



## Fear of Covid-19 During Dental Treatment and Consequences of Covid-19 Lockdown During Second Wave on Dental Disease Progression in a Population of North Lucknow, Uttar Pradesh, India

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### Abstract

**Aim:** The present study aimed to assess anxiety levels and fear of COVID-19 in general population of North Lucknow, Uttar Pradesh, India, related to dental treatment during the pandemic and to evaluate the transition in the dental disease process due to the lockdown during second covid wave and inability to access the urgent dental services in the vague of SARS CoV-2 pandemic leading to dental conditions being left untreated and eventually developing into severe conditions.

**Materials and method:** 90 patients were asked to give rating from 1-5 for their fear and anxiety and were screened for dental caries, apical periodontitis and periapical abscess in the department of Conservative Dentistry and Endodontics, Dental College, Lucknow. Diagnosis was done with the help of diagnostic instruments and intraoral periapical radiographs.

**Result:** Out of the 90 patients which were screened, 73.3% patients were anxious before coming for the treatment. After observing precautionary protocols being followed and getting cancelled, 20% patients were anxious during treatment. Among the people which were detected with dental diseases, 6 people had dental caries, 48 had apical periodontitis, 21 had periapical abscess, 9 had both dental caries and apical periodontitis and 6 people had both dental caries and periapical abscess.

**Conclusion:** This study shows that even after 'The New Normal' people are still anxious in seeking the dental health care services which reduces after seeing proper following of precautionary protocols and being cancelled by doctors and more prevalence of advanced dental diseases after lockdown.

**Keywords:** Coronavirus Disease 2019; Dental Anxiety; Caries; Periodontitis; Periapical Abscess

### Introduction

An episode of novel Covid infection (COVID-19) in China has impacted each part of life [1]. Within a few months, corona virus

had spread worldwide and on 11<sup>th</sup> March 2020, the World Health Organization (WHO) announced it as a pandemic infection. Dur-

ing second COVID wave, both mortality related to covid-19 and its spreading potential were high, compared to first wave where though the spreading potential was high but mortality rate was low. Since the COVID-19 flare-up was so quick and obliterating, numerous nations had closed down teaching institutions, get-togethers, sports exercises, occasions, air terminals, and even banks trying to control the spread of the disease. Other than this, several people went into self-quarantine to have their impact in the society by restricting the spread of infection [2].

Then again, medical services are fundamentally needed for any general public and are seldom shut under such pandemic conditions. Since it has been known that droplets and aerosols are the primary route for transmission of coronavirus this increases the probability of getting infected and further spreading the infection in the premises of dental clinic [3].

Despite the fact that there are no revealed instances of Covid transmission in a dental setting, given the high contagiousness of the disease, fear and anxiety are incredible feelings among the patients, that might be related with the spread of infection during dental treatment [2].

In the current situation, all elective or unnecessary dental treatment for all patients ought to be postponed until the circumstance is relapsing or under control [4]. Dental emergency department in Beijing, China, conducted a study, where they have noticed an effect of the COVID-19 pandemic on the number of patients approaching for dental healthcare services, which has declined in the emergency department when contrasted with reporting pre-COVID-19. Because of the COVID-19 pandemic, less dental injury has been accounted for and the extent of dental and oral infection has expanded while those of dental injury and non-emergency have diminished [5].

The present study aimed to assess anxiety levels and fear of COVID-19 in general population of North Lucknow, Uttar Pradesh, India, related to dental treatment during the pandemic and to evaluate the transition in the dental disease process due to the lockdown during second covid wave and inability to access the urgent dental services in the vague of SARS CoV-2 pandemic leading to dental conditions being left untreated and eventually developing into severe conditions.

**Materials and Method**

This was an epidemiological study including 90 individuals who reported to the department of Conservative Dentistry, Dental

College, Lucknow. The information records of people who were screened were utilized for the investigation. The records were coded to guarantee secrecy. Informed consent acquired from the participants.

Oral examination was carried out by trained dental surgeons and diagnosis were made based on WHO guidelines [6] with help of intraoral radiographs. The participants were asked questions related to their anxiety levels and fear of COVID-19 before coming to the hospital and during their treatment. The participants were asked to give rating from 1-5 for their fear and anxiety [7].

- Not anxious
- Slightly anxious
- Fairly anxious
- Very anxious
- Extremely anxious

The study also collected information regarding type of dental disease, i.e., dental caries, apical periodontitis and periapical abscess, and their association with gender and age.

**Results**

The data was tabulated on MS excel and analyzed using SPSS version 26. Basic descriptive and frequency distribution of the data was performed. The scores for the anxiety of the patients before coming to the department and during the treatment was analyzed using Wilcoxon sign ranked test, which is the non-parametric equivalent of paired t test. Chi square test was also done to analyze if there was any association between

- The type of diseases and the gender of the patient
- The type of diseases and the age of the patient

Variable: Age		Frequency	Percent
Age groups	11-20 years	12	13.3
	21-30 years	27	30.0
	31-40 years	18	20.0
	41-50 years	27	30.0
	51-60 years	3	3.3
	61-70 years	3	3.3
	Total	90	100.0

**Table 1:** Age wise distribution of study subjects.

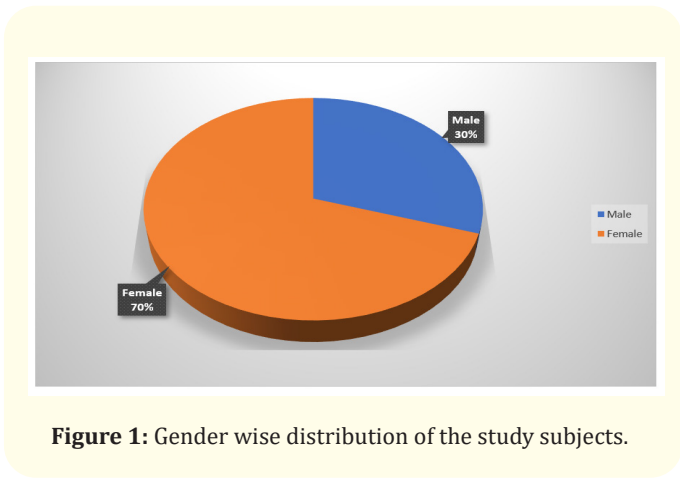


Figure 1: Gender wise distribution of the study subjects.

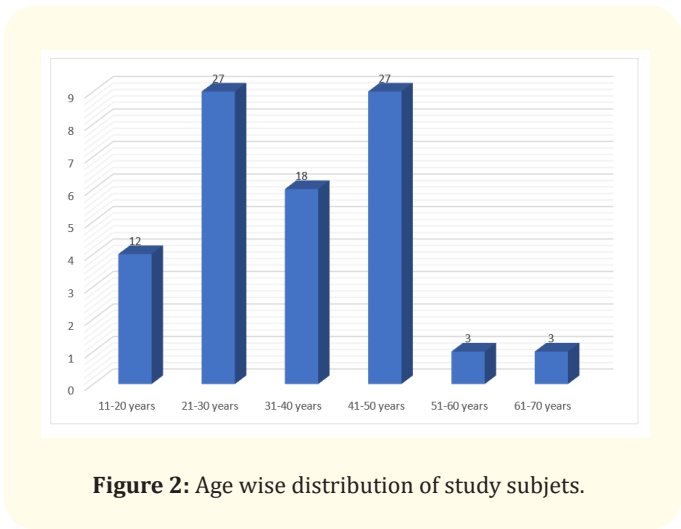


Figure 2: Age wise distribution of study subjects.

Anxiety	Number	Mean score	Std. Deviation	Minimum	Maximum	Z value	p value
Anxiety before coming to the department	90	2.1000	1.18	0.00	4.00	-7.559	0.000*
Anxiety during treatment	90	.6667	0.80	0.00	2.00		

Table 2: Comparison of anxiety scores of patients before coming to the department and after the treatment.

\*p < 0.05 is statistically significant, Wilcoxon sign ranked test.

The above table shows that when that there was a highly significant difference ( $p < 0.001$ ) in the anxiety scores of the patients before they came to the department and during their treatment. It can be seen from the mean score column that the mean score of the patients has reduced a lot during their treatment (mean score value 0.667) when compared to their scores before they came to the department (mean score value 2.10).

The above table shows the gender wise frequency distribution of the study participants as per the dental diseases they presented with in the department. Chi square test shows that there is a highly significant difference ( $p < 0.001$ ) between dental diseases and gender of the study participants. The frequency distribution shows us that there were more female patients as compared to the male patients. Also, the diseases of Apical periodontitis and periapical abscess was seen more when compared to the other problems.

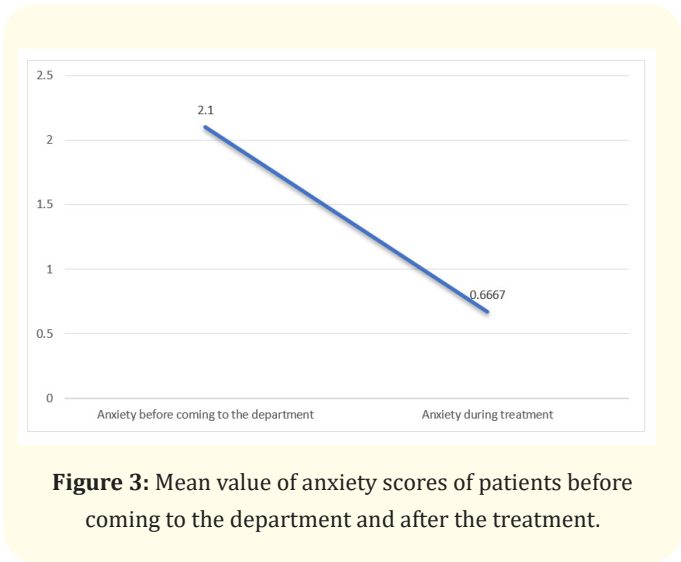
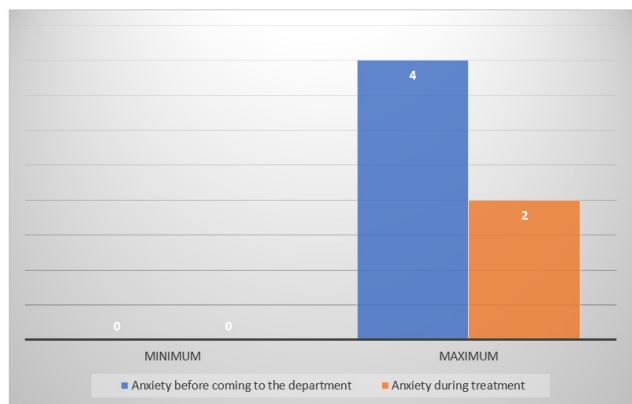


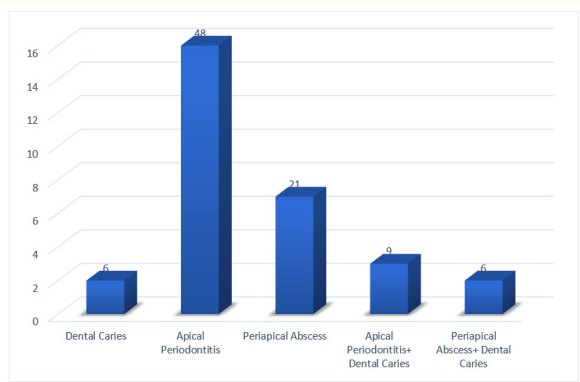
Figure 3: Mean value of anxiety scores of patients before coming to the department and after the treatment.



**Figure 4:** Minimum and Maximum values of anxiety scores of patients before coming to the department and after the treatment.

Dental Diseases	Frequency	Percent
Dental Caries	6	6.7
Apical Periodontitis	48	53.3
Periapical Abscess	21	23.3
Apical Periodontitis+ Dental Caries	9	10
Periapical Abscess+ Dental Caries	6	6.7

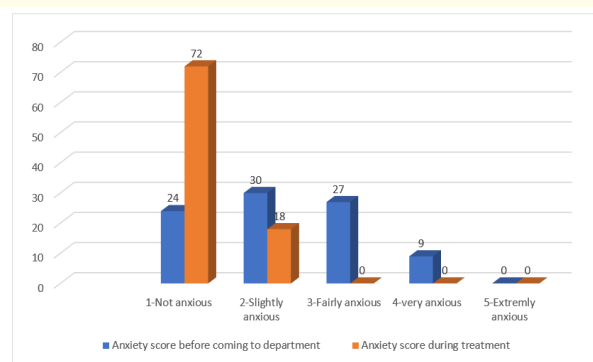
**Table 3:** Frequency distribution of the dental diseases seen in the patients during the course of the study.



**Figure 5:** Frquency distribution of the various dental diseases reported by the patients during the course of study.

Anxiety Levels	Anxiety score before coming to department (%)	Anxiety score during treatment (%)
1-Not anxious	24 (26.7)	72 (80)
2-Slightly anxious	30 (33.3)	18 (20)
3-Fairly anxious	27 (30)	0
4-very anxious	9 (10)	0
5-Extremly anxious	0	0

**Table 4:** Frequency distribution of the scores of anxiety in patients before coming to the department and during the treatment.



**Figure 6:** Frequency distribution of the scores of anxiety in patients before coming to the department and during the treatment.

Dental Diseases	Gender		Total	p value
	Male	Female		
Dental Caries	3	3	6	0.001*
Apical Periodontitis	21	27	48	
Periapical Abscess	0	21	21	
Apical Periodontitis+ Dental Caries	0	9	9	
Periapical Abscess+ Dental Caries	3	3	9	

**Table 5:** Frequency distribution and Chi square test for association between dental diseases and gender of the study participants.

\*p < 0.05 is statistically significant, chi square test used.

		Age distribution						Total	p value
		11-20 years	21-30 years	31-40 years	41-50 years	51-60 years	61-70 years		
Disease	Dental caries	3	3	0	0	0	0	6	0.006*
	Apical periodontitis	6	9	12	15	3	3	48	
	Periapical abscess	0	9	6	6	0	0	21	
	Apical periodontitis+ Dental caries	0	3	0	6	0	0	9	
	periapical abscess+ Dental caries	3	3	0	0	0	0	6	

**Table 6:** Frequency distribution and Chi square test for association between dental diseases and age distribution of the study participants.

\*p < 0.05 is statistically significant, chi square test used.

The above table shows the age wise frequency distribution of the study participants as per the dental diseases they presented with in the department. Chi square test shows that there was a significant difference (p < 0.05) between dental diseases and gender of the study participants. It can be seen from the frequency dis-

tribution that most of the patients were from the 41-50-year-old group, followed by the 31-40 and then 21-30-year-old group. It can also be noticed that apical periodontitis was the most common problem that was reported by the patients.

Variable		Age Groups						Total	P value
		11-20 years	21-30 years	31-40 years	41-50 years	51-60 years	61-70 years		
Gender	Male	6	9	0	9	3	0	27	0.002*
	Female	6	18	18	18	0	3	63	
Total		12	27	18	27	3	3	90	

**Table 7:** Frequency distribution and Chi square test for association between gender and age distribution of the study participants.

\*p < 0.05 is statistically significant, chi square test used.

The above table shows there is a significant difference (p < 0.05) in the age group and the gender of the patients who participated in the study. It can be seen from the frequency distribution that most of the patients were females from the 21-50-year-old group, and there were significantly fewer male patients who were seen in the study.

**Discussion**

During confinement, schools, colleges, and shops were shut, with the exception of those selling food and necessities. In any case,

guidelines didn't cover the shutdown of healthcare centres, which incorporates dental clinics. The American Dental Association on march 16,2020, recommended that dental specialists should restrict their practices to urgent and emergency treatments [8].

Even after 'New Normal,' people are still anxious and fearfull in approaching dental health care services. In this study 73.3% patients were anxious before coming to seek dental services. But after observing the strict following of COVID-19 precaution protocols and they were also counselled properly to reduce their anxiety

and fear of corona, 80% patients were not anxious during dental treatment.

The scores for dental anxiety and fear were strongly correlated in both the periods under study ( $p < 0.05$ ). Individuals whom self-perception for anxiety is high, can be more inclined to stressors, having a more dynamic reaction to state anxiety circumstances [9]. Despite the fact that, by definition, self-perceived anxiety is different from fear, the two are related, and self-perception can be estimated with question ratings or numeric scales. Anxiety and fear self-perception of individuals can be judged by situations or an individual's immediate environment [10].

Latin meaning of Dental caries is 'dry rot'. It is the slow disintegration process that may affect any of the biological hard tissues as a result of bacterial action. According to Shafer [11] dental caries is the microbial disease of the calcified tissues of the teeth, characterized by the demineralization of the inorganic portion and the destruction of the organic structure of the tooth.

Apical periodontitis is an inflammatory disease of the periradicular tissues caused by endodontic microbes residing in the root canals of culprit tooth persistently [12].

Periapical abscess is characterized by rapid onset, spontaneous pain, tenderness of the tooth to pressure, pus formation and eventual swelling of the associated Tissues [13].

This study showed the transition in the dental disease progression from mere dental caries to periapical abscess after COVID-19 lockdown 2.0, in the population of North Lucknow, Uttar Pradesh, India. However there was a similar study conducted by Singh AR, *et al.* [14] before COVID-19 in the same population, which revealed more prevalence of dental caries than periapical abscess.

This transition may have occurred due to the lockdown period during second wave of COVID-19 in which people were unable to access dental healthcare services.

Additional influencing factors might be frequent snacking, unhealthy lifestyle, mental stress etc.

Studies depicting gender wise distribution of these dental diseases are less. The result of the study shows that dental caries is more prevalent in females than in males. Reproduction pressures

and rising fertility clarified why females endured a more rapid decrease in dental health as human evolution transformed from hunters to farmers and more stationary pursuits.

There is a significant impact of female sex hormones and related physiological factors on caries. Female hormone oestrogen is associated with caries activity rates. A combined impact of estrogen incorporates fluctuating levels at adolescence and undeniable levels during pregnancy that enhances caries activity and dietary changes. Flow rate and biological composition can be another cause as saliva production is less in females in comparison to men, which leads to decline in self-cleansing activity of oral cavity [15].

In addition females tend to acquire their teeth at an earlier age than males. A female's teeth are therefore exposed to the oral environment, bacteria, and bacterial substrates for a longer time than the teeth of a male [16].

## Conclusion

Under the limitations of this study it can be concluded that. Even after 'The New Normal' people are still anxious in seeking the dental health care services.

But after becoming aware about the precautionary protocols followed by the hospitals and side by side counselling done by the doctors helped patients to reduce their anxiety and fear. Hence, patients are motivated to access the dental health care services.

Due to the inaccessibility of dental healthcare services during period of lockdown 2.0, transition in the dental disease process has occurred from more prevalence of dental caries to periapical abscess.

Study also concluded that dental diseases are more prevalent in females than in males of 21-30 and 41-50 years of age groups.

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