

AWARENESS OF COVID-19 AMONG DENTAL STUDENTS IN CHENNAI, INDIA- A QUESTIONNAIRE BASED STUDY

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ABSTRACT

BACKGROUND: *Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 or COVID-19) is a global public-health emergency. Dental professionals are considered to be at high risk, as most dental treatment procedures can lead to the spread of infection due to the direct proximity with saliva, blood and generation of aerosols.*

AIM: *The aim of this study was to assess the knowledge, awareness and hygiene practices regarding COVID-19 among dental students in Chennai, India during these critical times.*

MATERIALS AND METHODS: *A self-administered, structured, close-ended 15-point questionnaire was distributed among the undergraduate and postgraduate dental students in Chennai. A total of 198 participants completed the questionnaire. Convenience sampling method was used for data collection and the distribution of responses was presented as percentages.*

RESULTS: *Among the 198 participants a total of 54 (27.2%) exhibited high level of knowledge while 67 (33.8%) demonstrated moderate knowledge and 77 (38.8%) demonstrated low level of knowledge. Mean knowledge score was 8.5, minimum and maximum scores were 4 and 15 respectively among the dental students.*

CONCLUSION: *Most the participants seemed to have inadequate knowledge about COVID19 and precautionary measures taken to prevent COVID19 from spreading. These show vulnerabilities in the*

knowledge of dental students to deal with the current scenario and thus, there is a need to improve the knowledge of dental students through health education and training programmes. After the condition is normalised, further research on the subject are also required.

KEYWORDS: *COVID19, coronavirus, questionnaire, awareness, dental students, knowledge, safety measures.*

1. INTRODUCTION

COVID-19 (Coronavirus Disease, 2019 & SARSCoV-2) caused by a new member of the coronavirus family called novel coronavirus, is a newly discovered emerging respiratory disease.[1] The epidemic of the disease which started in the month of December 2019 in Wuhan region of China, has become one of the major public health problems of this century and is claiming thousands of lives everyday across the globe.[2] It was in early 2020 that WHO declared it as a pandemic.[3] Two critical unique features of the virus are its low pathogenicity and high transmissibility that distinguish it from SARS-CoV (Severe Acute Respiratory Syndrome) and MERS-CoV (Middle Eastern Respiratory Syndrome) which are caused by other strains of coronavirus.[1][4] It is a highly infectious disease and its clinical symptoms include fever, dry cough, muscle pain and fatigue and in severe cases it progresses to acute respiratory distress syndrome leading to bleeding and coagulation dysfunction. Elderly individuals and those with underlying chronic illnesses are found to be at increased risk. [5]

According to recent reports in September 2020, COVID-19 positive cases have crossed over 5 million in India, taking the total number of deaths to over 80,000. Over 5,00,000 positive cases were from Tamil Nadu with over 1,50,000 cases from the Chennai metropolitan city. [6] Health care professionals are among the most vulnerable individuals with the highest risk of infection. In many instances, medical personnel contracting the disease when taking care and treating infected patients have been confirmed.[7] Due to the high likelihood of cross-infection between dental practitioners and patients during a dental procedure, the dental operator presents a high-risk environment.[8] A positive COVID-19 patient can go without symptoms for several days.[9][10][11][12] Hence, the Centre for Disease Control and Prevention (CDC) and the World Health Organization (WHO) are proposing various guidelines for dental health staff to take appropriate precautions.[13][14] The current questionnaire survey was therefore carried out in order to evaluate the basic knowledge, awareness and hygiene practises among dental students in Chennai, India regarding COVID-19.

2. MATERIALS AND METHODS

Ethical clearance from the Institutional Ethics Committee was obtained prior to the start of the study. The study was conducted in September, 2020. Participation in the study was voluntary and identification information was not collected from the study participants. The present study was a descriptive cross-sectional (questionnaire) study. The study population consisted of undergraduate and postgraduate dental students in Chennai, India. A self-designed, closed ended questionnaire written in English language was made specifically for the study. The questionnaire was divided into two sections: (1) General section (Section A) which comprised of socio-demographic and professional details of the subjects (age, gender and educational status), and (2) Section B comprised of 15 questions depicting knowledge and awareness regarding COVID-19 (clinical symptoms, transmission route, availability of vaccine, various preventive measures, details of hygiene practices etc.). The questionnaire was delivered to the study subjects by Google forms via email and WhatsApp (Social Media Application) and not handed over personally adhering to the current social-distancing protocols. Total knowledge/ awareness score was calculated on the basis of each participant's response. Each positive response was awarded a score of '1' and negative response as '0'. The total score of the subject was calculated by adding the sum of responses which ranged from 1 to 15. The

final scores were categorized at three levels based on Bloom’s criteria: low (0-8), medium (9-11) and high (12-15). The distribution of responses was presented using a bar graph.

3. RESULTS

The data obtained from Section A is given in Table 1. The present study included a total of 198 participants out of which 38 were male (19.2%) and 160 were female (80.8%). The majority of the participants i.e., 155 of them belonged to the age group of 17-24 years, while 35 of them were between 24-28 years (17.7%) and 8 were above 28 years old (4.1%). 143 participants were undergraduate students pursuing BDS (72.2%) while 55 of them were postgraduate students pursuing MDS (27.8%).

TABLE 1: General sociodemographic data of the study participants

		Number	Percentage
Age	17-24 years	155	78.2%
	24-28 years	35	17.7%
	>28 years	8	4.1%
Gender	Male	38	19.2%
	Female	160	80.8%
Education	Undergraduate (BDS) student	143	72.2%
	Postgraduate (MDS) student	55	27.8%

The responses of the participants to questions regarding COVID19 is given in Figure 1. Out of the study population, 194 participants (98%) were aware of what caused COVID19 and 154 (78%) were aware of the main mode of transmission while 44 (22%) weren’t. 135 (68.2%) participants had knowledge about the clinical symptoms of COVID19 and 146 (74%) participants were aware of the incubation period of the virus. 162 (81.8%) participants were aware that there was no vaccine currently for the disease. 109 (55%) participants were aware of the definition of “close contact” while 89 (45%) weren’t. 128 (64.6%) of them were aware of the respiratory or cough etiquette and 81 (40.9%) knew the correct hand hygiene practices. 148 (74.7%) participants gave the correct response regarding the choice of facemasks but only 82 (41.4%) of the them were aware of the correct sequence of donning and doffing the personal protective equipment (PPE). Only 109 (55%) participants gave the correct response for the choice of preprocedural mouthrinse and surface disinfectant. 149 (75.25%) participants were aware of the checklist to be followed for a new patient walking in for dental treatment. Less than half of the participants were aware about the use of UVC lamps and the precautions taken for aerosol generating procedures, 89 (45%) and 59 (29.7%) respectively. : Among the 198 participants a total of 54 (27.2%) exhibited high level of knowledge while 67 (33.8%) demonstrated moderate knowledge and 77 (38.8%) demonstrated low level of knowledge. Mean knowledge score was 8.5, minimum and maximum scores were 4 and 15 respectively among the dental students.

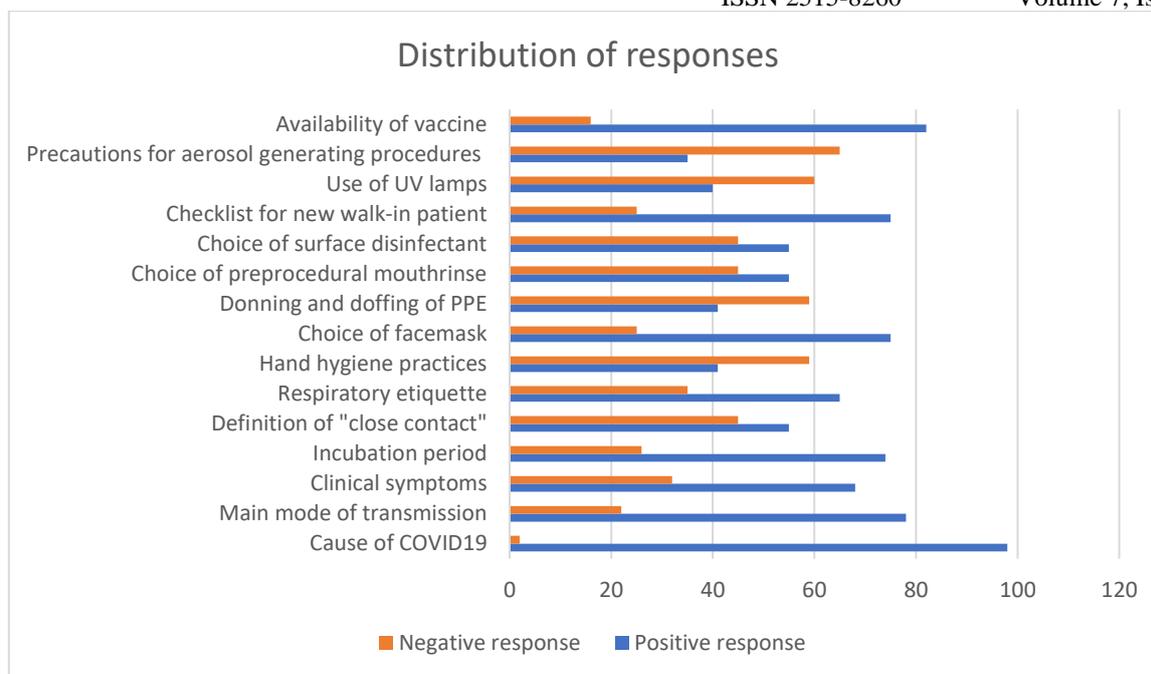


Figure 1: Responses of the participants to questions regarding COVID19

4. DISCUSSION

The COVID-19 pandemic has put the whole world in a state of emergency and ever since its initial outbreak in China in December 2019, it has had a cascading effect globally as thousands of people lose their lives every day because of this life-threatening disease.[1][2][15] As of this writing, (September 2020), the total COVID-19 case count has crossed 5 million in India and over 1,50,000 from the metropolitan city of Chennai.[6] Chennai has numerous dental colleges, both government and private and most of them have resumed practise whilst adopting safety measures, after the nationwide lockdown. To the best of our knowledge, the present study is the first of its kind to examine the knowledge and awareness of dental students in Chennai regarding COVID-19. It was noted in this study that most of the participants had inadequate knowledge regarding COVID-19 with significant knowledge gaps in some of the important aspects.

The disease COVID-19 which stands for coronavirus disease 2019 is an infection caused by a coronavirus SARS-CoV-2.[1][15] In our study, 98% of the study population were aware of this. The main mode of transmission of the virus is via respiratory droplets which was answered correctly by a substantial number of the respondents.[1][2][12] Clinical presentations of COVID-19 have ranged from asymptomatic or mild symptoms to severe illness and mortality. Most common symptoms include fever, cough, fatigue, myalgia and shortness of breath. In severe cases, respiratory distress may occur.[5] In our study, around two-thirds of the participants had knowledge about the common COVID-19 symptoms. Recent studies have shown that asymptomatic patients and patients in their incubation period are also carriers of this particular virus which can transmit the disease. According to reports, the mean incubation period of this virus is 5-7 days.[16][17] More than 70% of subjects were aware of this fact in the present study which is in accordance to findings of other studies conducted on different populations. [18][19]

The identification and isolation of a suspected COVID-19 case is the most important step in controlling the spread of the disease. However, in our study, almost half of the responders were unaware of defining a "close contact." According to the Centre for Disease Control (CDC), a "close contact" is defined as: "being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time or having direct contact with infectious secretions of a COVID-19 case.[20] Being in the dental fraternity, this proves us to be at

high risk for contracting the virus. Correct hand hygiene practices play a vital role in preventing the spread of the disease. The WHO “Five Moments of hand hygiene” approach encourages healthcare providers to diligently carry out hand hygiene.[21] Two basic methods to clean hands are hand washing and hand rubbing. The CDC recommends alcohol-based hand rub in most situations.[22] According to WHO guidelines for hand washing with soap and water, the technique should be performed stepwise with the whole process lasting for up to 40-60 seconds.[21] In our study, less than half the respondents were aware of the correct hand hygiene practise which is in contrast to previous studies. The respondents also showed inadequate knowledge regarding the respiratory/ cough etiquette which are infection prevention measures proposed by the CDC to limit the transmission of respiratory pathogens by droplets or airborne spread.[23] These being critical measures should not be neglected and the dental students should be trained regarding the same.

When questioned about the personal protective equipment (PPE), majority of the respondents opted for the use of N95 respirators over regular medical masks and cloth masks. In a recent systematic review and meta-analysis suggest that preservation of N95 respirators for high-risk, aerosol-generating procedures in this pandemic should be considered due to supply shortage as medical masks and N95 respirators offer similar protection against viral respiratory infection including coronavirus in healthcare workers during non-aerosol-generating procedures. However the evidence was of low quality. [24] Besides being aware of the required PPE, it is also necessary to know the correct sequence of “donning and doffing” of the PPE. The CDC sequence of donning the PPE is as follows: perform hand hygiene, put on isolation gown, respirator or facemask, faceshield or goggles, and lastly gloves. The CDC sequence for doffing the PPE is as follows: Remove gloves, isolation gown, perform hand hygiene, remove faceshield or goggles, respirator or facemask and perform hand hygiene again.[25] Only less than half of the participants in our study were aware of this sequence which was similar to a study conducted on healthcare professionals in Mumbai.[26]

As the viral load is highest in the oropharynx and in human saliva, a preprocedural rise with an oxidising mouthwash such as 1.5% H₂O₂ or 1% povidone iodine may be beneficial as coronavirus is vulnerable to oxidation.[27][28] Only half of the study population was aware of this. Again, almost half of the study participants had given incorrect responses to questions regarding sterilisation and surface disinfection. Coronavirus-2 can persist on surfaces for a few hours or up to several days, depending on the nature of the surface and the environmental conditions like humidity and temperature.[9][10] Thus the need arises for disinfecting surfaces and stringent sterilization protocols to be followed. The most common and efficient surface disinfectant available is hypochlorous acid (HOCl).[29] UV sterilisation is an effective means of sterilization and the recent advent of “far UV-C” lamp is safe to be used around humans as well.[30] Airborne Infection Isolation Room (AIIR) can be used to isolate patients and conduct aerosol generating procedures. There are spaces preserved under negative pressure. Suspected or confirmed patients should not be kept inside the hospital building in a space which has an exhaust that recirculates air. Air from these rooms should be filtered immediately prior to recirculation through a high-efficiency particulate air (HEPA) filter.[31] More than two-thirds of the respondents were unaware of this concept in our study. As of date, there is no vaccine developed against this deadly virus and over 80% of the respondents were aware of this fact. It is important that dental students ensure they remain updated in their knowledge and understanding of the current guidelines and frequently adapt themselves to ensure safety for themselves and the patients they treat.

5. CONCLUSION

The present study concluded that most of the subjects had inadequate knowledge regarding COVID-19, with lacunae in the knowledge in some of the significant aspects like knowledge regarding PPE, hand hygiene practise, and precautionary methods for aerosol generation procedures, with less than one-third of subjects

scoring high scores. These findings clearly indicate the importance of improving knowledge of dental students regarding infection control and hygiene practices for COVID-19 via health education and training programs. Recent guidelines recommended by WHO and CDC should be religiously followed while treating patients in dental practices and dental schools. However the study has its own limitations such as the sample size and it represents dental students only from Chennai. Further studies involving larger sample size should be conducted once the situation normalizes.

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