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Assessment of the Knowledge, Awareness and Attitude of Dental Professionals Towards Patient Care after the Outbreak of Novel Corona Virus- A Questionnaire Study

Diksha A. Mittal
PG student, Dept. of Prosthodontics, Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Navi Mumbai

Gunjan Jain
PG student, Dept. of Prosthodontics, Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Navi Mumbai

Mahesh Ghadage
Assistant Professor, Dept. of Prosthodontics, Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Navi Mumbai

Mridula Joshi
Professor, Dept. of Prosthodontics, Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Navi Mumbai

Uttam Shetty
Associate Professor, Dept. of Prosthodontics, Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Navi Mumbai

Swapnali Shinde Kamble
Preventive and Pediatric Dentist, Founder and Head Dentist @ Child Dental Home, Borivali (W)

***Abstract*---**A novel human coronavirus is responsible for the latest pandemic that is exerting an effect on health of the population and economy across the world. Due to the attributes of a dental setup, the risk of cross infection between the dentist and patients can be exorbitantly high. Dentists come across patients with presumed or confirmed COVID-19 and have to ensure stringent infection prevention and control to prevent its nosocomial spread. For this, they need to update their knowledge, skills, awareness and attitude regarding infection control and follow the protocols recommended by

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***Corresponding author**: Mittal, D. A.*
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the relevant authorities. A customized questionnaire was prepared and validated. The questionnaire was sent to the consenting participants through various social network platforms. The responses were collected and analysed. Most of the dentists believed that the new 'normal' in dentistry post pandemic would require changes in the structure of dental treatment. More than 50% of participants believed that triage of patients should be done. One-third of the participants were not aware regarding Personal Protective Equipment (PPE) wearing protocol to be used while rendering dental treatment. A majority of dentists had a fair knowledge about COVID-19. Most of them preferred restricting work to only emergency cases and also favoured antigen/antibody testing of the patient before treatment.

***Keywords*---**dental professionals, patient care, corona virus, personal protective equipment (PPE).

Introduction

Several epidemics have affected India and other countries in the past, which were successfully grappled with appropriate measures and treatment via intense research. A novel human coronavirus first referred to as the Wuhan coronavirus (CoV), currently named as severe acute respiratory syndrome (SARS)-CoV-2, is responsible for the latest pandemic that is exerting an effect on health of the population and economy across the world.[1] The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. Due to the characteristics of dental settings, especially dental aerosol generation procedures, the risk of cross infection between dental health care personnel and patients can be very high.[2]This is the reason that the dental profession has been disrupted during the pandemic. Dental care provision was ceased completely or partially (limited to emergency or urgent treatment) in most countries around the world. COVID-19 may present with symptoms like dry cough, fever, sore throat, headache, lethargy, to difficulty breathing. Dentists must be aware of oral findings, such as altered taste (dysgeusia/ageusia), xerostomia, and exanthematous lesions like petechiae, ulcers, erosions, blisters which might be early symptoms of COVID-19 and present before other typical clinical symptoms. Dentist needs to replace basic treatments addressing the most frequent needs with alternative interventions involving a lower infection risk.[3,4]

Dental specialists in the upcoming days will probably come across patients with presumed or confirmed COVID-19 and will have to ensure stringent infection prevention and control to prevent its nosocomial spread. Until this pandemic is controlled by new suitable treatments and/or vaccination, there is an urgent need to adopt immediate guidelines and standards for the safe provision of dental care to meet patients demands, especially for the dental aerosols.[5] Dental health care personnel need to update their knowledge and skills regarding infection control and follow the protocols recommended by the relevant authorities to protect themselves and their patients against infections. Pathways to dental care provision in a post-pandemic future with persisting risks are needed. This will

require not only adequate knowledge about the same, but also a change in awareness and attitude towards practising dentistry in the present scenario.[1,6] Therefore, our aim was to assess the knowledge, awareness and attitude of dental professionals towards patient care after the outbreak of novel corona virus and to provide effective recommendations for dental practitioners.

Methods

This study was carried out on different social network platforms through a google form. The study was conducted on the participants fulfilling the inclusion criteria. Participants were informed and consent was taken.

- Inclusion criteria:
  - Participant willing to take part in the study.
  - Participant should be a registered Dentist.
- Exclusion criteria:
  All those participants not fulfilling the inclusion criteria were excluded from the study.

Methodology

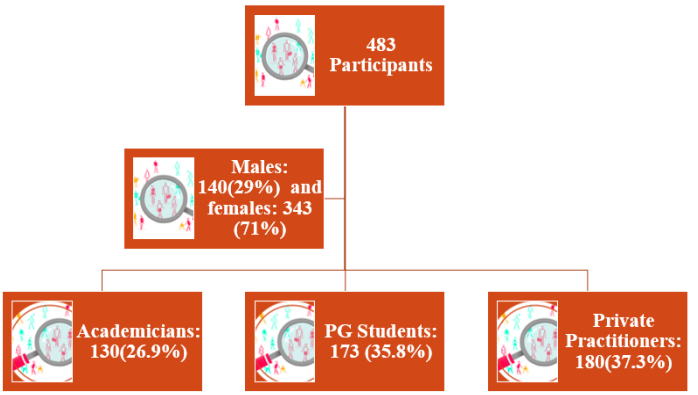
A customized questionnaire containing 24 questions in the Google Form software was prepared. It was validated by eight experts. The survey was pilot tested in a sample of 15 dentists to check the clarity of all questions. Dentists did not report any problems in understanding the questionnaire. The questionnaire was sent to the consenting participants through social network platforms like WhatsApp, Facebook, Telegram. The responses were collected and analyzed.

Statistical analysis

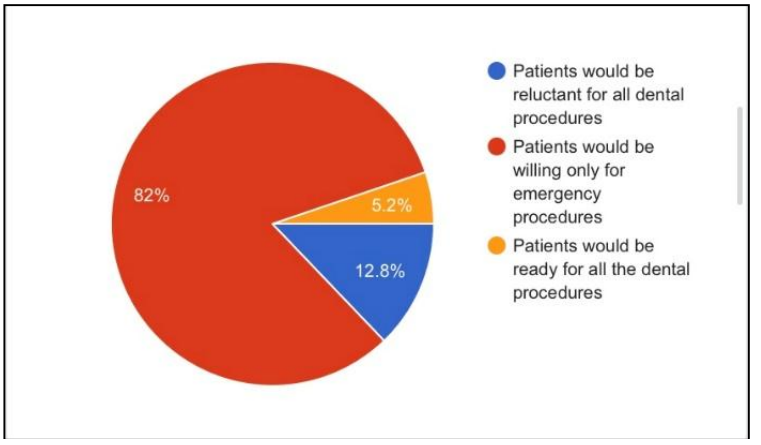
Sample size was not based on any statistical calculations and assumptions and it was planned to include maximum dental professionals. All data was prepared, validated and entered into a Microsoft Office Excel (version 2013) in a spreadsheet for the data form. Data was entered and checked for errors and discrepancies. Data analysis was be done using statistical package for social sciences (SPSS) for Windows, Version 15.0 (SPSS Inc., Chicago, USA). There being no study hypothesis, analysis was presented for the responses to the questions. Data is presented as numbers with percentages for the responses.

Results

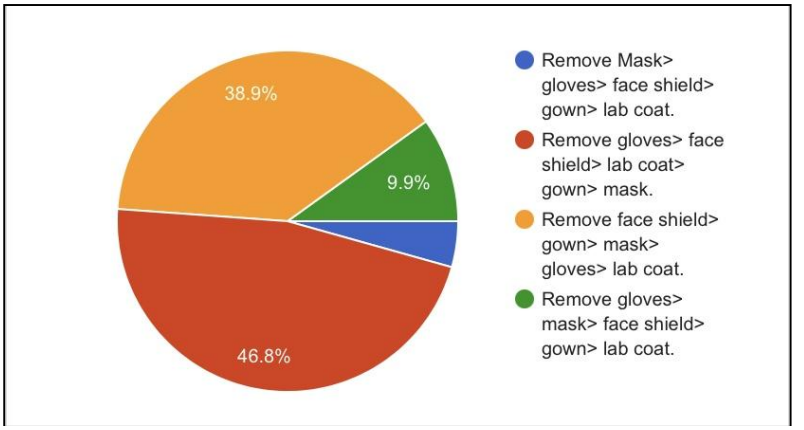
Out of the 483 Participants, 343 (71%) were females and 140(29%) males. Out of which 130(26.9%) were Academicians: 130(26.9%), 173 (35.8%) PG Students and 180(37.3%) Private Practitioners.



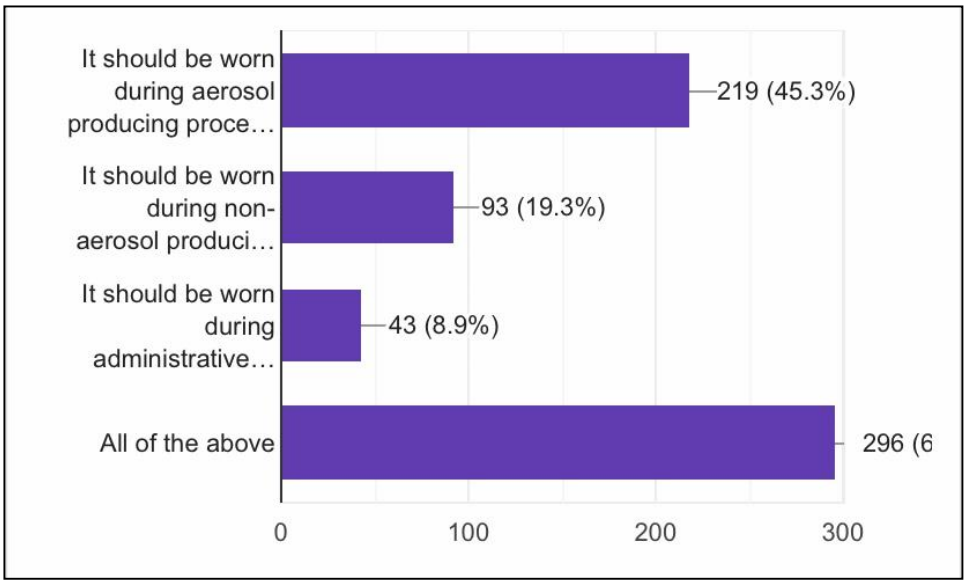
Most of the respondents believed that they knew the possible routes of corona virus transmission, also they agreed that the "new normal" due to pandemic would require changes in dental treatment protocol. Most of the respondents felt the need to ask about the history of symptoms and travel but were not sure if the patients would be honest about their contact history. When enquired about the attitude of patients towards dental treatment most respondents thought patients would be only willing for emergency procedures, and also most of them would want to setup pre-checkup triages for their patients.



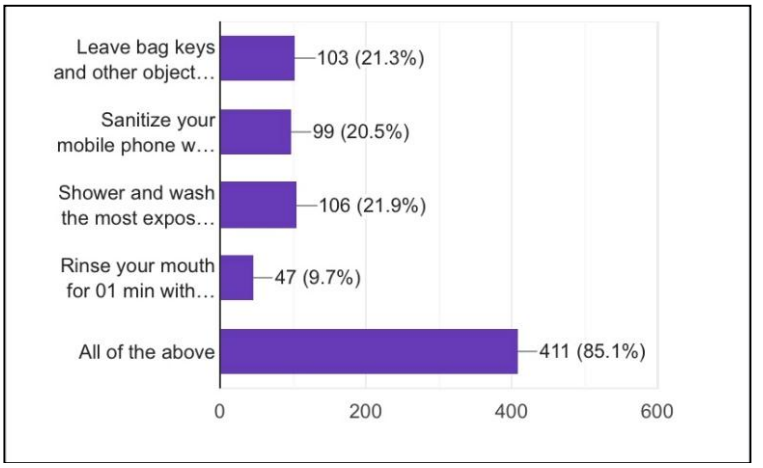
Nearly all respondents (97.7%) agreed that prior appointments should be given to avoid large crowds in the waiting area and agreed to pay more attention to sterilization after covid-19. Most respondents (83.2%) correctly answered that not using shared pens and magazines in the waiting area was a precaution to be advocated and were aware of the CDC guidelines for PPE kit wearing and waste disposal. However, only 46.8% were able to correctly identify the sequence of removal of PPE kits i.e., gloves> face shield> lab coat> gown> mask.



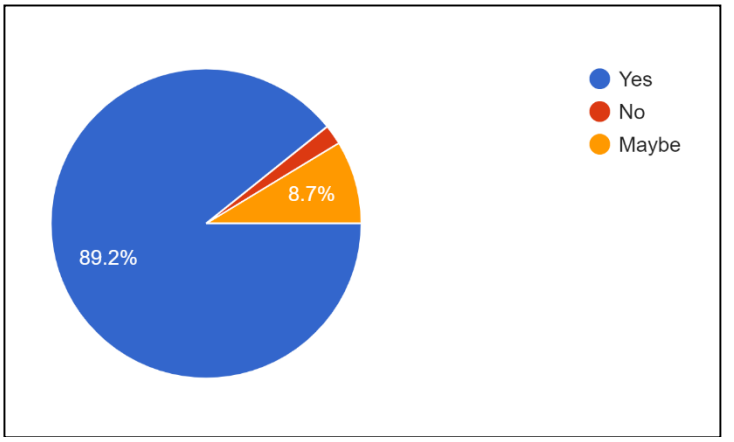
Some of the respondents felt it was necessary to wear PPE only during aerosol-producing procedures to reduce risk of infection while most felt it was necessary during the whole appointment duration. According to most of the respondents all of the precautions such as correctly wearing PPE, Pre-procedural antimicrobial mouth rinse, Waterline disinfection, and isolation rooms, were necessary during the pandemic.



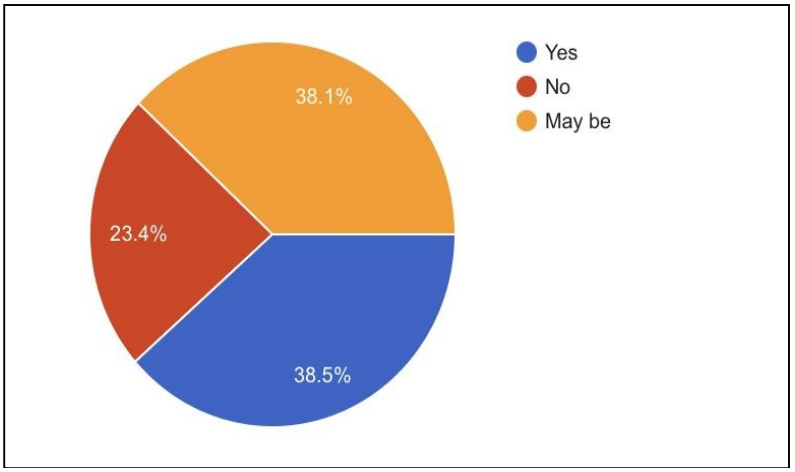
Almost all respondents (89.9%) felt that the auxiliary staff should also use protective wear and when asked about disinfection procedures after every appointment, most of them (76.8%) felt that both surface disinfection and fumigation were essential. Most of respondents correctly identified that using rubber dams and high-volume suctions minimised aerosols and only a few respondents were unaware. When asked about what all precautions were necessary when one returned from clinic to home most of the respondents agreed to all given options.



Almost half (58%) of respondents felt the need to hike the charges and that adequate support was given to them by various dental organisations/ associations/ councils during the pandemic. Most of the (71.8%) respondents felts that the state/ central government should provide economical package to private dental practitioners to meet the running cost of their clinics during lockdown. Most of dentists felt that the extra precautionary measures would affect the quality and quantity of work done by them, also most of the (89.2%) respondents felt that the dentist along with the auxiliary staff should undergo an educating and moral boosting program regarding COVID-19 protocols before starting with clinic.



Regarding antigen/antibody test for SARS-Cov-2, half of the respondents felt it should be done for all patients. 23.4% respondents felt it was not required whereas 38.1% were undecided whether it was required or not.



We tried to check whether there was any association between the qualification of the respondent and their answers. As regards to knowledge about the routes of transmission of virus, a Chi-Square test showed that there was no significant difference between the 3 groups [x2(4)=7.122, p=0.130]. Similarly, there was no significant difference between three group regarding:

- Their opinion about change in protocols in the "new normal" era [x2(4)=7.783, p=0.100], their knowledge about symptoms. And also, their opinion about honesty of the patients as shown by the Fishers Exact test.
- There was general agreement among the three groups that pre-checkup triages should be setup.
- All 3 groups gave equal importance to sterilization and precautions to be taken in the waiting area.
- When inquired about the attitude of patients regarding dental treatment, 91.1% Private Practitioner's said patients would only come for emergency procedures whereas only 78% Post graduate students and 74.6% Academicians felt so.
- The awareness about PPE donning and doffing protocol was the least in Post graduate students (78.5%), followed by academicians (85%) and maximum in Private Practitioner's (87.2%). This difference was statistically significant (p=0.049*)
- Academicians showed better knowledge about the sequence of PPE removal (41.5%) compared to Post graduate students and Private Practitioner's (37.6% and 38.3% respectively). This was statistically significant (p=0.029*)
- Regarding hiking of charges all groups equally agreed that charges should be hiked (p=0.288) and also that an economic package should be given to dentists (p=0.597)
- There was a significant difference in opinion regarding the reduction in quality of work when using extra precautionary measures (p<0.001*) with 75.1% Post graduate students feeling the quality of work would be reduced compared to only 58.3% Private Practitioner's and 56.2% academicians.

Discussion

India has the second highest number of dentists in the world: about 3 lakh are registered with the Dental Council of India (DCI). As there is a prodigious number of professionals practising dentistry in India, the necessity to gauge the role of dental professionals in preventing the transmission of COVID-19 becomes even more important. There are very few studies which have assessed the knowledge and awareness about Covid-19 amongst dentists in India. Thus, our study was an attempt to provide an insight about the understanding and comprehension of dentists regarding Covid- 19.

This study began in the month of August, 2020 when there was lack of complete cognizance about Covid- 19. About 93% participants were knowledgeable about the possible routes of transmission of coronavirus. In a similar study in Jordan, among practising dentists, it was found that 71.7%were aware of mode of transmission of COVID-19.[7] The present knowledge score (93%) is similar to a study conducted by Kamate et al[8], Widyarman et al[9] and shows that the knowledge regarding transmission routes of Covid – 19 is sufficient in India. Most of the dentists also agreed that a new normal or a change in the protocol for treatment is required.

The World Health Organization declared the outbreak of coronavirus as a pandemic on 11th March 2020. After which recording the travel history and contact history (with an infected patient) became a requisite due to the global outbreak. In our study about 98% respondents acknowledged the importance of same. It is consistent with the multinational study conducted by Kamate et al[8]. The majority of the participants (82%) of the present study believed that patients would be ready for only emergency procedures. This is in accordance with a study conducted by Ahmadi et al[10] in Iran. In that study, significant number of the participants mentioned that they do not perform any non-emergency procedures, and they have lowered their work hours to minimize the spread of the virus.

98% of respondents agreed that patients should be encouraged to take appointments online or register telephonically. Teleconsultation and tele triage can offer an unusual solution to resume dental practice during the current pandemic and avoid large gathering of people. Teledentistry satisfies the need for social distancing as has been advocated by the health authorities all across the globe to contain the spread of SARS-COV-2 virus. Teledentistry can be incorporated into routine dental practice as it offers a wide range of applications such as remote triaging of the suspected COVID-19 patients for dental treatment and decreasing the unnecessary exposure of healthy or uninfected patients by decreasing their visits to already burdened dental offices and hospitals, as elucidated by Ghai et al[11].

Many guidelines have been designed and developed by authorities like Centres for Disease Control and Prevention (CDC), ADA, Ministry of Health and Family Welfare Government of India. Most of the respondents were aware about the use of PPE of for infection control and alarmingly only 50 % of them correctly answered the correct donning and doffing protocol for PPE as given by CDC.[12] The awareness about PPE donning and doffing protocol was the least in Post graduate

students (78.5%), followed by academicians (85%) and maximum in Private Practitioner's (87.2%). This tells us that the more qualified and experienced group have better knowledge and are updated about the standard of treatment needed during the pandemic. This needs to be addressed and measures should be taken to educate the dental students about various guidelines and treatment protocols which are necessary after the outbreak of virus.

Recent guidelines describe the importance of pre procedural mouthrinse, wearing of PPE, waterline disinfection, fumigation and disinfection of the operating room in reducing the spread of virus. About 87% of the respondents found it essential to fumigate and disinfect the operating room. Most of the respondents (80%) were aware that rubber dam and high-volume saliva ejectors are helpful in minimizing aerosols. In a study conducted by Shenoy et al 35% of the participants did not use rubber dams.[13] Lack of training and time-consuming steps were the possible the reasons to avoid using rubber dam. Majority of the dentists believed precautions like N95 mask and surgical gown are necessary for the auxiliary staff. Education and training of the auxiliary staff is of utmost importance for them to follow the recommendations for Sterilization and Disinfection protocols.[14]

A significant number of the respondents felt the need to hike treatment charges during the pandemic. Use of PPE, limited working hours and a lesser number of appointments could be the reasons to hike dental treatment costs. In a study conducted by Ahmadi et al, they asserted that dentists in their country were under financial crisis during to the nationwide lockdown which led to increase in the treatment costs provided by them[10]. Based on our study and other studies, we recommend that various dental organisations and councils should increase their efforts to fund the dentists and the auxiliary staff during such unprecedented times.

Respondents in our study were undecided about the necessity of an antigen/ antibody test for every patient. CDC suggests that in addition to the use of universal PPE and source control in healthcare settings, targeted SARS-CoV-2 testing of patients without signs or symptoms of COVID-19 might be used to identify those with asymptomatic or pre-symptomatic SARS-CoV-2 infection and further reduce risk for exposures in healthcare settings. This study has some limitations. As our study was carried out on a social platform, the questionnaire was circulated in specific groups and regions of the country. Due to the limited time frame of the study, it was difficult to keep the questionnaire up to date with the ever-changing guidelines. Despite the limitations identified, our study addresses most of the aspects in relation to Covid- 19.

Conclusion

- Dental Partitioners in India, exhibited good knowledge regarding COVID-19.
- However, some had little comprehension about the extra precautionary measures to be adopted for prevention of virus transmission for which development of strategies suitable for improving the level of knowledge and awareness in dental practice is necessary.

The dental practitioners suggested several strategies to reduce the risk of contagion like reducing the number and duration of appointments, restricting to emergency work and also mentioned that educating the auxiliary staff regarding strict disinfection and sterilization was of outmost importance.

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