



FEAR AND ANXIETY LEVEL OF DENTAL PATIENTS DURING COVID-19

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Abstract:

Fear of dental treatment is most common in the medical field with 60–80% of people being afraid of visiting the dentist. The recent outbreak of the pandemic caused by corona virus (COVID-19) has brought about a drastic change in every facet of life and additional fear and anxiety to patients in general. The current study was conducted to assess the change in anxiety and fear among dental patients while getting treated during the coronavirus disease (COVID-19) outbreak. In addition, patient's additional fear of getting infected, their sectional study was conducted using an online survey from 6th March 2020 to 7th June 2020. A well-constructed questionnaire was designed with google survey form and the online link was shared and validated. A total of 500 participants from different parts across Tamil Nadu responded. After scrutiny, completed questionnaires (n = 491) were included in the study. Statistical analysis was performed using nMaster 2.0. Kruskal-Wallis test was applied to assess the relation of dental treatment response during Covid-19 with respect to gender and educational level, anxiety of patient before and after the pandemic, place of visit for dental treatment prior and after pandemic, fear of spread of infection from dental treatment and knowledge about safety protocols followed in the dental clinics. More than two-thirds of the public (98%) questioned, were anxious and scared by the devastating effects of COVID-19. A large number of patients (99%) were aware of recent changes in the treatment protocols. Despite having a high standard of knowledge, dental patients are in a state of anxiety and fear while getting treated during the COVID-19 pandemic. Several dental patients have either taken medications rather than treatment and if needed preferred only emergency treatment.

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1. Introduction:

Anxiety and fear are the most prevalent emotions witnessed in a dental office in patients of all age groups. Anxiety serves as a vital marker in signalling an individual undergoing stress and having difficulty in maintaining his/her mental equilibrium. The word hospital mostly causes anxiety and apprehension in individuals (Taylor CM). According to the Diagnostic and Statistical Manual of the American Psychiatric Association, due to anxiety, 20% of the patients are afraid, and 5% of them are found to avoid dental treatment¹.

The overwhelming reports on the COVID-19 pandemic by social, electronic, and print media has generated excessive and sometimes unwarranted fear and anxiety among the general public. It became an international public health emergency after WHO declared COVID-19 as a pandemic in March 2020². Soon after the declaration and the grim scenario, the exacerbation of mental health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger, and fear raised a challenge to psychological resilience. Mild anxiety is natural and fosters preventive and safeguarding behaviour. At the current juncture, people with persistent anxiety may panic and are more likely to make mistakes leading to irrational

decisions and behaviour. Being on the list of high-risk, dental patients are very much expected to develop severe anxiety about the pandemic situation.

Considering the rapid spread of infection, the American Dental Association (ADA) highlighted key steps to be taken by dentists in addition to the standard universal precautions to safeguard themselves and their patients from unwarranted exposure to the virus; such as taking patient's recent travel history; assessing signs and symptoms of respiratory tract infection (RTI); recording patients' body temperature; mouth rinsing with 1% hydrogen peroxide prior to commencement of any procedure; using a rubber dam and high-volume suction during procedures; and frequently cleaning and disinfecting public contact areas including door handles, chairs and washrooms³. Although, the protocols are strictly followed, the patients fear and anxiety have been a questionable entity. Therefore, a questionnaire-based study was conducted to evaluate patient response to dental treatment during the pandemic. The present study aimed to assess the degree of anxiety and fear of getting infected among dental patients during the viral outbreak. To the best of our knowledge, there was no similar study previously undertaken on the fear of COVID-19 in dental patients around Tamil Nadu.

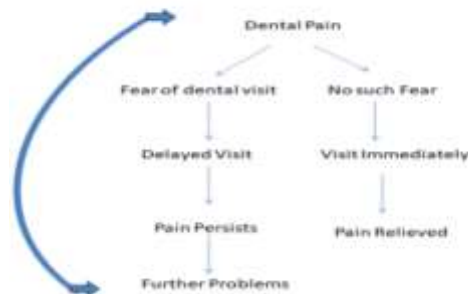


Figure 1: Vicious cycle of dental fear. Adapted from: Armfield JM, Stewart JF, Spencer AJ. The vicious cycle of dental fear: exploring the interplay between oral health, service utilization and dental fear. *BMC Oral Health*. 2007;7:1

2. Materials and methods:

Study Design

Our study was approved by the Institutional review board of SRM Dental College (Ethical clearance registration number: SRMU/M&HS/SRMDC/2020/S/015). A self-compiled questionnaire was administered to a convenience sample of adults aged 18 years and older, residing in Tamil Nadu, India. A pilot study was conducted where an online questionnaire with 20 questions was circulated among few participants for content validity. The criteria for inclusion were age ≥ 18 years and a good understanding of Tamil or English language. A total of 500 participants

were surveyed through self-administered electronic format (Google forms) from 6th March to 7th June 2020. An online electronic questionnaire was constructed and implemented using Google Forms and included an attached consent form. The link to the questionnaire was sent by email or WhatsApp according to the received consent. The questionnaire was collected through a self-administered electronic format and a member of the research team was present in case any questions were raised. The nature of the study was explained, and participants were asked to give informed consent to participate in the study selecting the method (WhatsApp or e-mail).

The survey consisted of structured questions organized into 2 sections: (i) demographic data, including age, gender, level of education, income and (ii) perceived vulnerability to disease (PVD). The survey consisted of (i) scale of fear of COVID-19 (ii) structured questions about avoidance behaviour towards the dental clinic; and (iii) a question covering whether the participant had been ill with COVID-19 (confirmation by positive polymerase chain reaction). From the participants to whom the survey form was distributed, there was a 1.8% sample loss due to 9 non willing participants. Accordingly, the final sample comprised 491 participants.

Statistical analysis:

Statistical analysis was carried out using nMaster software 2.0. Data analysis included descriptive statistics, Kolmogorov–Smirnov test to evaluate

the assumption of normality, Pair-wise comparison and Independent-Samples Kruskal-Wallis. The probability ratio, with a 95% confidence interval, was calculated to evaluate dental clinic avoidance and the degree of association between avoidance and independent variables. Statistical significance was established at $p < 0.05$.

3. Results:

The sample (N = 491) is composed of 276 men and 211 women, with an average age of 28 years. In terms of educational levels for the total sample, 93.3% completed post graduation, 4.3% completed intermediate degree/ diploma, 2.0% completed until high school and 0.4% were illiterate. In terms of income for the total sample, about 75% were in middle and lower middle income groups while the rest had monthly income of 1 lakh INR and above.

Sociodemographic characteristics:

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	276	56.2	56.2	56.2
2	211	43.0	43.0	99.2
3	4	.8	.8	100.0
Total	491	100.0	100.0	

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	2	.4	.4	.4
4	10	2.0	2.0	2.4
5	21	4.3	4.3	6.7
6	458	93.3	93.3	100.0
Total	491	100.0	100.0	

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	94	19.1	19.1	19.1
2	179	36.5	36.5	55.6
3	95	19.3	19.3	74.9
4	73	14.9	14.9	89.8
5	50	10.2	10.2	100.0
Total	491	100.0	100.0	

*N = 491.

M = mean; SD = standard deviation

Anxiety about dental visit

As seen in table 1, 57.4% of the individuals who participated in the survey were not anxious during general dental visits before the outbreak of Covid (n=282), which decreased to 22.6% during the pandemic, because of the possibility of contagion by COVID-19 (table 2); while 31.6% were neutral

and not confident in either decision (n = 155). 42.6% of individuals who were generally anxious during dental visits remained the same post Covid outbreak, with the number of anxious patients increasing (n=209).

Table 1: Anxious generally during dental visit

V10 Anxious generally during visit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	282	57.4	57.4	57.4
	1	209	42.6	42.6	100.0
Total		491	100.0	100.0	

Table 2 – Anxious of going to dentist during COVID outbreak.

V12 Anxious during visit in covid

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	45	9.2	9.2	9.2
	disagree	66	13.4	13.4	22.6
	neither agree nor disagree	155	31.6	31.6	54.2
	agree	140	28.5	28.5	82.7
	strongly agree	85	17.3	17.3	100.0
Total		491	100.0	100.0	

Afraid of getting Covid after dental visit:

Among those apprehensive of visiting a dental clinic during the pandemic (table 4), 46.3% were afraid of getting Covid infection after a dental visit (n=227), although few people (20.8%) were not afraid of getting infected by the virus (n=102) with

33% of the samples staying neutral in their answers (n=162). The apprehensive patients feared not only getting the virus, but also feared spreading the same to their family members (47.5%), while the remaining remained neutral in their response. Only 18.5% strongly disagreed to the fact that they may contract the infection and spread it to their family.

Table 3 – Afraid of contracting Covid after dental visit.

V14 Afraid of getting covid after visit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	47	9.6	9.6	9.6
	disagree	55	11.2	11.2	20.8
	neither agree nor disagree	162	33.0	33.0	53.8
	agree	158	32.2	32.2	85.9
	strongly agree	69	14.1	14.1	100.0
Total		491	100.0	100.0	

V21 Fear of spread of infection to family

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	33	6.7	6.7	6.7
	disagree	58	11.8	11.8	18.5
	neither agree nor disagree	167	34.0	34.0	52.5
	agree	157	32.0	32.0	84.5
	strongly agree	76	15.5	15.5	100.0
Total		491	100.0	100.0	

Purpose of visit during Covid:

More than half of the people 62.5% (n=307) wanted to visit a dental clinic to undergo dental procedure only for an emergency care. 25.1% of

people wanted to manage with prescribed medication instead of dental procedure (n=123) with 5.9% of people admitting that apart from emergency needs they will seek treatment for

aesthetic and cosmetic needs also (n=29) and 6.5% admitted that they will go for regular and routine

dental care (n=32).

V13 Purpose of visit in covid

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	123	25.1	25.1	25.1
	2	307	62.5	62.5	87.6
	3	29	5.9	5.9	93.5
	4	32	6.5	6.5	100.0
	Total	491	100.0	100.0	

Aerosol Causes Covid:

34% of individuals believed that the aerosol generated in the dental office was a major reason for the spread of Covid in the dental clinics (n=167). 39.5% of people were not confident

whether to agree or disagree (n=194) with 26.4% of individuals disagreeing to the fact that aerosol was not a reason for spread of Covid in dental clinics (n= 130).

V15 Aerosol cause forcovid

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	39	7.9	7.9	7.9
	disagree	91	18.5	18.5	26.5
	neither agree nor disagree	194	39.5	39.5	66.0
	agree	102	20.8	20.8	86.8
	strongly agree	65	13.2	13.2	100.0
	Total	491	100.0	100.0	

4. Discussion:

The results obtained in this study may clarify the increased levels of vulnerability to infection and cross contamination in the Tamil Nadu population promoted by the fear of COVID-19 during the pandemic period. Researches on other infectious disease outbreaks suggest that individual's mental state plays a role in the phobia and development of xenophobia or social discrimination related to the said virus.⁴ In this study a large percentage of people are found to deny going to a dental clinic during Covid outbreak. This could be attributed to the spread of infection through bodily fluids and aerosols. As most of the dental procedures are performed using handpiece or ultrasonics that result in production of an enormous amount of aerosol and splatter, the scare of spread of COVID-19 at the dental office seem evident.^{5,6} Such avoidance behaviour has seen in the study done by Hayes et al where the individuals avoided treatment due to fear of contracting the virus.⁷ In previous studies, the prevalence of fear and anxiety of COVID-19 has been specified with variation from 27.2% to 38.7%.^{8,9} The social media and dentists themselves are the reasons for the misinterpretation

of the necessary precautions to be taken when treating patients.

This is also the major reason for the substantial decrease in the number of patients who were not anxious during the pandemic. This shows that, COVID-19 has instilled fear and anxiousness to the patients who were out of fear prior to the COVID outbreak. Mental and general physical health is threatened, especially in terms of emotion and cognition in any epidemic.¹⁰ As a consequence, some people may develop a set of negative psychological responses like aversion, fear, anxiety and thereby end making negative cognitive assessments as a means of self-protection.^{11, 12} Previous research has shown that negative emotions (e.g., dental fear, anxiety, neuroticism) are associated with a lower frequency of dental visits.¹³

This fear stems from the fact that mostly individuals were afraid of not only contracting COVID after a dental visit, many were scared that they might spread it to their family as well. This dental negligence, knowingly or unknowingly increases the risk of dental caries and other oral

diseases being untreated, leading to deterioration of the quality of life related to oral health as stated by Svensson et al.¹⁴ Such findings are predictable since the situation during the pandemic created an increased level of stress and uncertainty, especially when the disease transmission was not clearly understood early in the pandemic.¹⁵ This was also found to be true of the impact of the disease on their social life including isolation from friends and family, and the failure to perform well in their jobs.

More than half of the people (62.5%) wanted to visit a dental clinic to undergo dental procedure only for emergency care with 25.1% of people wanting to manage with prescribed medication instead of dental procedure due to fear of COVID infection. This can be attributed to the psychological state of the individuals regarding the partial knowledge of the virus which was available and the increase in death rate without a successful treatment protocol for COVID-19. Corona virus disease has crippled life, families and oral health care delivery.¹⁶ The reason being a pandemic with high transmission rate and without an effective treatment causing the spread of fear among people.¹⁷ As the level of fear increases, the quality of life decreases, and physical and psychological health changes negatively. Even though healthy immune system may be a good defence against the COVID infection, it does not clinically credible preventive and curative treatment so far thus leading to fear also in healthy individuals.¹⁸ In order to get rid of the negative effects created by fear, it can be suggested that the dentists should educate the patients regarding the necessary protective measures taken and should gain the confidence of the patient making them feel safe.

The surveyed members involved 93.3% of individuals who had a post graduate educational qualification, out of which around 34% believed that the aerosol generated in the dental office was a major reason for the spread of COVID in the dental clinics. The point here to be noted is that more than patients, it is the oral health personnel who are surrounded by microbial aerosols during dental treatment with turbine burs, water–air sprays and other aerosol-forming instruments, which are highly contagious and may get them infected by microbes if not taken appropriate protective measures.^{19, 20} COVID-19 has had significant effects on oral and dental health services, as in many other areas.^{21, 22, 23} Hence the onus is on the dentist to keep the environment including themselves and their patients free from the virus.

The present study has some limitations. The study is a cross-sectional study and was conducted in the early days of the pandemic. The studied

participants were from the general Tamil Nadu population, and no formal diagnoses on mood disorders were obtained (e.g., anxiety). Also, due to quarantine and curfews, the survey was conducted online instead of face-to-face interviews with the participants. Our results cannot be generalized, as the study was conducted with a limited number of participants in a particular community. However, it is recommended that future studies may be a longitudinal study with follow-up periods and take risk factors into consideration with a larger number of participants.

5. Conclusions:

Despite the limitation of the self-reported survey, the study supports the finding that COVID-19 related fear was associated with anxiety and fear to seek dental care. While fear of SARS-CoV-2 is common among patients, there are many individuals who delay or avoid seeking dental care due to fear of transmission. Dentists must lead the fight against this fear in a hope to regain the trust of the public.

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