



Self-Assessment of Dental Anxiety among Patients Visiting a Tertiary Care Hospital

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ABSTRACT:

Objectives:

- To assess the dental anxiety among patients visiting dental clinics of a teaching institution.
- To evaluate different factors associated with the dental anxiety.

Methodology: A cross sectional study was carried out at the Aga Khan University Hospital dental clinics from September 2008- November 2008. A total of 174 otherwise physically healthy males and females patients who presented for the dental treatment were asked to get inducted in the present study through an informed consent. Data was collected using a self-administered questionnaire which comprised of three parts. The first part of the questionnaire consisted of demographic information; the second part of it assessed the level of dental anxiety; whereas the last part evaluated different factors related to the dental anxiety.

Results: There were 174 participants (88 males and 86 females) in the study. The mean age of the participants was 35 ± 15 years. A statistically significant association was found between the age and dental anxiety, as younger patients reported higher level of dental anxiety ($p = 0.046$). Dental anxiety was more prevalent among females than males; however the association was not found to be statistically significant. Factors such as bleeding during treatment ($p = < 0.01$), local anesthetic injection ($p = < 0.01$), appearance of dental chair ($p = < 0.02$), fear of pain during the use of dental drill ($p = < 0.01$) were significantly associated with dental anxiety.

Conclusions: Dental anxiety was found to be associated with young age, female gender and need of local anesthesia.

KEYWORDS Dental anxiety, dental fear, modified dental anxiety scale, young adults.

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INTRODUCTION

Dental anxiety is defined as “An abnormal fear of visiting a dentist for preventive care or therapy and an unwarranted apprehension over dental procedures”.¹

It is a state of nervousness in which the sufferer believes that something terrible would happen in relation to dental treatment. It is often associated with the sense of losing control.^{1, 2} The fear may arise directly when an unwanted situation is either experienced by oneself or one observing a dental procedure being done on someone else, or observed or being told.³

The relation between dental anxiety and pain was first investigated by van Wijk and Hoogstraten.² According to him as a result of fear, a patient tends to get anxious which results in more fear of pain which ultimately leads to avoidance of treatment. The vicious cycle if not interrupted

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may lead to severe form of dental anxiety, which ultimately results in clinically significant deterioration of oral and dental health. Due to negligent attitude in seeking dental care, treatment options were often limited in anxious patients.³

Understanding the frequency and seriousness of anxiety problem, multiple studies has been conducted to observe its prevalence among various populations worldwide.⁴⁻⁶ Its prevalence in United States of America ranges in between 8-15%.⁴ In a study conducted in Australian population, it was reported to be 16.1%.⁵ In United Kingdom, around 11.6% of the estimated population has from dental anxiety.⁶

The aetiology of dental anxiety is multifactorial. The most common factor appears to be negative experience in relation to previous dental treatment.³ Other factors that may influence the dental anxiety include patient's age, gender, socioeconomic status etc. Women are generally more afraid of dental treatment than men. Moreover, dental anxiety is more common in young adults (19-32 years) as compared to teenagers (12-19 years) and middle aged people.⁷

It is important to assess the level of dental anxiety, so the appropriate measures may be taken to reduce it. Patient behavior and attitude may be an improper indicator of dental anxiety. A detailed dental history about any adverse past experience is an important clue for the dentist. To further evaluate dental anxiety, many questionnaires have been reported in the literature, the most common being the modified dental anxiety scale (MDAS).^{5, 8-10} An advantage of the MDAS is that it is a cost-effective one for population-based research. It's valid and reliable as well.^{6, 11}

The management of an anxious patient is often a challenge for most of the dental practitioners. Such patients usually have compromised oral hygiene.^{4-6, 12} The local literature on dental anxiety is mainly confined to the demographics and prevalence of the condition.¹³⁻¹⁴ To the best of our knowledge there are very limited local studies that evaluated factors affecting the dental anxiety.^{15,16} The aim of the present study was to assess the dental anxiety using Modified dental anxiety scale (MDAS) and to evaluate different factors related to dental anxiety among patients visiting at teaching hospital.

MATERIALS AND METHODS

A cross sectional study was carried out at Aga Khan University Hospital dental clinics. The approval was obtained from the institution ethical review committee before commencing the study. A total of 174 otherwise healthy adult patients who presented to dental clinics for treatment were in study after taking the written informed

consent from September 2008 to November 2008. Non probability purposive sampling technique was used for the sample collection. Illiterate, mentally or physically handicapped subjects were excluded from the study.

Data was collected using a self-administered questionnaire which consisted of three parts. These were:

1. Demographics: Information regarding age, gender, and frequency of dental visits were obtained.
2. Level of dental anxiety: The modified dental anxiety scale (MDAS) was used to measure the level of dental anxiety. It consisted of five questions related to different clinical situation. In the proforma, the subjects were required to rate on a five pointer scale (one point signifies non-anxious and five points indicates an extremely anxious patient). Total scores ranged from 5 to 25. A cut-off score of 19 and above were marked as highly anxious individuals.^{4, 6, 14, 15}
3. Factors related to dental anxiety. It consisted of eighteen questions about different factors related to dental anxiety and each question was rated on a four pointer scale ranging from "always" to "never". The first three questions were about various factors related to patient anticipation of pain. The next eight questions were regarding treatment related factors, the four questions focused on the anxiety due to lack of confidence in treatment quality and the last three questions were related to fear of cross infection.

An independent sample T-test was used to compare the mean ages between highly anxious and non-anxious patients. The Chi-square test was used to assess an association between gender and regularity of visits in highly anxious patients. The associated factors were evaluated in both non anxious (NA) and highly anxious (HA) patients using chi-square test.

RESULTS

Out of 174 patients participated in the study, the mean age of the participants were 35 ± 15 years. There were 88 (50.6%) were males and 86 (49.4%) were females. Subjects were broadly categorized as anxious (Dental anxiety score ≤ 18) or non-anxious (Dental anxiety score ≥ 19). Independent sample T test revealed a significant difference between mean ages of the participants and level of dental anxiety (p -value = 0.046).

Females (13.95%) were more afraid of dental treatment than males (10%), however this difference was not statistically significant (p -value = 0.31). Similarly, when the association of regularity of dental visits was assessed with

Table 1. Demographics characteristics of subjects according to gender and frequency of dental visits.

Characteristics	n=174	Non anxious (DAS* ≤ 18)	Highly anxious (DAS* ≥ 19)	p- value
Gender				
Male	88	80 (46%)	8 (4.59%)	0.31
Female	86	74 (42.5)	12 (6.90%)	
Total	174	154 (88.51%)	20 (11.49%)	
Regularity of visits				
Regular visits	35	31 (17.82%)	4 (2.29%)	0.45
Only when problem	128	112 (64.37%)	16 (9.20%)	
Never see a dentist before	11	11 (6.32 %))	0	
Total	174	154 (88.51%)	20 (11.49%)	

*Dental anxiety score.

Chi- square test.

Level of significance ≤ 0.05.

dental anxiety, we again found a non-significant relationship (p - value = 0.45). Demographic characteristics of age, gender and frequency of dental visits are shown in Table 1.

When the associated factors responsible for dental anxiety were asked, we found that that bleeding during treatment, local anesthetic injection, dental chair, pain during use of the dental drill showed a significantly associated with dental anxiety. Questions about different factors related to dental anxiety are shown in Table 2a (Anticipatory factors), Table 2b (Treatment related factors), Table 2c (factors responsible for lack of confidence in treatment quality) and Table 2d (Factors due to fear of cross infection).

DISCUSSION

Maintenance of oral health is essential for wellbeing of human body. When neglected, results in certain problems like dental caries, periodontal disease etc.¹⁷ Studies have shown that one of the most important reasons for neglecting oral health care is the dental anxiety or phobia which often results in deferring a dental appointment.¹⁸ Dental anxiety is a classic conditioned response which may occurs due to a conditioned or unconditioned stimuli. The stimulus may be situations/ objects e.g. drilling, injections or to dental procedures in general.^{3, 18} Anxious patients avoids dental care resulting in a more extensive disease, hence require more immediate treatment for relieve of their dental pain or infection when compared to a non-anxious individual. Dental caries is more extensive in these patients and hence put more financial burden on the patient.^{2, 7} The

management of an anxious patient is often a challenge for the dental practitioners. Such patients usually have compromised oral hygiene along with more missing and less restored teeth.¹⁹

We observed that young adults were more afraid of dental treatment and tend to decrease with age. These are in accordance with the data reported in other studies.^{14, 15, 20} This might be because of increase in pain threshold of adult as time passes.¹⁴ We also observed that the frequency of dental visits do not affect the frequency of dental anxiety as no difference was observed between a regular dental attendee and a non-frequent visitor. However, the results were contradictory to that reported in another study.¹⁸

It is imperative to assess the factors influencing the dental anxiety. When questions were asked to explore the anticipatory factors regarding dental treatment, participants responded that they are scared of the appearance of dental equipment. They felt nervous whenever their tooth was drilled by the dentist. Similar results are reported in another study.²¹ Dental anxiety in such patients can be best managed by avoidance of negative experiences and by provision of smooth dental care.²²

When questions regarding treatment related factors were asked, most of the anxious patients expressed their fear regarding the pain during the treatment. It is important that all the procedural and sensory information should be thoroughly explained to such patient prior to start any procedure. Topical anesthesia should also be given prior injectable local anesthesia to minimize the pricking pain of the needle.⁷ A clinician must also ensure a profound local anesthesia so that any negative experience can be avoided.²³

Table 2a. Anticipatory factors (n=174).

Question	Anxiety	Always	Sometimes	Rare	Never	p-value
I feel worried when I think of going to the dentist?	HAP	45%	35%	5%	15%	0.33
	NAP	16%	29%	13%	39%	
The way dental equipment look is not assuring?	HAP	35%	40%	10%	15%	0.004
	NAP	8%	28%	28%	34%	
I am scared of pain when the dentist uses the drill?	HAP	63%	35%	19%	17%	0.002
	NAP	63%	35%	19%	17%	

Table 2b. Treatment related factors (n=174).

Question	Anxiety	Always	Sometimes	Rare	Never	p-value
I cannot tolerate pain when I go to the dentist?	HAP	50%	40%	5%	5%	0.003
	NAP	15%	41%	24%	18%	
I become irritated when the dentist uses electrical equipments?	HAP	45%	30%	10%	15%	0.043
	NAP	25%	26%	24%	23%	
The taste of dental medications is very irritating?	HAP	50%	30%	10%	10%	0.20
	NAP	27%	35%	22%	14%	
I cannot tolerate the noise of drilling in my teeth?	HAP	45%	25%	20%	10%	0.063
	NAP	20%	24%	26%	29%	
The appearance of the dentist's chair and equipments are scary?	HAP	20%	35%	20%	15%	0.02
	NAP	11%	13%	14%	60%	
I shiver when the dentist tells me he will give an injection in my jaw?	HAP	70%	15%	10%	5%	0.001
	NAP	24%	34%	19%	21%	
I hate to see my tooth bleeding when treated by the dentist?	HAP	84%	10%	5%	0	0.00
	NAP	24%	28%	20%	27%	
I feel nauseous during dental treatment?	HAP	20%	35%	15%	30%	0.54
	NAP	10%	28%	14%	46%	

Table 2c. Lack of confidence in treatment quality (n=174).

Question	Anxiety	Always	Sometimes	Rare	Never	p-value
I am afraid the dentist may cause more harm than good?	HAP	12%	20%	12%	4%	0.07
	NAP	87%	79%	87%	95%	
I wish I can judge the quality of treatment?	HAP	70%	25%	0%	5%	0.33
	NAP	53%	25%	11%	9%	

I have little confidence in dentists?	HAP	10%	55%	20%	15%	0.47
	NAP	12%	36%	30%	20%	
I pray to come out safely from the dental clinic?	HAP	60%	19%	18%	29%	0.02
	NAP	60%	20%	10%	10%	

Table 2d. Fear of cross infection (n=174).

Question	Anxiety	Always	Sometimes	Rare	Never	p-value
I am not sure about the sanitary of tools at dental clinics?	HAP	35%	35%	20%	10%	0.26
	NAP	38%	17%	18%	25%	
I feel like asking the dentist whether tools are sterilized?	HAP	40%	20%	25%	15%	0.83
	NAP	38%	17%	18%	25%	
I am afraid of catching some infections at the dentist's clinic?	HAP	31%	26%	21%	21%	0.94
	NAP	25%	26%	24%	23%	

It is important that a dentist should build a rapport with the patient based on a trustful relationship. This may include building an alliance, expressing concern & empathy and by asking a patient to speak freely. A dentist can also encourage an anxious patient to bring another person to the appointment whom they trust, for their moral support during the dental procedure.²¹

Dentist should be calm, polite and carry the communicative stance with an anxious patient. Thorough explanation before initiating any procedure would be helpful, as anxious patients want to know the sensations which they will exactly feel during the procedure. Specific information and explanations are useful for anxious patients; the patients should be given an opportunity to influence dental treatment by giving sense of control, like the clinician can set certain stop signal so that patient confidence may be build.^{22, 24}

It was also noted that most of the anxious patients were scared of cross infection from the dental operatory and instruments. A clinician must ensure proper sterilization and disinfection. The operatory should be clean and the environment should be well ventilated and sterile. Clinician should be open to any type of question regarding cross infection.²⁵

It is important to know the limitations of this study. It was a single center study, adult patients visiting hospital for dental treatment were only included therefore we cannot extrapolate results to general population. Sometimes patient suffering from high anxiety levels or low socioeconomic

status avoid dental consultation, therefore chances of missing such patients were there in our study. On the other hand patients visiting hospital because of dental pain were more anxious as compare to general population, as they had in mind that dental procedure is unavoidable. Therefore population based studies should be carried out to determine the actual prevalence of dental anxiety and its correlation with various factors.

CONCLUSIONS

1. Nearly 11.49% patients visiting AKUH dental clinics had increased dental anxiety.
2. Dental anxiety was more prevalent in young age, with females reporting more fear than males.
3. Factors such as bleeding during treatment, use of local anesthesia injection, appearance of dental chair, fear of pain during the use of dental drill were significantly associated with dental anxiety

RECOMMENDATIONS

Factors significantly associated with increased level of anxiety should be assessed prior to starting a procedure so that strategies can be adopted to provide a suitable environment for dental treatment. Application of anxiety assessment scales in routine practice and a multicenter study should be conducted with large sample size.

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