

Original Article

FACTORS CONTRIBUTING TO DENTAL ANXIETY AND FEAR IN DENTAL PROCEDURES – AN EXPLORATORY STUDY

Minti Kumari¹, Swati Sharma², Anil Raj³

¹ Professor and Head, Public Health Dentistry, Patna Dental College and Hospital, Patna , Bihar

² Dept of Pedodontics & Preventive Dentistry, Dental College , RIMS. Ranchi.

³ Patna Dental College and Hospital, Patna, Bihar

Abstract:

Objective: The objective of this exploratory study was to identify and examine the factors contributing to dental anxiety and fear in dental procedures.

Methods: A sample of 284 patients were recruited from patients attending a dental college and Hospital. Data were collected using self-report measures, including questionnaires and interviews, to assess dental anxiety levels and explore the factors influencing anxiety and fear in dental procedures. The collected data were analyzed using SPSS 25.0 version

Results: The results revealed several factors contributing to dental anxiety and fear. Patients had a Modified dental anxiety scale (MDAS) score of 14.93 ± 2.047 suggesting high anxiety levels. Previous negative dental experiences emerged as a prominent factor, with 73.64 % participants reporting traumatic or painful encounters with dental procedures as influential in their anxiety levels. Fear of pain or discomfort during dental procedures was also identified as a significant contributing factor. Participants expressed apprehension towards injections, drills, and other dental instruments, highlighting their impact on anxiety and fear.

Conclusion: This exploratory study identified multiple factors contributing to dental anxiety and fear in dental procedures. The findings underscore the importance of addressing these factors to provide patient-centered care and enhance treatment outcomes. Dental professionals can utilize these insights to develop tailored strategies, including effective communication, pain management techniques, and creating a supportive environment, to mitigate dental anxiety and improve the overall dental experience. Further research is needed to validate and expand upon these findings in larger and more diverse populations.

Key-words: Dental Anxiety, Dental Fear, Dental Procedures, Contributing Factors, Exploratory Study.

Introduction:

Dental anxiety and fear are prevalent concerns affecting a significant portion of the population, leading to avoidance or reluctance to seek necessary dental care. Dental procedures are often associated with anxiety and fear due to various factors, which can significantly impact a patient's oral health and overall well-being.[1] Understanding the factors that contribute to dental anxiety and fear is crucial for dental professionals in providing effective and patient-centered care. The experience of dental anxiety and fear is multifactorial, influenced by a combination of individual, situational, and environmental factors.[2,3] Individual factors may include previous negative dental experiences, personality traits, and cognitive perceptions related to dental treatments. Situational factors may encompass the specific dental procedure, anticipated pain or discomfort, and the perceived lack of control during treatment. Environmental factors could involve the dental clinic's ambiance, the behavior of dental professionals, and the presence of dental instruments and

 This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

DOI:

<https://doi.org/10.58935/joas.v2i1.28>

Received date: 21/04/2023

Accepted date: 18/05/2023

Published date: 13/06/2023

equipment.[4]

Identifying and comprehending these contributing factors can help dental professionals tailor their approaches to alleviate patient anxiety and fear, thereby improving treatment outcomes and patient satisfaction.[5] Moreover, recognizing the factors that influence dental anxiety and fear can aid in the development of preventive strategies and interventions to address these concerns proactively. While some research has been conducted in this area, there is a need for a comprehensive understanding of the factors contributing to dental anxiety and fear.[6] This systematic exploration will provide insights into the specific aspects that play a significant role in patients' anxiety and fear during dental procedures. By examining these factors, dental professionals can develop targeted interventions, such as behavior management techniques, improved communication strategies, and alternative treatment modalities, to mitigate dental anxiety and enhance the overall dental experience.

Materials and Methods:

Study Design: A cross-sectional study design was employed to collect data on factors contributing to dental anxiety and fear in dental procedures.

Ethical considerations: The study obtained ethical approval from the relevant institutional review board or ethics committee. Informed consent was obtained from all participants, ensuring their understanding of the study objectives, procedures, and their voluntary participation.

Study Setting and Participants: The study was conducted in Patna Dental College and Hospital, Patna involving participants attending dental clinics in the college. Participants were selected using convenience sampling technique. A diverse sample of individuals, representing different age groups, genders, and educational backgrounds, was included to ensure a broad representation.

Questionnaire Development: A self-administered questionnaire was developed to collect data from the participants. The questionnaire consisted of three sections: demographic information, assessment of dental anxiety levels, and exploration of factors contributing to dental anxiety. The dental anxiety assessment utilized a validated scale, such as the Modified Dental Anxiety Scale (MDAS)[7], to measure participants' anxiety levels. The section on factors contributing to dental anxiety included a series of structured questions, designed to explore various potential factors.

Pilot Testing: The questionnaire was pilot-tested with a small sample of participants to ensure clarity, relevance, and validity of the questions. Feedback from the pilot testing phase was incorporated to improve the questionnaire's comprehensibility and flow.

Data Collection: Participants were approached in waiting areas and invited to participate in the study. Participants were provided with the self-administered questionnaire and given sufficient time to complete it.

Data Analysis: Descriptive statistics, such as frequencies and percentages, were used to summarize the demographic characteristics of the participants. Dental anxiety levels were analyzed using the scores obtained from the MDAS or similar anxiety assessment scale. Factors contributing to dental anxiety were analyzed using appropriate statistical methods, such as regression analysis, to identify significant predictors.

Results:

A total of 284 participants took part in the study. The mean age of patients were 34.94 ± 11.03 years. Male patients were a majority with 60.9% (173). The participants were recruited from OPD of the dental college.

Using a validated dental anxiety scale, such as the Modified Dental Anxiety Scale (MDAS), the participants' anxiety levels were assessed. The mean anxiety score was 14.93 ± 2.047 , indicating high anxiety. The distribution of anxiety levels among the participants is shown in

Table 1 and Figure 1. Overall, it was observed that females had higher anxiety scores than their male counterparts.

Grade	N (%)	Mean Score
0 -5 (Not anxious)	0 (0.0)	0
6 – 10 (Low anxiety)	46 (16.1)	7.98 $\pm$ 1.45
11 – 14 (Moderate anxiety)	132 (46.4)	13.17 $\pm$ 2.06
15 – 18 (High anxiety)	77 (27.1)	16.42 $\pm$ 1.53
19 – 25 (Extremely anxiety)	29 (10.4)	22.18 $\pm$ 3.15
Total	284 (100.0)	14.93 $\pm$ 2.047

Table 1 : Table showing distribution of patients according to anxiety.

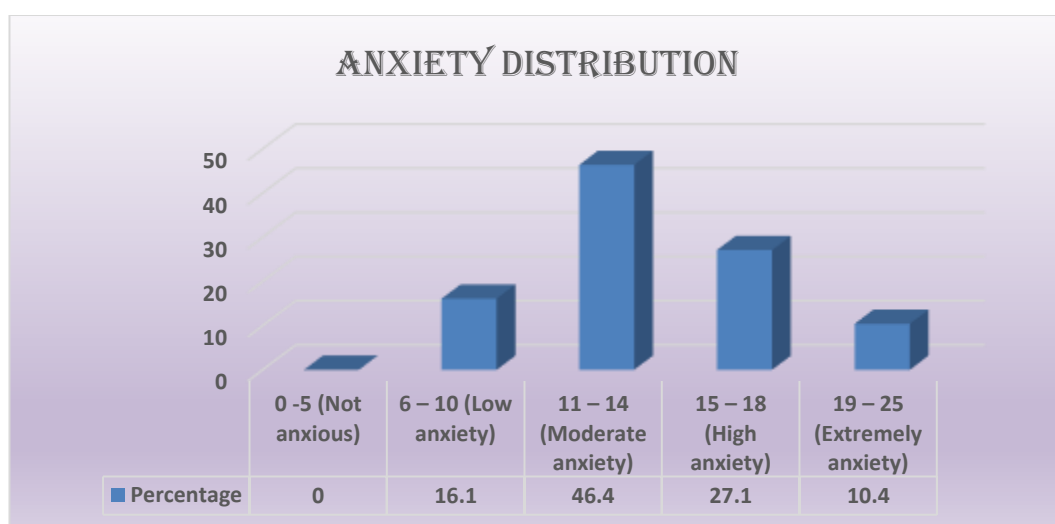


Figure 1: Bar graph illustrating the distribution of anxiety levels among participants

Factors Contributing to Dental Anxiety and Fear:

Participants were asked to rate the significance of various factors contributing to their dental anxiety and fear on a scale of 1 to 5, with 1 being "Not a contributing factor" and 5 being "Significant contributing factor."

Previous Negative Dental Experiences: The majority of participants (73.64 %) rated previous negative dental experiences as a significant contributing factor to their dental anxiety and fear,

Fear of Pain or Discomfort during Dental Procedures: A significant proportion of participants (38.47%) identified fear of pain or discomfort during dental procedures as a contributing factor.

Lack of Control during Dental Procedures: Approximately [26.85] of participants reported a lack of control during dental procedures as a contributing factor.

Fear of Dental Instruments (e.g., drills, needles): A considerable number of participants (23.96) expressed fear of dental instruments as a contributing factor.

Embarrassment or Self-consciousness about Oral Health Condition: A notable proportion of participants (approximately 25.04%) indicated that embarrassment or self-consciousness about their oral health condition contributed to their dental anxiety and fear

Cultural or Societal Influences on Dental Anxiety: A smaller but significant subset of participants (approximately 19.48%) mentioned cultural or societal influences as contributing to their dental anxiety and fear.

Discussion:

Dental anxiety and fear are common phenomena that can significantly impact individuals' willingness to seek dental care and maintain oral health. Understanding the factors that contribute to dental anxiety and fear is crucial for dental professionals in providing effective and patient-centered care.[8] This exploratory study aimed to identify and explore the factors

contributing to dental anxiety and fear in dental procedures. The findings of this study revealed several key factors that contribute to dental anxiety and fear. These factors include previous negative dental experiences, fear of pain or discomfort during dental procedures, lack of control during treatment, fear of dental instruments, embarrassment or self-consciousness about oral health conditions, and cultural or societal influences.

According to Appukuttan DP, et al. (2017) [9], the dental situation that caused study participants the least amount of anxiety was tooth cleaning and polishing. Other dental situations that caused anxiety included having a tooth drilled, waiting in the dental clinic, and visiting the dentist. However, in this study, we discovered that the previous negative experience had highest dental anxiety score while cultural or social influences being the least anxiety-provoking dental situation for this study population. The study's findings revealed that female participants had higher MDAS scores than male participants, indicating that they are more likely to have dental anxiety. This supports the assertion made by Ofori et al.[10] that women are more likely than men to report having higher dental anxiety and dread ratings. Females were significantly more worried than males, according to Malvania and Ajithkrishnan[11]

Male and female participants responded differently to items 3 and 5 of the MDAS when the individual item was analysed, as was expected. The female participants reported significantly higher scores than the male participants. The remaining items followed the same pattern but did not reach statistically significant values. The observed disparity between males and females could be explained by genuine differences in anxiety levels between sexes, females' greater openness to acknowledge distress, and both influences working together.³⁴ According to Liddell and Locker³⁵, the second biggest predictor of dental fear and anxiety was felt insufficiency of control. Women did, however, exhibit a far larger craving for control than did men. According to Gadbury-Amyot and Williams[12], women's observed ability to manage in a dental condition appears to be worse than men's because of women's stronger desire for control and lower perception of genuine control. This situation puts women under psychological strain, increasing their worry and anxiety.

Previous negative dental experiences emerged as a significant contributing factor to dental anxiety and fear which was similar to the study of Staugaard SR [13]. Patients who had experienced traumatic or painful dental procedures in the past were more likely to exhibit higher levels of anxiety and fear in subsequent dental visits. These negative experiences could range from previous instances of pain, discomfort, or perceived lack of empathy and communication from dental professionals. It is important for dental practitioners to be aware of these experiences and employ strategies to alleviate patients' apprehension and establish trust and rapport. Fear of pain or discomfort during dental procedures was another prominent factor contributing to dental anxiety and fear. The anticipation of pain and the fear of experiencing discomfort during treatment can trigger anxiety and apprehension in patients. Dental professionals can mitigate this fear by implementing effective pain management techniques, such as local anesthesia administration, and by ensuring open communication with patients to address their concerns and provide reassurance.

The perception of a lack of control during dental procedures also played a significant role in dental anxiety and fear. Patients who feel helpless or unable to influence the course of the treatment may experience heightened anxiety. Dental professionals can empower patients by involving them in the decision-making process, explaining the procedure step-by-step, and allowing breaks or the use of hand signals to communicate discomfort. Fear of dental instruments, including drills and needles, was identified as a contributing factor to dental anxiety and fear. The sight and sound of these instruments can evoke feelings of unease and apprehension. Dental practitioners can help alleviate this fear by providing explanations about the purpose and function of the instruments, using techniques to minimize discomfort during injections, and utilizing alternative tools when appropriate.

Embarrassment or self-consciousness about oral health conditions was found to contribute to dental anxiety and fear. Patients who feel self-conscious about their dental appearance, such as crooked teeth or bad breath, may experience heightened anxiety during dental procedures. Dentists can create a supportive and non-judgmental environment by demonstrating empathy, ensuring patient privacy, and offering cosmetic dental options or referrals to specialists when necessary. Cultural or societal influences were identified as a contributing factor to dental anxiety and fear. Cultural beliefs, societal norms, and personal experiences can shape an individual's perception of dental care and influence their anxiety levels. Dental professionals should be mindful of cultural sensitivities, adapt communication strategies, and provide culturally competent care to address the unique needs and concerns of diverse patient populations.

It is important to acknowledge the limitations of this exploratory study. The sample size may limit the generalizability of the findings, and the study relied on self-report measures, which are subject to response bias. Additionally, the study design was exploratory in nature, and further research is needed to validate and expand upon these preliminary findings. Ultimately, the findings of this study will inform dental professionals, educators, and policymakers about the significant factors contributing to dental anxiety and fear. By addressing these factors, the dental community can work towards creating a more supportive and comfortable environment for patients, promoting regular dental attendance, and improving overall oral health outcomes.

Conclusion:

In conclusion, this exploratory study shed light on the factors contributing to dental anxiety and fear in dental procedures. The findings underscore the importance of addressing these factors to provide patient-centered care, improve treatment outcomes, and enhance patient satisfaction. Dental professionals can utilize these insights to develop tailored strategies for managing dental anxiety and fear, including effective communication, pain management techniques, and creating a supportive and empathetic dental environment. Further research is warranted to confirm these findings and explore additional factors that may contribute to dental anxiety and fear in different populations and cultural contexts.

References:

1. Suhani RD, Suhani MF, Badea ME. Dental anxiety and fear among a young population with hearing impairment. *Clujul Med.* 2016;89(1):143-9. doi: 10.15386/cjmed-556. Epub 2016 Jan 15. PMID: 27004038; PMCID: PMC4777458.
2. Alamri SA, Alshammari SA, Baseer MA, Assery MK, Ingle NA. Validation of Arabic version of the Modified Dental Anxiety Scale (MDAS) and Kleinknecht's Dental Fear Survey Scale (DFS) and combined self-modified version of this two scales as Dental Fear Anxiety Scale (DFAS) among 12 to 15 year Saudi school students in Riyadh city. *J Int Soc Prev Community Dent.* 2019 Nov 12;9(6):553-558. doi: 10.4103/jispcd.JISPCD_196_19. PMID: 32039074; PMCID: PMC6905314.
3. Appukuttan DP. Strategies to manage patients with dental anxiety and dental phobia: literature review. *Clin Cosmet Investig Dent.* 2016 Mar 10;8:35-50. doi: 10.2147/CCIDE.S63626. PMID: 27022303; PMCID: PMC4790493.
4. Maggiri J, Locker D. Psychological factors and perceptions of pain associated with dental treatment. *Community Dent Oral Epidemiol.* 2002 Apr;30(2):151-9. doi: 10.1034/j.1600-0528.2002.300209.x. PMID: 12000356.
5. American Academy of Pediatric Dentistry. Behavior guidance for the pediatric dental patient. *The Reference Manual of Pediatric Dentistry.* Chicago, Ill.: American Academy of Pediatric Dentistry; 2022:321-39

6. Anthonappa RP, Ashley PF, Bonetti DL, Lombardo G, Riley P. Non-pharmacological interventions for managing dental anxiety in children. *Cochrane Database Syst Rev*. 2017 Jun 5;2017(6):CD012676. doi: 10.1002/14651858.CD012676. PMCID: PMC6481904.
7. Humphris GM, Dyer TA, Robinson PG. The modified dental anxiety scale: UK general public population norms in 2008 with further psychometrics and effects of age. *BMC Oral Health*. 2009 Aug 26;9:20. doi: 10.1186/1472-6831-9-20. PMID: 19709436; PMCID: PMC2743651
8. Wide U, Hakeberg M. Treatment of Dental Anxiety and Phobia-Diagnostic Criteria and Conceptual Model of Behavioural Treatment. *Dent J (Basel)*. 2021 Dec 17;9(12):153. doi: 10.3390/dj9120153. PMID: 34940050; PMCID: PMC8700242.
9. Appukuttan DP, et al. Evaluation of Dental Anxiety and its Influence on Dental Visiting Pattern among Young Adults in India: A Multicentre Cross Sectional Study. *Ann Med Health Sci Res*. 2017; 7: 393-400.
10. Ofori MA, Adu-Ababio F, Nyako EA, Ndanu TA. Prevalence of dental fear and anxiety amongst patients in selected dental clinics. *Health Education Journal* 2009;68:130-139.
11. Malvania EA, Ajithkrishnan CG. Prevalence and sociodemographic correlates of dental anxiety among a group of adult patients attending a dental institution in Vadodara city, Gujarat, India. *Indian Journal of Dental Research* 2011;22:179-180.
12. Gadbury-Amyot C, Williams KB. Dental hygiene fear: Gender and age difference. *J Contemp Dent Pract* 2000;1:1-11
13. Staugaard SR, Jossing M, Krohn C. The role of negative and positive memories in fear of dental treatment. *J Public Health Dent*. 2017;77:39–46. [PubMed] [Google Scholar]