

## Self-Assessment of Dental Anxiety in Patients Visiting Comprehensive Rural Health Service Project

Anindya Bhalla<sup>1\*</sup>, Sukriti Bhalla Singh<sup>2</sup>, Sujata<sup>3</sup>, Ashish Singh<sup>4</sup> and Ajay Choudhary<sup>5</sup>

<sup>1</sup>Department of Public Health Dentistry & Nims Dental College Shobha Nagar, N.H.11-C Jaipur – 303121 Rajasthan, India

<sup>2</sup>Department of Internal Medicine & Shri Dada Dev Matriavum Shishu Chikitsalya, Dabri, Delhi -110045 New Delhi, India

<sup>3</sup>Department of Oral Diagnosis & KG Chopra Dental Clinic, Jaipur,-302004, Rajasthan, India

<sup>4</sup>Department of Family Medicine & Room 10, community Health centre (CHC) District Shyamli, -251319 Uttar Pradesh, India

<sup>5</sup>Department of Conservative & Endotics Dentistry & Nims Dental College Shobha Nagar, N.H.11-C Jaipur – 303121 Rajasthan, India

### Abstract

**Aims:** The aim of this study was to estimate the prevalence, severity and associations of dental anxiety in a sample of the adult population visiting comprehensive Rural Health Service Department, Ballabgarh (Haryana).

**Methods and material:** A sample of 379 adults (age ranging between 15 to 60 years; mean age male = 35.89 ± 14.10 and female 35.01 ± 12.38). The Modified Dental Anxiety Scale (MDAS) is a brief, self-complete questionnaire consisting of five questions (Q1 to Q5) and summed together to produce a total score ranging from 1 to 5.

**Statistical analysis used:** SSP version 16 software, the percentage, means and standard deviation.

**Results:** The results revealed that females were more apprehensive, compare to men. Based on distribution of anxiety according to age group, males between the age group 15 to 23 and 24 to 33 belonged fairly anxious group and only slight anxiety was observed in higher age group (44 to 53 yr). On the other hand, females were found to be very anxious at higher age group of 24-33 and 34-43.

**Conclusions:** It is recommended that dental education and health care services should be promoted to overcome the fear/anxiety factor.

**Keywords:** Anxiety; MDAS; Dental

### Introduction

Dental anxiety is a common problem both for dental practitioners and the people and afflicts a significant proportion of people of all ages from different social classes and often results in poor oral health by complete avoidance of dental treatment, irregular dental attendance or poor co-operation. Dental anxiety is based on several factors like family and social environment, general fearfulness, pain and traumatic, unpleasant experiences. Patient perceptions of behaviours and attitudes of dentists can affect dental anxiety and could influence his or her decision to access dental care [1]. It is therefore becomes imperative to assess the dental anxiety quantitatively and qualitatively and its associated factors.

Anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive, and behavioural components [2]. Anxiety is considered to be a normal reaction to a stressor.

Physical effects of anxiety may include heart palpitations, muscle weakness and tension, fatigue, nausea, chest pain, shortness of breath, stomach aches, or headaches and digestive system functions are inhibited (the *fight or flight* response). Emotional effects may include “feelings of apprehension or dread, trouble concentrating, feeling tense or jumpy, anticipating the worst, irritability, restlessness, and, feeling like your mind’s gone blank as well as “nightmares/bad dreams.

Various scientists [3-5] have conducted surveys in populations of different countries and reported [6] various types of dental anxiety ranging from mild, moderate to severe. None of the available literature from the studies conducted by other workers [7-10] shows dental anxiety varied among different age groups and differs among genders [11]. Usually more anxiety is observed in older population and in females. Dental Anxiety score was found to vary for those who visited a dentist for tooth removal followed by cleaning, filling and dental check-

up [12] and study by [13] showed association of anxiety with avoidance of care and lack of regular dental appointments.

Modified Dental anxiety scale [14] enabled to assess dental anxiety and relationship with perceived health locus of control among students in an Indian dental school but no such assessment was done in lower strata population with less education, especially in this part of the country. We therefore undertook this study with an Aim to assess the level of dental anxiety amongst new patient’s visiting dental OPD of Ballabgarh which would provide information on the patient approach towards dental treatment at that centre.

**The Objective of the study was –**

- To assess the level of dental anxiety in patients visiting comprehensive rural health hospital using Modified Dental Anxiety Scale (MDAS) Questionnaire.
- To assess and compare the dental anxiety score with various socio-demographic factors.

### Subjects and Methods

- The present study was a cross-sectional, questionnaire study

**\*Corresponding author:** Anindya Bhalla, Department of Public Health Dentistry, & Nims Dental College Shobha Nagar, N.H.11-C Jaipur – 303121 Rajasthan, India, E-mail: [anindya.bhalla@gmail.com](mailto:anindya.bhalla@gmail.com)

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conducted in new patients attending dental OPD of ballabgarh (AIIMS). The study was conducted to assess the level of dental anxiety amongst new patient's using MODIFIED DENTAL ANXIETY SCALE (MDAS) questionnaire, which was translated into Hindi.

### Study area and duration of the study

The study was conducted in CHC Hospital situated 34 KM. from AIIMS. The study was conducted in months of Nov 09 and Dec 09 (5 weeks duration).

### Study population

The study subject among new patients attending the dental O.P.D of the Hospital. The total sample size was 379; the sample size was calculated based on the daily O.P.D. at the hospital

### Tool

A pre-tested questionnaire was used i.e. self reported closed ended MODIFIED DENTAL ANXIETY SCALE (MDAS) questionnaire.

The modified dental anxiety scale (MDAS) [2] contains 5 multiple-choice items including the followings:

1 = If you went to your dentist for treatment tomorrow, how would you feel?

2 = If you were sitting in the waiting room, how would you feel?

3 = If you were about to have a tooth drilled, how would you feel?

4 = If you were about to have your teeth scaled and polished, how would you feel?

5 = If you were about to have a local anesthetic injection in your gum, how would you feel?

The scores for each of the 5 item responses were summed up to give an estimated value of dental anxiety.

This self-rating instrument was introduced by [15]. It differs from the CDAS by including an additional question about a local anesthetic injection. Each question has five scores ranging from 'not anxious' to 'extremely anxious', in an ascending order from 1 to 5. Each question thus carries a possible maximum score of 5 with a total possible maximum score of 25 and a minimum score of 5 for the entire scale. A score of 19 or above is considered as a case of high-dental anxiety. The Questionnaire was filled in by the patient. In this study, an Indian language translation of MDAS was used. To establish full congruity between the Indian and English versions, the Indian version was back translated into English and tested for inconsistencies. Later on it was put for statistical analysis. This was found to be significant.

### Inclusion criteria

- New patients visiting the dental OPD of the Hospital were included
- Age between - 15-60 years
- Patient attending OPD between 9 am- 2 pm
- Subjects giving voluntary informed consent
- Patient waiting in dental OPD.
- For the illiterate patient questionnaire was filled by the examiner.

### Exclusion criteria

- Patients below the age of 15 years and above 60 years were not considered.
- Uncooperative patients were excluded.
- Edentulous patient were not included.

### Pilot study

Prior to being finalized, the questionnaire was pilot-tested in new O.P.D patients visiting the Dept. Oral Medicine and Radiology at Jaipur Dental College to ensure its validity and reliability. This procedure was done to ascertain the appropriateness of each question, as well as eliciting from any feedback from the responder. Minor modification was made after this pilot test taking into account the comments and suggestion received the responder as a whole. Questionnaire was translated into Hindi language for the convincing and better understanding of the patient.

### Ethical clearance

Ethical clearance was obtained from the ethical committee of Jaipur Dental College. Permission from the concerned regulatory bodies in the government Hospital to conduct the survey was taken.

### Analysis

The data was analyzed using common database and statistical software. For each of the Parameters in the questionnaire, the percentages, means and standard deviation were calculated. Inter group comparisons were done and results were computed using Chi- square analysis.

### Results

In the present study a total of 378 subjects participated, of which 171 were males and 207 were females. The age of the participants ranged from 15yrs to 54+ yrs with the mean age for the male subjects being  $35 \pm 14.10$  yrs and for the female subjects  $35.01 \pm 12.38$  yrs. The maximum number of participants were from 15-23 yrs age group.

### If you went to the dentist for treatment tomorrow, how would you feel? (Table 1)

On asking how the subject felt on the day before the treatment, majority of the people reported feeling very anxious with an equal number of respondents feeling fairly anxious. The gender distribution shows that males were fairly anxious (19.05%) whereas 26.19% females reported being very anxious.

For the age group of 24-33 yrs, 19.56% males reported being 'extremely' anxious whereas 39.13% reported being 'fairly' anxious. The majority participants (69.23%) in the age group of 34-43 yrs reported being 'slightly' anxious. The participants in the 44-53 yrs age group were found to be mainly 'fairly' anxious (48.57%) whereas in the 54 and above age group 56.52% reported being 'fairly' anxious and the rest (43.48%) were 'very' anxious towards dental treatment the next day.

Females between 15-23 yrs of age reported anxiousness ranging from 'slight' (24.32%) to very anxious (72.97%). For the age group of 24-33 yrs, 50.68% reported being 'fairly' anxious whereas 36.99% reported being 'very' anxious. The majority participants (46.94%) in the age group of 34-43 yrs reported being 'very' anxious whereas 34.69% reported being fairly anxious. The participants in the 44-53 yrs age group were found to be mainly 'extremely' anxious (40.91%)

S.no	Question	Not (%)		Slightly (%)		Fairly (%)		Very (%)		Extremely (%)	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	If you went to your Dentist for TREATMENT TOMORROW, how would you feel			45 (11.90)	48 (12.70)	72 (19.05)	72 (19.05)	45 (11.90)	99 (26.19)	9 (2.38)	18 (4.76)
2	If you were sitting in the WAITING ROOM (waiting for treatment), how would you feel?			27 (7.14)	18 (4.72)	99 (26.19)	81 (21.43)	45 (11.90)	81 (21.43)	0 (0.00)	27 (7.14)
3	If you were about to have a TOOTH DRILLED, how would you feel?	9 (2.38)	9 (2.38)	27 (7.14)	27 (7.14)	90 (23.81)	81 (21.43)	45 (11.90)	72 (19.05)	0 (0.00)	18 (4.76)
4	If you were about to have your teeth scaled and polished, how would you feel?	0 (0.00)	9 (2.38)	81 (21.43)	0 (0.00)	45 (11.90)	81 (21.43)	45 (11.90)	90 (23.81)	0 (0.00)	27 (7.14)
5	If you were about to have a LOCAL ANAESTHETIC INJECTION in your gum, above an upper back tooth, how would you feel?	0 (0.00)	9 (2.38)	27 (7.14)	0 (0.00)	99 (26.19)	72 (19.05)	36 (9.52)	81 (21.43)	9 (2.38)	45 (11.90)

Table 1: Percentage of male and female patient's anxiety level.

whereas 36.36% reported being 'fairly' anxious and 22.75% were 'very' anxious.

**If you were sitting in the waiting room (waiting for treatment), how would you feel? (Table 1)**

On asking how the subject felt while in the waiting room of the dentist, majority of the people reported feeling 'fairly' anxious (47.62%) whereas 33.33% of respondents felt 'very' anxious. The gender distribution shows that males were 'fairly' anxious (26.19%) whereas an equal number (21.43%) of females reported being 'fairly/very' anxious, respectively.

The male subjects between 15-23 yrs of age reported anxiousness ranging from 'slight' (43.90%) to very anxious (43.90%), both having equal number of subjects in the respective groups. Thirty eight percent participants in the age group of 34-43 yrs reported being 'fairly' anxious whereas 27% reported being 'very' anxious. The participants in the 44-53 yrs age group were found to be mainly 'fairly' anxious (86.96%) whereas in the 54 and above age group 57.89% were 'very' anxious towards dental treatment while in the waiting room of the dental clinic.

The data showed that females between 15-23 yrs of age were 'very' anxious (72.97%) whereas 27% were 'fairly' anxious. For the age group of 24-33 yrs, 39.73% reported being 'fairly' anxious whereas 36.99% reported being 'very' anxious. Ten percent of this group also reported being extremely anxious. The majority participants (34.69%) in the age group of 34-43 yrs reported being 'very' anxious whereas 30.61% reported being fairly anxious. The rest (18.37%) reported being 'extremely' anxious. The participants in the 44-53 yrs age group were found to be mainly 'fairly' anxious (65.38%) whereas 34.61% reported being 'very' anxious. In the 54 and above age group, 65.38% reported being 'fairly' anxious and the rest (34.61%) were 'very' anxious while in the waiting room of the dental clinic.

**If you were about to have a tooth drilled, how would you feel? (Table 1)**

On asking the subject how they felt when they were about to have a tooth drilled, majority of the people reported feeling 'fairly' anxious (45.24%) whereas 30.95% of respondents felt 'very' anxious. The gender distribution shows that both males and females were 'fairly' anxious (23.81 and 21.43%) respectively.

For the age group of 24-33 yrs, 19.56% males reported being 'fairly' anxious whereas 41.30% reported being 'very' anxious. The participants in the 44-53 yrs age group were found to be mainly 'fairly' anxious (74.29%) whereas in the 54 and above age group 47.83% reported being

'fairly' anxious whereas 43.48% were 'very' anxious when they were about to have a tooth drilled.

Females between 15-23 yrs of age reported being 'very' anxious (48.65%) when they were about to have a tooth drilled. For the age group of 24-33 yrs, 63.01% reported being 'fairly' anxious whereas 12.33% reported being 'extremely' anxious. The majority participants (67.35%) in the age group of 34-43 yrs reported being 'very' anxious. The participants in the 44-53 yrs age group were found to be mainly 'extremely' anxious (40.91%). In the 54 and above age group, 69.23% reported being 'very' anxious whereas the rest (30.77%) were 'fairly' anxious when they were about to have a tooth drilled.

**If you were about to have your teeth scaled and polished, how would you feel? (Table 1)**

On asking the subject how they felt when they were about to have their teeth scaled and polished, majority of the people reported feeling 'very' anxious (35.71%) whereas 33.33% of respondents felt 'fairly' anxious. Twenty four percent females reported being 'very' anxious towards scaling and polishing.

Male subjects between 15-23 yrs of age reported being 'very' anxious (21.95%). For the age group of 24-33 yrs, 76.09% reported being slightly anxious. Thirty eight percent participants in the age group of 34-43 yrs reported being 'slightly' anxious whereas 34.61% reported being 'fairly' anxious. The participants in the 44-53 yrs age group were found to be mainly 'very' anxious (74.29%).

Females between 15-23 yrs of age reported being 'fairly' anxious (48.65%) whereas 27.03% were 'very' anxious when they were about to have their teeth scaled and polished. The majority participants (46.94%) in the age group of 34-43 yrs reported being 'very' anxious whereas 34.69% reported being 'extremely' anxious. The participants in the 44-53 yrs age group were found to be mainly 'very' anxious (90.91%). In the 54 yrs and above age group, 65.38% reported being 'very' anxious.

**If you were about to have a local anesthetic injection in your gum, above an upper back tooth, how would you feel? (Table 1)**

On asking the subject how they felt when they were about to have a local anaesthetic injection in your gum, above an upper back tooth, majority of the people reported feeling, 30.95% of respondents felt 'very' anxious. The gender distribution shows that females (21.43) reported feeling 'very' anxious.

The age group of 15-23 yrs of age for males reported being 'very'



anxious (60.98%). The participants in the 44-53 yrs age group were found to be mainly 'fairly' anxious (74.29%) and 25.71% reported being 'extremely' anxious, whereas in the 54 yrs and above age group 39.13% were 'very' anxious.

According to the age groups, females between 15-23 yrs of age reported 'very' anxious (51.35%). For the age group of 24-33 yrs 12.33% reported being 'extremely' anxious. The majority participants (51.02%) in the age group of 34-43 yrs reported being as 32.65% reported being 'very' anxious. The participants in the 44-53 yrs age group were found to be mainly 'very' anxious (81.82%). In the 54 yrs and above age group, 69.23% reported being 'extremely' anxious.

## Discussion

The aim of the current study to assess the level of dental anxiety amongst new patient's visiting dental OPD of ballabgarh which would provide information on the patient approach towards dental treatment at that centre. The response rate for the current study was 91.74% (378 out of 412), which was almost equal to other studies [14-16] reported so far.

Dental anxiety is a common problem both for dental practitioners and the people and afflicts a significant proportion of people of all ages from different social classes and often results in poor oral health by complete avoidance of dental treatment, irregular dental attendance or poor co-operation. Dental anxiety is based on several factors like family and social environment, general fearfulness, pain and traumatic, unpleasant experiences. Patient perceptions of behaviours and attitudes of dentists can affect dental anxiety and could influence his or her decision to access dental care. It has been found that dentists' communicative styles as well as perceived technical competence were predictive of levels of dental anxiety during treatment [1].

It therefore becomes imperative to assess the dental anxiety quantitatively and qualitatively and its associated factors. Currently, the most commonly used methods are the self-reported questionnaires and rating scales. Scales such as the Corah's Dental Anxiety Scale (CDAS) and the Modified Dental Anxiety Scale (MDAS) [17-19] are specific for dental practice and assist in planning the treatment options. An advantage of the MDAS is that because of its brevity, it is a cost-effective instrument for population-based research [16].

One of the well-established methods of studying dental fear/ anxiety is the use of constructed scales in the form of questionnaires [18,19]. Besides questionnaires, methods such as measurement of physiological responses to clinical situations [18], observation of clinical behaviour and projective techniques have been employed. Each has its own strengths and shortcomings. In this survey, only questionnaires were used. Ideally, a clinical observation of the subject's behaviour might reconfirm the findings of the questionnaire results [20].

In the current study, we found good evidence for the internal consistencies and test-retest reliabilities of the MDAS for the translated version (local language - Hindi). A dentist whose patient population includes Indians in the age group of 15-60 years can very well make use of MDAS to assess the dental anxiety in his or her patients. As other authors have commented, the MDAS has the advantage of being brief, and therefore may be preferred for clinic purposes [21-24]. Coolidge et al. [24] reported the prevalence of dental anxiety to be 34% in the Greek version of the Modified Dental Anxiety Scale (MDAS) whereas in the current study the prevalence was higher, varying between 45% for males to 54% for females.

In a study by Santosh kumar et al. [10], the findings of the study report higher prevalence of anxiety among males and their younger counterparts, whereas the results of the study under discussion shows more prevalence of anxiety among female patients. The result of our study corresponds with that of Tunc et al., Coolidge et al. and Shrestha et al. [7,8,12]. Medical and psychological research on human responses to pain stimuli has generally found that women report higher levels of anxiety and exhibit lower tolerance to 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 [16].

The highest mean MDAS score was seen for those who had visited a dentist for cleaning followed by tooth removal, filling and dental check-up whereas findings of Shrestha et al. [12] show that the highest mean DAS score was seen for those who had visited a dentist for tooth removal followed by cleaning, filling and dental check-up.

Some studies are known to have asked the guardians to fill in the questionnaire for the subjects Milgrom et al. [25]. However, discrepancies are known to be found between the answers given by the subject himself and the guardian relating to the fear level. Therefore, in the present study, the subjects were asked to fill in their own questionnaires.

A significant negative correlation between age of the respondents and dental anxiety was also seen. A consistent finding in this area of study has been the occurrence of an inverse relationship between dental anxiety and age (30). Locker et al. [23] examined the relationships of gender and age on anxiety in a Canadian population and found that older adults reported less painful experiences with dental procedures than younger participants [26-30].

Acharaya [16] has also reported that the anxiety showed a declining trend with increasing levels of education. It was observed that housewives and students showed the highest levels of dental anxiety in contrast to the professionals and the self-employed [31-35]. Those who had a previous unpleasant dental experience consistently showed higher anxiety as well as negative dental beliefs. This showed that previous dental exposure had an important role to play in influencing the dental anxiety and beliefs [36-43].

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