

Assessment of Dental Anxiety using Modified Dental Anxiety Scale among Patients Seeking Oral Health Care at Dental College in Central India - A Cross Sectional Study

Kamalkishor Mankar¹, Sanika Kamble², Pranjali Bawankar³, Sushil Naik⁴

¹Associate Professor, Department of Periodontics and Implantology, ²Intern,

³Senior Lecturer, Department of Periodontics and Implantology,

⁴Lecturer, Department of Public Health Dentistry,
VSPM Dental College and Research Centre, Nagpur

Corresponding Author: Pranjali Bawankar

ABSTRACT

Background: One of the most challenging things to manage in dental settings is dental anxiety. Such patients tend to avoid dental treatment, ignore the symptoms and leave their oral health issues to worsen. The aim of the present study was to assess the level of anxiety of using modified dental anxiety scale among patients seeking oral health care at dental college in central India.

Materials and methods: A total of 1000 patients equally divided into groups based on gender (500 males and 500 females) were assessed for the dental anxiety using the modified anxiety scale. A self-administered prevalidated questionnaire was used to evaluate the level of anxiety among the patients.

Results: A significantly large number of males were found to be extremely anxious of seeking dental treatment as compared to females. 7.2% of the total study population was extremely anxious of thought of visiting a dentist, 7.3% were extremely anxious of sitting in a waiting room, 12.4% were anxious of thought of tooth being drilled. While a lesser proportion (3.9%) of the study population was anxious about the scaling and teeth cleaning procedure. A larger proportion of the entire study sample was anxious about the local anesthetic injection (9.3%).

Conclusion: The findings of the present study suggested that a large number of patients were extremely anxious of the thought of the teeth being drilled followed by the local anesthetic

injection. The males were found to be more anxious of the dental treatment than females.

Keywords: Dental Anxiety, Oral health, Modified Dental Anxiety Scale

INTRODUCTION

Good oral health has a significant impact on the quality of life, appearance and self-esteem of a person. Multiple factors influence dental service utilization and among them dental anxiety notably interfere with the dental visits. Anxious patients eventually experience poorer oral health and request for treatment only in extremely unavoidable situations.

Dental anxiety is ranked fourth among common fears and ninth among intense fears. [1] Dental anxiety is related to age, gender, educational qualification, socioeconomic status, and culture and varies from person to person. Identifying dentally anxious patients is crucial for management and treatment outcome. [2]

Factors responsible for anxiety vary from person to person and hence, it becomes crucial to identify dentally anxious patients for their successful management and satisfactory treatment. Patients with dental anxiety can be usually characterized by their frequent postponement of appointments and upon visiting the dental office, they usually sit on the edge of the dental chair, tend to

keep fidgeting, show pacing movements with or without repetitious limb movement, are startled to noise, display generalized muscle tension which can be termed as “white knuckle syndrome” and exhibit eye fixation which is termed as a “deer in headlights” appearance.^[3,4]

The problem of dental anxiety is of paramount importance for several reasons: (a) avoidance causes worse dental health; (b) anxiety and phobia has negative effect on the dentist/patient relationship, may prevent proper dental treatment, and can be a reason for failure or complications of dental procedures; and (c) higher level of anxiety results in stress, such as syncope, hypertension, tachycardia, and cardiovascular accidents.^[5,6]

Gender differences relating to dental anxiety may be not only numerical but there may also be qualitative differences. Severe forms of dental anxiety are more commonly found in women.^[5] To study the level of anxiety of the population various scales can be used. The Corah’s dental anxiety scale has been used extensively which is simple and consists of 4 questions however the questions make it difficult to evaluate the answers.^[7] Modified dental anxiety scale, a modified version of the original CDAS is commonly used to measure dental anxiety.^[8]

Many studies have explored the anxiety levels in patients seeking dental treatment. However, very few of them are done in the central India region. Considering this void in the epidemiological data regarding the prevalence of anxiety in dental patients this cross sectional survey was performed with the aim to assess of dental anxiety using modified dental anxiety scale among adults seeking oral health care in central India.

MATERIALS AND METHODS

This questionnaire study was performed at the outpatient Department of our institute from September 2019 to February 2020. After receiving approval from the institutional ethical committee, the

study was conducted in accordance with the Helsinki Declaration of 1975, as revised in 2000. A total of 1000 consecutive patients with age range of 25 to 50 years were included in the study. The patients undergoing psychiatric therapy or suffering from generalized anxiety disorders or having any systemic disease, smokers were excluded from the study. A written informed consent was obtained from the study participants. The study sample was equally divided into two groups based on gender (500 males, 500 females). The patients were asked to answer the validated and pre-tested questionnaire which included the modified dental anxiety scale (MDAS) and complete anonymity and confidentiality was assured.

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 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 participants were requested to fill a form containing vital details to receive information about age, gender, educational qualification, occupation, income, history of previous dental visit and duration since the last visit to dentist, previous dental experience, self-perceived oral health status, and postponement of dental treatment due to anxiety. To assess their level of anxiety, the participants were asked to complete the MDAS administered in the regional language. They were rated accordingly for their anxiousness on the modified dental anxiety scale.

Statistical analysis

Statistical analysis of the data was done using SPSS 21 software. The data was

tabulated using microsoft excel sheet (windows 2007). Pearson-chi square test was applied to compare between anxiety level of males and females. P value of less than 0.05 was considered as statistically significant. By the following frequencies it's evident that females are more anxious than men. After applying Pearson chi square test, the p values for all the above questions were less than 0.05 which states that the study was significant and that females are more anxious than the males.

RESULTS

Out of 1000 patients, 999 completely filled the entire questionnaire. Hence, in the final report 500 males and 499 females were assessed and compared for their anxiety levels. The Table1 shows the descriptive statistics of male and females based on the levels of anxiousness when assessed by the MDAS. It was found that males were more anxious as compared to females. Table 2 depicts the comparison of anxiety amongst males and females on the thought of visiting

the dentist, the next day and it was found that about 60.9% females and 44.4% of males were not anxious. Also just 7.2% of the entire study population was extremely anxious about visiting the dentist. Table 3 reveals the comparison of the number and percentage of responses of study population regarding the feeling while sitting in the waiting room. It was found that about 9% of males and just 5.6% of females were extremely anxious. When asked about drilling of tooth for excavation of caries, about 38.9% female and 27.6% of males were not anxious and 16.4% males and 8.4% females were extremely anxious [Table 4].When enquired about the feeling of scaling and polishing about 2.8% of female and 5% males were extremely anxious[Table 5]. For administration of injection, 6.4% female and 12.2% of males were extremely anxious. All others accounted for some level of anxiety from slight to extreme level of anxiety other than those mentioned above.[Table 6]

Table 1: Division of males & females based on their anxiousness

Males	Question-1	Question-2	Question-3	Question-4	Question-5
Not anxious	222	223	138	304	141
Slightly anxious	115	124	126	102	161
Fairly anxious	73	53	68	48	78
Very anxious	43	55	86	21	59
Extremely anxious	47	45	82	25	61
Total	500	500	500	500	500
Females	Question-1	Question-2	Question-3	Question-4	Question-5
Not anxious	304	287	194	367	206
Slightly anxious	108	109	146	79	146
Fairly anxious	32	44	63	24	76
Very anxious	30	31	54	15	39
Extremely anxious	25	28	42	14	32
Total	500	500	500	500	500

Table 2: Comparison of number and percentage of responses among males and females subjects according to MDAS scale for Question-1

Response	Number & %	females	Males	Total
Not anxious	Count	304	222	526
	% within gender	60.9%	44.4%	52.7%
Slightly anxious	Count	108	115	223
	% within gender	21.6%	23.0%	22.3%
Fairly anxious	Count	32	73	105
	% within gender	6.4%	14.6%	10.5%
Very anxious	Count	30	43	73
	% within gender	6.0%	8.6%	7.3%
Extremely anxious	Count	25	47	72
	% within gender	5.0%	9.4%	7.2%
Total		499	500	999
		100%	100%	100%

Table 3: Comparison of number and percentage of responses among males and females subjects according to MDAS scale for Question-2

Response	Number & %	Females	Males	Total
Not anxious	Count	287	223	510
	% within gender	57.5%	44.6%	51.1%
Slightly anxious	Count	109	124	233
	% within gender	21.8%	24.8%	23.3%
Fairly anxious	Count	44	53	97
	% within gender	8.8%	10.6%	9.7%
Very anxious	Count	31	55	86
	% within gender	6.2%	11.0%	8.6%
Extremely anxious	Count	28	45	73
	% within gender	5.6%	9.0%	7.3%
Total		499	500	999
		100%	100%	100%

Table 4: Comparison of number and percentage of responses among males and females subjects according to MDAS scale for Question-3

Response	Number & %	Females	Males	Total
Not anxious	Count	194	138	332
	% within gender	38.9%	27.6%	33.2%
Slightly anxious	Count	146	126	272
	% within gender	29.3%	25.2%	27.2%
Fairly anxious	Count	63	68	131
	% within gender	12.6%	13.6%	13.1%
Very anxious	Count	54	86	140
	% within gender	10.8%	17.2%	14.0%
Extremely anxious	Count	42	82	124
	% within gender	8.4%	16.4%	12.4%
Total		499	500	999
		100%	100%	100%

Table 5: Comparison of number and percentage of responses among males and females subjects according to MDAS scale for Question-4

Response	Number & %	females	Males	Total
Not anxious	Count	367	304	671
	% within gender	73.5%	60.8%	67.2%
Slightly anxious	Count	79	102	181
	% within gender	15.8%	20.4%	18.1%
Fairly anxious	Count	24	48	72
	% within gender	4.8%	9.6%	7.2%
Very anxious	Count	15	21	36
	% within gender	3.0%	4.2%	3.6%
Extremely anxious	Count	14	25	39
	% within gender	2.8%	5.0%	3.9%
Total	Count	499	500	999
	% within gender	100%	100%	100%

Table 6: Comparison of number and percentage of responses among males and females subjects according to MDAS scale for Question-5

Response	Number & %	females	Males	Total
Not anxious	Count	206	141	347
	% within gender	41.3%	28.2%	34.7% _s
Slightly anxious	Count	146	161	307
	% within gender	29.3%	32.2%	30.7%
Fairly anxious	Count	76	78	154
	% within gender	15.2%	15.6%	15.4%
Very anxious	Count	39	59	98
	% within gender	7.8%	11.8%	9.8%
Extremely anxious	Count	32	61	93
	% within gender	6.4%	12.2%	9.3%
Total	Count	499	500	999
	% within gender	100%	100%	100%

It was evident from the findings of the present study that the amongst all the five scenarios provided for each of the five items of MDAS scale indicated that anxiety was reported to be highest for the thought of tooth being drilled followed by that of receiving local anesthetic injection amongst

both the genders (16.4% males, 8.4% females). On the contrary, a majority of the entire study population amongst both the genders (60.8% males, 73.5% females) were not anxious about scaling polishing their teeth.

Both male and female showed extreme levels of anxiety with respect to the use of drill. Local anesthetic injections were second on the list of causing extreme anxiousness for both male and female.

DISCUSSION

Dental anxiety is a complex, personal, subjective and psychological phenomenon varying from individual to individual. Dental treatments involve procedures like scaling, local anesthetic solution administration, tooth drilling, etc. Patients' acceptance towards all the treatment modalities is different mainly because of the anxiety levels. The data of the present study forestalls the performance of MDAS as measure of dental anxiety. More methods are available to evaluate anxiety, however general population understanding of the questions asked in this scale is interpretable.

After knowing the anxiety levels as rated according to the MDAS scale, a discussion with patients about their feelings associated to dental treatment can be evaluated and necessary changes to be made with treatment modalities especially in those with high scores. [9]

The modified dental anxiety scale is considered to be valid, reliable, brief, accessible, and is performed easily. For a dentist, knowledge of patient's anxiety before the commencement of treatment can help reduce the anxiety of the patients. One can obtain knowledge by giving the MDAS questionnaire, which can be filled by the patient in 4-5 minutes easily in the waiting room. The present study revealed that more number of males had higher levels of anxiety as compared to females. These findings are in contrast with the study by Deogade SC et al. [10] Gerry M Humphris et al., [11] Quteish Taani DS [12] where they found that females are more anxious of seeking dental treatment as compared to males. However, the studies from Kumar S et al., [13] Appukuttan DP et al. [14] suggested that there is no difference between anxiety level between males and females. In the

present study we found that a greater proportion of the female participants were not anxious of any of the dental treatment as compared to males. This can break the patriarchy found in the previous studies. This can be attributed to the fact that females now a days have become more aware of the oral health probably due to education. The findings of this study can deny the generalization of the fact that the dental anxiety is gender related. In a cross sectional study, Appukuttan DP, et al. (2017) [15] reported dental anxiety to be highest for the thought of receiving local anesthetic injection, followed by drilling of the tooth, sitting in the waiting room of the dental clinic, visiting the dentist and finally the least anxiety provoking dental situation was tooth cleaning and polishing among this study subjects. However, in the present study, we found the dental anxiety score to be highest for the thought of drilling the tooth followed by receiving local anesthetic injection, sitting in the waiting room of the dental clinic, visiting the dentist and finally the least anxiety provoking dental situation was tooth cleaning and polishing among this study population.

The general notion is that dental anxiety can lead to avoidance, resulting in irregular dental care and utilization and delay in seeking necessary treatment which has an adverse effect on oral health. Therefore, it needs to be addressed by the dental practitioner from the very first visit of patients. The dental practitioners in addition to having comprehensive knowledge on various pharmacological and non-pharmacological approaches to manage dental anxiety should also be highly watchful in recognizing anxious patients so that they can be appropriately managed thereby enhancing patient satisfaction.

The strength of the present study is its large sample size; while on the contrary it raises the controversy of that the male patients are more anxious than female patients while seeking dental care treatments. Further assessments and researches are required in this direction to

confirm these findings. The limitation of the study is that it uses a self-reporting questionnaire which can be predisposed to creating a risk of individual reporting bias.

CONCLUSION

Within the limitations of the study it can be concluded that females were more anxious than males. Alteration in the methods of therapy when treating anxious patients can help in calming the patients and deliver the dental treatment effectively and establishing a better dentist-patient relationship. Also professionals and authorities should consider these factors when planning programs to enhance access to dental care services.

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