

# Dental anxiety of outpatients in an institutional based dental hospital: a cross sectional study

## Abstract

**Background:** The evaluation of dental anxiety among patients would provide information on their behavior and helps us in planning treatment.

**Objective:** Measuring the pervasiveness and factors affecting dental anxiety in new patients visiting a teaching dental hospital in Nellore, Andhra Pradesh, India.

**Materials and methods:** The cross-sectional study conducted on 222 individuals (39 males and 183 females), employing a self-reported questionnaire based on Corah's Dental Anxiety Scale (DAS) which was provided in Telugu and English were used.

**Results:** The mean DAS score for males was 16 whereas for females it is 12. Among the age groups, 41-50 years individuals had the highest mean DAS score (13.7) followed by 21-30 years (12). Mean DAS score for the individuals who had a previous dental visit were 12 whereas for the individuals with no previous dental visit it was 5. The highest mean DAS score was seen for those who had visited a dentist for tooth removal (16) followed by filling (14) and cleaning (13.7). Least mean DAS score was seen for those who had visited a dentist for teeth set (10.5) and the comparison between all these parameters was statistically significant ( $p < 0.001$ ).

**Conclusion:** Males seemed to have higher dental anxiety as compared to the females. Dental anxiety was seen to be most among the older age group of the sample population and those individuals who had undergone dental extraction in their previous visit reported higher dental anxiety.

**Keywords:** corah's dental anxiety scale, dental anxiety score, dental anxiety assessment, previous dental visit

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Nirmala SVSG, Md Akhil Quadar, Rupak Kumar Dasaraju

Department of Paedodontics & Preventive Dentistry, India

**Correspondence:** Nirmala SVSG, Professor, Department of Paedodontics & Preventive Dentistry, Narayana Dental College & Hospital, India, Email drnirmalavenkata@gmail.com

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## Introduction

Fear is a hostile emotion consisting of psychophysiological changes in reaction to realistic threat or menace to one's own experience. It is a passionate response to unprejudiced danger. Phobia is an unscientific fear resulting in conscious evasion of a specific object, activity or situation.<sup>1</sup> Unlike fear, anxiety and its concomitant symptoms are anticipatory in nature, which means that, they are often felt when a stimulus is not present or readily identifiable.<sup>2</sup>

Dental anxiety is an intricate fear with many constituents involving personality or psychological traits as well as conditioning experiences and vicarious learning.<sup>3</sup> It is an imperative component of agony to patients in the dental operator.<sup>2</sup> Even the eagerness of dental treatment can give rise to fear and anxiety. Anxiety and fear of pain are habitually testified as origins of irregular dental attendance, adjournment in seeking dental care or even evasion of dental care.<sup>3</sup> and may lead to worsening of oral and dental health.<sup>2</sup> Furthermore, dentists find phobic patients challenging to manage, thus, affecting the actual provision of dental care to such patients.<sup>3</sup>

Dental anxiety is factually deeply rooted in people.<sup>4</sup> Dental anxiety has got a complex multi-factorial etiology, many factors are involved in the development of dental anxiety which may be fear of pain, a lack of trust or fear of betrayal, fear of loss of control, fear of the unknown and fear of intrusion.<sup>5</sup>

It has also been testified that individuals with higher dental anxiety had more painful dental treatment when compared with the children without dental anxiety.<sup>6</sup> The study of dental anxiety found that the strongest connotation was with the conditioning pathway,<sup>7</sup> where conditioning variables "number of traumatic visits" and "dentist empathy" was responsible for 93 % of the elucidated variance, i.e., anxious individuals had experienced significantly more traumatic visits to the dentists than non-anxious ones. This may exhibit the importance of a perception of treatment experience. Besides this, individuals with more caries tend to receive more emergency treatment.<sup>8</sup>

There is a wide-ranging pact that dental anxiety is acquired at a young age and especially during adolescence.<sup>9</sup> Locker et al.<sup>10</sup> found that incidence of dental fear increased only marginally between the ages of 15 and 18 years. The physiological and psychological changes of puberty and the probability that older children receive more invasive treatments could be possible explanations of an increase in dental fear with increased age.<sup>11</sup>

It has been conveyed that individuals with adolescent-dental anxiety were more likely to be less credulous of dentists and to be more hostile towards them than adolescents without anxiety problems.<sup>12</sup> Excitingly, adolescents were nine times more likely to be highly anxious of dental treatment if they thought that their dentist was uncaring.<sup>13</sup> Anxiety is the most common intention for not

attending the dentist.<sup>14</sup> Thus, averting of dental treatment can be a good indicator of dental fear.<sup>15</sup>

A general notion among dentists is that individuals with dental fear have a more waned dental status than dental patients without anxiety.<sup>4</sup> In the same way, dental anxiety in children and adolescents has been related to higher dental pathology, especially the number of missing teeth and the amount of decay.<sup>7</sup> This was fairly explained by negative experiences related to dental treatment.<sup>15</sup>

Assessment of level of dental anxiety among patients would provide information on their behaviour and help in planning treatment. Dental anxiety is most commonly measured using questionnaires and rating scales.<sup>16,17</sup>

Various scales have been composed to measure the many aspects of dental anxiety. A commonly applied questionnaire is Corah's Dental Anxiety Scale (DAS).<sup>17,18</sup> The present study was conducted using the DAS to measure the dental anxiety among patients visiting the dental clinics of a teaching dental hospital in Nellore, Andhra Pradesh, India.

## Materials and methods

A questionnaire-based cross-sectional study was conducted, on patients attending to the dental clinics of Narayana Dental College, Nellore (a teaching dental hospital) between June and July 2015. The self-reported questionnaire was based on Corah's Dental Anxiety Scale (DAS). It entailed of socio-demographic data, such as gender and age of the individual, whether it was a first dental visit or not, the reason for visiting the dental clinic, and Corah's four item index.

The DAS contains four multiple choice items dealing with the patient's subjective reaction to the dental situation:

- a. Forestalling a visit to dental clinic.

- b. Waiting in the dentist's office for treatment.
- c. Drilling of teeth.
- d. Scaling of teeth.

Five conceivable answers in ascending order from 1 to 5 are provided, each question carrying a probable maximum score of 5, with a total possible maximum score of 20 for the entire scale.

Dental anxiety was classified into 'mild', 'moderate', and 'severe' depending on the DAS scores. DAS score 9-12 is 'mild', 13-15 is 'moderate', >15 is 'severe'. A total of 222 questionnaires were given to patients above 16 years of age who were waiting to be examined at the reception area of the different clinical departments.

The patients included in the study were those who gave consent and were able to read and understand Telugu and English. Statistical analysis was carried out using SPSS 20.0 version. Descriptive statistics was used to represent the demographic data and responses of the individuals to the DAS. The Chi square test was used for comparison of categorical data. Student's t test was used to compare the difference between two measures. Level of statistical significance was set at  $p < 0.05$ .

## Results

Of all the 222 individuals, 17.6% of the respondents were males and 82.4% of the individuals were females. Most of them belongs to the age range 21-30 years (46.4%) followed by 31-40 years of age (33.8%), 41-50 years of age (19.8%) and no respondents were there below 20 years and above 50 years of age. Most of them had visited a dentist earlier (96.4%). The visits were for filling of teeth (44.6%), cleaning of teeth (31.08%), teeth set (18.9%) and removal of tooth (5.4%) (Table 1).

**Table 1** Comparison of mean DAS scores among subjects showing dental anxiety

Component		N (%)	Mean DAS Score	Significance (p-value)
<b>Gender</b>	Males	39(17.6)	16	<0.001*
	Females	183 (82.4)	12	
	≤20	0	-	
<b>Age (Years)</b>	21-30	103 (46.4)	12	<0.001*
	31-40	75 (33.8)	10.3	
	41-50	44 (19.8)	13.7	
	51-60	0	-	
<b>Previous Visit</b>	Yes	214 (96.4)	12	< 0.001*
	No	8 (3.6)	5	
	Check up	0	-	
<b>Reason for Visit</b>	Filling	99 (44.6)	14	< 0.001*
	Cleaning	69 (31.08)	13.7	
	Tooth removal	42 (18.92)	16	
	Teeth set	12 (5.41)	10.5	

p-value = <0.001\* is very high significant

Around 49% of the patients said that they would be afraid as it would be unpleasant and painful, 45% said that they would be a little uneasy about it and 6% of them said that they would look forward to it as an enjoyable experience when they were questioned about their expectation on dental check-up (Table 2). Around 48% of respondents said that they would feel anxious, 47% said that they would feel tense

**Table 2** Responses of all individuals when questioned about going to the dentist for check-up

Response	Frequency	Percentage (%)
I wouldn't care one way or the other	13	6
I would be a little uneasy about it	100	45
I would be afraid that it would be unpleasant and painful	109	49

**Table 3** Responses of all individuals when questioned about waiting in the dentist's office till their turn for treatment

Response	Frequency	Percentage (%)
Relaxed	12	5
Tense	104	47
Anxious	106	48

**Table 4** Responses of all individuals when questioned about waiting in the dental chair till the dentist gets the drill ready to work on their teeth

Response	Frequency	Percentage (%)
Relaxed	12	5
Tense	104	47
Anxious	106	48

and 5% said that they would feel relaxed, while they are waiting in the dentist's office till the turn of their treatment, waiting in the dental chair till the dentist gets the drill ready to work on their teeth and waiting in the dental chair till the dentist/hygienist gets the instruments ready to work around their teeth and gums respectively (Tables 3–5).

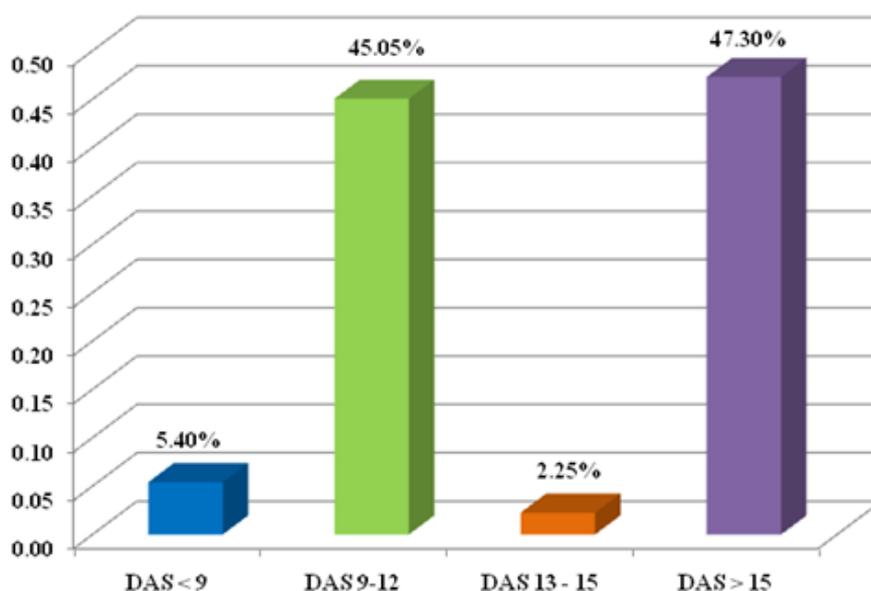
**Table 5** Responses of all individuals when questioned about waiting in the dental chair till the dentist/hygienist gets the instruments ready to work around their teeth and gums

Response	Frequency	Percentage (%)
Relaxed	12	5
Tense	104	47
Anxious	106	48

The prevalence of dental anxiety was 2.25% for DAS < 9, 45.05% for DAS 9-12 (mild anxiety), 5.40% for DAS 13-15 (moderate anxiety) and 47.30% for DAS >15 (severe anxiety) (Table 6 & Graph 1).

**Table 6** Prevalence of DAS scores in total study population

DAS Score	Frequency	Percentage (%)
<9	5	2.25
12-Sep	100	45.05
13-15	12	5.4
>15	105	47.3



**Graph 1** Prevalence of DAS scores in total study population.

The mean DAS score for males was 16 whereas for females it is 12 and the comparison between them was significant ( $p < 0.001$ ). Among the age groups, 41-50 years individuals had the highest mean DAS score (13.7) followed by 21-30 years (12) and 31-40 years (10.3) individuals. The comparison between them was also statistically significant ( $p < 0.001$ ). Mean DAS score for the individuals who had a previous dental visit was 12 whereas for the individuals with no previous dental visit it was 5 and the comparison was significant ( $p < 0.001$ ). The highest mean DAS score was seen for those who had visited a dentist for tooth removal (16) followed by filling (14) and cleaning (13.7). Least mean DAS score was seen for those who had visited a dentist for teeth set (10.5) and the comparison between them was also statistically significant ( $p < 0.001$ ) (Table 1).

## Discussion

The results of this study have shown that prevalence of dental anxiety among patients visiting the dental clinics of a teaching dental hospital was 5 (Mean DAS score) for 3.6% of the individuals and 12 (Mean DAS score) for 96.4% of individuals who had previously visited a dentist. The mean DAS score was higher for those who had visited a dentist earlier. This is contrary to the study by Ekanayake et al.<sup>3</sup> where they found no difference in levels of dental anxiety between the two groups and findings from other studies,<sup>10,11</sup> reporting that individuals without any dental treatment experience have higher dental anxiety than those who experienced dental treatment. It could be generally expected that previous experience of a dental visit would alleviate the level of fear and anxiety in patients at subsequent dental visits, provided the initial experience was non-traumatic.

Moreover, when dental anxiety was related to the type of treatment received at the last dental visit, it is apparent that those who had an extraction were more dentally anxious than those who had visited for filling, cleaning or teeth set. In another study where dental anxiety was evaluated prior to receiving different dental treatments, dental anxiety prior to root canal therapy was found to be highest followed by extraction and filling. Anxiety prior to scaling was found to be the lowest.<sup>2</sup> In some studies patients without dental anxiety were reported to have significantly more filled surfaces compared to the ones with anxiety,<sup>4</sup> while in other studies no relationship between dental anxiety and the number of fillings in different children age groups was found.<sup>7,18</sup>

The prevalence of dental anxiety was 2.25% for DAS < 9, 45.05% for DAS 9-12 (mild anxiety), 5.40% for DAS 13-15 (moderate anxiety) and 47.30% for DAS > 15 (severe anxiety). The outcomes regarding prevalence of dental anxiety in this study can be compared to a study among Danish adults which showed almost similar moderate anxiety of 6% (DAS scores 14-12) and extreme dental anxiety (DAS > 15) was found in only 4.2% of the sample.<sup>19</sup> The difference in prevalence could be due to variations in the measure of dental anxiety and the cut-off scores used to distinguish between those who were dentally anxious and those who were not.

In the present study, male respondents had a higher mean DAS score than females showing that males were more likely to show higher levels of dental anxiety. This is in conflict with other studies.<sup>2-4,18</sup> The fact that more individuals were there in the female group compared to the male group could have affected this relationship between gender and dental anxiety. Medical and psychological exploration on

human retorts to pain stimuli has generally found that women report higher levels of anxiety (they have lower thresholds) and exhibit less tolerance for pain at given stimulus intensities than men. It may also be that women are more likely to self-report, whereas men may not express their fears as openly as women.<sup>20</sup>

The study analysis of an open cohort at the age of 35 focused on the effects of gender and multiple indispositions on quality of life and idiosyncratic distress which showed that women generally reported lower quality of life and higher distress than men. Relative to men, well-being in women was subject to more diagnostic (alcohol abuse/dependence, depression, generalized anxiety disorder, bulimia) and social influences (partner, promotion). The same factors predicted women's psychological and physical well-being, indicating a more holistic experience in women.<sup>21</sup>

This study also shows a varied relationship between age and dental anxiety. The highest numbers of dentally anxious were in the age group 41-50 years, followed by the age group 21-30 years and age group 31-40 years. The fact that more individuals were in the lower age group compared to the older age group could have affected this relationship between age and dental anxiety. This association between age and dental anxiety is in conflict with another study carried out in Sri Lanka.<sup>3</sup> A longitudinal analysis revealed that dental fear, like many other general and specific phobias, declines with age.<sup>22</sup> However, there seems to be contradictory evidence as to this relationship as shown in the study by Udoye et al.<sup>2</sup> where it is shown that age was inversely associated with dental anxiety.

## Conclusion

Dentally anxious patients are often challenging to treat. Dental anxiety has been seen to be accompanying with missed dental appointments and dental avoidance. In this study males seemed to have higher dental anxiety as compared to the females.

Dental anxiety was seen to be most among the older age group of the sample population. Higher dental anxiety was reported among those individuals who had undergone dental extraction in their previous visit. Assessment of dental anxiety may be endorsed to assist the dentist in identification and management of dentally anxious patients.

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## Conflicts of interest

Authors declare that there is no conflict of interest.

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