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# Knowledge and Attitude of Dental Professionals towards Covid-19: A Cross-Sectional Study

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**Abstract**

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is a newly identified virus that differs from severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) but can cause similar symptomology associated with pneumonia. The main aim of the study was to assess the knowledge and attitude of dental professionals toward COVID-19 so as to determine that the dental professionals should have better knowledge regarding this virus. A cross-sectional study of dental health professionals registered with India's state dental council, including postgraduates, house surgeons, interns, final year students and third-year students was done. A standardised well-designed validated questionnaire was created to test 1264 participants knowledge and attitude. The questionnaire included ten questions about general COVID-19 knowledge and ten questions about attitude toward COVID-19 prevention. During our research, the majority of participants demonstrated good knowledge and a positive attitude toward COVID-19. This study created awareness about COVID-19 pandemic which is essential for dental professionals to prevent the risk of transmission of infection as this disease may be fatal to life. Still few voids in the knowledge and attitude towards Covid-19 were found demanding widespread educational programs.

**Keywords**: NIL

## Introduction

Humans have been troubled by fatal infectious diseases, including viral epidemics, for a long time. Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is a newly found virus that originates from SARS-CoV and Middle East respiratory syndrome corona virus (MERS-CoV) and can induce comparable symptoms associated with pneumonia. The World Health Organization (WHO) designated this viral disease as "COVID-19". It was first identified in Wuhan, Hubei Province, China, in December 2019.[1-3]It could have arisen from the ancient practise of ingesting wild animals. This disease has been classified as a pandemic by the World Health Organization as a public health emergency of international concern.[1]

Coronaviruses (CoVs) are members of the Coronaviridae family and belong to the genus Coronavirus. These are enclosed, positive-stranded RNA viruses with a nucleocapsid (capsid carrying nucleic acid) that measured 300–400 nm under an electron microscope. These are all pleomorphic viruses that can form crown-shaped peplomers with a size of 80–160 nm and positive polarity of 27–32 kb. As RNA-dependent RNA polymerase (RdRP) levels grow and transcription error rise, CoV recombinations increase, leading to genetic drift within the same strain. CoVs are zoonotic viruses that can infect humans and other animals, causing a

variety of clinical symptoms ranging from asymptomatic to hospitalization in an intensive-care unit.[4]

Human-to-human transmission is thought to occur by airborne droplets, touching or coming into contact with an infected individual, or coming into contact with a contaminated surface. The pathways of transmission raise concerns regarding the possibility of a similar route of infection for COVID-19 in the dental field. The global struggle against COVID-19 continues, and people's adherence to preventive measures is vital to success.[5,6]

Dental professionals are routinely exposed to bioaerosols produced during some clinical treatments. The bioaerosols are particles of relatively small sizes, which can raise the risk of infection among dental professionals and plays a dominant role in the spread of viral illness among dental practitioners.[7,8]

Knowledge and attitude regarding infectious diseases are frequently connected with the amount of fear among the community, which may hide the measures taken to prevent disease spread. It is essential to evaluate the dentist's knowledge, preventive awareness, and attitude towards COVID-19 in an effort to enhance prevention and manage strategies with inside the dental office. This study aims to assess dental professional's knowledge, awareness, and attitude toward COVID-19 to determine that dental professionals should have better knowledge regarding the virus.

## Material & Methods

### Source Of Data:

The samples for the study were retrieved from the Dental professionals from Union Territory (UT) of Jammu & Kashmir.

### Study Material:

The questionnaire comprised a series of questions about the knowledge and attitude towards COVID-19.

### Study Design:

A cross-sectional questionnaire-based study was conducted in UT of Jammu & Kashmir. The Dental health professionals included in the study were postgraduates, house surgeons, interns, final year and third-year students. A well-designed and pretested questionnaire was utilized to collect data from a sample of 1264 dental professionals. All dental practitioners were notified via email, WhatsApp and the survey included a link to a Google form. During the COVID-19 pandemic, the questionnaire was designed to assess their knowledge and attitude.

### Study Population:

The study population included dental health professionals registered with India's state dental council, including postgraduates, house surgeons, interns, final year students and third-year students. A single population formula, n=n/1+n(e2), was used to compute the sample size, with a margin of error of 2.5 percent. The calculated sample size was 1264, and the study sample was chosen at random.

## Results

### Socioeconomic demographic characteristics:

Table 1 shows the demographics of the dentists that participated in this study. Men exceeded women by a ratio of 58 to 42 percent, with 1264 people participating79.5 percent of participants were between the ages of 20 and 30, 14.8 percent were between the ages of 31 and 40, and 4.7 percent were between the ages of 41 and 50 and only 1.0 percent between the ages of 51- 60years. 12.6 percent were in their third year, 4.7 percent were in their final year, 26.4 percent were interns, 21.8 percent were junior residents, 18.4% were postgraduates, and 16.1% were the staff.



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| TABLE 1: Demographic determinants of study participants | | | |
|---|---|---|---|
| **VARIABLES** | | **n (%)** | **Frequency(n)** |
| **GENDER** | **MALE** | 58% | 733 |
| | **FEMALE** | 42% | 531 |
| **AGE GROUP** | **20-30** | 79.5 | 1005 |
| | **31-40** | 14.8 | 187 |
| | **41-50** | 4.7 | 59 |
| | **51-60** | 1.0 | 13 |
| **QUALIFICATION** | **3rd** | 12.6 | 160 |
| | **Final** | 4.4 | 56 |
| | **Intern** | 26.4 | 334 |
| | **Junior resident** | 21.8 | 277 |
| | **Postgraduates** | 18.4 | 233 |
| | **Staff members** | 16.1 | 204 |

**Knowledge About Covid-19**

The knowledge about the COVID-19outbreak is summarized in table 2. According to the data, the majority of the respondents, 1027 (81.2%), were aware of the type of coronavirus. 87.5 percent of the participants were aware that it could have been transmitted both directly and indirectly. On the other hand, the shortness of fever and dry cough were recognized as indicators of COVID-19 infection by 98.9% of respondents, while 1.1 percent mistook the fever for the only symptom. Coronavirus, according to 55.4 percent of respondents, can remain infectious on an inert surface for three days, but 42.5 percent believe that live viruses can no longer be grown after eight days. 88.2 percent believed the metallic objects be sanitized with 70% alcohol. 93 percent believed that surfaces such as the door, chair, table, and dental chair should be disinfected after every 1-2 hours. 51.7 percent believed that resorbable sutures should be used in COVID-19 patients who have had their teeth extracted. To lower viral load, a mouthwash containing 0.23 percent to 70 percent povidone-iodine was advised as a pre-procedural rinse. Approximately 11.9 percent were unsure. Shortness of fever and dry cough, on the other hand, was recognized by 98.9% of respondents as indicators of covid-19 infection, whereas 1.1 percent mistook the fever for one of the symptoms. According to 55.4 percent of respondents, the coronavirus may persist on an inert surface for three days.



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**Table 2. DISTRIBUTION OF COVID-19 KNOWLEDGE RESPONSES**

| S.NO | QUESTIONS | RESPONSE | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 1. | What type of coronavirus is it | 3.5 | 3.5 | 81.2 | 11.8 | - |
| 2. | Mode of transmission of COVID-19 | 2.7 | 9.1 | 87.5 | 0.7 | - |
| 3. | Symptoms of covid 19 infection | - | 1.1 | 0 | 0 | 98.9 |
| 4. | Coronavirus can remain infectious on inanimate surfaces for | 55.4 | 3.6 | 27.7 | 13.3 | - |
| 5. | After how many days, the live virus can no longer be cultured | 33.8 | 42.5 | 12.5 | 11.3 | - |
| 6. | To sanitize the metallic objects is 70% of alcohol used | 88.2 | 10.6 | 1.2 | - | - |
| 7. | Surfaces of doors, chairs, tables, dental chairs should be disinfectant | 93 | 5.7 | 1.3 | - | - |
| 8. | Effective hand sanitizer against coronavirus- | 51.7 | 46 | 2.3 | - | - |
| 9. | The recommended mouthwash as a preprocedural rinse to reduce viral load include- | 39.3 | 35.7 | 13.1 | 11.9 | - |
| 10. | Patients with underlying chronic diseases are at a higher risk of infection & death | 96.6 | - | 3.4 | - | - |



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**Attitude Of The Participants Towards Covid-19**

Table 3 summarises public opinion on the COVID-19 epidemic. Dentists are more prone to COVID-19 infection, according to 42.5 percent of respondents, due to both endodontic treatment and extraction, and 10.2 percent due to only endodontic therapy. Before performing any dental surgery, 97.7 percent of respondents believed that every patient's travel history and body temperature should be obtained. According to 87.5 percent of responders, only emergency dental care should be provided during the COVID-19 epidemic. During the COVID-19 pandemic, about 69.4 percent of respondents suggested OPG/CBCT should be used instead of MOPAR. 89.5 percent of participants at COVID-19believed resorbable suture was used in extraction patients. 54.5 percent of dental professionals said they used an N95 mask without a respirator to avoid infection. 97.7% feel that every patient should be checked for COVID-19 before any dental surgeries or treatments.

**Table 3. DISTRIBUTION OF COVID-19 ATTITUDE RESPONSES**

| S.NO | QUESTIONS | RESPONSE | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 1. | **Why dentists are more susceptible to covid-19 infection** | 10.2 | - | 87.5 | 2.3 | - |
| 2. | **Every patient's travel history and body temperature should be taken before performing any dental procedure** | 97.7 | - | 2.3 | - | - |
| 3. | **What type of dental care should be provided during the COVID-19 pandemic** | 87.5 | 3.4 | 9.1 | - | - |
| 4. | **During the Covid-19 pandemic should IOPAR be replaced with OPG/CBCT** | 69.4 | 27.1 | 3.5 | - | - |
| 5. | **In patients with extraction during covid-19 what type of suture to use** | 89.5 | 3.4 | 1.3 | 5.8 | - |
| 6. | **What type of masks should dental professionals wear to prevent infection by the coronavirus infection?** | 3.9 | 0.7 | 54.5 | 40.9 | - |



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| | | | | | | |
|---|---|---|---|---|---|---|
| **7.** | **Is it mandatory to screen every patient for COVID-19 before any dental procedures/treatment?** | 97.7 | - | 2.3 | - | - |
| **8.** | **Wash your hands by using alcohol-based sanitizer before and after screening every patient for COVID-19 should be recommended** | 97.6 | - | 1.2 | - | 1.2 |
| **9.** | **Do you follow the WHO guidelines on hand hygiene, to prevent the risk of infection** | 93.2 | - | 6.8 | - | - |
| **10.** | **To filter air what are you using for removing contaminated air from the treatment area?** | 26.5 | 33.7 | 39.8 | - | - |

## Discussion

Several epidemics including H1N1, H5N1, avian influenza, Ebola, SARS, Zika, and Nipah have previously affected India and other countries, but have been successfully managed for suitable investigation. The creation of innovative human pathogens and the return of certain illnesses are of particular concern. Because of the broad transmission of SARS-CoV-2, healthcare providers are at a higher risk of getting the virus and becoming potential carriers of the disease. Because they operate in close contact with the patient's mouth cavity, dental health care professionals (DHCP) are classed as having a very high exposure risk by the Occupational Safety and Health Administration (OSHA). [1]

Dental practitioners should be aware of the disease since patients with it are at a higher risk of infection, and dentists should teach patients about personal preventive actions.COVID-19 is a new infectious disease that poses a serious risk to public health. Given the substantial dangers posed by COVID-19 and the lack of a COVID-19 vaccine, preventive measures are critical in minimizing infection rates and controlling disease transmission. This indicates the necessity of public adherence to preventive and control measures, which are affected by their knowledge, attitudes, and practices .[9,10]

COVID-19 instances are currently growing dramatically over the world. It is important noting that the public, government, and healthcare providers may all work together to alleviate the problem.[11]

This study's major goal was to evaluate dental practitioners' knowledge and attitudes during the pandemic. Males comprise the majority of study participants (58%) and were between the ages of 20 and 30. The study's findings were supported by the fact that the majority of respondents (81.2 percent) were aware that coronavirus is positive sense ss RNA virus. COVs are large viruses with spike-like projections on their membranes. They are enclosed, icosahedral, and symmetrical particles. They contain a huge single-stranded, positive-sense, non-segmented RNA genome ranging in size from 26 to 32 kb. [12]

COVID19 exhibits a wide range of clinical manifestations, with a considerable number of asymptomatic carriers. The exact rate of asymptomatic infection, however, has yet to be determined because the majority of patients eventually become symptomatic. The disease's median incubation period is 5 days, ranging from 2 to 14 days. The symptoms typically range from mild to moderate upper respiratory tract infection in the form of fever with associated fatigue, cough, and sore throat, while non-respiratory symptoms such as palpitation, headache, watery diarrhoea, abdominal pain, nausea, and vomiting precede the respiratory symptoms in about 15% of patients. Severe disease,



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which occurs in approximately 15% of cases, is characterized by one or more of the following features: dyspnoea, respiratory rate (RR) >30/min and oxygen saturation (SpO2) 93 percent, PaO2/FiO2 300 mmHg, and/or lung infiltrates occurring within 24–48 hours in >50% parenchyma. Patients with critical disease frequently have previous risk factors such as hypertension, diabetes, chronic heart, lung, liver, or renal disease, cancer, and cellular immune insufficiency, or they may be smokers, obese, or old. Regarding the covid-19 symptoms, dental professionals showed good knowledge. DHCPs were aware of initial symptoms may play a pivotal role in mitigating the disease. The majority of the respondents had a firm knowledge of the symptoms were consistent with earlier research done in 2020.[13-15]

SARS-Cov-2 can spread by both direct (droplet and human-to-human transmission) and indirect (infected objects and airborne infectious) contact, as DHCP was well aware. Our findings were consistent with those of other investigations.[14]

Covid-19 can be contracted if a person comes into direct contact with mucous membranes such as the eyes, nose, or mouth after touching a surface infected with SARS-COV-2. As a result, adequate hand cleaning with soap and water or hand sanitizers is advised. The majority of the respondents had a firm knowledge of the mode of transmission and were also aware of the preventive and precautionary measures implemented during the pandemic, which resembled the findings of research conducted in 2020 by Ferdous MZ et al.[16]

In current investigation, we discovered a significantly positive view regarding COVID-19. Most dental practitioners were aware of preventive measures against this infectious disease, such as wearing masks and sanitizing their hands, based on research. Chen et al suggested that prior airborne pandemics have demonstrated that social distance, frequent hand washing, and wearing a face mask in public can effectively reduce transmission. Physical separation and isolation are very effective at limiting transmission. In addition to proper hand, hygiene uses soap and water or an alcohol-based hand sanitizer. It has been demonstrated that hand rub is effective.[6]

Overall, the dental professionals of UT J and K demonstrate a high level of knowledge and a positive attitude toward COVID-19, which is compatible with the findings of the other studies. To decrease disease propagation in dental health care facilities and the community, a high level of knowledge is needed and must be maintained. As a result, judicious knowledge and preventive awareness of COVID-19 should be imparted to dental workers during this global disaster.[15,16]

The above results concerning knowledge shows that the majority of participants who participated in the questionnaire were aware of corona virus type, symptoms, transmissibility factors, and preventable measures for its suppression. Similar type studies have been reported by Rao.et.al which examined that the dentistry students and professionals who filled the questionnaire knew a lot about corona virus and COVID-19.[17]Also, for the attitude of patients toward COVID-19, the majority believe dentists are prone to COVID-19infection both due to endodontic treatment and extraction. Also, the majority of respondents believe in checking a patient's travel history and body temperature for performing dental surgery. The majority also know the utility of the N-95 mask to avoid infection. Similar type studies concerning knowledge and attitude have been investigated by Giao and colleagues in 2020 in which roughly two-thirds of the participants were aware of the mode of transmission, the isolation period, and the treatment of COVID-19.[18]

## Conclusion

We find that dental students and staff were well-informed on the COVID-19 pandemic and COVID-19 infection prevention methods. Controlling the spread of Coronavirus COVID-19 infection requires public awareness of the virus. Providing students with accurate information on the viruses as early as possible would aid in controlling their spread and preventing the spread of new viruses in the future.

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