

Effect of covid-19 on routine general dental practice- A questionnaire based survey**Shiras Singh Dheer****Assistant Professor, Department of Dentistry, Shrimant Rajmata Vijaya Raje Scindia Medical College, Shivpuri, Madhya Pradesh, India***Received: 08-10-2021 / Revised: 29-11-2021 / Accepted: 13-12-2021****Abstract**

Background: Many dental clinics have closed due to the extremely contagious characteristics of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV2), as well as the fact that dental operations frequently generate blood and saliva droplets that could spread the virus. **Aim:** The goal of this study was to assess the influence of the coronavirus disease 2019 (COVID-19) pandemic on dental practise by conducting an online survey of dental professionals and learning about their thoughts on the topic. **Methods and Materials:** The information in this study is based on a survey of dentists. The dentists' thoughts and attitudes concerning the COVID-19 epidemic, as well as its impact on their personal lives, financial situation, and the quality of dental services provided to patients, were evaluated in the survey. **Results:** This research involved 240 dentists (214 general dentists and 26 specialists). During the pandemic, the majority of the volunteers (n = 170, or 70%) did not perform non-emergency procedures. Reduced treatment sessions (n = 90, 37 percent), careful triage of patients (n = 156, 64 percent), and the use of personal protective equipment (n = 108, 45 percent) are among the solutions advised by dental practitioners to reduce the risk of infection. During the pandemic, however, the majority of dentists (n = 210, or 87 percent) had difficulty supplying personal protective equipment. Furthermore, 97 percent (n = 234) of the participants stated that their financial income has decreased since the outbreak of the pandemic. **Conclusion:** COVID-19 infection is most common among dental health care workers. As a result, dental practitioners should follow normal measures with greater caution during the pandemic. To lessen the danger of COVID-19 transmission, they could shorten their work hours and limit dental procedures to emergency treatments. Furthermore, to reduce the danger of infection, public entities should offer suitable equipment for dental practitioners.

Keywords: COVID-19, Pandemic, Dentistry, Dental practice.

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Introduction

A unique beta coronavirus illness 2019 (COVID-19) outbreak emerged in Wuhan, China's Hubei province, in December 2019. The virus has now spread to every corner of the globe, causing havoc in every facet of human life. SARS-CoV-2 symptoms are similar to those of other coronavirus infections. Fever, dry cough, and weariness are among of the symptoms; nevertheless, the SARS-CoV-2 is more contagious[1]. The virus can spread by respiratory droplets and contaminated surfaces, mucosal membranes of the mouth, eyes, and nose, and even through the fecal–oral pathway. This highly contagious nature of the virus has made many medical institutions to cancel all elective procedures to reduce the risk of contagion[2]. During dental operations, blood and saliva droplets are unavoidably generated by the use of handpieces and ultrasonic devices. As a result, these droplets have the potential to infect dental instruments and the office environment. As a result, both dental professionals and patients may be at risk of contracting microbiological infections[3,4]. In this context, researchers speculated that dental clinics could be a possible transmission source of viruses such as the human immunodeficiency virus (HIV) and the hepatitis B virus (HBV), which could infect both patients and practitioners during dental treatment[5,6]. The highly contagious characteristics of SARS-CoV2, as well as the fact that dental procedures frequently generate blood and saliva droplets, allowing the virus to spread, prompted the American Dental Association (ADA) to recommend that dentists limit their interventions to emergency treatments.

Furthermore, to limit the danger of infection during the pandemic, certain preventative practises must be followed. Dentists and their helpers, for example, should provide patients pre-procedural mouth rinse on a regular basis and clean dental instruments on a regular basis. Personal protective equipment (PPE) should be utilised to decrease the danger of transmission of high volume saliva ejectors[7,8].

Patients' dental treatments have been disrupted due to the shutdown of dental clinics due to the COVID-19 outbreak. Furthermore, according to the Irish Dental Association, around 75% of dental practitioners predict a financial loss of more than 70% throughout the outbreak. Furthermore, it has been suggested that dental practitioners may become infected with the SARS-CoV-2 virus and become carriers of the infection without even realising it. As a result, dental care was restricted to emergency and urgent situations[9,10]. The goal of this study was to assess the influence of the COVID-19 epidemic on dental practise by conducting an online survey of dentists and learning about their thoughts on the topic.

Methods**Study design and population**

This research is based on a survey of dentists performed from June 10 to 25, 2020. Because most of the participants were difficult to locate, we used the chain-referral sampling method. Our study participants are general and specialised dentists, regardless of their city or workplace. We requested dentists to take part in the study via the internet (email or social media) and to circulate the survey to their colleagues whenever they had time. The Medical Ethics Committee gave its approval to the study protocol. The individuals agreed to participate in this study willingly, and signed informed permission was acquired. They were assured that no personal information would be required, and that the information they provided would be kept private. The data was collected using Google Forms and an online questionnaire.

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Questionnaire

For the current investigation, a preliminary form of the questionnaire was created based on expert opinions and guidance from relevant literature. The questionnaire's face and content validity were assessed by the experts above and a professional statistician. The survey's content was also double-checked in terms of topic concepts. As a result, the questions that were biased, confusing, misleading, and duplicate were eliminated. The questionnaire was pilot tested on a group of 20 dentists.

The survey consists of 51 questions divided into four sections. The first section contained basic demographic information. The second section comprised of closed questions (yes/no questions) about dentists' perspectives on the COVID-19 pandemic and its impact on their personal lives, financial situations, and the quality of dental care provided to patients. Multiple-choice questions about dentists' perspectives on the pandemic make up the third section. The survey's final section uses a 5-point Likert-scale scoring system to assess dentists' attitudes and perspectives on the outbreak.

Data gathering and statistical analysis

The results were gathered by a trained person who was not aware of the participants' names or degrees. Tables and graphs were created using Microsoft Excel sheets. The extracted data was checked for accuracy by two members of the study team. Descriptive statistical analysis was used to describe the items in the inquiry. The Chi-square test was also employed to see if there was any significant relationship between the parameters, with a P value of 0.05 regarded statistically significant. Statistical Package for the Social Sciences (SPSS) version 22.0 was used to make the calculations.

Results

The survey was completed by 240 dentists in total (214 general

dentists and 26 specialists). Over half of the participants (n = 150, 62%) were between the ages of 24 and 35 and had less than ten years of work experience. There were 114 (47%) men, 126 (52%) women, 108 (45%) married people, and 132 (55%) single people among all the participants. Furthermore, 71% of those who were married had one or more children (Table 1).

Our findings revealed that 18 (7 percent) of the individuals had had COVID-19 symptoms in themselves, and 3 (1 percent) had the condition. Furthermore, 9 (3%) of the individuals said their aides had the symptoms. Since the COVID-19 outbreak, nearly a third of the participants (n = 93, 38%) have reported an increase in phone calls from patients seeking treatment for dental problems (Table 2).

More than half of the participants (n = 156, 64%) thought that patients should be triaged based on their COVID-19 symptoms. Furthermore, 141 (58%) of the participants thought that reopening dental clinics will increase COVID-19 occurrence. More than half of all dentists (n = 162, 66%) anticipated that as a result of the pandemic, dental practise norms would change (Table 3).

During the pandemic, the majority of the volunteers (n = 170, 70%) did not conduct non-emergency procedures, and 228 (95%) had adjusted their work hours. The contributors had diverse ideas about the changes that need to be done in dental practise standards, with 207 (86%) emphasising the need of preventive care, avoiding performing unnecessary procedures, and keeping treatment sessions to a minimum in the future (Table 4).

Furthermore, 111 (46%) of the participants reported that since the epidemic, they had temporarily cancelled all dental procedures. Furthermore, nearly half of the participants (n = 117, 48%) agreed that dental clinics should be closed until the pandemic was over (Table 5). There was no significant relationship between dentists' job experience and their attitudes on dental clinic closures (P value > 0.05).

Table 1: The demographic data of dentists (N=240)

Patients information	Answer	Number	Percentage
Age (years)	24–35	150	62
	36–45	42	17
	46–56	42	17
	57–67	6	2
Years of experience	<10	150	62
	10–20	42	17
	20–30	42	17
	>30	6	2
Gender	Male	114	47
	Female	126	52
Marital status	Single	132	55
	Married	108	45
Number of children if married	1	49	45
	2	21	19
	3	7	6
	No children	31	29
Field of practice	Pediatric dentistry	3	1
	General dentist	216	90
	Operative dentistry	3	1
	Endodontics	3	1
	Oral and Maxillofacial Surgery	3	1
	Oral and Maxillofacial Radiology	3	1
	Orthodontics	6	2
Prostodontics	3	1	

Table 2: The COVID-19 symptoms in dental clinics, and a rise in demand for remote consultation (N=240)

Have you experienced the following statements since the eruption of the COVID-19 pandemic?	Yes		No		Not applicable	
	Number	Percentage	Number	Percentage	Number	Percentage

A rise in phone calls from patients	93	38	84	35	63	26
Visited high-risk patients	15	6	225	93	–	–
Had symptoms of COVID-19	18	7	222	92	–	–
Had a positive test for COVID-19	3	1	12	5	225	93
Your assistants had symptoms of COVID-19	9	3	231	96	–	–
Your assistants had a positive test of COVID-19	0	0	117	48	123	51

Table 3: Dentists’ viewpoints regarding the effects of COVID-19 on dental practice (N=240)

How do you agree/disagree with the following statements?	Agree		Disagree	
	Number	Percentage	Number	Percentage
I have been facing financial problems because of the pandemic	51	21	15	6
I will face financial problems soon because of the pandemic	96	40	15	6
I had the symptoms of anxiety and depression during these times	51	21	45	18
I feel that I need to consult with a psychiatrist	75	31	39	16
I have been following the latest news about the COVID-19	78	32	18	7
Following the latest news of pandemic have been useful to me	57	23	42	7
Following the latest news cause depression and anxiety	63	26	63	26
The published guidelines for dental practice during COVID-19 are helpful	81	33	24	10
The guidelines for dental practice during COVID-19 will be changed in the future	117	48	21	8
Using PPE could effectively prevent the virus transmission	84	35	30	2

Table 4: Dentists reconciled their practice to the pandemic (N=240)

How have you coped with the disruption that is caused by the COVID-19 pandemic?	Yes		No	
	Number	Percentage	Number	Percentage
I did not change my work hours, and I have been performing non-emergency procedures for the patients due to the financial reasons	70	29	170	70
I changed my work hours, and I limited the practice to the urgent and emergent cases	228	95	12	5
The dental practice standards should be changed to emphasize preventive care, not perform unnecessary treatments and reduce the treatment sessions	207	86	33	14
I have been following the latest published guidelines for dental practice during the pandemic	195	81	45	18
I have been implementing the latest guidelines during the practice	204	85	36	15

Table 5: Dentists’ experiences during the pandemic (N=240)

Question	Answer	Number	Percentage
How have you changed your treatment plans during the COVID-19 pandemic?	Nothing has changed	3	1
	Cancelled all treatments until the end of the pandemic	63	26
	Cancelled all treatment until the end of the alert phase of the pandemic	111	46
What kind of non-emergency procedure should you do during the pandemic?	Performed emergency treatment	63	26
	Do not perform any non-emergency treatment	198	82
	Aesthetic dental procedures	6	2
	Restorative treatment of	3	1

	asymptomatic caries lesion		
	Extraction of asymptomatic teeth	6	2
	Initial examination	27	11
	When the dental clinics should revive their normal work hour? Until the end of the COVID-19 pandemic	117	48
	Till the end of the alert phase	111	46
	The clinic should be open now	12	5
	What is your strategy of choice regarding the reopening of dental clinics? I do not intend to work until the end of the COVID-19 pandemic	72	30
	Visiting patients who don't have COVID-19 symptoms	21	8
	Taking COVID-19 test for patients	39	16
	Using PPE	108	45
Should you have more free time these days, how do you fill the time?	Do not have free time	15	6
	Do research	15	6
	Communicate with others	27	11
	Study	144	60
	Do exercise	39	16
Which of the following equipment has been a scarce item during the pandemic?	I have not had a problem finding PPE	9	3
	Disinfectant solutions	24	10

During the pandemic, most dentists (n = 210, 87 percent) had trouble finding and providing PPE. Almost all of the participants (n = 234, 98%) said they had to purchase PPE at a much greater cost. There was no significant relationship between the use of PPE and the experience of dentists (P value > 0.05).

The majority of the participants (n = 234, 97%) reported a loss in their financial income since the outbreak of the pandemic, whereas just 6 (2%) of them got financial assistance from government agencies. More than a third of them (n = 90, 37%) required more income to cover everyday expenses.

Discussion

According to the findings of our study, almost 7% of dentists exhibited COVID-19 symptoms, and roughly 1% of them had a positive COVID-19 test. Furthermore, dental clinic personnel are at a high risk of infection, since our analysis revealed that 3% of the contributors' assistants experienced the symptoms listed above. This means that dental procedures should be performed with increased infection control precautions, and non-emergency treatments should be postponed until the pandemic is over[11-13]. SARS-CoV-2 nosocomial transmission has been a source of concern for dentists, as it could put both patients and dentists at risk of infection. Previous research have also found that dental professionals are more likely to become infected with SARS-CoV-2. The majority of the study's participants indicated a significant increase in demand for remote dental consultations. They did not, however, consider remote consultation to be an effective method of providing dental treatments. These results, we believe, are due to the features of dental procedures and a lack of adequate infrastructure. Future research is needed to confirm the findings[14-16].

The Occupational Safety and Health Administration has stated that for non-emergent patients during the pandemic, remote dental

consultations should be explored. Furthermore, prior to the present pandemic, it was discovered that remote consultation was of appropriate quality for oral therapies. Telehealth-based dental treatment delivery appears to be an appealing and adaptable approach, especially in these unique times. Despite this, most clinics lack the necessary telehealth technology, such as network infrastructures and appropriately educated personnel[17-20].

A large percentage of the participants stated that they do not execute any non-emergency procedures and have reduced their work hours to prevent the virus from spreading. They also stated that they follow and apply the most recent national and international COVID-19 dental practise recommendations. However, more than half of them agreed that local governments should alter the norms in this area. We feel that thorough global training for dental settings is required to successfully reduce the risk of infection[21-23].

Several organisations, including the Centers for Disease Control and Prevention (CDC), the American Dental Association (ADA), the British Dental Association (BDA), and the National Health Service (NHS), have designed and developed response groups and guidance for dental settings in response to the current pandemic. These guidelines stressed the importance of thoroughly examining patients while taking into account their clinical symptoms and epidemiological histories. The guidelines also recommended that dental care operations be performed for urgent and emergency diagnosis while providing suitable PPE and patient care supplies in the early days of the pandemic[24-26].

Several recommendations were provided in our study to reduce the risk of infection, including minimising treatment sessions, emphasising preventative care, triaging patients for relevant symptoms, administering COVID-19 testing to referred patients, and adequate PPE use. The reopening of dental clinics for non-emergency patients, according to some participants, could increase COVID-19 occurrence, and the offices should remain closed until the pandemic is

over[27-29].

During the pandemic, public groups recommended that the general people improve their oral hygiene and implement preventive care to decrease the need for dental procedures. Because most dental clinics only perform low-risk operations like tooth extraction, demand for removable prosthesis treatments may rise in the future. However, as the epidemic progressed, it was suggested that dental settings may also provide non-emergency treatments. Over 90% of dental clinics are now open for elective care services, according to a survey conducted by the ADA Health Policy Institute. To reduce the risk of infection, the CDC has developed a guideline for health-care institutions and personnel to follow while providing non-emergent services[30-32].

The proper use of personal protective equipment (PPE), like as gowns, gloves, face shields, goggles, and face masks, is critical in avoiding the spread of the virus to and from health-care professionals and patients. While the significant increase in demand for PPE led in a global shortage of these supplies. The majority of the participants in this study claimed that their PPE usage had increased dramatically, and that more than half of them had difficulty acquiring face masks after the COVID-19 epidemic. They also stated that the price of PPE has increased dramatically, which could indicate a scarcity[33-36].

The rising expense of PPE may also lead to an increase in dental treatment expenditures. Public organisations, on the other hand, did not assist the participants in obtaining this equipment. Because of their reduced work hours and limited dental procedures, a large percentage of the participants faced financial difficulties. A study consistently found that the COVID-19 epidemic caused financial hardship for dental practises. More than half dentists have used their savings to cover daily expenses. Even yet, a tiny number of them have received financial assistance from government agencies[37-38].

These findings suggest that relevant organisations should step up their efforts to support dentists and their assistants during these challenging times. If assistance subsidies for dental care professionals are not provided, the number of workers who face financial difficulties will rise as the COVID-19 pandemic continues. In addition, almost half of the participants in our study showed signs of despair and anxiety. During the COVID-19 epidemic, health-care employees have been reported to be under significantly more emotional stress than the general population[39].

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There are certain limitations to our research. The sampling procedure is one of our study's most significant flaws. Despite the fact that chain-referral sampling is a simple and rapid way to identify participants, people may reject to participate in the study after being invited. Participants may also suggest a dentist they know who is in a similar age group. Because this was a descriptive study that focused on descriptive analysis of the situation and objects, we were unable to test or validate the causal relationship. Another flaw in our study is that we only had a limited amount of time to perform the questionnaires in order to be more current.

Conclusion

The majority of dentists adopted the COVID-19 standards. Furthermore, they preferred to reduce their working hours and limit dental procedures to emergency care until the pandemic was over. They also believed that reopening the dentistry facilities in their entirety will result in an increase in COVID-19 transmission. Dentists

also faced financial difficulties as a result of the closure of dental clinics. Furthermore, sadness and anxiety were frequent among dentists at the time. We feel that governmental groups should step in to help dentists financially and psychologically during these unusual circumstances.

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