

# DENTAL ANXIETY AMONG CHILDREN AGED 5 TO 15 YEARS VISITING A TEACHING DENTAL HOSPITAL IN ABBOTTABAD, PAKISTAN

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## ABSTRACT

**Objectives:** To determine the levels of dental anxiety among children aged 5 to 15 years who are seeking dental services at a teaching dental hospital.

**Materials and Methods:** A descriptive cross-sectional study was carried out on 200 children aged 5 to 15 years in the Dentistry section, Ayub Medical College Abbottabad. The study duration was from May 2023 to August 2023. An assessment of children's dental anxiety was conducted using the pre-validated "Modified Dental Anxiety Scale" (MDAS).

**Results:** A study involving 200 children aimed to assess dental anxiety levels. Within this group, 105 (52.5%) were male, while 95 (47.5%) were female. Only 15 (7.5%) of the children exhibited no anxiety, 40 (20%) displayed mild anxiety, and 56 (28%) showed moderate anxiety. The majority of the patients, numbering 55 (27.5%), experienced high levels of anxiety, while 34 (17%) were classified as extremely anxious. In addition, 105 patients were male having a mean dental anxiety score of 3.14 with a standard deviation of 1.26, whereas 95 patients were female having a mean dental anxiety score of 3.46 with a standard deviation of 1.07. The mean dental anxiety score according to age is 3.30 with a standard deviation of 0.084. The P-value is constant at 0.001.

**Conclusion:** The findings of this study highlight dental anxiety among young individuals in the local community as a potential public health concern. Conducting proactive assessments of dental anxiety is crucial for the early identification and effective treatment of individuals experiencing anxiety related to dental care.

**Key words:** Children, Dental Anxiety, Dental fear, Oral hygiene, Modified Dental Anxiety

## INTRODUCTION

Most nations have acknowledged dental fear in children as a public health issue<sup>1</sup>. Children consist of a group of individuals who have their differences based on capability, puberty, character, nature, age and feelings, society, family history, oral health, and experience, etc<sup>2</sup>. Dental anxiety is defined as, "An abnormal fear of visiting the dentist for preventive care or treatment and unwarranted anxiety over dental procedures or measures." The ability of a youngster to respond favorably to dental care

treatments is impacted by all of these factors<sup>3</sup>. About either distinguishable circumstances or objects, this fear may get worse (e.g., the sound of cutting a tooth by a handpiece, ultrasonics, injections) or the dental situations overall<sup>4</sup>.

Patients suffering from dental anxiety and fear are reluctant to visit their dentist leading to unnecessary delays in treatment; which in turn results in poor oral hygiene. In some situations, it also affects the dentist-patient relationship<sup>5</sup>. According to one report, dental anxiety not only leads to a reluctance by patients (usually children), but it also affects daily life: as it can cause a lack of confidence among children, sleep disturbance, and feelings of low self-esteem<sup>6,7</sup>. According to another study, people with significant anxiety are more likely to have poor periodontal

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hygiene and caries, which can lead to tooth loss, than less nervous patients<sup>8</sup>. Girls are more likely to experience dental anxiety than boys in Northern Europe, where the prevalence rate ranges from 3% to 21%<sup>9</sup>.

There weren't many studies about children's dental fears undertaken in Pakistan in the past. As a result, Pakistan has relatively little data, notably in Abbottabad. The Modified Dental Anxiety Scale (MDAS) was used in this study to determine the prevalence of dental anxiety in children between the ages of 5 and 15 who were attending a teaching dentistry hospital in Abbottabad, Pakistan.

## MATERIALS AND METHODS

A descriptive cross-sectional study was carried out in the dentistry Department of Ayub Teaching Hospital, which is a major dental hospital in Abbottabad with a very large patient influx per day. The Institutional Review Board (IRB) of Ayub Medical College, Abbottabad gave the study its ethical approval (Approval Code/Ref.No.RC-EA-2023/044). The participants of the study were physically and mentally fit and healthy children aged between 5 and 15 years, visiting the hospital with their parents/guardians. Only those children became part of the study who gave informed consent for the data collection or whose parents were willing to give permission.

Out of the patients who attended the dental facility over two months, 200 children were chosen to participate in the study. With a necessary Confidence level of 95%, Precision level of 5%, and "Frequency of Dental Anxiety in Children" of 20.4%, the WHO sample size was utilized to compute the actual sample size<sup>10</sup>.

Children's dental anxiety was measured using the precise and validated "Modified Dental Anxiety Scale" (MDAS)<sup>11</sup>. The questionnaire included a five-item index as well as demographic data which helped us in interpreting this study. Children's dental anxiety was measured using a five-point Likert scale, with scores ranging from "Not Anxious" to "Extremely Anxious." The total scores on the MDAS scale range from "5 (little or no dental anxiety) to 25 (Severe dental anxiety)". According to this scale, the dental anxiety of participants was categorized as "not anxious (0-5), slightly anxious (6-10), fairly anxious (11-14), very anxious (15-19), and extremely anxious

patients (20-25)"<sup>12</sup>.

SPSS version 22 program was used to collect, enter, and analyze the data. The mean values and standard deviation for the quantitative variables were calculated using descriptive statistics, and an independent sample t-test was employed to examine if the participants' changing demographic features affected the difference in dental anxiety levels.

## RESULT

Out of 200 children, 105 (52.5%) were male and 95 (47.5%) were female. Table 1 shows the distribution of anxiety severity levels within the sample population. The anxiety severity levels are categorized based on a numerical scale, and the corresponding percentages of participants falling into each category are given. Table 1 demonstrates that the majority of participants fall within the moderate to high anxiety range, with a significant portion categorized as having severe anxiety.

Table 2 provides information about dental anxiety scores, broken down by demographic characteristics (Gender). The information given comprises the gender distribution, the mean score for dental anxiety, the standard deviation, and the p-values for each category. Table 2 indicates that females, on average, have slightly higher dental anxiety scores compared to males. The gender differences in dental anxiety levels within this sample are significantly different, as indicated by the p-value of 0.001.

In summary, the data presented in these tables

**Table 1: Severity of anxiety**

Severity of Anxiety	N	%
<b>0-5 (Not anxious)</b>	15	7.5%
<b>6-10 (low anxiety/slightly anxious)</b>	40	20%
<b>11-14 (moderate anxiety/fairly anxious)</b>	56	28%
<b>15-18 (high anxiety/very anxious)</b>	55	27.5%
<b>19-25 (Severe Anxiety/extremely anxious)</b>	34	17%

**Table 2: Demographic characteristics of dental anxiety scores**

Characteristics	n	Mean Dental anxiety score	Standard deviation	P value
Gender	Male	105	3.14	1.26
	Female	95	3.46	1.07
<b>Total</b>	<b>200</b>	<b>3.30</b>	<b>0.084</b>	<b>0.001</b>

suggest that a significant portion of the sample population is experiencing moderate to severe anxiety. Additionally, there seems to be a statistically significant difference in dental anxiety levels between males and females in the sample.

## DISCUSSION

Dental chair phobia and dental anxiety remain a huge obstacle in providing efficient dental care services to patients - especially children, despite applying anxiety reduction protocols, minimally invasive advanced dental techniques, and behavior management<sup>13,14</sup>. Furthermore, it also hinders creating healthy/friendly patient-dentist relationships<sup>15</sup>. Dental anxiety is a leading cause of extremely negative behavior in children (according to Frankel's behavior rating scale) resulting in negligence and poor oral health<sup>16</sup>. Recently, a study revealed a connection between dental anxiety and bad dental hygiene practices including an unhealthy diet, frequent eating, infrequent brushing, and ineffective brushing methods<sup>17</sup>.

The prevalence of moderate, high, and severe dental anxiety among youngsters was found to be 72.5% in the current study. It is rather higher than the prevalence rate in a similar study conducted in Islamabad, where 38% of participants reported moderate to severe dental anxiety<sup>18</sup>. Additionally, it is higher than a survey on a related topic that was conducted in Peshawar City, where 68% of people reported having moderate or severe dental anxiety<sup>19</sup>. When our results are compared with the data from around the globe, it becomes clear that the statistics of dental anxiety in Pakistan are much higher than those of advanced countries such as Sweden (6.7%)<sup>20</sup>, Taiwan (20.6%)<sup>21</sup>, Netherlands (6%)<sup>22</sup> and Denmark (5.7%)<sup>23</sup>. The low education level, lack of oral health awareness in youngsters, socio-cultural disparities, and geographic distinctions in the current study group can all be used to explain these variations in study patterns.

In our research, we observed a statistically significant difference in anxiety levels between genders, with females exhibiting higher levels than males ( $p < 0.05$ ). This finding aligns with similar results reported in other studies, consistently indicating elevated anxiety levels in females when compared to their male counterparts<sup>15</sup>. This collective evidence underscores the prevalence of heightened

anxiety among females across various research investigations. While certain studies have not found a statistically significant association between dental anxiety scores and gender<sup>19</sup>, our research stands out by revealing a distinct pattern.

Numerous earlier studies have suggested that patient age and dental anxiety may be related<sup>24,25</sup>. In those studies, dental anxiety was found to decrease with increasing age. However, there was no statistically significant link between age and dental anxiety in our study. According to our study, the dental anxiety score is unaffected by advancing age.

## CONCLUSION

Our result showed that significantly more dental anxiety in children than in the rest of the globe, indicating a serious health problem in Pakistan. Dental anxiety is alarmingly high in the children of Abbottabad, a city in Pakistan. This study confirms that dental anxiety tends to be higher in females. Identifying anxious dental patients before treatment and assessment of dental anxiety beforehand is a very useful tool for dentists and it can bring much improvement in the management protocols of such patients.

## REFERENCES

1. Olszewska A, Rzymiski P. Children's dental anxiety during the COVID-19 pandemic: Polish experience. *Journal of clinical medicine*. 2020;9(9):2751.
2. Grisolia BM, Dos Santos APP, Dhyppolito IM, Buchanan H, Hill K, Oliveira BH. Prevalence of dental anxiety in children and adolescents globally: A systematic review with meta-analyses. *International Journal of Paediatric Dentistry*. 2021;31(2):168-83.
3. Mehrstedt M, John MT, Tönnies S, Micheelis W. Oral health-related quality of life in patients with dental anxiety. *Community Dentistry and Oral Epidemiology*. 2007;35(5):357-63.
4. Vanhee T, Mourali S, Bottenberg P, Jacquet W, Vanden Abbeele A. Stimuli involved in dental anxiety: What are patients afraid of?: A descriptive study. *International journal of paediatric dentistry*. 2020;30(3):276-85.
5. Höglund M, Wårdh I, Shahnavaz S, Berterö C. Dental clinicians recognizing signs of dental anxiety: a grounded theory study. *Acta Odontologica Scandinavica*. 2023;81(5):340-8.
6. Cohen S, Fiske J, Newton J. The impact of dental anxiety on daily living. *British dental journal*. 2000;189(7):385-90.

7. Aardal V, Evensen KB, Willumsen T, Hervik Bull V. The complexity of dental anxiety and its association with oral health-related quality of life: An exploratory study. *European Journal of Oral Sciences*. 2023;131(1):e12907.
8. Piedra-Hernández L, Batista-Cárdenas D, Gómez-Fernández A, Ramírez K. Dental anxiety and oral health-related quality of life before and after non-surgical periodontal treatment. *Clinical Oral Investigations*. 2023;27(9):5459-74.
9. Murariu A, Vasluianu R, Bobu L, Baci R, Stoleriu S, Petcu T, et al. DENTAL ANXIETY AMONG ADOLESCENTS-AN OVERVIEW. *Romanian Journal of Oral Rehabilitation*. 2022;14(3).
10. Dell RB, Holleran S, Ramakrishnan R. Sample size determination. *ILAR journal*. 2002;43(4):207-13.
11. Corah NL, Gale EN, Illig SJ. Assessment of a dental anxiety scale. *Journal of the American Dental Association (1939)*. 1978;97(5):816-9.
12. Sindhu R, Rajaram S, Bharathwaj V, Mohan R, Manipal S, Prabu D. Is Individual deprivation measures associated with dental anxiety and socioeconomic status of patients visiting dentists. *Indian Journal of Dental Research*. 2020;31(4):515-9.
13. Armfield JM, Heaton L. Management of fear and anxiety in the dental clinic: a review. *Australian dental journal*. 2013;58(4):390-407.
14. Achmad H. Management of Pediatric Patients with Anxiety on Dental Care: A Systematic Review. *Annals of the Romanian Society for Cell Biology*. 2021:1868-83.
15. Erten H, Akarslan ZZ, Bodrumlu E. Dental fear and anxiety levels of patients attending a dental clinic. *Quintessence international*. 2006;37(4).
16. Berggren U, Meynert G. Dental fear and avoidance: causes, symptoms, and consequences. *Journal of the American Dental Association (1939)*. 1984;109(2):247-51.
17. Pohjola V, Rekola A, Kunttu K, Virtanen JI. Association between dental fear and oral health habits and treatment need among University students in Finland: a national study. *BMC oral health*. 2016;16(1):1-9.
18. Raja GH, Malik FS, Bashir U. Dental anxiety among children of age between 5 to 10 years visiting a teaching dental hospital in Islamabad, Pakistan. *Journal of Ayub Medical College Abbottabad*. 2015;27(3):587-90.
19. Rehman A, Khan A, ud Din I, Irfan A, Zarif J. Anxiety Among Children 5-10 Years of Age Visiting Dental Teaching Hospitals in Peshawar City. *Journal of Saidu Medical College, Swat*. 2019;9(2).
20. Klingberg G. Dental fear and behavior management problems in children. A study of measurement, prevalence, concomitant factors, and clinical effects. *Swedish dental journal Supplement*. 1995;103:1-78.
21. Lee CY, Chang YY, Huang ST. Prevalence of dental anxiety among 5-to 8-year-old Taiwanese children. *Journal of public health dentistry*. 2007;67(1):36-41.
22. Ten Berge M, Veerkamp JS, Hoogstraten J, Prins PJ. Childhood dental fear in the Netherlands: prevalence and normative data. *Community dentistry and oral epidemiology*. 2002;30(2):101-7.
23. Wogelius P, Poulsen S, Toft Sørensen H. Prevalence of dental anxiety and behavior management problems among six to eight years old Danish children. *Acta Odontologica Scandinavica*. 2003;61(3):178-83.
24. Thomson WM, Locker D, Poulton R. Incidence of dental anxiety in young adults in relation to dental treatment experience. *Community dentistry and oral epidemiology*. 2000;28(4):289-94.
25. Hägglin C, Hakeberg M, Ahlqwist M, Sullivan M, Berggren U. Factors associated with dental anxiety and attendance in middle-aged and elderly women. *Community dentistry and oral epidemiology*. 2000;28(6):451-60.



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