

# Dental Anxiety among Patients Visiting a Dental Institute in Faridabad, India

CM Marya, S Grover, A Jnaneshwar, N Pruthi

## ABSTRACT

*Despite advances in dentistry, anxiety about dental treatment and the fear of pain remains widespread among patients and is a significant barrier to dental treatment. This study would therefore provide information so as to minimize levels of anxiety and aid in planning stress-free treatment. The cross-sectional study utilizing a self-reported questionnaire based on Modified Corah's Dental Anxiety Scale (MDAS) framed in Hindi (local language) was performed on 1032 patients (aged 14–68 years). Around 1004 questionnaires were returned (response rate – 97.3%). Overall, prevalence of dental anxiety was high (50.2%), but severe anxiety (phobia) was low (4.38%). The prevalence of anxiety was seen mostly in the 20–30-year age group (37.3%). Anxiety was also seen to be significantly higher in females (mean – 11.79) than in males [mean – 9.47] ( $p < 0.0000$ ). Patients anxious about dental procedures are often more difficult to treat. Anxious patients should be identified and managed appropriately by behavioural/pharmacological measures.*

**Keywords:** Anxiety scale, dental anxiety

# Ansiedad Dental entre Pacientes que Asisten a un Instituto Dental en Faridabad, India

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## RESUMEN

*A pesar de los adelantos en la odontología, la ansiedad en torno al tratamiento dental y el miedo al dolor, siguen extendidos entre los pacientes, y constituyen una barrera significativa al tratamiento dental. Por lo tanto, este estudio persigue brindar información que permita minimizar los niveles de ansiedad y ayude a planificar un tratamiento libre de tensión. Este estudio transversal, que utiliza una encuesta auto-reportada basada en la Escala de ansiedad dental modificada (EADM) de Corah – enmarcada en hindi (el idioma local) – se aplicó a 1032 pacientes (14–68 años de edad). Alrededor de 1004 cuestionarios regresaron con sus respuestas (para una tasa de respuesta de 97.3%). En general, la prevalencia de la ansiedad dental fue alta (50.2%), pero la ansiedad severa (la fobia) fue baja (4.38%). El prevalencia de la ansiedad se vio principalmente en el grupo etario de 20–30 años (37.3%). También se observó que la ansiedad era significativamente más alta en las hembras (media 11.79) que en los varones (media 9.47,  $p < 0.0000$ ). Los pacientes dentalmente ansiosos son a menudo difíciles de tratar. Los pacientes ansiosos deben ser identificados y tratados apropiadamente por medio de medidas farmacológicas conductuales.*

**Palabras claves:** Escala de ansiedad, ansiedad dental

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## INTRODUCTION

Amongst various kinds of fear and phobia, dental anxiety is one of the most commonly reported (1). A study reported that 73% to 79% of patients had at least some dental anxiety towards dental procedures (2). High levels of anxiety may make treatment unsuccessful and such patients may continue to avoid dental treatment for life. By definition, anxiety is described as a vague, unpleasant feeling accompanied by the

premonition that something undesirable is about to happen. It is a reaction to a perceived danger that is unknown to the individual. On the other hand, fear is a biological response to a specific threat, and is a reaction to a known danger or threat. Phobia, which shares features with both anxiety and fear, involves an avoidance response and is associated with a debilitating loss of function (3, 4).

As dental anxiety can be quite common amongst patients, it has been widely studied all over the world. Possible factors related to dental anxiety that have been studied include age (5, 6), gender (7), objects and situations (8) *etc.* Many scales have been developed to measure dental anxiety, including the Corah Dental Anxiety Scale (9), Dental Fear Survey (10) and Dental Belief Survey (11). All of these scales have been adopted and tested for many years in dental and psychological research.

To help patients reduce their dental anxiety, many treatment modalities have been suggested, these included 1) behaviour modification including systemic desensitization, extinction, positive and negative reinforcement, biofeedback, 2) hypnosis and 3) use of various relevant pharmaceutical agents such as intravenous sedation and inhalation sedation. The aim of the present study was to assess the levels of dental anxiety in patients visiting a dental institute in Faridabad.

Objectives:

- \* To compare the levels of anxiety among the two genders.
- \* To compare the levels of anxiety among different age groups.
- \* To compare the levels of anxiety between patients at first visit and subsequent visits.

## SUBJECTS AND METHOD

The intended target group for this survey was patients (aged 14 years or above) seeking treatment in the Sudha Rustagi College of Dental Sciences and Research, Faridabad (SRCDSR). A patient-oriented questionnaire was structured to assess patient's anxiety levels before dental treatment. This cross-sectional study utilized questions modified from Corah's Dental Anxiety Scale (9), termed as Modified Corah's Dental Anxiety Scale (MDAS) which was framed in English and in Hindi (local language).

These questions inquired about participant's feelings in specific situations, namely:

- \* Prior to visiting the dentist
- \* When they are waiting in the reception area
- \* When they are sitting in the dentist's chair and the dentist gets the drill ready
- \* When they are sitting in the dentist's chair and the dentist or hygienist is preparing the instruments to scrape their teeth around the gums
- \* When they are sitting in the dentist's chair and the dentist is about to put a local anaesthetic injection in their gums

Participants were allowed to choose from five responses (scored 1 to 5), ranging from 'relaxed' to 'so anxious that I

sometimes break out in sweat or almost feel physically sick'. Participants were also asked about their previous visit and the complaint for which they had visited the institute. A pilot study of the questionnaire was carried out on 20 patients who visited SRCDSR for dental treatment. Problems encountered during the pilot study were noted and appropriate modifications were made to improve the ease of understanding of the questions. The final score was analysed as 5–9 mild anxiety, 10–15 moderate anxiety, 16–18 high anxiety and 19–25 severe anxiety (phobia).

The data (input into Microsoft Excel software) was checked and errors were corrected before data analysis. The data were analysed using SPSS 11.5. Initially described by descriptive statistics, the comparison between the two genders and the first/subsequent visits was done by unpaired 't' test and the multiple age group comparison was done by Newman-Keuls multiple comparison *post hoc* analysis. The level of significance was set to be 0.05.

## RESULTS

Out of 1032 total questionnaires distributed, around 1004 questionnaires were received (response rate – 97.3%). The majority of the patients were males 620 (61.75%) and the rest 384 (38.25%) were females (Table 1). Most of the partici-

Table 1: Comparison of male and females with respect to their anxiety scores by unpaired *t*-test

Sex	n	Mean	SD	<i>t</i> -value	<i>p</i> -value
Male	620	9.4710	3.9419	-8.7880	0.0000*
Female	384	11.7917	4.2602		

\**p* < 0.05

pants amongst the six age groups were in the 21–30-year age group (32.27%), followed by 31–40-year age group (27.49%), and the least were in the 'above 60 years' age group (4.78%) [Table 2]. Four hundred and forty-eight (44.62%) patients had visited a dentist previously, mostly for extraction (33.04%), followed by toothache (22.32%). Patients who had visited a dentist earlier had significantly higher mean dental anxiety scores (*p* = 0.04) [Table 3]. Relating to anxiety levels, most of them did not feel anxious/afraid 'prior to visiting the dentist today' (39.04%), 'while waiting at the reception area' (45%), while 'waiting as the dentist gets the drill ready' (38.24%) and while 'waiting as the dentist is ready to scrape their teeth' (36.26), but while 'waiting as the dentist gets ready to inject anaesthetic injection' had fewer fearless people (25.9%).

Most of the respondents showed mild (49.8%), and moderate anxiety (32.27%); very few people showed severe anxiety [phobia] (4.38%). Dental anxiety was seen to be significantly higher in females than males (*p* < 0.0000). Age factor was also seen to be significantly related to dental

Table 2: Pair wise comparison of age groups (< 20 years, 20–30 years, 31–40 years, 41–50 years, 51–60 years and 61+ years) with respect to their anxiety scores by Newman-Keuls multiple comparison *post hoc* procedure

Age groups (years)	< 20 yrs (n = 104)	20–30 yrs (n = 344)	31–40 yrs (n = 276)	41–50 yrs (n = 152)	51–60 yrs (n = 80)	61+ yrs (n = 48)
Mean	11.3460	11.0580	10.1160	9.8947	8.2500	9.5833
< 20	–					
20–30	0.6112	–				
31–40	0.0761	0.0963	–			
41–50	0.0500*	0.0997	0.6962	–		
51–60	0.0000*	0.0000*	0.0055*	0.0103*	–	
61+	0.0160*	0.0457	0.6149	0.5826	0.0186*	–

\* $p < 0.05$

Table 3: Unpaired *t* test to check the difference between anxiety levels of first visit and subsequent visit patients

	Previous visit	n	Mean	Std Deviation	Std Error	
					Mean	<i>p</i> -value
Score	No	448	9.9375	3.9078	0.1846	0.004*
	Yes	556	10.6978	4.4270	0.1877	

\* $p < 0.05$

anxiety. The anxiety levels of younger age groups ('less than 20' and 20–30 years) were significantly higher than the older age groups (51–60 and 'above 60' years). The anxiety levels of the 51–60-year age group were significantly lower than the other five age groups (Table 2).

## DISCUSSION

Despite the technological advances in dentistry, anxiety about dental treatment and the fear of pain associated with dentistry remains globally widespread and is considered a major barrier to dental treatment.

Overall, the prevalence of dental anxiety was quite high – 50.2% (patients having a score  $\geq 10$ ), but severe anxiety (phobia) was low (4.38%). These findings are similar to the study of Al Madi and AbdelLatif which reports 54.4% moderate anxiety and 29% high anxiety. The possible reason for the high levels of anxiety can be attributed to the high percentage of young patients who are usually apprehensive (13). The literature shows that women have a lower tolerance to pain and generally report higher levels of anxiety (14, 15). Similar results are obtained in the present study which reports a significant difference in the anxiety of males and females. This finding may be explained on the basis that women have higher levels of neuroticism (tendency to experience negative emotional states) than men and that anxiety is positively associated with neuroticism (16, 17). There was a significant inverse relationship of age and anxiety, *ie*

anxiety decreased with advancing age. This high anxiety rate of young patients has been reported in the literature (14, 18). The highest numbers with dental anxiety were in the young age groups (< 20 years and 20–30 years) followed by the age group 31–40 years. Dental anxiety was lowest in the age group 51–60 years. Explanations proposed as to why dental anxiety might decrease with age include the ability to cope with experiences or the phenomenon may be due to the ageing process itself characterized by a general decline in anxiety (12, 18). A longitudinal analysis revealed that dental fear, like many other general and specific phobias, declines with age (19). The mean dental anxiety scores were higher for those who had visited a dentist earlier ( $p = 0.04$ ). This finding is similar to the study by Shrestha *et al* (20). It could be generally expected that previous experience of the patient would have been traumatic and it elevated the level of fear and anxiety in patients at subsequent dental visits (21).

This study has valid applications as dental fear and anxiety are important clinical considerations and treatment success depends on patient compliance. Also, measuring anxiety indirectly measures psychological and social well-being. This study did not examine any possible causes for the anxiety or the variety of different treatments and other factors that may influence anxiety, implying the need for further considerations on the causes of anxiety.

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