

# Assessment of Dental Anxiety Using MDAS (Modified Dental Anxiety Scale) among Students in Bareilly City - A Cross Sectional Study

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## ABSTRACT

**Introduction:** So far, there are few studies considering the development of dental anxiety and dental attendance patterns across time in the various populations. The study involves the investigating of subjective ratings of dental anxiety levels among university students enrolled at Rohilkhand University. The study also intended to find out the sources of dental anxiety and the impact of gender on the perceived dental anxiety.

**Material and Methods:** The dental anxiety of the population was measured by Modified Corah Dental Anxiety Scale. Six hundred and eighty subjects were recruited into the study from undergraduate students from the faculties of Medicine and pharmacy.

**Results:** Six hundred and fifty complete questionnaires were returned, which accounts for a response rate of 95.58%. The totals of the mean anxiety scores were the following: Medical students, 12.02%; Nursing students, 12.98% and Pharmacy students, 11.91%. About 24% of the study population has scored 15 or more. Pharmacy students had the lowest percentage of those who scored 15 or more. Nursing students were responsible for the highest percentage of those who scored 15 or above. Although women demonstrated statistically higher total dental anxiety scores than men, the difference between both genders was large and could be clinically significant.

**Conclusion:** Lack of adequate dental health education may result in a high level of dental anxiety among non-dental university students in Bareilly.

**Keywords:** Non-dental, Medical students, Nursing Students, Anxiety Scale, Pharmacy Students

## INTRODUCTION

Dental anxiety is an important, if not the major, component of distress to patients in the dental operatory. Dental anxiety is more specific than general anxiety; it is the patient's response to the stress specific to the dental situation. If the dentist is aware of the level of anxiety of his patient, he is not only forewarned about the patient's behavior, but can also take measures to help alleviate the anxiety during the operative procedure. Thus, patients who are highly anxious about dental treatment may react differently than do those who are less anxious.<sup>1</sup>

Oral diseases are chief public health concerns, and their prevalence could be boosted by dental anxiety.<sup>2</sup> In addition, dental anxiety might hamper proper diagnosis of the dentition, influence patient dentist relationship, and ultimately may lead to over all deterioration of patients oral health.<sup>3,4</sup> Anxiety is defined as 'a state of apprehension resulting from the anticipation of a threatening event or situation'.<sup>5</sup>

It is distinguished from fear which occurs in the presence of an observed threat.<sup>6</sup> Dental anxiety reflects a combination of biochemical alterations in the body and patient's personal history, memory, and social state. The American Psychiatric Association defines phobia as 'marked and persistent fear that is excessive or unreasonable cued by the presence or anticipation of a specific object or situation'.<sup>7</sup>

Many scales were developed in order to assess dental anxiety. Corah Dental Anxiety Scale was proven to be popular among dental researchers. Humphris, Morrison and Lindsay<sup>9</sup> (1995) provided a modified scale from the original Corah Dental Anxiety Scale. Corah dental anxiety scale is considered as a simple, easy to score test which can be used by a dentist for dental visit associated anxiety. It is also shown to be more inclusive, highly valid and reliable.<sup>8</sup> Thus Modified Dental Anxiety Scale will be, therefore, used to measure dental anxiety in the current study.

The aim of the present study was to study the levels of dental anxiety among Non-dental students in Rohilkhand University. In addition, the study also included the sources of dental anxiety, and influence of gender and arena of study on the observed dental anxiety.

## MATERIAL AND METHODS

This cross-sectional study utilized questions modified from Corah's Dental Anxiety Scale, termed as Modified Corah's Dental Anxiety Scale (MDAS) which was framed in English and in Hindi language. A simplified 5-point scale answering scheme was devised ranging from not anxious to extremely anxious.

The modified dental anxiety scale (MDAS) 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

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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?

This cross-sectional study was carried out in Bareilly city among non-dental students. The study sample was calculated scientifically utilizing data from a previous study done by Al-Omari et al (2009).<sup>10</sup> The ethical clearance was obtained from institutional review board of Institute of dental sciences Bareilly. The study sample for the study was 650 Non-dental students in Rohilkhand University of age group 15-25 years. The study included both male and female students. The participants were grouped into three groups based on their field of study (Medical, Pharmacy, and Nursing). Participants are pursuing graduation in Medical, Nursing and Pharmacy streams in Rohilkhand University Bareilly. Participants selected were without any systemic illness (including mental problems) that might affect their ability to understand the questionnaires. Only those Participants who gave informed

consent were allowed to participate in study.

### STATISTICAL ANALYSIS

Statistical analysis of the data was done using the SPSS 22.0. The data was compiled using Microsoft excel sheet (Windows 2007). For each variable, the mean and standard deviation were calculated. One way ANOVA was performed for multiple comparisons followed by Tukey- post hoc test for pair wise comparisons. P<0.05 considered statistically significant, P<0.001 considered statistically highly significant.

### RESULTS

Out of the six hundred questionnaires distributed, 650 were returned. Six hundred and eighty subjects were recruited into the study from undergraduate students from the faculties of Medicine and pharmacy which accounts for a response rate of 95.58 percent. The mean age of the subjects was 21.6 ± 3.2 years. The distribution of the participants according to study field and gender is given in Table 1.

Table 2 presents the means and standard deviations of individual objects and total scores of the Modified Corah Dental Anxiety Scale with the results comparing the various groups based on the field of study. The highest anxiety score (3.11) was given for local anesthetic injection in the gum (Item 5) and scored by the medical students. The next most anxiety producing item was the tooth drilled (3.08) which was scored by the medical students.

Gender	Nursing student	B-pharma student	Medical student	Total
Male	93	166	150	409
Female	137	55	49	241
Total	230	221	199	650

**Table-1:** The division of the subjects based on gender and the study field.

Questionnaire item	Nursing student Mean(SD)	B-Pharma student Mean(SD)	Medical student Mean(SD)	P-value (ANOVA)
Go to dentist tomorrow	1.98(1.05) <sup>a</sup>	1.71(0.75) <sup>a</sup>	1.70(0.778) <sup>a</sup>	0.001(HS)
Sitting in dentist's waiting room	2.40(1.22) <sup>a</sup>	2.0(0.94) <sup>a</sup>	1.98(0.98) <sup>a</sup>	0.000(HS)
About to have tooth drilled	2.94(1.09)	2.96(1.15)	3.08(1.20)	0.453(NS)
About to have teeth scaled and polished	2.57(1.31) <sup>a</sup>	2.21(1.13) <sup>a</sup>	2.16(1.13) <sup>a</sup>	0.000(HS)
About to have local anesthetic injection in the gum	3.09(1.31)	3.03(1.38)	3.11(1.37)	0.843(NS)
Total score	12.98(3.90) <sup>a</sup>	11.91(3.54) <sup>a</sup>	12.02(3.76) <sup>a</sup>	0.004(HS)

a-Values with letter in each row are statistically different.

**Table-2:** Individual objects and total dental anxiety scores according to the study field

Questionnaire item	Male Mean(SD)	Female Mean(SD)	P-value (t-test)
Go to dentist tomorrow	1.63(0.036)	2.09(0.068)	0.000(HS)
Sitting in dentist's waiting room	1.98(0.047)	2.41(0.079)	0.00(HS)
About to have tooth drilled	2.84(0.052)	3.25(0.079)	0.000(HS)
About to have teeth scaled and polished	2.18(0.054)	2.56(0.081)	0.000(HS)
About to have local anesthetic injection in the gum	2.92(0.064)	3.34(0.093)	0.00(HS)
Total score	11.52(3.309)	13.64(4.14)	0.000(HS)

SD-Standard deviation, HS-Highly significant

**Table-3:** Individual item and total dental anxiety scores according to GENDER.

Field of study	Male		Female		Total	
	N	%	N	%	N	%
Nursing student	23	5.6	51	21.2	74	11.4
B-pharma student	21	5.1	18	7.5	39	6.0
Medical student	17	4.2	25	10.4	42	6.5

**Table-4:** Number and percentage of subjects scoring 15 or more on the modified dental anxiety scale according to gender and field of study.

Surprisingly, pharmacy students scored the lowest total dental anxiety scores (Table 2) which were insignificantly lower than those scored by either medical or nursing student. Generally, in terms of total anxiety scores, women were relatively more anxious than men ( $P = 0.00$ ) (Table 3). Table 4 represents the numbers and percentage who had a total score of 15 or more are shown in Table 4.

## DISCUSSION

The MDAS is a simple, valid, and good predictor of patients' distress in the dental operatory. Knowledge of a patient's anxiety before treatment can be an aid to the dentist in two ways. He can become aware of what to expect from the patient, and he can take measures to help alleviate the anxiety of the patient. The MDAS requires very little time approximately 3-5 minutes and can be done easily in the waiting area.

This study revealed lower levels of dental anxiety in medical students as compared to the nursing and pharmacy students. The mean total scores for the MDAS showed that severe dental anxiety was mostly associated with drilling and intraoral local anesthetic injection. A total score of 15 or more indicates a highly anxious patient. The nursing students were found to be having highest total anxiety showed by greatest percentage of nursing subjects scoring 15 or more. Lack of dental health education might result in patients' fear and anxiety which in turn might end with poor patient compliance and attitudes. This information will be further utilized in developing the best strategies to manage patient anxiety. For a successful dental treatment, a gentle, supportive, professional, concerned, soft and more understanding approach should be undertaken when managing patients with dental anxiety. In patients showing dental anxiety, the first appointment is more important to avoid their revulsion to dental care. They should be dealt with more politeness and understanding way.<sup>11</sup>

The Modified Dental Anxiety Scale is considered to be valid, reliable, brief, accessible, and is performed easily.<sup>13</sup> Despite the technical advances made in modern dentistry, anxiety about dental treatment and fear of pain associated with it remain prevalent.<sup>14</sup> The result of the present study is consistent with the results of other studies which found a significantly greater percentage of participants with dental anxiety.<sup>10,15</sup>

## CONCLUSION

The study based on the Modified dental anxiety scale showed the anxiety levels of students of different field of study. It was concluded that

1. The student of medicine had the lowest anxiety associated with dental treatment.
2. The student group which showed highest anxiety were the nursing students.
3. Comparing the anxiety related to dental treatment among the genders, females showed higher dental anxiety scores than males.
4. Among the various treatment procedures highest anxiety

score was seen to be associated with tooth drilling and local anesthetic injection.

Even though the current study used the modified anxiety scale and examined the levels of dental anxiety among students from different fields of study and the sample size was representative and large, further studies are required to investigate the effect of various correlates on dental anxiety. Additionally, the statistical significance should not be always inferred as clinical one.

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