Graph 4). Following the period of incubation COVID-19, 59.6% 2-14 days, 14.4% 1 month, 26% 2 months (Graph 5). Though there are various possible sources of COVID-19, approximately 59.6% of the students thought that wild mammals (bats, etc..) were the cause, 26% for pets (dogs, cats) and 14.4% for all of the above which also included farm animals (poultry and livestock) (Graph 6). 59.6% believed that it is transmitted from one person infected to others, through interpersonal contacts, 14.4% through contact with pets, and 26% all of the above, including eating oriental food (Graph 7). As asked, what were the following indications that were found useful in order to prevent the spread of the virus, 59.6% had thought

all of the above included washing your hands with alcohol-based disinfectant, covering your nose and mouth when sneezing or coughing, and avoiding social contact. 26% specifically opted to avoid social contact, and 14.4% to cover nose and mouth when sneezing or coughing (Graph 8). Though COVID-19 is a new virus, there are treatments which are set in place to help patients recover. From the questionnaire, 59.6% opted for the treatment of non-specific drugs and supportive medical treatment, 14.4% for vaccination, and 26% for no treatment (Graph 9). Exposure to a virus which is fairly new among the society, many precautions are taken to ensure the safety of each and every individual to perform their day to day activities/jobs. In the context of exposure to the risk of contagion for medical doctors, dentists and other health professionals, are prone to be affected and exposed the most. It was taken into account that 59.6% for dentists are more exposed to the risk of infection than other health professionals, 14.4% for dentists are less exposed to the risk of infection than other health professionals, and 26% for dentists are equally exposed to the risk of infection than other health professionals (Graph 10).

What you identify with the acronym "SARS-CoV-2" ?

104 responses
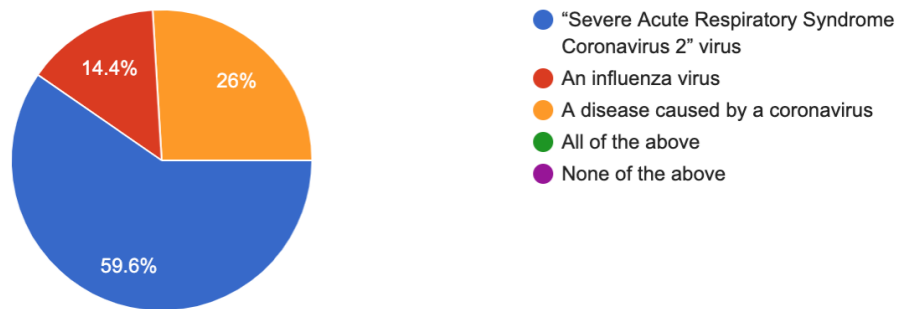
Graph 1 : Response to the questionnaire on SARS-CoV-2, Most of the respondents were aware of the acronym. 59.6% of the students have knowledge in the terminology - "Severe Acute Respiratory Syndrome Coronavirus 2" virus, 14.4% - an influenza virus, 26% - a disease caused by a coronavirus.

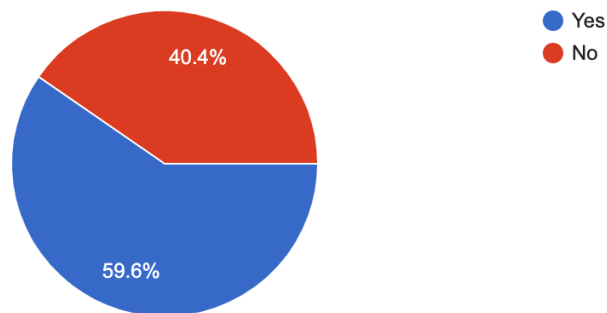What you identify with the acronym "COVID-19" ?

104 responses
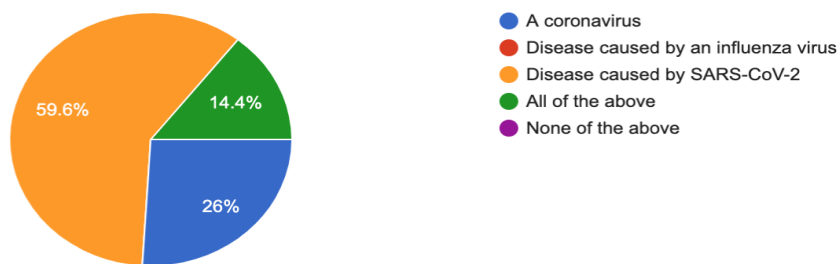
Graph 2: Pie-chart represents responses regarding the acronym of 'Covid-19'. 59.6% - disease caused by SARS-CoV-2, 14.4% - all of the above, 26% - a coronavirus.

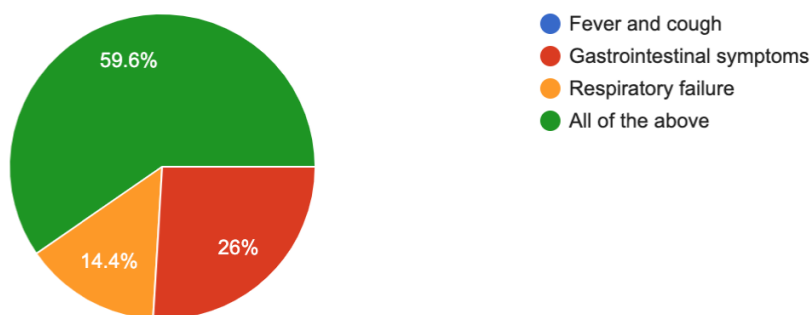Is COVID-19 a contagious disease?

104 responses

Graph 3: Pie-chart represents responses regarding whether covid-19 is a contagious disease. 59.6% - yes, 38.2% - no.
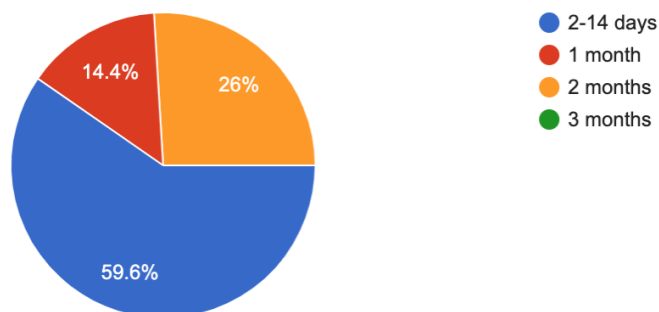
What can be the symptoms of COVID-19?

104 responses

Graph 4: Pie-chart represents responses regarding the symptoms of covid-19. 59.6% - all of the above, 14.4% - respiratory failure, 26% - gastrointestinal symptoms.

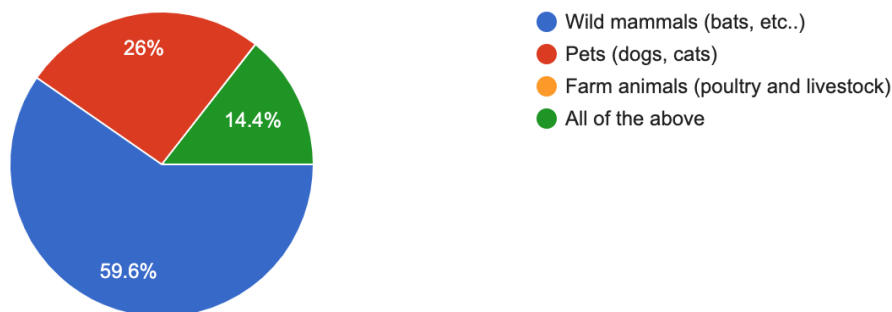What is the period of incubation COVID-19?

104 responses

Graph 5: Pie-chart represents responses regarding the incubation period of covid-19. 59.6% - 2 to 14 days, 26% - 2 months, 14.4% - 1 month.
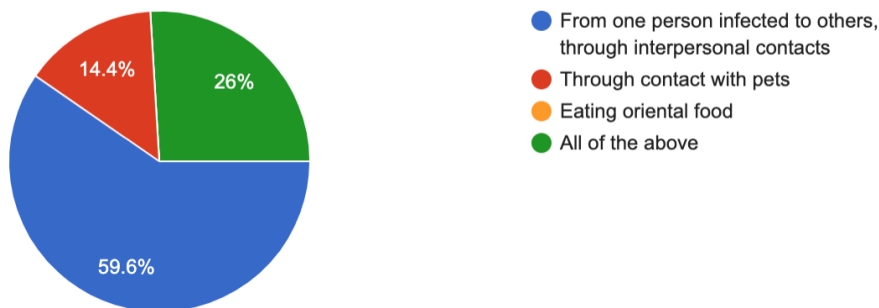
What is the possible source of COVID-19?

104 responses

- ● Wild mammals (bats, etc..)
- ● Pets (dogs, cats)
- ● Farm animals (poultry and livestock)
- ● All of the above

Graph 6: Pie-chart represents responses regarding the knowledge of the possible initial source of covid-19. 59.6% - wild mammals (bats, etc.), 14.4% - all of the above, 26% - pets (dogs, cats).

How is it transmitted COVID-19?

104 responses

- ● From one person infected to others, through interpersonal contacts
- ● Through contact with pets
- ● Eating oriental food
- ● All of the above

Graph 7: Pie-chart represents responses regarding how Covid-19 is transmitted. 59.6% - from one person infected to others, through interpersonal contact, 14.4% - through contact with pets, 26% - all of the above.

Which of the following indications do you find useful in order to prevent the spread of the virus?
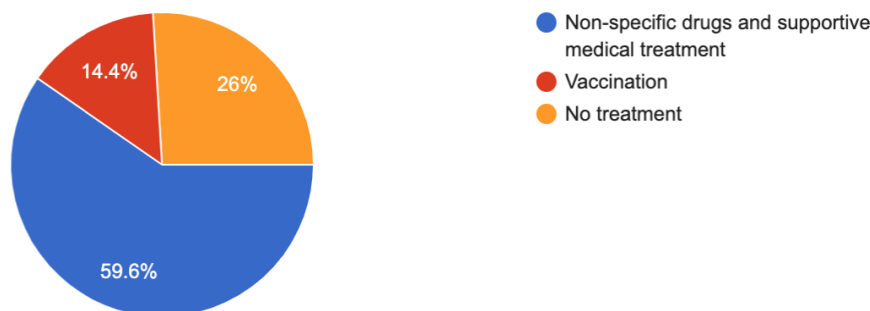
104 responses

- ● Wash your hands with alcohol-based disinfectant
- ● Cover nose and mouth when sneezing or coughing
- ● Avoid social contact
- ● All of the above

Graph 8: Pie-chart represents responses regarding the indications which are beneficial in order to prevent the spread of the Covid-19 virus. 59.6% - all of the above, 26% - avoid social contact, 14.4% - cover nose and mouth when sneezing.
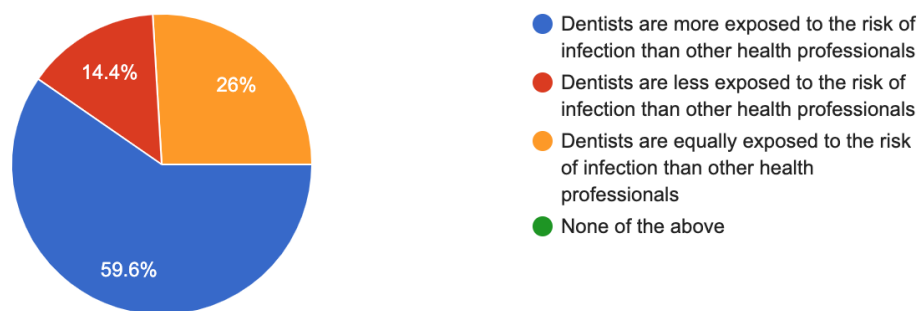
How can patients currently be treated?

104 responses

- Non-specific drugs and supportive medical treatment
- Vaccination
- No treatment

Graph 9: Pie-chart represents responses regarding the methods of treatment which are available for patients. 59.6% - non-specific drugs and supportive medical treatment, 14.4% - vaccination, 26% - no treatment.

In the context of exposure to the risk of contagion for medical doctors, dentists and other health professionals, which of the following statements do you agree with?

104 responses

- Dentists are more exposed to the risk of infection than other health professionals
- Dentists are less exposed to the risk of infection than other health professionals
- Dentists are equally exposed to the risk of infection than other health professionals
- None of the above

Graph 10: Pie-chart represents responses regarding the statements which are close in context of exposure to the risk of contagion for medical doctors, dentists and other health professionals. 59.6% - dentists are more exposed to the risk of infection than other health professionals, 14.4% - dentists are less exposed to the risk of infection than other health professionals, 26% - dentists are equally exposed to the risk of infection than other health professionals.

Discussion

Since its initial breakout in Wuhan, China, at the end of December, the COVID-19 virus has grown into a serious public health disaster with a global impact (4). According to the literature, dental professionals are at a higher risk of transmission because of their frequent aerosol-producing activities (17). Students were advised to use online resources to limit their possible exposure to the

Pawan Kumar Earasi[1], Dr. Sanyukta Singh*[2]

dental school and related hospitals, which are also potential contagion locations. As a result, normal dental operations have been put on hold until further information is available based on the current state of the illness and careful infection control (18).

The American Dentistry Association (ADA), in collaboration with top infection control specialists from the Organization for Safety, Asepsis, and Prevention (OSAP), released recommendations on March 20, 2020, to give practical guidance and education to the dental community during COVID-19 (2). In an Italian university setting, the current study aimed to assess future dental practitioners' knowledge and attitudes regarding COVID-19. In addition, we compared dentists' perceptions of infection risk to those of other health professionals (19)(7).

To our knowledge, this is the first study only measuring dental students' understanding of the global COVID-19 epidemic and its impact on dentistry. Because there are few publications on this issue, our findings were compared to those of papers about healthcare students and employees' awareness (4,20). A previous questionnaire-based study performed in the Mumbai Metropolitan Region among healthcare students and professionals, including a dental subgroup (students and professors), revealed a high level of awareness, which was consistent with our findings (17).

Indeed, independent of gender, age, or academic year, dentistry students at our university showed a high degree of understanding of clinical features of COVID-19 such as definition, contagiousness, symptoms, incubation time, source of infection, transmission routes, prevention, and treatment methods (20).

Conclusion

The COVID-19 epidemic has had an immediate influence on how dental treatment may be safely and effectively given, and it is probable that lasting changes are required in how dental services are provided.

Furthermore, the pandemic provides several possibilities for dental researchers to address critical concerns. Evaluating the expenses and advantages of increased personal protective equipment use might be a significant research priority along with other changes to enhance the efficiency of the dental practice (i.e. tele-dentistry).

Future Scope; Our team has extensive knowledge and research experience that has translated into high quality publications. (21–30)(31–34)(35–39)(40)

References

1. Lai C-C, Shih T-P, Ko W-C, Tang H-J, Hsueh P-R. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and

the challenges. Int J Antimicrob Agents. 2020 Mar;55(3):105924.

2. Jebril N. World Health Organization Declared a Pandemic Public Health Menace: A Systematic Review of the Coronavirus Disease 2019 "COVID-19" [Internet]. SSRN Electronic Journal. Available from: http://dx.doi.org/10.2139/ssrn.3566298

3. Germanò A, Raffa G, Angileri FF, Cardali SM, Tomasello F. Coronavirus Disease 2019 (COVID-19) and Neurosurgery: Literature and Neurosurgical Societies Recommendations Update [Internet]. Vol. 139, World Neurosurgery. 2020. p. e812–7. Available from: http://dx.doi.org/10.1016/j.wneu.2020.04.181

4. Kumar G, Arora K. Epidemiological Analysis of an Outbreak of Coronavirus (COVID-19) Disease in the World [Internet]. Health Informatics and Technological Solutions for Coronavirus (COVID-19). 2021. p. 185–91. Available from: http://dx.doi.org/10.1201/9781003161066-13

5. Weekly CC, The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) — China, 2020 [Internet]. Vol. 2, China CDC Weekly. 2020. p. 113–22. Available from: http://dx.doi.org/10.46234/ccdcw2020.032

6. Tan SC. Clinical and epidemiological characteristics of Coronavirus Disease 2019 (COVID-19) patients [Internet]. Available from: http://dx.doi.org/10.1101/2020.04.02.20050989

7. Pan American Health Organization. Health Systems. 1972. 42 p.

8. Ullah N. THE WORLD AFTER COVID -19 [Internet]. COVID-19 Pandemic update 2020. 2020. p. 248–53. Available from: http://dx.doi.org/10.26524/royal.37.25

9. Hamedani S, Farshidfar N, Ziaei A, Pakravan H. The Dilemma of COVID-19 in Dental Practice Concerning the Role of Saliva in Transmission: A Brief Review of Current Evidence [Internet]. European Oral Research. 2020. p. 92–100. Available from: http://dx.doi.org/10.26650/eor.20200050

10. Izzetti R, Nisi M, Gabriele M, Graziani F. COVID-19 Transmission in Dental Practice: Brief Review of Preventive Measures in Italy [Internet]. Vol. 99, Journal of Dental Research. 2020. p. 1030–8. Available from: http://dx.doi.org/10.1177/0022034520920580

11. DePaola LG, Grant LE. Infection Control in the Dental Office: A Global Perspective. Springer Nature; 2019. 216 p.

12. Cuan-Baltazar JY, Muñoz-Perez MJ, Robledo-Vega C, Pérez-Zepeda MF, Soto-Vega E. Misinformation of COVID-19 on the Internet: Infodemiology Study. JMIR Public Health Surveill. 2020 Apr 9;6(2):e18444.

13. Cuan-Baltazar JY, Muñoz-Perez MJ, Robledo-Vega C, Pérez-Zepeda MF, Soto-Vega E. Misinformation of COVID-19 on the Internet: Infodemiology Study (Preprint) [Internet]. Available from: http://dx.doi.org/10.2196/preprints.18444

14. Hernández-García I, Giménez-Júlvez T. Assessment of Health Information About COVID-19 Prevention on the Internet: Infodemiological Study [Internet]. Vol. 6, JMIR Public Health and Surveillance. 2020. p. e18717. Available from: http://dx.doi.org/10.2196/18717

15. Rajan A, Sharaf R, Brown RS, Sharaiha RZ, Lebwohl B, Mahadev S. Association of Search

Query Interest in Gastrointestinal Symptoms With COVID-19 Diagnosis in the United States: Infodemiology Study [Internet]. Vol. 6, JMIR Public Health and Surveillance. 2020. p. e19354. Available from: http://dx.doi.org/10.2196/19354

16. Khairat S, Meng C, Xu Y, Edson B, Gianforcaro R. Interpreting COVID-19 and Virtual Care Trends: Cohort Study [Internet]. Vol. 6, JMIR Public Health and Surveillance. 2020. p. e18811. Available from: http://dx.doi.org/10.2196/18811

17. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study [Internet]. Vol. 395, The Lancet. 2020. p. 507–13. Available from: http://dx.doi.org/10.1016/s0140-6736(20)30211-7

18. 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 Apr 30;6(2):e19160.

19. Mao L, Wang M, Chen S, He Q, Chang J, Hong C, et al. Neurological Manifestations of Hospitalized Patients with COVID-19 in Wuhan, China: A Retrospective Case Series Study [Internet]. SSRN Electronic Journal. Available from: http://dx.doi.org/10.2139/ssrn.3544840

20. Wei Y, Lu Y, Xia L, Yuan X, Li G, Li X, et al. Analysis of 2019 novel coronavirus infection and clinical characteristics of outpatients: An epidemiological study from a fever clinic in Wuhan, China [Internet]. Vol. 92, Journal of Medical Virology. 2020. p. 2758–67. Available from: http://dx.doi.org/10.1002/jmv.26175