

# Prevalence of Dental Fear and Anxiety among Orthodontic Patients (A Survey)

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**Abstract:**

**Aim:** The aim of this survey is to determine the frequency of anxiety levels among orthodontic patients using Norman Corah's Dental Anxiety Scale, (DAS) and its correlation with gender, age and education of patient.

**Objective:** The objective of the present survey is to provide a systematic epidemiological investigation of dental fear and anxiety among orthodontic patients and to identify the most fearful aspects of dental care perceived by them.

**Background:** Dental fear and anxiety (DFA) is a common occurrence characterized by an essential and inevitable emotion that appears as a response to dental procedures.

**Materials and method:** Patients visiting the department of orthodontics for an orthodontic treatment were selected. A self-reported assessment scale developed by N. Corah, Dental Anxiety Scale (DAS) was modified and used in the study in the form of a questionnaire containing data on gender, age, education. A total of 200 questionnaires were distributed among consented patients. SPSS version 21 was used for statistical evaluation of data and Chi-square test was applied to know significance.

**Reason:** To assess dental fear and anxiety among orthodontic patients and create an awareness of problem, so that anxious and fearful orthodontic patients can be facilitated accordingly.

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## INTRODUCTION:

Anxiety is often expressed as an imaginary threat to a vague, unpleasant feeling accompanied by the premonition that something undesirable is going to happen. It can also be described as a reaction to a perceived danger that is known to the individual and is often characterised by feelings of tension, worried thoughts, apprehension and physical changes like increased blood pressure, nausea and palpitation etc. On the other hand, fear is a biological response and a reaction to a known danger or threat.[1, 2]The terms anxiety, phobia and fear are often used interchangeably in the literature and differentiating one term from other is often complicated. Dental anxiety (DA) is defined as a patient's response to stress that is associated with a dental procedures[3]. Among the most feared situations within the general population, DA is ranked 5th [4]with about 6-15% of the population suffering from high DA[5].

Studies done by Todd and Walker showed that nearly 43% of people avoid going to a Dentist unless they experience trouble with their teeth[6]. Curson and Coplans[7] have also reported that anxiety contributes to delay in visiting a Dentist. The physiological impact of dental anxiety not only acts as a barrier to dental treatment but also effect quality of treatment provided to patients. Despite improvements in dental technology, the prevalence of dental anxiety has remained relatively stable since the 1960s [8].

The onset of DA is thought to originate in childhood, peak in early adulthood, and decline with age[9]. The etiology of DA is poorly understood and has been attributed to many factors like Personality characteristics, traumatic or painful dental experiences in childhood, learned attitudes toward dental services that elicit fear from dentally anxious family members or peers (vicarious learning/modeling), perception of body image, Blood-injury fears and pain reactivity.[10-13].

Although several studies have shown that dental treatment is associated with different aspect of anxiety among populations [14-17]but very few studies have investigated dental anxiety among patients receiving orthodontic treatment. Usually it is believed that dental anxiety and fear is related to the stimuli like drilling and injections. However pain associated with dental treatment can also be a contributing factor in anxiety and the pain experienced during orthodontic treatment can be a reason for discontinuation or delaying of orthodontic visit which not only prolongs treatment duration but also may result in poor oral hygiene, compromised periodontal status, low self esteem and general well being.

Although orthodontists anecdotally report dentally anxious patients in their practice, the prevalence of dental anxiety as it relates to orthodontic treatment has not been investigated. The purpose of this study is to assess dental fear and anxiety among orthodontic patients and create an awareness of problem, so that anxious and fearful orthodontic patients can be facilitated accordingly.

## MATERIALS AND METHODOLOGY:

This study was conducted as a cross sectional survey with convenient sampling technique among 200 patients visiting the Orthodontics Department at Saveetha dental college and hospital. After obtaining a consent from the participants the questionnaire was given to them and collected after its completion. A total of 200 Questionnaires were distributed among both genders of patients visiting for follow up of orthodontic treatment and only completed questionnaires were used for the study. The Questionnaire consisted of demographic details of patient like age, sex and education. The next portion consisted of questions for evaluation of Dental Anxiety based on modified Norman Corah's Dental Anxiety Scale (DAS). Each question in the DAS had five multiple choices where the first option denoted most relaxed graded as score '1' and progressively

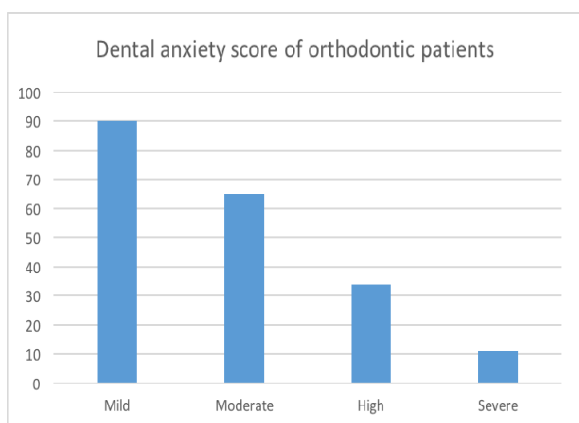
increasing to most anxious at option five graded as score '5'. The accumulated sum of all the questions of the DAS was 4 as minimum and 20 as maximum. Score of 4-9 denotes mild anxiety, score of 9-12 denotes moderate anxiety, score of 13-14 denotes high anxiety and score of 15-20 denotes severe anxiety or phobia. SPSS version 21 was used to for statistical evaluation of data. Chi-square test was applied to know significance.

The questionnaire included the following questions.

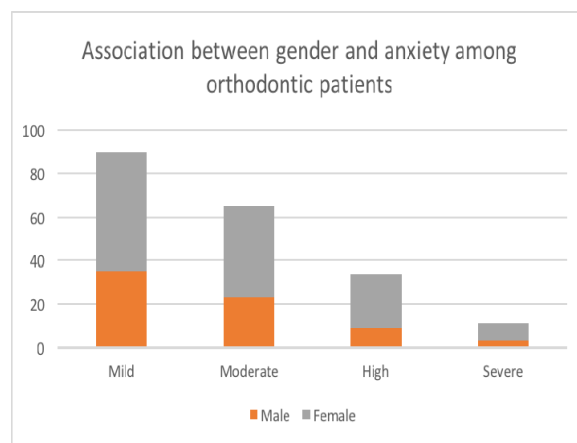
1. How do you feel or did you feel during your first visit to orthodontist?
2. How did you feel while sitting on the dental chair for your orthodontic treatment?
3. If you were about to have braces put on how would you feel?
4. If you were about to have your braces adjusted how would you feel?
5. If you were about to have an impression taken how would you feel?
6. If you were to undergo an extraction of your teeth for the purpose of orthodontic treatment how would you feel?
7. How do you feel when your orthodontist takes out the instruments to examine your teeth?
8. How do you feel if you were to get your teeth drilled?

**RESULT:**

Out of the 200 patients, 80(40%)were male and 120(60%) were females. The mean age of the participants was 23.3 years (S.D ± 6.8). Majority of patients were either less than or equal to 25 years of age (n=170). As far as education is concerned majority of patients in this study were graduates (n=87). In the present study it was found that 45% participants had mild anxiety(n=90), 32.5% had moderate anxiety(n=65),17% had high anxiety(n=34) whereas only 5.5% participants experienced severe anxiety (n=11) (Fig 1). No statistically significant association was seen between gender of the participants and anxiety score (Fig 2). The age group of the participants was not statistically associated with anxiety levels. However a statistically significant association was observed between the education level of patient and their anxiety score (Table 1). The study showed that Higher the education level of the participant, lesser was their anxiety score (p=0.015).



**Fig 1. Dental anxiety score of orthodontic patients.**



**Fig 2 association between gender and anxiety among orthodontic patients.**

Education of participant	Mild anxiety score	Moderate anxiety score	High anxiety score	Severe anxiety score	P-value
<10 yrs	24	12	9	6	<0.01
Till 12 th std	18	20	8	2	-
Graduation	40	24	13	3	-
Post graduation	8	9	4	0	-
Total	90	65	34	11	-

**Tab 1. Association between education level and anxiety score of orthodontic patients.**

**DISCUSSION:**

The purpose of this study was to assess the prevalence of dental fear and anxiety in orthodontic patients and its association with gender, age groups and the education of patient using a Corah's DAS questionnaire.

The total sample size of study was 200 out of which 80 were male and 120 were females. The higher count of female participants in the study could be due to their high concern about the aesthetics and thus seeking orthodontic treatment, which is consistent with findings from previous studies[18]. Even though the majority of studies have reported higher anxiety levels among females, no significant difference was found between males and females in this study among orthodontic patients[18,19].This can be best explained as majority of participants had higher educational qualifications.

In this study,45% participants had mild anxiety, 32.5% participants had moderate level anxiety, 17% participants had high anxiety, whereas only 5.5% participants experienced severe anxiety or phobia. In the present study, orthodontic patients had high percentages of mild and moderate anxiety as they were routinely visiting their orthodontist for treatment and also were more aware about the expected procedures than patients visiting for other dental procedures.

The participants in the study were divided three groups based on their age as group1(up to 15 yrs), group 2(15-25 yrs)and group3( 25-35yrs). Majority of the participants were in Group 2 with the mean age being 23.3 years. In

the current study most of them were in Group 2 as they were in the ideal ages for getting orthodontic treatment by orthodontist.

Other factor that was included in our study was patient education level and it was found that the prevalence of anxiety drastically decreased in patients with higher education with statistically significant results ( $p= 0.015$ ). The reason behind this decrease in high and severe anxiety level in the highly educated patients is the fact that they are more confident, show more trust toward their treating orthodontist and are well informed and educated about their dental problems[19].

The limitation of study showing more inclination towards mild and moderate level anxiety among orthodontic patients could be due to the participants routinely visiting their orthodontist for follow up. Pierce and Kirkpatrick had suggested that men reported are less anxious than women in response to specific fear because they were not being truthful[20]. And this indicates a reporting bias in men. In general our study also found that the most common reason for anxiety among the participants was the fear of pain associated with the orthodontic treatment.

In this study dental anxiety was evaluated using a self reported measure. Future research is required on various other dimension of anxiety among orthodontic patients.

#### CONCLUSION:

Dental anxiety is prevalent among patients seeking orthodontic treatment. Patients with higher education were significantly less dentally anxious ( $p<0.01$ ) about orthodontic treatments than patients with lesser education. Demographic factors such as gender and age of the patient showed statistically minimal significant effect on DAS. It is important to establish if patients are anxious about having orthodontic treatment because dentally anxious patients tend to delay and/or avoid dental treatment, which can lead to poor oral health, self-esteem and general well-being. From the clinician's standpoint, dealing with dentally anxious patients can be challenging and stressful. Hence determine the prevalence of dental anxiety in orthodontics and factors contributing to it will create an awareness of the problem, and help clinicians identify patients who are dentally anxious and facilitate appropriate treatment and management during orthodontic treatment.

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