

## SAFETY MEASURES BEFORE AND DURING THE COVID-19 PANDEMIC IN DENTAL CLINIC SETUP: A SURVEY.

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### ABSTRACT

**Background:** SARS COV-2 virus causes severe acute respiratory syndrome. This viral infection that originated in Wuhan has rapidly spread to the entire world and led to an outbreak of a pandemic. As the dentist and the dental assistant team are in vicinity of oral cavity, which can be a source of infection, a survey was carried out to study the safety protocols followed by the dentists in the present situation during the outbreak of COVID-19 infection.

**Materials and Methods:** A questionnaire was circulated through Google forms and comprised of 16 questions. Completed questionnaires were only included in the study.

**Results:** Most of the respondents had thorough knowledge about the sterilisation protocols.

**Conclusion:** It was observed that the practices followed before the outbreak of infection were safe and that most of the respondents in India had adequate knowledge about the protocols that had to be followed during the COVID-19 times.

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### INTRODUCTION

In December 2019, there was an outbreak of a deadly virus in Wuhan which later disseminated to involve over 200 countries worldwide and a pandemic was declared by WHO. This COVID-19 pandemic is caused by corona virus, belonging to Coronaviridae family of viruses. The COVID-19 infection spreads through aerosol particles. There have been reports of this virus staying viable for 2 hours to 9 days on inanimate surfaces[1].

Due to the outbreak of COVID-19 outbreak, major changes has been brought about in the daily routine way of life. The dentist, including the dental assistants and auxiliaries working in the dental operatory are at a high risk of infection due to close proximity to oral cavity. During all dental procedures there is contact with saliva, blood and other respiratory secretions, which are known to have high bacterial load.

Patients visiting dental operatory can be asymptomatic, but can be a source of infection. Most of the dental

procedures cause generation of aerosol particles. Thus the risk of nosocomial transmission to the dentist, dental personnel working in the dental clinic and the next patients is increased. Hence crucial changes are needed to be implemented in the routine dental practice. Therefore, the aim of this questionnaire based survey is to study the safety protocols that have been practiced before the onset and through the course of COVID-19 pandemic.

### MATERIALS AND METHODS

The present survey was conducted to observe the dental protocols carried out before and during COVID-19 times. The questionnaire based survey consisted of 16 questions. The first part of the questionnaire consisted of questions related to everyday dental practice taking place before COVID-19 pandemic. The remaining half of the questionnaire included questions associated with the dental practice conducted in present pandemic time. Nearly all the questions were closed ended. Some questions were open ended with a provision for unrestrained answer. The

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questionnaire was circulated to dental practitioners, post-graduate dental students and under-graduate dental students through Google form. The questionnaire was designed to evaluate the behaviour and attitude of the dentist towards the routine dental practice. To minimise the bias, the involvement of the participants was kept anonymous. Strict confidentiality was maintained. The participation was kept voluntary. A self-designed questionnaire was prepared in English language.

The questionnaire consisted of the following questions

1. Have you used PPE kit before COVID-19 times to treat any patient?  
A) Yes B) No
2. In case the answer for the above question is yes, please specify the case for which you have used?
3. Before COVID-19 had set in, did you decontaminate the work surface with ethyl alcohol before every patient?  
A) Yes B) No
4. In the past, have you administered mouthwash to your patients before commencing any dental treatment?  
A) Yes B) No
5. Prior to COVID-19 pandemic, did you practice forearm washing/hand hygiene before and after treatment?  
A) Yes B) No
6. Have you always worn a head cap while addressing the patients, before COVID-19 times?  
A) Yes B) No
7. Until the COVID-19 pandemic, have you used a protective eyewear/face shield while performing oral prophylaxis or scaling?  
A) Yes B) No
8. How did you handle autoclaved instruments till the onset of COVID-19?  
A) Ungloved hand B) Gloved hand C) Cheatle's forceps D) Tweezer E) Other \_\_\_\_\_ (specify)
9. Before COVID-19 pandemic did you use separate footwear for your dental work area?  
A) Yes B) No
10. Have you practiced double glovetechnique priorto COVID 19?  
A) Yes B) No
11. Till the outbreak of COVID-19 pandemic, did your dental assistant wear gloves while holding suction?  
A) Yes B) No
12. At present, do you cover your chair light handle and other parts of chair with disposable films?  
A) Yes B) No
13. During theCOVID-19 times, how do you sterilisescaler tips?  
A) Put them in clinical spirit B) Autoclave C) Glass-bead sterilizer D)Other \_\_\_\_\_ (specify)
14. Presently, do you think isolation with rubber dam is an important method for infection control?  
A) Yes B) No
15. Currently what do you wash your hands with after attending to patients?  
A) Plain water B) Disinfecting solution C) Soap D) Other \_\_\_\_\_
16. Do you ask patient to take SARS-COV-2 test before starting the treatment?  
A) Yes B) No

The link for the Google forms was passed on through emails and Whatsapp messenger. The access to the responses and data from the survey was given only to the Principal examiner. Only the responses that were received within the stipulated time frame of 1 month were included in this study.

### Statistical Analysis

The data collected from the responses, was analysed using SPSS (Inc, Chicago, IL, USA). The responses were considered statically significant if the p values was <0.05.

## RESULTS

A total of 770 responses were received within the time frame. Only the forms that were completely filled, were included for this survey. The respondents included general practitioners, undergraduate dental students and post-graduate dental students. Out of 770 respondents, 26% consisted of undergraduate students, 35.2% were postgraduate students and general practitioners formed 37.9%[Fig 1].

## DISCUSSION

COVID-19 is a novel disease, and not much is known about it in depth. After the outbreak of the pandemic, the number of cases have been rising exponentially. After its outbreak in China, a small number of cases were reported of dentists getting affected by the novel disease [2]. Though much information was not available about the spread of this novel viral disease amongst the dental practitioners in India, guidelines were issued by the Indian Dental Association for preventive measures for coronavirus [3]. According to these guidelines, certain changes had to be implemented in the routine protocols that were practiced by the dentists. Thus, this study compared the measures followed by the clinician before the onset and during the time of this global pandemic.

When questioned about the usage of PPEs, only 22.7% of the total respondents stated that they had used PPE before COVID-19 times, and it was mainly for surgical extraction of impacted third molars, periodontal flap surgery or HIV and Hepatitis patients[Fig 2 & 3]. It was observed that before the outbreak of COVID-19 pandemic, a significant amount of respondents, used to administer mouthwash before commencing any dental treatment(91.9%) [Fig 5] and practiced forearm washing before and after treatment (89%) [Fig 6]. The data collected from the responses, showed that before COVID-19 had set in, only a small fraction of the respondents decontaminated the work surface with ethyl alcohol before every patient(32.5%) [Fig 4] and wore a head cap while addressing patients(28.3%) [Fig 7].

A sizeable number of respondents(91.3%) stated that they had been using a protective eyewear/ face shield while performing oral prophylaxis before the COVID-19 pandemic[Fig 8]. When asked about handling of instruments till the onset of COVID-19, a greater number of respondents stated that they handled the autoclaved instruments using either a Cheatle's forceps(49.4%) or with gloved hands(41.2%)[Fig 9]. Prior to COVID-19, more than half of the respondents used to keep separate footwear for the dental operator area(57.9%) [Fig 10] and had practiced double gloved technique (68.4%) [Fig 11].Until

the outbreak of COVID-19 pandemic, most of the respondents were assisted by their dental assistants, who wore gloves while holding the suction for the clinician(73.4%)[Fig 12].

At present, appreciable amount of the respondents mentioned that they did not cover their chair light and other parts of dental chair with disposable films(73.5%)[Fig 13]. It was also noticed that during the COVID-19 times, a considerable amount of respondents sterilised the scaler tips by either autoclaving them (44.4%) or putting them in glass bead steriliser (31.3%) [Fig 14]. Nearly all of the respondents (95.5%) considered rubber dam as an important method for infection control [Fig 15].

Presently, during the COVID-19 times, it was observed that a vast majority of the respondents washed their hands with soap(70.8%) or a disinfecting solution(24.8%) after attending to the patients[Fig 16]. A substantial number of respondents(84.3%) did not ask their patients to take the SARS-COV-2 test before commencing their dental treatment [Fig 17].

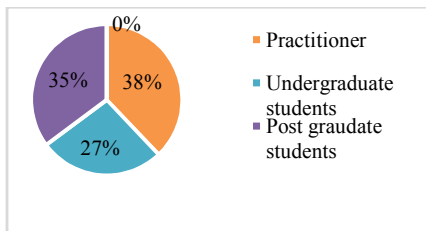


Figure 1 Distribution of the respondents

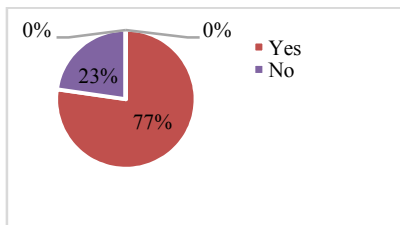


Figure 2 Analysis of respondents using PPE before COVID-19 times

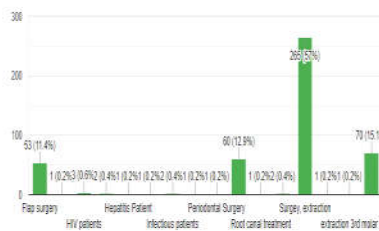


Figure 3 Cases for which PPE was used prior to COVID-19 pandemic

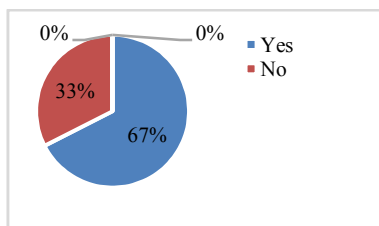


Figure 4 Analysis of respondents decontaminating work surface with ethyl alcohol before COVID-19 times

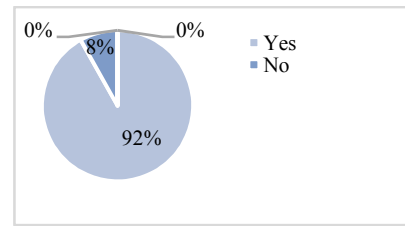


Figure 5 Administration of mouthwash prior to commencement of treatment

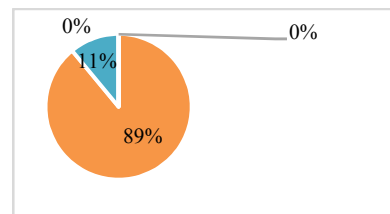


Figure 6 Practice of fore arm washing before treating every patient prior to COVID-19 times

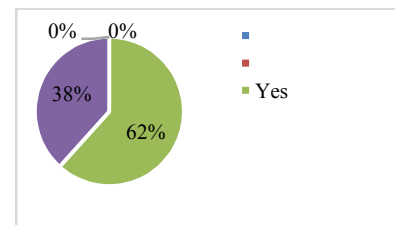


Figure 7 Head cap worn while addressing patients before the COVID-19 pandemic

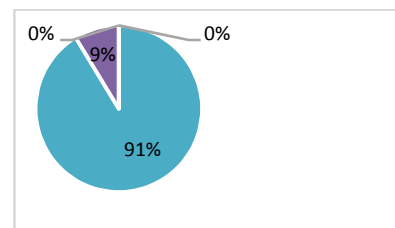


Figure 8 Wearing of protective eyewear until COVID-19 while performing oral prophylaxis

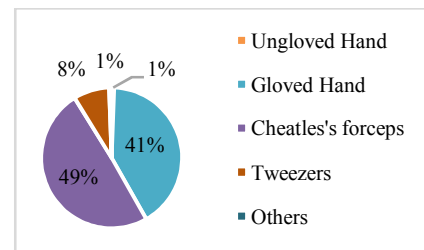


Figure 9 Handling of autoclaved instruments till the onset of COVID-19 pandemic

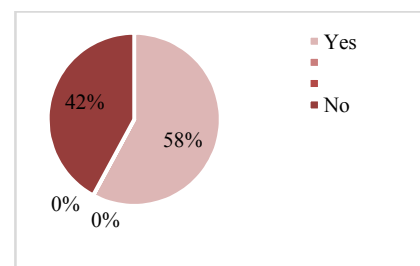


Figure 10 Using of separate foot wear for the dental work area before COVID-19 times

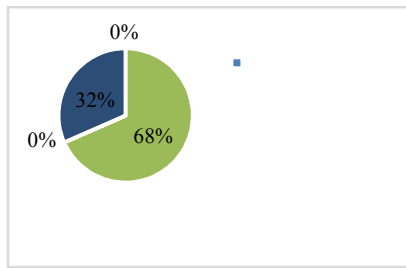


Figure 11 Practicing double glove technique prior to COVID-19 times

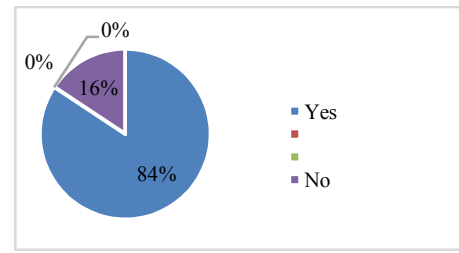


Figure 17 Respondents asking the patients to take SARS-COV-2 test before commencement of treatment

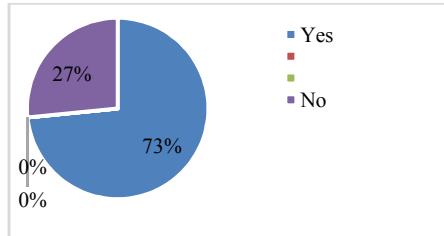


Figure 12 Dental assistant wearing gloves while holding suction till the outbreak of COVID-19 pandemic

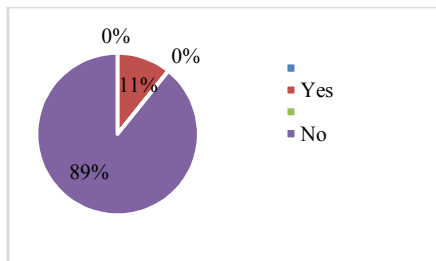


Figure 13 Covering the parts of dental chair with disposable plastic during the COVID-19 times

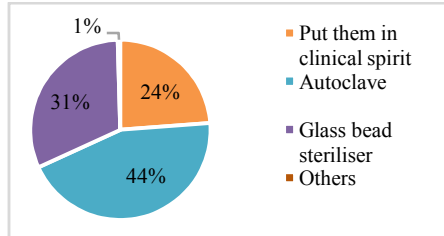


Figure 14 Sterilising of scaler tips during COVID-19 pandemic

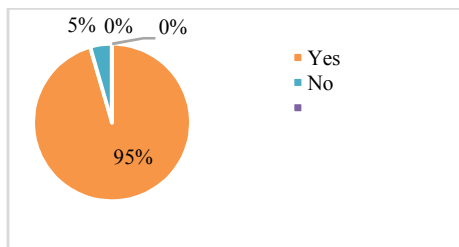


Figure 15 Rubber dam as an important method for infection control

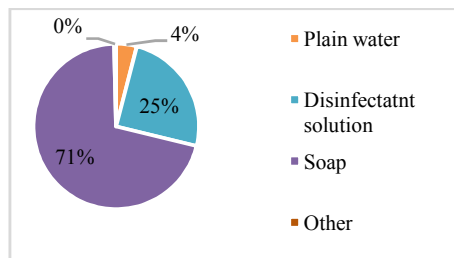


Figure 16 Method used for hand washing after attending to patients during COVID-19 times

## CONCLUSION

In the present study, it was observed that dental practitioners in India had sufficient knowledge about the protocols to be followed during the COVID-19 pandemic times. The dental practices that were followed before the outbreak of the pandemic were hygienic and safe and closely followed the guidelines that were issued for prevention of COVID-19 spread. The cost of the SARS-COV-2 detection test is at present comparatively higher in India, and thus it possibly seems the reason for a majority of the practitioners not making it mandatory to conduct the test before commencing of any dental treatment. But, with further research in this field, the cost of the test would eventually come down, and thus, taking test before starting the dental treatment, would later not only help in controlling the spread of COVID-19 infection but also help in the early detection of asymptomatic cases.

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