

Repercussions of Covid-19 Pandemic on Dental Practice in Gujarat State - A Questionnaire Based Study

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Abstract

Objective: The COVID-19 pandemic is a worldwide health emergency of international concern. Dentists have a greater risk for contraction of the corona virus, with many routine dental procedures having the potential to transmit the virus through aerosols. The arrival of the Omicron variant which is four to eight times more infectious than the Delta variant enforces the need to utilize standard precautionary measures to control the spread of COVID-19.

Methods: A questionnaire with sixteen questions was distributed to the dental health professionals using various social media platforms. An observational study was conducted to assess the awareness and hygiene practices among dental practitioners during COVID-19 and its impact on dental practice.

Results: Out of the 186 respondents, majority of them checked every patient's body temperature and oxygen saturation before performing a dental treatment and 80.1% of them checked the status of a patient's vaccination before dental treatment. 80.1% of the subjects deferred dental treatment of patients showing suspicious symptoms. 87.6% of the subjects provided patients with a mouth rinse before performing a dental procedure. Only 48.4% of the subjects practiced Tele-medicine during pandemic and 48.9% of the subjects delivered dental treatment to patients treated for Post-COVID Mucormycosis. Majority of the subjects reported an increase in stress due to the challenges faced in delivering patient care and worked for fewer clinical hours per day.

Conclusion: This study reveals that the outbreak of COVID-19 has significantly affected dental practice. But, dental professionals across Gujarat have been meticulous about infection control.

Keywords: COVID 19; Impact; Dental Practice; Hygiene Practices; Tele-Dentistry/Tele-Medicine; Gujarat

Introduction

On 30th January 2020, the World Health Organization (WHO) declared COVID-19 a global health emergency of international concern [1]. Due to its rapid spread across the globe, COVID-19 outbreak was declared a pandemic on March 11, 2020 [2].

The transmission of the virus is mainly through inhalation/direct mucous contact with respiratory droplets; the virus can survive on hands, objects or surfaces that are exposed to infected saliva [3,4]. Dentists have a greater risk for transmission and contraction of the corona virus, with many routine dental procedures having the potential to transmit the virus through aerosols. Asymptomatic (carrier) patients and patients with an acute respiratory illness may present for dental treatment at outpatient dental settings [5]. The risk of cross-infection between dentists and patients is a major concern in dental clinics. Treatment procedures which involve the use of rotary dental and surgical instruments such as hand pieces or ultrasonic scalers and air-water syringes and others are a direct route for virus spread [6,7].

The arrival of the Omicron variant has become a major concern because recent data and evidence estimate that Omicron is four to eight times more infectious than the Delta variant. The spike protein mutations such as D614G, N501Y and K417N are thought to make the virus more infectious.

Therefore, the conventional protective measures are not effective enough to prevent the potential spread of corona virus especially because a large number of mists and aerosols emitted from asymptomatic cases contaminate the dental operator. The spreading alarm of transmission of COVID-19 virus has dictated the development of new guidelines and recommendations by health authorities. To ensure a safe working environment and to prevent transmission of COVID-19 in dental practice, the ministry of health and family welfare and the WHO developed guidelines and standard precautionary measures to control the spread of COVID-19 [8].

Very few studies have been carried out to assess the awareness and hygiene practices towards combating COVID-19 pandemic among dentists in India. And very little attempt has been made to assess the impact of COVID-19 on dental practice.

This study is an attempt to assess the knowledge and awareness of dentists across Gujarat state during the COVID-19 pandemic, to evaluate their hygiene practices and to understand the impact of COVID-19 on dental practice which could help us understand the changing dynamics.

Materials and Methods

A questionnaire based observational study was conducted after obtaining approval from the institutional research cell [MPDC_225/OD-14/21]. This was carried out to assess the awareness and hygiene practices among dental practitioners during COVID-19 and its impact on dental practice. All the general dentists, postgraduates and specialized dentists who were treating the patients were included in the study.

A questionnaire with sixteen questions was created using free-access Google Forms application and was distributed to the dental health professionals using various social media platforms (Table 1).

Questions	Yes	No	Sometimes
1. Do you display visual alerts about respiratory hygiene, cough etiquette, social distancing in your clinic?	80.1%	10.8%	9.1%
2. Do you check every patient’s body temperature and oxygen saturation before performing a dental treatment?	83.9%	8.6%	7.5%
3. Do you provide patients with alcohol based disinfectants and povidine-iodine mouth rinse before performing a dental procedure?	87.6%	3.8%	8.6%
4. Do you check the status of a patient’s vaccination before dental treatment?	80.1%	9.1%	10.8%
5. Do you perform hand hygiene before putting on gloves and again immediately after removing gloves?	97.8%	-	2.2%
6. Do you prefer extra-oral imaging over intra-oral techniques for diagnostic imaging?	37.6%	19.4%	43%
7. Do you perform surface disinfection using freshly prepared 1% sodium hypochlorite after every procedure and after finishing daily work?	76.9%	7.5%	15.6%
8. Do you wipe the Electronic equipments with alcohol-based rub/spirit (60-90% alcohol) swab before each patient contact?	86.6%	5.9%	7.5%
9. Do you maintain a unidirectional air flow away from the patient during aerosol generating procedures?	65.1%	18.8%	16.1%
10. Do you defer dental treatment of patients showing suspicious symptoms?	80.1%	8.1%	11.8%
11. Do you defer dental treatment of patients having co-morbidities such as hypertension, diabetes, cardiovascular diseases who are at high risk of getting infected?	48.9%	21%	30.1%
12. Do you deliver dental treatment to patients treated for Post-COVID Mucormycosis?	48.9%	32.3%	10.8%
13. Have you practiced Tele-medicine during pandemic?	48.4%	40.9%	10.8%
14. Has the pandemic affected the patient volume in your dental practice?	79.6%	3.8%	16.7%
15. Have you changed your working hours due to the pandemic?	57%	23.7%	19.4%
16. Have you experienced an increase in stress due to the challenges faced in delivering patient care during the pandemic?	72.6%	9.1%	18.3%

Table 1: Questionnaire with percentage of responses.

Inclusion criteria of this study was involvement of dentists practicing in Gujarat and those willing to participate in this study. Undergraduate dental students, dentists practicing outside Gujarat State and not willing to participate in this study were excluded.

Results

The study included 186 subjects with the average age of 43 years; their age distribution is shown in figure 1. The gender distribution of the subjects is represented in figure 2. The majority of the respondents were general dentists (45.7%). The specialties of the respondents are shown in figure 3.

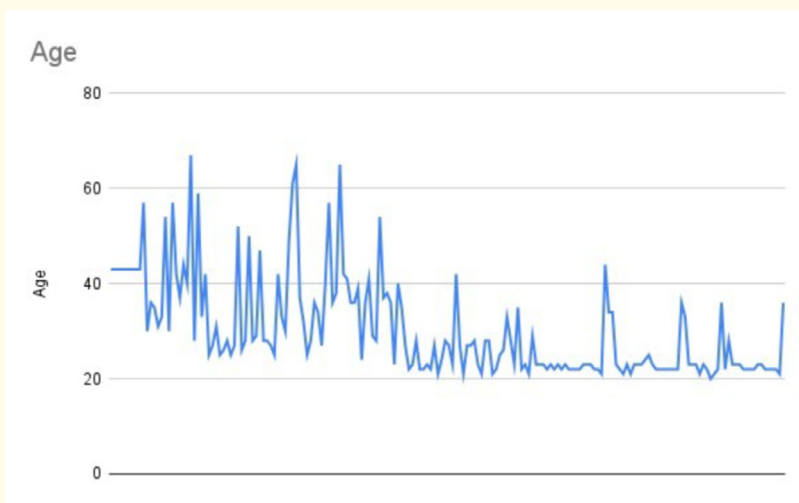


Figure 1: Line diagram chart showing age distribution of the respondents.

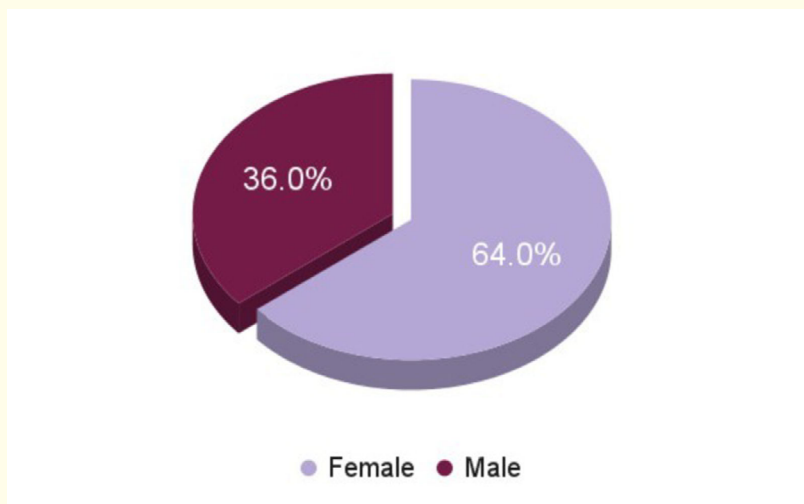


Figure 2: Pie chart displaying the gender-wise percentage distribution of the respondents.

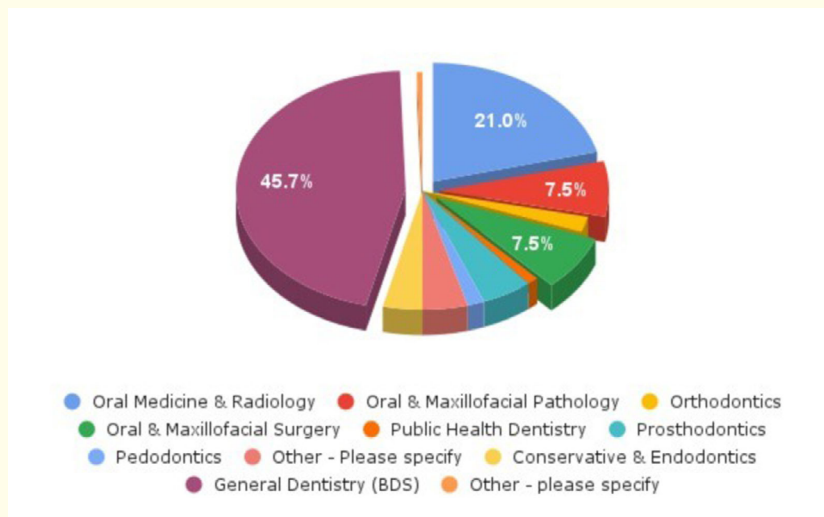


Figure 3: Pie chart showing the dental specialties of the respondents.

The results of this study showed that there exists a good knowledge among the dental health professionals pertaining to the COVID-19 virus and its oral manifestations in addition to the preventive measures to be taken for the protection against COVID - 19 in a clinical setup.

Discussion

It was observed in this study that the majority of the subjects had fair knowledge regarding COVID-19 and there were noteworthy deficiencies in some of the important aspects. The Indian Dental Association recommends posting visual alert icons like signs and posters at the entrance and in strategic places to provide patients with instructions about hand hygiene, respiratory hygiene and cough etiquette [9]. The present study showed that 80.1% of the subjects display visual alerts about respiratory hygiene, cough etiquette and social distancing in their clinic. 83.9% of the subjects follow Indian Dental Association’s recommendation and check every patient’s body temperature and oxygen saturation before performing a dental treatment. This is in congruence with the study conducted by Shenoy N., *et al.* where 74.5% of the subjects displayed educational posters on COVID-19 and 93.5% of the subjects recorded body temperature, travel history, and relevant medical history regarding respiratory illness [10].

Moreover, 80.1% of the subjects check the status of a patient’s vaccination before dental treatment. And 80.1% of the subjects defer dental treatment of patients showing suspicious symptoms. However, only 48.9% of the subjects defer dental treatment of patients having co-morbidities.

Pre-procedural mouth rinse with 0.5 - 1% hydrogen peroxide for its nonspecific virucidal activity against viruses or with 0.2% povidine-iodine is highly recommended as it might reduce the load of corona virus in saliva [11]. In the current study, 87.6% of the subjects provide patients with alcohol based disinfectants and povidine-iodine mouth rinse before performing a dental procedure. A similar result was obtained in a study conducted by Shihabi S., *et al.* where most of the respondents use mouthwashes before initiation of treatment [12].

It is essential to clean, disinfect, and reprocess reusable equipments appropriately before use with another patient to avoid transmission of the virus from one patient to another. 76.9% of the subjects perform surface disinfection using freshly prepared 1%

sodium hypochlorite after every procedure and 86.6% of the subjects wipe the electronic equipments with alcohol-based rub/spirit (60 - 90% alcohol) swab before each patient contact. It was reported that 97.8% of the subjects perform hand hygiene before putting on gloves and again immediately after removing gloves. Routinely cleaning and disinfecting the clinic surfaces was done by 76.9% of the subjects which is identical to a study conducted by Singh GR, *et al* [13].

There are high chances of contamination during dental radiographic procedures, if proper disinfection techniques are not applied. 43% of the subjects sporadically prefer extra-oral imaging over intraoral techniques for diagnostic imaging. Only 65.1% of the subjects maintain a unidirectional air flow away from the patient during aerosol generating procedures which is in contrast to a study conducted by Shihabi S, *et al.* where only half of the respondents perform air decontamination procedures [12].

Tele-dentistry is the remote facilitating of dental treatment, guidance, and education via the use of information technology instead of direct face-to-face contact with patients which can aid to contain the spread of the virus. Only 48.4% of the subjects practiced Tele-medicine during pandemic which is comparable to a study conducted by Prajapati AS, *et al.* where only 33% of the participants performed tele-dentistry and the majority of them reported that it was somewhat or not at all effective in resolving patient's problems [14]. It is due to major dental clinics do not having proper network infrastructure and trained workforce for practicing tele-dentistry. An identical result was observed in a study done by Ahmadi H, *et al* [15]. However, a study by Sarate S, *et al.* and Arora S, *et al.* reported that 61% and 46.3% of participants, respectively, consider tele-dentistry efficient [16,17]. Hence, the need of the hour is to incorporate the proper network and infrastructure to perform tele-dentistry into routine dental practice.

Despite the fact that there are frequent infection control protocols and additional personal protective equipments, 79.6% of the subjects reported that COVID-19 pandemic has affected their patient flow and 57% of the subjects changed their working hours; which is in contrast to a study conducted by Rodrigues L, *et al.* where 55.6% of the participants polled that the pandemic affected the patient flow at their respective clinics and majority of dentists (83.3%) reported of working for lesser clinical hours per day [18].

Dental healthcare workers illustrate severe anxiety and stress associated with elective dental procedures. 72.6% of the subjects reported to have experienced an increase in stress due to the challenges faced in delivering patient care during the pandemic which is in accord to a study conducted by Singh H, *et al.* which concluded that the pandemic showed detrimental psychological and physical effects on the dentists [19].

Conclusion

This study indicates that the outbreak of COVID-19 has significantly affected dental practice. But, dental professionals of Gujarat have been meticulous about infection control due to high risk of cross-contamination during dental procedures. Tele-dentistry should be incorporated in routine dental practice. Also, psychological support for dental healthcare professionals should be made accessible.

Conflict of Interest

Nil.

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