Assessment of Anxiety Level and Practice Modifications among Dentist during Novel Corona Outbreak (COVID -19) in Tamilnadu

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ABSTRACT

Background: Pandemic and panic are two sides of the same coin. The sudden outbreak of coronavirus COVID-19 has influenced the routine practices of the dentist. Dentists were categorized as a high-risk profession during this pandemic, which created anxiety and stress regarding their personal and financial issues. Such a survey would help us to understand the impact of psychological burden among the dentist during the pandemic.

Objective: The study aimed to assess the anxiety level among the dentist and also the practice modifications in their dental clinics during a novel COVID-19 outbreak in Tamil Nadu.

Methods: The cross-sectional questionnaire-based survey was conducted amongst 250 dental professionals with various years of clinical experiences residing in Tamil Nadu. The questionnaire consisted of two sections; it addressed the level of anxiety and practice modification adopted in dental clinics during this pandemic.

Results: There were significant differences in anxiety scores and practice management questionnaire scores between clinicians with varying years of clinical experience ($P=0.0001$). Anxiety level was found to be higher in clinicians with less than 5 years of experience. Dentists with clinical experience of more than 10 years were found to have better practice management.

Conclusion: Anxiety and stress have been the main psychological burden among dentist during this covid -19 outbreak. Additional practice modifications during this pandemic have a severe impact on their financial investment in the clinic.

Key Words: Anxiety, Fear, Novel Corona Virus 2019, Pandemic, SARS COV-2

INTRODUCTION

The spread of coronavirus (COVID-19) has posed significant challenges for dentists worldwide.¹ The New York Times reminded the world that dentistry is a high-risk profession for COVID-19.² This pandemic had led to panic among the people and the continuous lockdown and quarantine has brought a major impact on the individual's life which has led to fear, anxiety and depression among them. This quarantine has produced many stressful life events, like the loss of freedom and social connectivity, and the inability to work, that has harmed the mental health.³ Mental health is an important part of the overall health and well-being of a person. Mental health issues that coincide with pandemic are rarely studied.

The COVID-19 outbreak has negatively impacted the activity of dentists.⁴ Many dental professionals have suspended

their practice as they work near patients, frequent exposure to saliva, blood, other body fluids and handling sharp instruments.⁵ Moreover, oral mucosa has been recognized as a high-risk factor for transmission, which has made dentists limit their dental activities and treats only urgent and emergency procedures to minimize the spread.⁶ Droplet spread via aerosol production in dental clinic is an important concern as scaling back droplet production to zero is impossible while performing emergency dental procedures.

Additionally, the dental assistant must also be educated about the routes of spread and newer protocols of disinfection. Dentists are worried about the risk of contracting the infection during dental procedures. Thus dentists are attributed to psychological distress such as the fear of getting infected with COVID-19 and have anxiety while treating patients.

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In addition to standard universal precautions, the American dental association highlighted key precautions for dental professionals considering the rapid spread of infection. Since the transmission of airborne, the droplet is one of the most potential routes of spread.

Till date, no universal protocol is available for dental care provision or suspected COVID-19 cases. Use of personal protective equipment such as masks, protective goggles, gowns, gloves, head caps, face shields, shoe covers is strongly recommended for all health care personnel. Rubber dam isolation, high volume suction, HEPA filters, UVC light chamber are other additional equipment used currently to avoid cross-infection. Yet, dentists are disinclined and anxious while treating patients during COVID.

This study was done to assess anxiety amongst dentists during this current pandemic. Also, the additional practice modifications made by them in their clinics to avoid cross-infection.

MATERIALS AND METHODS

Subjects and Methods

The cross-sectional questionnaire-based survey was conducted among dental professionals who were practising in Tamilnadu during COVID-19. All the practising dentists including undergraduates (CRRI) and postgraduate students were included in the study. The dental undergraduate students who had not entered their clinical postings and the dentists who were not willing to participate in the study were excluded. The questionnaire was given to 280 dentists and 250 responses were recorded over 30 days.

Study Tool

A set of 28 close-ended questions were compiled and circulated through the online portal (google forms) for evaluating the level of anxiety among dentist and practice modifications adopted by the dentist while performing procedures during this sudden outbreak. The questions were subjected to content validation by the experts, comprising of oral medicine and radiologist, a public health dentist and a general dentist. The survey had two sets of questionnaire, first set was designed to assess anxiety level. The second set was regarding practice modification. The responses that were incomplete or had 2 options chosen for the same question which could lead to bias in the results were not considered during validation.

Statistical Analysis

Responses were obtained and tabulated in Microsoft excel sheet, for statistical analysis. Reliability of the questionnaire was assessed using Intra-class correlation coefficient (Cohen's Kappa). Data was analyzed using STATA version

16.1 (STATA corp., College station, Texas) statistical software. Kruskal Wallis test was used to test the null hypothesis which showed that there was no difference in anxiety scores and practice modification between the three groups of clinicians categorized based on years of clinical experience.

RESULTS

Reliability

The intra-examiner reliability for responses of clinicians as assessed by Cohen's Kappa shows a substantial agreement with an ICC of 0.84 for anxiety score and an ICC of 0.78 for practice management.

The results were analyzed concerning their years of clinical experience.

Anxiety score

Table 1 shows the list of questions used to assess the level of anxiety among dental professionals who were practising during COVID-19 with response rates. The median anxiety score for the clinicians with less than 5 years of clinical experience the score was 7 (IQR=4-8), for the clinicians with 5-10 years of clinical experience the score was 6 (IQR=4-8) and for the clinicians with more than 10 years of clinical experience, the score was 5 (IQR=4-5). The maximum anxiety score for the clinicians with less than 5 years of clinical experience and 5-10 years of clinical experience was 9. Whereas the maximum anxiety score was 5 for the clinicians with more than 10 years of clinical experience. Kruskal Wallis test showed that there was a significant difference in anxiety scores between the clinicians with varying years of clinical experience ($P=0.0001$). The results of Mann Whitney U test shows that the clinicians with more than 10 years of clinical experience had lesser anxiety scores when compared with the clinicians with 5-10 years of clinical experience ($P<0.0001$) and also with the clinicians less than 5 years of clinical experience ($P<0.0001$).

Figure 1 depicts that the probability for the clinicians with 5-10 years of clinical experience to have greater anxiety scores than clinicians with more than 10 years of clinical experience was 79.6%. The probability for the clinicians with less than 5 years of clinical experience to have greater anxiety scores than clinicians with more than 10 years of clinical experience was 76.7%.

Practice management

Table 2 shows the list of questions to assess the practice modification adopted by the dentist during COVID-19 with response rates. The median practice management questionnaire score for the clinicians with years of clinical experience less than 5 years was 14 (IQR=13-15), for the clinicians with 5-10 years of clinical experience was 14 (IQR=12-16)

and for the clinicians with more than 10 years of clinical experience was 16 (IQR=16-17). The maximum practice management questionnaire scores for the clinicians with less than 5 years of clinical experience was 16. The maximum practice management questionnaire score for the clinicians with 5-10 years of clinical experience and the clinicians with more than 10 years of clinical experience was 19. Kruskal Wallis test showed that there was a significant difference in practice management questionnaire scores between clinicians with varying years of clinical experiences ($P=0.0001$). The results of Mann Whitney U test showed that the clinicians with more than 10 years of clinical experience had greater practice management questionnaire scores when compared with the clinicians with 5-10 years of clinical experience ($P<0.0001$) and also with the clinicians less than 5 years of clinical experience ($P<0.0001$).

Figure 2 depicts that the probability for the clinicians with more than 10 years of clinical experience to have greater practice management questionnaire scores than the clinicians with 5- 10 years of clinical experience was 94.2%. The probability for the clinicians with more than 10 years of clinical experience to have greater practice management questionnaire scores than the clinicians with less than 5 years of clinical experience was 86.9%.

DISCUSSION

Covid has created panic amongst the people. The most common emotion faced by everyone is fear and anxiety. Fear and anxiety are not novel to the COVID -19 pandemic, it had been well described in other infectious diseases and epidemics such as HIV or SARS .⁷ Dentists also at a higher risk for getting psychological distress. As dentists are at high risk of acquiring infection, effective prevention control by additional practice protocol is necessary for both dentists and dental assistants.

Coronavirus is an enveloped virus with a positive sense (single-stranded) RNA virus. It is approximately 26–32 kb in size. It leads to upper respiratory tract infection such as cold, fever, pneumonia etc. Severe acute respiratory syndrome coronavirus (SARS-CoV), Middle East respiratory syndrome coronavirus (MERS- CoV), and 2019 novel coronavirus (2019-nCoV) are three specific strains of zoonotic origin.⁸

The route of transmission of covid-19 are either direct transmission through inhalation of droplets generated through coughing or sneezing and via mucous membrane such as conjunctival, nasal or oral mucosa to infectious droplets or indirect transmission via contaminated surfaces.⁹ Dentists as front line workers have a significant role in disrupting the transmission chain by performing only emergency cases with extra protective measures. The unexpected pandemic had led

to the development of fear and anxiety amongst the dentists with different years of experience. Consolo et al.,⁴ reported that in Italy 85% of the dentists were worried about acquiring the infection during dental procedures. Health care workers who came in contact with infected patients developed anxiety, exhaustion, detachment from others and poor concentration and work performance during the SARS epidemic.⁵

Shacham et al. identified psychological distress among dentists and found that the fear of getting infected with COVID-19 from a patient provides high psychological tension.¹⁰ In our study, there was a significant difference in anxiety score amongst the dentists with various years of clinical experiences. The Dentist with clinical experience of fewer than 5 years was found to have a higher anxiety level than those with experience of more than 5 years and above. The dentist had the fear of losing their patients and anxiety of carrying the infection to their families, getting quarantined which may affect their economic and financial status leading to the financial burden. They were also anxious about the cost of the treatment if they were infected.⁶ The dentist should be aware of 2019-now and they ought to practice effectively by undertaking only emergency procedures with proper Personal protective equipment (PPE).

Several Organizations such as DCI, IDA along with the Government of India have come up with unified guidelines regarding the modifications to be done in dental set up while practising in the clinic during the pandemic to minimize the risk of cross infection.¹¹ The list of emergency and urgency procedures are given in table 3 below.¹² Our study throws light into the much-neglected aspect of anxiety among dental practitioners during the pandemic in Tamilnadu, as thoughts regarding the psychological impact among dentist are very limited in the literature. This may act as a reference for the future pandemic crisis. The limitations of our study were the smaller sample size, because of the short duration. One inherent weakness was that this study was restricted to the dentist within Tamilnadu. Thus, our study projected that dentist is in a state of anxiety and fear while practising during the pandemic.

CONCLUSION

SARS-COV 2 outbreak, a major public health concern has caused major psychological distress among dentist which has compromised their professional and personal life.¹³ Dentist should be encouraged in following alternative treatment modifications like teledentistry.

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REFERENCES

- Ahmed MA, Jouhar R, Ahmed N, et al. Fear and practice modifications among dentists to combat Novel Coronavirus Disease (COVID-19) outbreak. *Int J Environ Res Public Health* 2020;17(8):2821.
- Gamio L. The workers who face the greatest coronavirus risk. *The New York Times* (New York) <https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk>. Accessed October 15, 2020.
- Fiorillo A, Gorwood P. The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. *Eur Psychiatry* 2020;63(1):e32.
- Consolo U, Bellini P, Bencivenni D. Epidemiological aspects and psychological reactions to COVID-19 of dental practitioners in the Northern Italy Districts of Modena and Reggio Emilia. *Int J Environ Res Public Health* 2020;17(10):E3459.
- Bai Y, Lin CC, Lin CY, Chen JY, Chue CM, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatr Serv* 2004;55(9):1055-1057.
- Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci* 2020;12(1):1-6.
- Tam CW, Pang EP, Lam LC, Chiu HF. Severe acute respiratory syndrome (SARS) in Hongkong in 2003: Stress and psychological impact among frontline healthcare workers. *Psycho Med* 2004;34:1197-1204.
- World Health Organization. Coronavirus. <https://www.who.int/health-topics/coronavirus>. 2020.
- Dagli R. Fear and anxiety-coping strategies during COVID-19 pandemic in lockdown. *J Int Oral Health* 2020;12(3):187-188.
- Shacham M, Hamama-Raz Y, Kolerman R, et al. COVID-19 factors and psychological factors associated with elevated psychological distress among dentists and dental hygienists in Israel. *Int J Environ Res Public Health* 2020;17(8): E2900.
- World Health Organization. Considerations for the provision of essential oral health services in the context of COVID-19: Interim guidance. 2020. Accessed August 3, 2020.
- Guidelines for Dental Professionals in Covid-19 pandemic situation. <https://www.mohfw.gov.in/pdf/DentalAdvisoryF>. Issued May 19, 2020.
- Lai, J, Ma, S, Wang, Y. Factors Associated with Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease. *J Ame Med Asso* 2019;3:e203976.

Table 1: Lists of questions to assess the anxiety.

1. Are you afraid of getting infected due to COVID-19 from a patient and co-worker?	yes 75.9%	no 24.1%
2. Are you anxious about providing treatment to a patient who is having fever, cough or suspect of being infected with COVID-19?	yes 77.8%	no 22.2%
3. Do you want to Close Your Dental Practice until the Number of COVID-19 Cases Starts Declining?	yes 50.9%	no 49.1%
4. Do You Feel Nervous when talking to Patients in Close Vicinity?	yes 55.2%	no 44.8%
5. Do You have a Fear that You Could Carry the viral Infection from Your Dental Practice to Your Family members?	yes 91.5%	no 8.5%
6. Are You Afraid of Getting Quarantined if you or your family is getting Infected?	yes 61.3%	no 38.7%
7. Are You Anxious about the Cost of Treatment if You Get Infected?	yes 54.2%	no 45.8%
8. Do you hesitate to treat patients with covid-19?	yes 55.7%	no 44.3%
9. Are you afraid of losing your patients when you close your practice for several days ?	yes 70.3%	no 29.7%

Figure 1: Depicts the level of anxiety score among dentist with various years of clinical experience

Table 2: Lists of questions to assess practice management.

1. Do you train your dental assistants about the various protocols to be followed during the clinic timings?	yes 92%	no 8%
2. Are You Aware of Mode of Transmission of COVID-19?	yes 96.2%	no 3.8%
3. Are You Updated with the Current CDC or WHO Guidelines for Cross-Infection Control regarding COVID-19?	yes 85.4%	no 14.6%
4. Do you properly record the patient's history and body temperature?	yes 85.8%	no 14.2%
5. Do you treat patients with suspicious symptoms of COVID-19?	yes 66.5%	no 33.5%
6. Do You Think PPE is enough to Prevent cross-infection of COVID 19?	yes 67.5%	no 32.5%
7. Do You Think PPE should be worn regularly while practising during the Current Out-break?	yes 86.8%	no 13.2%
8. Do you Routinely Follow Universal Precautions of Infection Control for Every Patient?	yes 85.4%	no 14.6%
9. Do You Use Rubber Dam Isolation for Every Patient?	yes 62.3%	no 37.7%
10. Do You Ask Every Patient to Rinse the Mouth with 1%Hydrogen peroxide or 0.2%povidone iodine Mouthwash before Treatment?	yes 67.9%	no 32.1%
11. Do You Wash your Hands with Soap /Use hand Sanitizers Before and After Treatment of Every Patient?	yes 95.8%	no 4.2%
12. Do you provide a covid 19 consent form to all of your patient before screening and treatment?	yes 72.2%	no 27.8%
13. Do you Fumigate the operatory on a routine basis at the end of our daily practice?	yes 75.9%	no 24.1%
14. Do you prefer disposable diagnostic kits during a pandemic?	yes 79.7%	no 20.3%
15. Do you follow social distancing in your clinic?	yes 92%	no 8%

Table 2: (Continued)

16. Do you provide protective equipment for your patients like disposable drapes and goggles?	yes 74.5%	no 25.5%
17. Are you aware of using HEPA filters in your practice?	yes 59.9%	no 49.1%
18. Do you think the prophylactic dose of hydroxychloroquine(HCQ) is mandatory for dentist treating the patients?	yes 41%	no 59%
19. Are you aware of using an air purifier and UVC light Chamber in your clinic?	yes 76.4%	no 23.6%

Figure 2: Depicts the level of practice modifications among dentist with various years of clinical experience**Table 3: List of emergency and urgency procedures to be carried out during COVID-19**

EMERGENCY PROCEDURES	<ol style="list-style-type: none"> 1. Fast spreading infections of facial spaces/Ludwig Angina/Acute cellulitis of dental origin/Acute Trismus. 2. Severe uncontrolled dental pain, not responding to routine measures. 3. Uncontrolled bleeding of dental origin. 4. Trauma involving the face or facial bones.
URGENCY PROCEDURES	<p>FOR ADULTS :</p> <ol style="list-style-type: none"> 1. Dental pain of pulpal origin not controlled by Advice, Analgesics, Antibiotics (AAA). 2. Acute dental abscess of pulpal / periodontal/ endo-perio origin/ Vertical split of tooth . 3. Peri-implants. 4. Pericoronitis. 5. Long-standing cysts and tumours of the jaw with abrupt changes. 6. Sharp tooth /Trigeminal neuralgia. 7. Orthodontic wire or appliances, piercing or impinging on the oral mucosa. <p>FOR CHILDREN & ADOLESCENTS :</p> <p>Acute pulpitis</p> <p>Dental abscess</p> <p>Dentoalveolar abscess</p>