

# The Multifaceted Impact of COVID-19 Pandemic on Dentists in Tamil Nadu, India: A Qualitative Study

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## ABSTRACT

**Introduction:** India has become the Coronavirus Disease 2019 (COVID-19) epicentre with the highest number of COVID-19 cases being reported each day. This has caused a major impact on healthcare workers including dentists across the country. Most dental clinics in Tamil Nadu were closed during the initial two months of draconian lockdown enforced by the Government of India (GOI). As partial lockdown measures were introduced over the subsequent months, dental clinics have started functioning and receiving patients for emergency dental treatment.

**Aim:** This study was done among dentists practicing in Tamil Nadu amidst the COVID-19 pandemic to understand how the pandemic has impacted their professional and personal lives.

**Materials and Methods:** A qualitative study using online focus group discussion was conducted among 32 dentists practicing in Tamil Nadu, India using a structured interview guide in the month of July 2020. After data collection, the focus group discussions

were transcribed manually and an inductive thematic analysis was performed using Braun and Clarke's six phases for thematic analysis.

**Results:** Three major themes were identified after the thematic analysis namely limitations of off-campus distance learning, challenges faced in dental practice during the COVID-19 pandemic and social life impacts of COVID-19 among dentists.

**Conclusion:** Dentists in this study felt that the COVID-19 pandemic was negatively impacting their dental practices owing to lack of clarity in COVID-19 protocols, lack of patient awareness, high cost of Personal Protective Equipment (PPE), increasing overhead expenses, ergonomic difficulties in treating patients while wearing PPE, patients' unwillingness to pay higher charges for treatment under COVID-19 protocols and fear of contracting COVID-19. Majority of participants in this study did not report any negative impacts of social isolation as many of them had stayed with their families during the lockdown.

**Keywords:** Coronavirus disease-2019, Dental practice, Focus group, Severe acute respiratory syndrome coronavirus-2

## INTRODUCTION

The COVID-19 outbreak caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) resulting in acute respiratory illness first emerged in Wuhan, China in the year 2019 [1]. Since then it has spread worldwide and affected many countries including India which prompted the World Health Organisation (WHO) to declare COVID-19 as a global pandemic on March 11, 2020 [2]. Due to the highly infectious and transmissible nature of the SARS-CoV-2 the GOI has enforced a strict lockdown in the country from March 25, 2020 to tackle the rapid spread of COVID-19 across India [3]. Tamil Nadu, a state in South India is the second most affected state in the country with a high number of COVID-19 cases across several districts in the state. As such, the State Government of Tamil Nadu has implemented either a partial or total lockdown in the past four months to curb the rapid spread of COVID-19 in the state [4].

The dental profession has been hugely impacted due to the COVID-19 pandemic with dental clinics being closed across the state for two months since the lockdown began in the month of March. The dental healthcare delivery system in Tamil Nadu is organised in such a way that most dentists are self-employed and practice privately in their own dental clinics. Very few dentists are assimilated into the public healthcare system throughout India as the Government employs only around 7,239 out of a total of 2.7 lac dentists which translates to about 2.7% of dentists being employed by the government [5]. Therefore, for a majority of dentists, the primary source of income is through private dental practice and owing to the lockdown there has been a significant loss of livelihood and income to dentists across India [6].

As restrictions were eased and partial lockdown measures were introduced in Tamil Nadu during June and July, dental clinics have

slowly opened up and dental practitioners have started seeing patients in their clinics. Dental professionals are amongst healthcare professionals with the highest risk of getting infected with COVID-19 while performing Aerosol Generating Procedures (AGP) in dental clinics [7]. There is also a high risk of cross infection between patients undergoing treatment in dental clinics. Hence, professional and regulatory bodies such as the Indian Dental Association (IDA) and Dental Council of India (DCI) have come out with specific COVID-19 protocols to be followed for infection control in dental clinics [8,9].

The purpose of this qualitative study was to probe and better understand how the COVID-19 pandemic has affected dentists practicing in private dental clinics in Tamil Nadu. The participants were also queried on how they thought the Government could aid them in running a successful dental practice during the COVID-19 pandemic.

## MATERIALS AND METHODS

A qualitative study using focus group discussions for qualitative data collection was planned among the dentists practicing in Tamil Nadu from June to September 2020. Ethical approval for the study was obtained from the Institutional Review Board of Madha Dental College and Hospital, Kundrathur, Chennai with Ethical approval number 50789/20/4/MDCH01. The target population for this study were dentists practicing in Tamil Nadu either in their own private dental clinics, in corporate dental chain clinics or working as consultants in clinics owned by other dentists.

**Inclusion criteria:** The inclusion criteria for participation in the study were participants who were registered with the Tamil Nadu dental council after completion of Bachelor of Dental Surgery (BDS) degree;

dentists who were residing and practicing dentistry inside Tamil Nadu; and those who were able to speak English fluently.

**Exclusion criteria:** Non practicing dentists, practicing dentists who were not registered with the Tamil Nadu State Dental Council, under graduate students in dentistry and PG students who had completed their undergraduate courses outside of Tamil Nadu and were not registered with the State Dental Council of Tamil Nadu were excluded from the study.

**Sample size calculation:** The participants were recruited by the principal investigators of the study using telephonic calls or e-mails between June and July 2020. A minimum sample size of 20 was determined to be ideal based on previous research on ideal sample size for qualitative studies, samples were recruited till the point of saturation, that is until the investigators felt that there was no new information to be gleaned [10]. Convenience and snowball sampling was used for recruiting participants in this study. A total of 58 dentists practicing in Tamil Nadu were screened, 44 dentists agreed to participate in the study. However, 12 participants failed to participate on the day the focus groups were conducted on 24-7-2020 and 25-7-2020 leaving a total of 32 dentists who participated in the focus groups. The data analysis was conducted in the month of August 2020 and results were obtained in September, 2020.

### Focus Groups

Online focus group discussion was chosen as the method for qualitative data collection in this study. A total of 32 participants were recruited for three focus group sessions with 10-12 participants per focus group. All the focus groups were conducted online using Blue Jeans video conferencing application which allowed for both video and audio recording of the focus group. The focus group instrument was a structured interview guide and the focus groups were conducted until saturation, that is, until no new information that was meaningful emerged. Each focus group lasted for a duration of approximately 1 hour and 30 minutes. One focus group moderator trained in qualitative research facilitated the focus groups and queried the participants on the following topics: experience of running a dental clinic during COVID-19 pandemic, challenges in practicing dentistry amidst a pandemic, COVID-19 regulations for dental clinics, organisation of dental healthcare delivery system in Tamil Nadu, assimilation of dentists into public health system, patient care improvement during the COVID-19 pandemic, aids expected by dentists from the State Government to improve and facilitate dental practice, future of dentistry and dentists if the COVID-19 pandemic continues to persist, and social impacts of the lockdown on dentists [5,6]. Two other note takers were also present during the focus group discussion to write down what was being discussed by the participants during the focus group discussion. Transcriptions of the recordings were then analysed and key themes were identified.

### Data Analysis

Qualitative methods were used to analyse data. After the recordings were transcribed manually, an inductive thematic analysis approach was used to identify major themes that emerged from the data. For this, Braun and Clarke's six phases for inductive thematic analysis was used [11].

Step 1: The investigators read the data a few times to familiarise themselves with the data.

Step 2: Initial coding: The investigators identified repeated words in each statement and coded them e.g., no proper protocols, less patient awareness, cost of PPE, COVID-19 tests for patients etc.

Step 3: Generating themes: These codes were then organised in a meaningful manner into broader themes.

Step 4: Checking validity and reliability: The data was sent to two independent reviewers who analysed the data and generated their own themes. A comparison was made with the themes generated by the reviewers and conflicting aspects were discussed and resolved.

Step 5: Defining and naming themes: Once the thematic analysis was completed, we identified and named themes according to the emergent trends.

Step 6: Interpretation and report writing: The themes were analysed and a report was formulated.

## STATISTICAL ANALYSIS

An inductive thematic analysis was performed using Braun and Clarke's six phases for thematic analysis.

## RESULTS

A total of 32 dentists (19 females, 13 males) participated in three focus groups. Each of the three focus groups consisted of dentists practicing and residing in Tamil Nadu. The major themes and minor themes that were identified after the thematic analysis are depicted in [Table/Fig-1].

	Main themes	Sub-themes
1.	Limitations of off-campus distance learning	a. Lack of clinical training and inability to see patients b. Fear of clinical incompetence owing to distance online learning
2.	Challenges faced in dental practice during the COVID-19 pandemic	a. Confusion in COVID-19 protocols b. Concerns over growing cost of PPE, rent and overheads c. Patients discarding safety and seeing providers based on cost of dental treatment d. Negligent patient attitudes towards dental treatment e. Fear of being infected with COVID-19 and transmitting to family members f. Uses and limitations of teledentistry during COVID-19 pandemic
3.	Social life impact of COVID-19 among dentists	a. Professional growth and knowledge acquisition through online learning modules b. Personal growth and acquisition of life skills c. Appreciation of time spent with family members

[Table/Fig-1]: Main themes and sub-themes of the impact of COVID-19 and subsequent lockdown among dentists in Tamil Nadu.

### 1. Limitations of Off-Campus Distance Learning

#### a. Lack of clinical training and inability to see patients

In our study, two participants who were in their final year of Postgraduate (PG) studies stated that closure of dental colleges during the lockdown significantly hindered them in gaining clinical experience and training. Sole dependence on online instruction courses during the lockdown was felt as a major disadvantage as these participants had expected to gain good clinical skills during their PG study period.

*Participant 11: "We are clinical course post graduates, this lockdown and online modes of teaching are hindering us from seeing patients, this is a really bad thing for us."*

*Participant 4: "I have to talk about institutional set up drawbacks. I'm doing my PG and only if there is an increase in the number of patients I see, I will gain clinical experience. However, the college has been closed for months now, nearly a quarter of the academic year is gone and I have not seen a single patient in these months".*

#### b. Fear of clinical incompetence owing to distance online learning

At the end of PG studies, dentists are expected to be competent in their field of study and exhibit clinical skills in addition to theoretical knowledge. Participants who were unable to attend their regular courses due to the lockdown stated that they felt a certain amount of fear in ending up incompetent in their chosen field of dentistry.

*Participant 6: "I'm going to have to be proficient at doing root canal treatment, periapical surgery, and even more complicated procedures at the end of PG. How would I gain experience if this situation persists?"*

*Participant 12: "At the end of the day, I need to see patients to be able to treat them in the future. If I keep on attending only webinars of case reports, when I see a patient for real I'm afraid I would not know what to do."*

*Participant 20: "Once we graduate, we are expected to know what to do for a patient. We are expected to be the expert in our field but now because we are unable to see patients, we will end up being severely lacking in clinical skills when we graduate this year."*

An extension in the PG study period after the COVID-19 lockdown was put forward as a solution to bridge the gap in clinical training.

## 2. Challenges Faced in Dental Practice during the COVID-19 Pandemic

### a. Confusion in COVID-19 protocols

Dentists working in their own clinics or as consultants felt that there was a great deal of confusion on the safety protocols to follow to prevent COVID-19 infection in dental clinics. Most dentists stated varied sources of information on COVID-19 guidelines such as the DCI, IDA, journal articles and the websites of their peers. All the dentists participating in this study had attended at least one webinar on the safety protocols to be followed for COVID-19 in dental clinics. However, participants felt that there was a prevailing confusion on which protocols to follow as there are many sources of information on COVID-19 guidelines for dental clinics.

*Participant 10: "According to me I think, there are no proper guidelines to work, what protocols to follow. Everyday there are new guidelines coming up, one will say you have to use a purifier, one will say you will have to use UV radiation, others will say hypochlorite different percentages and what kind of mask to use, like all this protocols."*

*Participant 16: "This is a huge...there's a huge confusion going on...like what to follow and I think this is one major problem."*

*Participant 25: "There are so many sources for these protocols, and so many people circulating these pdf's online without knowing where the information is even coming from and if this is actually something we can trust and follow, it's confusing and we have to wonder if it's trustworthy."*

### b. Concerns over growing cost of Personal Protective Equipment (PPE), rent and overheads:

Dentists also explained that the cost of upgrading their dental clinics to COVID-19 protocols was becoming a big problem as they were seeing less patients per day and the costs just kept on rising. Many dentists stated that stores across the state have hiked the price of masks, gloves and other personal protection equipment to an unreasonable rate, and that this was putting them in more financial stress as they had to spend out of their pockets to keep themselves and their patients safe. Participants also stated that expenses in terms of overheads were also increasing which compounded to the financial burden dentists experienced at this time.

*Participant 9: "This is certainly not seen as a humanitarian crisis by certain people, there are people willing to take advantage in these troubling times, they are only interested in making money and people who make, own or sell masks are charging anywhere between Rs. 350 to Rs. 500 for a single N95 mask."*

*Participant 31: "Normal markets are utilising this time and our dental shops have increased the cost of basic necessities like masks and gloves enormously."*

*Participant 28: "Apart from PPE we have to buy these pulse oximeter, thermometers, we are not sure whether they will be able to detect whether a patient is COVID-19 positive or not, but still there is a compulsion that we have to buy it. Other than this disinfectant, UV, air purifiers, all these charges add up to a huge value."*

### c. Patients discarding safety and seeing providers based on cost of dental treatment:

Dentists in this study felt that the patient awareness was very low on COVID-19 and its high likelihood of spreading in a dental clinic set-up. Participants stated that most patients saw dentists wearing PPE as overkill and unnecessary. Most dentists felt that economic

hardships during the COVID-19 pandemic made patients engage in a cost-benefit analysis of whether to go for treatment in a clinic implementing COVID-19 protocols and pay higher charges, or seek treatment in a facility that did not implement COVID-19 protocols and charged less. The practice of varying price distribution for dental treatment between different private dental clinics was cited as a major problem, as it prompts patients to seek treatment at a lesser cost while risking themselves as well as others by undergoing treatment in conditions where COVID-19 protocols were inexistent or inadequate.

*Participant 23: "Cost wise it's a huge problem, we are a specialist and we follow all the COVID-19 protocols and we used to do root canal treatment for around Rs. 3,500. Now if we have to follow all these protocols and do then at least Rs. 1000 extra cost is occurring. But in my area even there are clinics in which they don't follow these protocols, they are not a specialist and they treat patients for a lesser price. And in the current crisis, cost of treatment is the only thing patients are worried about and not whether they are undergoing treatment under conditions that may not be safe for them."*

*Participant 30: "In the present situation, with lockdown and lots of people losing their jobs and income, its understandable that patients are hesitant to pay extra for dental treatment under COVID-19 safe conditions, however, it's a huge risk for both patient and practitioner and I think there must be some authority overseeing clinicians and ensuring that they are practicing under COVID-19 protocols in their dental clinics."*

### d. Negligent patient attitudes towards dental treatment

Dentists in this study felt that patients often exhibited a negligent attitude towards dental treatment. Patients saw expending on dental treatment as unnecessary and that most dental diseases can be managed with prescription medications.

*Participant 1: "See, patients never see dental treatment as essential. Especially now, when we state that this is the price for the particular procedure, they balk. They wonder, should we spend so much on dental treatment? Or should we just take some paracetamol and antibiotics and leave it as such? After all, it's not like a bad teeth is going to cause a huge problem."*

### e. Fear of being Infected with COVID-19 and Transmitting to Family Members

Participants in this study felt that despite the strict disinfection protocols they followed in their clinics, there was always a doubt in their mind as to the effectiveness of these protocols in preventing cross infection between them and their patients. Dentists also revealed that they were afraid they may be transmitting the disease further to their family members or other patients as ultimately most dental procedures are AGP which puts dentists at a high risk of being exposed to COVID-19.

*Participant 17: "How much ever we disinfect our clinics, we are completely handling the saliva and aerosol while treating patients. So at the end of the day, we have a fear. Are we infected? Or are we transmitting this infection to our family members or to the other patients?"*

### f. Uses and limitations of teledentistry during COVID-19 pandemic

Participants expressed that teleconsultation services were useful in providing counselling to patients and enabled them to perform triage services, to determine whether the patient had an emergency condition that necessitated immediate treatment. However, participants felt that there was a certain amount of danger in using teleconsultation and prescribing antibiotics to manage dental infections as it could overtime results in the patient developing antibiotic resistance and progression of disease sequelae in the absence of definitive treatment.

*Participant 21: "Teledentistry is fine for prescribing medications for the pain but during such a pandemic... when it exists for five months or so, how long can we prescribe medications? Patients then start to take antibiotics and analgesics whenever they have pain and ultimately they will land up with pain once again because we haven't treated the infection."*

### 3. Social Life Impact of COVID-19 among Dentists

#### a. Professional growth and knowledge acquisition through online learning modules

During the extensive period of lockdown, the focus group participants stated that they had enrolled themselves in various online courses such as dental photography, advances in Minimally Invasive Dentistry (MID), and other training modules in dentistry taught by experts worldwide through online platforms.

*Participant 5: "I learned a great deal in dentistry during this period. Most of the courses are offered free of cost, there is interaction among experts in various fields and even various countries."*

#### b. Personal growth and acquisition of life skills

Participants in this study expressed that they had also gained life skills like cooking and exercising during the lockdown. Reflecting on their attitudes before and after the pandemic, dentists stated that they were grateful for everything they had in their life and learned not to complain or take things they did have for granted.

*Participant 29: "None of us expected this pandemic to last so long, you know...and then it did, and we were hearing about how many people are losing their lives everyday, it just taught me to be grateful you know....for life, for everything I did have."*

#### c. Appreciation of time spent with family members

Focus group participants in the study stated that they got to spend ample of time with their family members like never before during the lockdown. This was as felt as a major positive impact of COVID-19 lockdown by participants.

*Participant 7: "I spend a lot of time with my parents now. In all these years, I've got to spend so much time with them only now. So, I cherish this time with them and I think if it weren't for this pandemic I would never have gotten all this time with them."*

## DISCUSSION

The COVID-19 pandemic has negatively affected the employment, income, health and social lives of all dentists across the world [12-14]. This study was conducted to know how COVID-19 has impacted the lives of dentists practicing in Tamil Nadu, India. We chose a qualitative approach in performing this study as it facilitates a deeper understanding of the unique and specific problems faced by dentists in Tamil Nadu at this time. The Indian dental healthcare delivery system is principally organised in a way that most dentists practice privately in dental clinics owned by themselves throughout the country. Dentists are responsible for the establishment as well as the maintenance and overhead expenses of their dental clinics, which mean that most dentists have to pay out of their pockets for the upkeep of their practices. With the exception of being recruited in a number of corporate dental chains such as Apollo dental, Clove dental and very limited assimilation into government jobs, dentists in India face a unique challenge in keeping their practices open during an unprecedented pandemic such as COVID-19 [5].

The interview guide for this study was structured keeping all these unique aspects of India in mind. After the focus groups were conducted, we transcribed it manually and then performed a thematic analysis on the transcripts using Braun and Clarke's six phases for inductive thematic analysis [11]. Three major themes were deduced: namely limitations of off-campus distance learning, challenges faced in dental practice during the COVID-19 pandemic and social life impacts of COVID-19 among dentists.

Most of the participants had completed PG in various specialities of dentistry and were currently practicing in Tamil Nadu. However, there were a couple of participants who were in their final year of PG and expressed that the COVID-19 lockdown seriously hampered them in gaining clinical competence in their speciality. This view was supported by other participants in this study who stated that owing to closure of dental colleges, both undergraduate and postgraduate students will be unable to gain the clinical expertise that they are expected to gain upon graduation. Furthermore, the participants in their final year of PG studies worried that they were unable to undertake their thesis work and were doubtful about whether they would complete it within the university specified timeframe. Concerns over students in dentistry being unable to gain clinical competence owing to lockdown has also been expressed in studies conducted in North America [15].

A majority of the participants in this study stated that they had postponed all elective dental procedures according to the mandate of the Tamil Nadu dental council and were seeing emergency and urgent cases only in their dental clinics. This is similar to situation in North America where clinics were reported to be kept open only for urgent dental services [16].

During the focus group discussion, dentists cited a lack of proper guidelines to be the most challenging aspect of practicing dentistry at this point of time. Dentists stated that there was a lot of confusion on what COVID-19 protocols to follow as various sources of information muddled the clarity and reliability of COVID-19 guidelines to be followed for infection control in dental clinics. In India, the IDA, DCI and Ministry of Health and Family Welfare (MoHFW) are among the many sources to have released information on COVID-19 guidelines for dental clinics. Participants in this study felt that one single and reliable source of information that is updated consistently would help them in achieving clarity on COVID-19 protocols, participants also stated that a government body should oversee the release of information and monitor whether all dental clinics are operating under safety protocols in Tamil Nadu. Similar difficulties in comprehending precautionary measures for COVID-19 was reported in a study on Jordanian dentists who also felt that they could benefit from information sent to them by their National Dental Association [17].

On discussing about patient care and attitudes of patients, dentists felt that the awareness regarding COVID-19 infection was less among patients. This is similar to observations made by Nair AK et al., who found that patient's awareness regarding the possibility of COVID-19 cross-infection during dental treatment was poor [18]. Due to the economic hardships and loss of livelihood faced by many people during the pandemic, dentists explained that most of their patients wanted to be treated at a lesser cost even if the clinician did not follow COVID-19 protocols for their safety. The participants stated that 90% of their patients did not care about what kind of protocols they were implementing to prevent the spread of COVID-19 in their clinics. The primary concern for many patients seemed to be the cost at which the dental treatment was offered. Dentists in this study found that such attitudes could be dangerous for the patients as well as the community, as these attitudes led patients to obtain treatment at dental clinics which do not follow COVID-19 protocols and charged the patient less money for treatment. The solution proposed by dentists in this study to resolve this problem was that the State Dental Council release fixed treatment charges, so that all clinics in the Tamil Nadu will charge patients a uniform amount of money for each specific treatment. Public insurance coverage of dental treatment costs was also put forward as a solution to help patients pay for dental treatment and ensure equity in dental health service delivery by dentists participating in this study.

The enormous hike in the cost of PPE such as surgical masks and gloves was another challenge faced by dentists practicing in Tamil Nadu. Dentists have to spend their own money to procure PPE for themselves and their patients, most participants in this study felt that commercial dealers of PPE spread misinformation that

more expensive PPE can be reused in addition to taking advantage of the pandemic and hiking the price of PPE to an unreasonable degree. All the participants in this study stated that they wore PPE and changed PPE after seeing every patient in their dental clinics. This is in contrast to a study conducted by Kinariwala N et al., on Indian dentists who observed that 61.5% of Indian dentists did not purchase PPE. The high cost of PPE has also been mentioned in Kinariwala N et al., study as a factor that made dentists less likely to purchase PPE for their clinics [19]. Aside from upgrading their operatory to COVID-19 protocols, dentists also shared that their expenses in terms of overheads was also increasing. With a low inflow of patients and rising expenses in running their operatory under COVID-19 protocols, dentists expressed that they felt the inevitable crunch of financial burden in keeping their clinics up and running during the pandemic.

Dentists with known co-morbidities revealed that they felt a great amount of fear in treating patients as they were apprehensive of being infected with COVID-19. Participants also revealed that despite implementing COVID-19 protocols in their clinics, they were fearful of contracting the disease or being asymptomatic carriers and transmitting COVID-19 to their family members or other patients. One dentist pointed out that, there was a lack of studies that objectively assessed the effectiveness of COVID-19 protocols in dental clinics, and this left them with doubts regarding whether the safety protocols they followed were really protecting them and their patients from COVID-19. Fear and anxiety among dentists was also observed in a studies conducted by Consolo U et al., Wu KY et al., and Ahmed MA et al., which corroborate our findings in this study [12,16,20].

Participants in this study were queried on what they required from the State Government of Tamil Nadu to aid them in practicing dentistry amidst the pandemic. Mandatory COVID-19 tests for patients seeking dental treatment were the first and foremost request of our participants as this would enable them to identify COVID-19 positive patients and prevent cross infection in their clinics. A unified and reliable source of COVID-19 protocols for dental clinics, objective testing of the effectiveness of infection control protocols in dental clinics, subsidising the cost of PPE and infection control agents, releasing fixed treatment charges to be followed by all dental clinics in Tamil Nadu, public insurance schemes to cover elective and emergency dental treatments, minimum wage support and tax exemptions were the other aids that participants felt were the need of the hour in helping them to render dental treatment to patients in Tamil Nadu.

Participants in this study felt that the inability to see people in social settings was the most frustrating thing about the COVID-19 lockdown. Some dentists were unable to visit family members for prolonged periods of time, due to border closure between the districts of Tamil Nadu and expressed that they were being rejected by the authorities when they tried to obtain a pass to travel to their homes. Obtaining knowledge through online webinars, vocational courses and acquiring personal skill sets such as cooking was considered to be the positive impact of the COVID-19 lockdown by participants. The study participants also felt that they were able to spend more time with their families and this was also largely seen as a positive impact of the COVID-19 lockdown. The cohesive nature of Indian family setups could explain why most participants did not feel the effects of social isolation and lack of a social support network in the midst of the COVID-19 lockdown in Tamil Nadu.

### Limitation(s)

The limitations of this study were that owing to the study design, considerably few numbers of research participants were included in the study. Non practicing dentists were excluded from this study as we felt that including their perspectives was beyond the scope

of this study, therefore the opinions of dentists working as a faculty member in dental colleges in Tamil Nadu could have been missed out in this study. However, considerably more subjects were recruited than the minimum number recommended for qualitative studies and owing to a smaller sample size we were able to collect detailed, robust data and gained a deeper insight from our participants which we feel are valuable and nuanced. Further studies in this topic could adopt a longitudinal study design to understand how the impact of the pandemic on dentists has changed over time.

### CONCLUSION(S)

In this qualitative exploration of the impact of lockdown on dentists practicing in Tamil Nadu, we discerned that dentists felt that the state wide closure of dental colleges could seriously hinder undergraduate and postgraduate students in gaining clinical competence in dentistry. A lack of clarity on the protocols to be followed in dental clinics for COVID-19, increasing financial burden in rendering treatment with PPE and other infection control measures, fear of contracting COVID-19 or spreading it to family members and patients, patients being unwilling to pay higher treatment charges for treatment under infection control settings were found to be the major impacts of COVID-19 on dental practice. Several recommendations to the State Government and DCI were put forward by the participants, which have been outlined below.

**Recommendations:** Government should mandate COVID-19 testing for patients seeking dental treatment. Single source of COVID-19 protocols should be followed in dental clinics that are reliable and regularly updated. Subsidising the cost of PPE and infection control agents will help reduce the cost for dentists. Objective laboratory assessment of the effectiveness of COVID-19 disinfection protocols should be followed in dental clinics. Fixed treatment charges to be followed by all dental clinics in Tamil Nadu should be released. Public insurance schemes with provisions to cover elective and emergency dental treatments should be available. Government agencies must monitor dental clinics for compliance with COVID-19 protocols. State dental councils and DCI must extend the study period of PG and under-graduate courses in dentistry after the lockdown, to enable students to gain clinical competence required for independent dental practice after graduation.

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