

# DENTAL ANXIETY AMONG BANGLADESHI PATIENTS: A CROSS-SECTIONAL STUDY

Liza Akter<sup>1\*</sup> and Kamal Uddin Ahmed Chowdhury<sup>1</sup>

<sup>1</sup>Department of Clinical Psychology, University of Dhaka, Dhaka-1000, Bangladesh



Bioresearch Communications  
Volume 11, Issue 2, July 2025

DOI:  
[doi.org/10.3329/brc.v11i2.82641](https://doi.org/10.3329/brc.v11i2.82641)

## ABSTRACT

**Background:** A significant portion of patients are suffering from dental anxiety all around the world. Dental anxiety is often a barrier for many patients for not taking treatment. It causes a huge discomfort in patients, often results in missing, delaying or cancelling dental appointments, and so impacts on the overall quality of life of a person. **Objective:** The main objective of this study was to assess the prevalence of dental anxiety and associated factors among dental patients in Bangladesh. **Methods:** This cross-sectional study utilized the validated Bangla Modified Dental Anxiety Scale (BMDAS). The BMDAS consists of five questions to assess dental anxiety. Data were collected from government settings hospitals. **Results:** Data were collected from 311 dental patients. It was found that 23.5% of the patients were experiencing dental anxiety. Predictors of dental anxiety among study participants were age, educational qualification, and past dental visits. Younger patients ( $M = 14.38$ ,  $SD = 5.62$ ) have been found to have more dental anxiety ( $p < 0.05$ ) than the older patients ( $M = 12.50$ ,  $SD = 5.06$ ). Patients ( $M = 15.89$ ,  $SD = 5.65$ ) who never visited dentists reported higher level of dental anxiety ( $P < 0.001$ ) than those ( $M = 12.67$ ,  $SD = 5.10$ ) who had the experience of dental visit previously and patients' dental anxiety was found more on tooth drill and local anaesthetic issues rather than others. **Conclusion:** The findings of the study will help to make a proper assessment as well as treatment plan among the anxious patients and so to improve their overall quality of life.

**KEYWORDS:** dental anxiety, prevalence, associated factors, Bangladesh.

RECEIVED: 17 March 2025, ACCEPTED: 12 May 2025

TYPE: Original Research

\*CORRESPONDING AUTHOR: Liza Akter, Department of Clinical Psychology, University of Dhaka, Dhaka-1000, Bangladesh  
Email: [lizacp@du.ac.bd](mailto:lizacp@du.ac.bd)

## Introduction

Dental anxiety is the patients' response toward the stress which is specific to the dental situations (Corah et al., 1978). All over the world, a significant portion of patients suffers from dental anxiety. Though there is a great improvement in preventive dentistry and advancement in dental treatment techniques, dental anxiety is still seen stable over the years (Smith and Heaton, 2003). It is rated fourth among common fears and ninth among intense fears including 6% to 15% of people suffering from high dental anxiety (Eli et al., 2004; Nascimento et al., 2011). Prevalence of dental anxiety is associated with different factors including age, gender, socioeconomic status, past dental visit, past painful dental experiences etc. Even genetics and personality traits are also associated with it (Kendler et al., 1995). Dental anxiety has a significant role on an individual's oral health as well as a person's overall quality of life (Almoznino et al., 2015). Dental anxiety affects not only dental patients but also dentists who may become anxious when dealing with those highly anxious patients (Appukuttan, 2016). Dental anxiety is often a barrier for many patients. It causes a huge discomfort in patients, often resulting in missing, delaying or cancelling dental appointments. As a result, many of them avoid dental treatment (Corah, 1988; Ilguy et al., 2005; Udoeye

et al., 2005; Malvania and Ajithkrishnan, 2011). To identify the prevalence with associated factors of dental anxiety might be helpful for better treatment plans among dental patients. Therefore, this study was carried out to assess the prevalence of dental anxiety along with associated factors among dental patients in Bangladesh.

### Aim

The main objective of the study was to assess the prevalence of dental anxiety among patients. The specific objectives of the study were to find out the predictors of dental anxiety; to find out whether any differences of dental anxiety regarding gender; to find out whether any differences of dental anxiety between age groups; to find out whether any differences of dental anxiety among patients regarding previous dental visits.

## Methodology

### Participants

In total, 334 dental patients were approached in this study. Among them, 311 dental patients which includes 144 male and 167 female consented to participate in the study. Their mean age was 32.22 ( $SD = 10.77$ ). Participants were categorized in two groups according to their age. Demographic information of

the participants is shown in Table 1. The participants were selected from outpatient departments of different government

settings hospitals during the tenure of December 2019 to February 2020.

**Table 1.** Demographic information of the participants

Variable	Categorization	N	(%)
Age	Group1 (18-35)	204	65.6
	Group2 (>35)	107	34.4
Gender	Male	144	46.3
	Female	167	53.7
Education	Class 1 to 5	121	38.9
	Class 6 to HSC	111	35.7
	Honors and above	54	17.4
	Illiterate	25	8.0
Occupation	Job holder	64	20.6
	Businessmen	23	7.4
	Students	91	29.3
	Others	133	42.8
Past dental visit	Yes	208	66.9
	No	103	33.1
Last visit	Within 6 months	108	3.7
	1 year ago	29	9.3
	2 years ago	17	5.5
	More than 2 years	54	17.4
Previous dental experience	Good	106	34.1
	Bad	35	11.3
	Both good and bad	67	21.5
Dental visit from	Dhaka city	83	26.7
	Outside of Dhaka city	228	73.3

### Sampling

This cross-sectional study was carried out through purposive sampling. The inclusion criteria for selecting the sample were both male and female dental patients aged 18 and above. Dental patients undergoing any psychiatric treatment were excluded from the sample. The following formula was used to determine the sample size of this study.

$$ss = \frac{Z^2 * p * (1-p)}{c^2}$$

Where, Z= Z value (e.g., 1.96 for 95% confidence level), p = prevalence, and c = 5%.

The sample size was 318 by using this formula. Then by considering the 5% non-response rate the final total sample was 334.

### Instruments

#### Demographic Information Form

A demographic information form was used for collecting information about the participants. This form included

demographic variables such as age, gender, past dental visits, past dental experiences etc.

#### Bangla Modified Dental Anxiety Scale (BMDAS)

The original Modified Dental Anxiety Scale (MDAS) has been developed by Humphris et al., (1995). The validated Bangla Modified Dental Anxiety Scale (BMDAS) (Akter and Chowdhury, 2022) was used in this study to assess the prevalence of dental anxiety among the patients. It is a brief five item questionnaire. Each item has five answers; the answers vary from “not anxious” scored 1 to “extremely anxious” scored 5. The BMDAS has excellent internal consistency reliability (Cronbach’s Alpha .90) and significant correlation coefficient ( $r = .78, p < .01$ ) has been found for the test-retest reliability. The BMDAS has also the content validity and convergent validity.

#### Procedures of the Study

After obtaining permission from the relevant authorities, dental patients attending the outpatient service were approached and asked for their consent to participate in the study. Selected

patients were offered a brief orientation about the study and their written informed consents were taken before administering the questionnaires. Collected data were analyzed by using SPSS 20 version.

#### **Ethical Approval**

This study was approved (MP190503) by the Ethics Review Committee of the Department of Clinical Psychology, University of Dhaka, Bangladesh.

## **Results**

### **Prevalence of Dental Anxiety**

The prevalence of dental anxiety was found to be 23.5% among the patients. Prevalence of dental anxiety was also assessed on male and female patients; patients of group one and group two which has been shown in Table 2.

**Table 2.** Prevalence of dental anxiety among patients

Variables	N	(%)
<b>Prevalence</b>		
Total patients	311	23.5
Male patients	144	11.9
Female patients	167	11.6
Group1	204	18.0
Group 2	107	5.5

Note. Group 1=18 to 35 years old, Group 2 = > 35 years old

### **Predictors of Dental Anxiety**

Regression analysis was used to test if patients' age, gender, educational qualification, occupation and past dental visit significantly predicted patients' dental anxiety. The results shown in Table 3 indicate the predictors of dental anxiety.

**Table 3.** Predictors of dental anxiety among patients

Variable	$\beta$	95% CI		Sig. Level
		LL	UL	
Age	-1.486	-2.838	-0.178	.05
Gender	-0.396	-1.719	0.835	
Educational qualification	1.241	0.536	1.900	.01
Occupation	0.234	-0.358	0.858	
Past dental visit	2.754	1.437	4.093	.01

Note: CI= confidence interval; LL=lower limit; UL= upper limit

### **Other Characteristics of Dental Anxiety among Patients**

t-test analysis was carried out to see whether dental anxiety had any significant differences regarding age group, gender and past dental visit. It was found that there has been a significant difference,  $t(309) = 2.90$ ,  $P = .004$ , between the two age groups. Younger patients had higher dental anxiety ( $M = 14.38$ ,  $SD =$

5.62) than the older patients ( $M = 12.50$ ,  $SD = 5.06$ ). There was no significant effect for gender,  $t(309) = 1.26$ ,  $P = .208$ . Patients who never visited dentists reported higher levels of dental anxiety ( $M = 15.89$ ,  $SD = 5.65$ ) than those who had the previous experience of dental visit ( $M = 12.67$ ,  $SD = 5.10$ ),  $t(309) = 5.06$ ,  $P < .001$ . This has been shown in Table 4.

**Table 4.** Dental anxiety according to age, gender and previous dental visit

Variables	N	M	SD	t
<b>Age</b>				
Group1	204	14.38	5.62	2.90**
Group 2	107	12.50	5.06	
<b>Gender</b>				
Male	144	14.16	5.54	1.26
Female	167	13.37	5.44	
<b>Previous Dental Visit</b>				
Yes	208	12.67	5.10	5.06***
No	103	15.89	5.65	

Note. Group 1= 18 to 35 years old, Group 2 = >35 years old, M = Mean, SD = Standard Deviation, \*\*p <.01, \*\*\*p<.00

## Discussion

The findings of the prevalence of dental anxiety needs to be considered as nearly one fourth of the patients have dental anxiety. The less prevalence of dental anxiety in older patients might be due to older patients having been visiting or receiving more dental treatment than the younger patients. The older patients might have gone through more experiences of pain, stresses which have increased their tolerance and impacted on their perception of dental anxiety as well. These might be due to a general decrease in anxiety with aging and increased exposure to other diseases. That can be one reason why older patients have less dental anxiety than the younger patients which might be explored in any future study. However, the treatment of those anxious patients' needs to be considered when dealing with them. Treatment for those anxious patients might be inclusive of both medication and counseling regarding their dental anxiety for their better management and as well as their overall quality of life (Berggren and Carlsson, 1984). The predictors of dental anxiety found in this study, similar with other studies (Humphris et al., 1995; Acharya, 2008; Abanto et al., 2017; Fayad et al., 2017). The significant differences between two age group also found with other studies (Humphris et al., 1995; Enkling et al., 2006; Acharya, 2008; Yuan et al., 2008; Abanto et al., 2017; Fayad et al., 2017;) though some other studies differ with this (Tunc et al., 2005; Saatchi et al., 2015). Some studies found significant differences between male and female patients; female patients were more anxious than male patients (Humphris et al., 1995; Enkling et al., 2006; Saatchi et al., 2015; Fayad et al., 2017). Interestingly, this study did not find any significant differences of dental anxiety on gender basis which is supported with other studies (Berggren and Carlsson, 1984; Thomson et al., 2000; Saatchi et al., 2015). On the other hand, there was a significant difference in patients based on their past dental visit. Patients who had previously

visited the dentist found less dental anxiety than those who never visited the dentists, and this was supported with Fayad et al., (2017).

The findings of the study have implications for Bangladeshi policy makers, dentists and psychologists as well. It is found that dental anxiety can be managed by change in dental set up along with improving practitioners' communication skills and trust building among patients. Most importantly, different psychological techniques (e.g., positive reinforcement, relaxation, distraction, systematic desensitization, cognitive restructuring, and exposure) have been shown to manage dental anxiety among patients as well as to help the treatment process more comfortably (Nishi et al., 2022; Sadat et al., 2022). Based on this study, it is suggested to incorporate psychological services to the dental hospitals so that anxious patients could be managed more effectively and enhance their overall quality of life.

## Limitations

There were some limitations of the study. Data were collected only from Dhaka city. But it should be noted that in Bangladesh all types of patients including dental patients generally come to Dhaka for treatment purposes from all over the country. Treatment facility for dental problems is much better and easily available at Dhaka compared to other cities of the country. This study revealed that 73.3% dental patients came to visit dentists from outside of Dhaka city. It might be assumed that the sample of the study is representative of dental patients across the country. Another limitation was that data were collected only from the government settings' hospitals due to not getting permission from the private settings hospitals.

## Conclusion

The findings of the study will help to make a proper assessment as well as treatment plan and services among the anxious patients, and so to improve their overall quality of life.

## Acknowledgements

The authors acknowledged the dental patients who participated in this study.

## Conflict of Interest

The authors declare no conflicts of interest.

## Data Availability Statement

Data will be shared upon request.

## References

1. Abanto, J., Vidigal, E.A., Carvalho, T.S., Sá, S.N. and Bönecker, M., 2017. Factors for determining dental anxiety in preschool children with severe dental caries. *Brazilian Oral Research*, 31, pp.e13-e13.
2. Acharya, S., 2008. Factors affecting dental anxiety and beliefs in an Indian population. *Journal of oral rehabilitation*, 35(4), pp.259-267.
3. Akter, L., and Chowdhury, K.U.A. (2022). Validation of Modified Dental Anxiety Scale. *Bangladesh Psychological Studies*, 32, pp. 57-66.
4. Almozino, G., Zini, A., Sharav, Y., Shahr, A., Zlutzky, H., Haviv, Y., Lvovsky, A. and Aframian, D.J., 2015. Sleep quality in patients with dental anxiety. *Journal of psychiatric research*, 61, pp.214-222.
5. Appukuttan, D.P., 2016. Strategies to manage patients with dental anxiety and dental phobia: literature review. *Clinical, cosmetic and investigational dentistry*, pp.35-50.
6. Berggren, U. and Carlsson, S.G., 1984. Psychometric measures of dental fear. *Community Dentistry and Oral Epidemiology*, 12(5), pp.319-324.
7. Corah, N.L., 1988. Dental anxiety: assessment, reduction and increasing patient satisfaction. *Dental Clinics of North America*, 32(4), pp.779-790.
8. Corah, N.L., Gale, E.N. and Illig, S.J., 1978. Assessment of a dental anxiety scale. *Journal of the American Dental Association* (1939), 97(5), pp.816-819.
9. Eli, I., Uziel, N., Blumensohn, R. and Baht, R., 2004. Modulation of dental anxiety—the role of past experiences, psychopathologic traits and individual attachment patterns. *British dental journal*, 196(11), pp.689-694.
10. Enkling, N., Marwinski, G. and Jöhren, P., 2006. Dental anxiety in a representative sample of residents of a large German city. *Clinical oral investigations*, 10, pp.84-91.
11. Fayad, M.I., Elbieh, A., Baig, M.N. and Alruwaili, S.A., 2017. Prevalence of dental anxiety among dental patients in Saudi Arabia. *Journal of International Society of Preventive and Community Dentistry*, 7(2), pp.100-104.
12. Humphris, G.M., Morrison, T. and Lindsay, S.J., 1995. The Modified Dental Anxiety Scale: validation and United Kingdom norms. *Community dental health*, 12(3), pp.143-150.
13. Ilguy, D., Ilguy, M., Dincer, S. and Bayirli, G., 2005. Reliability and validity of the Modified Dental Anxiety Scale in Turkish patients. *Journal of International Medical Research*, 33(2), pp.252-259.
14. Kendler, K.S., Walters, E.E., Neale, M.C., Kessler, R.C., Heath, A.C. and Eaves, L.J., 1995. The structure of the genetic and environmental risk factors for six major psychiatric disorders in women: Phobia, generalized anxiety disorder, panic disorder, bulimia, major depression, and alcoholism. *Archives of general psychiatry*, 52(5), pp.374-383.
15. Malvania, E.A. and Ajithkrishnan, C.G., 2011. Prevalence and socio-demographic correlates of dental anxiety among a group of adult patients attending a dental institution in Vadodara city, Gujarat, India. *Indian Journal of Dental Research*, 22(1), pp.179-180.
16. Nascimento, D.L.D., Araujo, A.C.D.S., Gusmao, E.S. and Cimoës, R., 2011. Anxiety and fear of dental treatment among users of public health services. *Oral health & preventive dentistry*, 9(4).
17. Nishi, N.J., Pervin, S. and Shaude, S., 2022. Dental fear: a narrative review. *International Journal of Research in Medical Sciences*, 10(3), p.777.
18. Saatchi, M., Abtahi, M., Mohammadi, G., Mirdamadi, M. and Binandeh, E.S., 2015. The prevalence of dental anxiety and fear in patients referred to Isfahan Dental School, Iran. *Dental research journal*, 12(3), pp.248-253.
19. Sadat, S.A., Nishi, N.J., Palash, M.J.I. and Rita, S.N., 2022. Fear and anxiety in Dental Practice: A Review. *Journal of Bangladesh College of Physicians and Surgeons*, 40(4), pp.292-298.
20. Smith, T.A. and Heaton, L.J., 2003. Fear of dental care: are we making any progress? *The Journal of the American Dental Association*, 134(8), pp.1101-1108.
21. Thomson, W.M., Locker, D. and Poulton, R., 2000. Incidence of dental anxiety in young adults in relation to dental treatment experience. *Community dentistry and oral epidemiology*, 28(4), pp.289-294.
22. Tunc, E.P., Firat, D., Onur, O.D. and Sar, V., 2005. Reliability and validity of the Modified Dental Anxiety Scale (MDAS) in a Turkish population. *Community dentistry and oral epidemiology*, 33(5), pp.357-362.
23. Udoe, C.I., Oginni, A.O. and Oginni, F.O., 2005. Dental anxiety among patients undergoing various dental treatments in a Nigerian teaching hospital. *J Contemp Dent Pract*, 6(2), pp.91-8.
24. Yuan, S., Freeman, R., Lahti, S., Lloyd-Williams, F. and Humphris, G., 2008. Some psychometric properties of the Chinese version of the Modified Dental Anxiety Scale with cross validation. *Health and Quality of Life Outcomes*, 6, pp.1-11.