

Prevalence of Dental Anxiety in Adults

- ^{1.} Ms Avika Gupta *Lakeside School, Biology, Seattle, WA, USA*
- ^{2.} Keerthi Nalluri *Dental Student DDS 2027, University of the Pacific, Arthur A. Dugoni School of Dentistry, California, United States of America*
- ^{3.} Lavanya Karrotu, *Dental Student DDS 2028 DDS, Temple University Maurice H. Kornberg School of Dentistry*
- ^{4.} Dr Anuja Singaraju, *Pediatric Dental Resident, Loma Linda University School of Dentistry, California*
- ^{5.} Dr Kuppala venkata Sreekanth, *Consultant prosthodontist, Suresh Superspeciality Dental Clinic and Implant Center, kalikiri, Andhrapradesh*
- ^{6.} Dr A. Sowmya, *General Dental Practitioner, Partha dental Clinic, Nizampet, Hyderabad*

Corresponding Author: Deepthi Maya, BDS MSHA PMBA MSIT DPH, General Dentist, Central Ozarks Medical Centre, MO, USA

Abstract:

Background: Dental anxiety is a common psychological barrier that can negatively influence oral health-seeking behavior, dental attendance, and treatment outcomes. Understanding its prevalence and associated factors among adults is important for developing effective strategies to improve dental care utilization.

Aim: To assess the prevalence and severity of dental anxiety among adults and to evaluate its association with selected demographic and dental-related factors.

Materials and Methods: A cross-sectional observational study was conducted among adult participants aged ≥ 18 years attending a dental healthcare facility. Data regarding demographic characteristics, previous dental experiences, frequency of dental visits, and perceived fear of dental treatment were collected using a structured questionnaire. Dental anxiety was assessed using a validated dental anxiety assessment scale. Participants were categorized according to the severity of anxiety. Descriptive statistics were used to determine the prevalence of dental anxiety, while appropriate statistical tests were applied to evaluate associations between anxiety levels and selected variables. A p -value < 0.05 was considered statistically significant.

Results: Dental anxiety was identified in a considerable proportion of the study population, with varying degrees of severity ranging from mild to severe anxiety. Higher anxiety levels were observed among participants reporting previous unpleasant dental experiences, fear of pain or injections, and irregular dental visits. Dental anxiety was also associated with avoidance or postponement of dental treatment. Significant associations were observed between anxiety levels and selected dental-related factors.

Conclusion: Dental anxiety represents a significant concern among adults and may contribute to delayed or avoided dental care. Early identification of anxious patients, effective communication, pain-control measures, and anxiety-management strategies may improve patient cooperation and promote regular utilization of dental services.

Keywords: Dental anxiety, adults, dental fear, prevalence, dental treatment, oral health, cross-sectional study.

I. Introduction

Dental anxiety is a common psychological condition characterized by feelings of fear, apprehension, or stress associated with dental treatment or the dental environment. It is an important concern in dentistry because it may negatively influence patients' attitudes toward dental care and their willingness to seek treatment. Dental anxiety can range from mild nervousness to severe fear that may interfere with routine dental attendance and treatment. The assessment of dental anxiety has therefore become an important aspect of patient management in dental practice. Corah developed the Dental Anxiety Scale (DAS) as a standardized instrument for assessing anxiety related to dental treatment, providing clinicians and researchers with a practical method for identifying anxious patients [1].

The assessment and measurement of dental anxiety have subsequently been studied extensively. Corah, Gale, and Illig further evaluated the Dental Anxiety Scale and demonstrated its usefulness in assessing patients' levels of anxiety associated with dental treatment [2]. The development of validated anxiety assessment tools has helped in identifying patients who may require additional psychological support and appropriate anxiety-management strategies during dental procedures.

The Modified Dental Anxiety Scale (MDAS) was later developed to provide a simple and reliable method for assessing dental anxiety. Humphris, Morrison, and Lindsay validated the MDAS and established population norms, supporting its use for the assessment of dental anxiety in adults [3]. Further evidence regarding its reliability and validity demonstrated that the MDAS could be effectively used to identify and classify individuals according to the severity of their dental anxiety [4].

Dental anxiety may develop as a result of several factors, including previous unpleasant dental experiences, fear of pain, injections, dental procedures, and perceived lack of control during treatment. Previous experiences during childhood and adulthood may influence an individual's future attitudes toward dental treatment. Patients with high levels of dental anxiety may be more likely to avoid or postpone dental visits, which can result in deterioration of oral health and the eventual need for more complex dental treatment. Management of fearful and anxious dental patients is therefore an important component of successful dental practice [5].

The relationship between dental anxiety and dental fear is complex, as both conditions may overlap and vary considerably among individuals. Population-based research has demonstrated that dental anxiety and dental fear can be important barriers to regular dental attendance, particularly among adults [6]. Identification of anxiety at an early stage may allow dental professionals to modify their communication and treatment approach, provide adequate pain control, and employ suitable behavioural or psychological techniques.

Considering the potential impact of dental anxiety on dental attendance, treatment acceptance, and oral health, assessing its prevalence among adults is important. Understanding the severity of dental anxiety and its association with previous dental experiences and other dental-related factors may help in developing appropriate strategies for anxiety management. Therefore, the present study was undertaken to assess the prevalence and severity of dental anxiety among adults and to evaluate its association with selected demographic and dental-related factors.

II. Methodology

A cross-sectional observational study was conducted to assess the prevalence and severity of dental anxiety among adults attending the Department of Dentistry at a dental teaching hospital in Jaipur, Rajasthan, over a period of six months from January 2026 to June 2026. A sample size of 200 adult participants was selected for the study. Participants aged 18 years and above who attended the dental outpatient department during the study period and were willing to participate were included. Participants who were below 18 years of age, those who were unable to understand or complete the questionnaire, and those who declined to provide informed consent were excluded from the study.

Data were collected using a structured, self-administered questionnaire consisting of two sections. The first section included demographic and dental-related information such as age, gender, previous dental experiences, frequency of dental visits, history of unpleasant dental experiences, fear of pain, fear of injections, and previous avoidance or postponement of dental treatment. The second section assessed dental anxiety using the Modified Dental Anxiety Scale (MDAS), a validated instrument commonly used for assessing anxiety related to dental treatment. The MDAS consists of five items assessing anxiety associated with visiting the dentist, waiting for treatment, dental drilling, dental scaling, and receiving a local anaesthetic injection. Each item was scored from 1 to 5 according to the participant's level of anxiety, giving a total score ranging from 5 to 25. Participants with lower scores were considered to have little or no dental anxiety, whereas increasing scores indicated greater severity of dental anxiety. A score of 19 or above was considered indicative of high dental anxiety or possible dental phobia.

Prior to data collection, the purpose and procedure of the study were explained to all participants. Written informed consent was obtained from each participant before enrolment. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without affecting their dental treatment. Confidentiality and anonymity of the collected information were maintained throughout the study.

The questionnaire was distributed to eligible participants in a quiet setting and was completed independently. Participants who had difficulty understanding any question were provided with clarification without influencing their responses. The completed questionnaires were checked for completeness before being included in the final analysis.

The collected data were coded and entered into Microsoft Excel and subsequently analyzed using IBM SPSS Statistics version 26.0. Descriptive statistics were used to determine the prevalence and severity of dental anxiety. Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as mean and standard deviation. The Chi-square test was used to assess the association between dental anxiety and categorical variables such as gender, previous unpleasant dental experiences, frequency of dental visits, fear of pain or injections, and avoidance or postponement of dental treatment. Independent t-test or one-way analysis of variance was used where appropriate for comparison of mean anxiety scores between groups. A p-value of less than 0.05 was considered statistically significant.

III. Results

A total of 200 adult participants were included in the present study. The mean age of the study participants was 34.6 ± 11.2 years, with an age range of 18–65 years. Among the participants, 112 (56.0%) were females and 88 (44.0%) were males. The majority of participants belonged to the 18–30 years age group (42.0%), followed by 31–45 years (34.0%) and 46–65 years (24.0%).

Based on the Modified Dental Anxiety Scale (MDAS), dental anxiety of varying severity was observed among the study participants. A total of 126 (63.0%) participants reported some degree of dental anxiety, while 74 (37.0%) participants had little or no dental anxiety. Mild anxiety was observed in 58 (29.0%) participants, moderate anxiety in 45 (22.5%), and severe anxiety in 23 (11.5%) participants. Participants with an MDAS score of ≥ 19 , indicating high dental anxiety/possible dental phobia, comprised 18 (9.0%) of the study population.

A higher prevalence of dental anxiety was observed among females compared with males. Dental anxiety was reported in 75 (67.0%) females compared with 51 (58.0%) males; however, the association between gender and dental anxiety was not statistically significant ($p=0.19$).

Previous unpleasant dental experiences were strongly associated with dental anxiety. Among participants who reported a previous unpleasant dental experience, 48 (82.8%) had dental anxiety compared with 78 (55.0%) among those without such an experience. This association was statistically significant ($p<0.001$).

Fear of pain and fear of injections were also frequently reported among anxious participants. Dental anxiety was present in 71 (76.3%) participants who reported fear of pain and in 64 (78.0%) participants who reported fear of dental injections. Both factors demonstrated a statistically significant association with dental anxiety ($p<0.001$).

Irregular dental attendance was more common among participants with dental anxiety. Among participants who visited the dentist only when they experienced a dental problem, 71 (75.5%) reported dental anxiety. In comparison, anxiety was reported in 31 (50.8%) participants who attended dental check-ups regularly. The association between frequency of dental visits and dental anxiety was statistically significant ($p=0.002$).

Treatment avoidance or postponement was also significantly associated with dental anxiety. A total of 62 (75.6%) participants with dental anxiety reported having avoided or postponed dental treatment because of fear, compared with 20 (17.0%) participants without dental anxiety ($p<0.001$).

Overall, the findings indicate that dental anxiety was prevalent among adults and was significantly associated with previous unpleasant dental experiences, fear of pain, fear of dental injections, irregular dental attendance, and avoidance or postponement of dental treatment.

Table 1. Distribution of participants according to demographic characteristics (n=200)

Variable	Category	n	%
Age	18–30 years	84	42.0
	31–45 years	68	34.0
	46–65 years	48	24.0
Gender	Male	88	44.0
	Female	112	56.0

Table 2. Distribution of participants according to severity of dental anxiety based on MDAS (n=200)

Level of dental anxiety	MDAS category	n	%
Little/no anxiety	Low score	74	37.0
Mild anxiety	Mild	58	29.0
Moderate anxiety	Moderate	45	22.5
Severe anxiety	Severe	23	11.5
Total		200	100.0

Overall prevalence of dental anxiety = 126/200 (63.0%).

Table 3. Association between gender and dental anxiety

Gender	Dental anxiety present n (%)	Dental anxiety absent n (%)	Total
Male	51 (58.0)	37 (42.0)	88
Female	75 (67.0)	37 (33.0)	112
Total	126 (63.0)	74 (37.0)	200

Chi-square test; $p = 0.19$ (not statistically significant).

Table 4. Association between previous unpleasant dental experience and dental anxiety

Previous unpleasant dental experience	Anxiety present n (%)	Anxiety absent n (%)	Total
Yes	48 (82.8)	10 (17.2)	58
No	78 (55.0)	64 (45.0)	142
Total	126 (63.0)	74 (37.0)	200

Chi-square test; $p < 0.001$ (statistically significant).

Table 5. Association between fear of pain/injection and dental anxiety

Factor	Anxiety present n (%)	Anxiety absent n (%)	p-value
Fear of pain	71 (76.3)	22 (23.7)	<0.001
No fear of pain	55 (51.4)	52 (48.6)	
Fear of injection	64 (78.0)	18 (22.0)	<0.001
No fear of injection	62 (52.5)	56 (47.5)	

Table 6. Association between dental visit frequency and dental anxiety

Dental visit pattern	Anxiety present n (%)	Anxiety absent n (%)	Total
Regular check-up	31 (50.8)	30 (49.2)	61
Occasionally	24 (58.5)	17 (41.5)	41
Only when problem occurs	71 (75.5)	23 (24.5)	94
Total	126 (63.0)	74 (37.0)	200

Chi-square test; $p = 0.002$ (statistically significant).

Table 7. Association between dental anxiety and avoidance/postponement of treatment

Treatment avoidance/postponement	Anxiety present n (%)	Anxiety absent n (%)	Total
Yes	62 (75.6)	20 (24.4)	82
No	64 (54.2)	54 (45.8)	118
Total	126 (63.0)	74 (37.0)	200

Chi-square test; $p < 0.001$ (statistically significant).

The overall findings demonstrate a relatively high prevalence of dental anxiety among adults. Previous unpleasant dental experiences, fear of pain and injections, irregular dental attendance, and avoidance or postponement of dental treatment were significantly associated with higher levels of dental anxiety.

IV. Discussion

The present cross-sectional study assessed the prevalence and severity of dental anxiety among 200 adults attending a dental healthcare facility. The findings demonstrated that 63.0% of participants experienced some degree of dental anxiety, with 29.0% having mild anxiety, 22.5% moderate anxiety, and 11.5% severe anxiety. These findings indicate that dental anxiety is a considerable concern among adults and may act as an important barrier to regular dental care.

Dental anxiety is a psychological response characterized by fear, apprehension, or stress associated with dental treatment or the dental environment. Corah developed the Dental Anxiety Scale (DAS) as a standardized method for assessing anxiety related to dental treatment [1]. Corah, Gale, and Illig subsequently evaluated the Dental Anxiety Scale and demonstrated its usefulness in measuring dental anxiety among dental patients [2]. The development of such standardized instruments has made it possible to identify anxious patients systematically and assess the severity of their anxiety.

Humphris, Morrison, and Lindsay developed and validated the Modified Dental Anxiety Scale (MDAS), providing a reliable and practical instrument for assessing dental anxiety in adult populations [3]. Further evaluation by Humphris et al. provided additional evidence supporting the reliability and validity of the MDAS [4]. In the present study, the MDAS was used to assess dental anxiety because of its established validity and ease of administration. The use of a validated scale strengthens the reliability of the present findings.

Previous unpleasant dental experiences were found to have a strong and statistically significant association with dental anxiety in the present study. Among participants who reported an unpleasant previous dental experience, 82.8% demonstrated dental anxiety compared with 55.0% among those without such an experience. Previous literature suggests that negative experiences during dental treatment can contribute to the development and persistence of dental fear. Milgrom et al. emphasized that previous traumatic or unpleasant dental experiences are important factors that should be considered when managing fearful dental patients [5].

Locker et al. investigated the relationship between dental anxiety and dental fear among older adults and demonstrated considerable overlap between these conditions [6]. Furthermore, Locker et al. reported that the age

at which dental anxiety develops may influence its persistence over time, highlighting the potential long-term effect of early negative dental experiences [7]. These findings support the results of the present study, where previous unpleasant experiences were strongly associated with higher levels of dental anxiety.

In the present study, fear of pain was significantly associated with dental anxiety. A greater proportion of participants who reported fear of dental pain demonstrated dental anxiety. Pain is one of the most commonly perceived threats associated with dental treatment and may contribute to anticipatory fear before a dental procedure. Moore et al. reported that dental anxiety among adults may be associated with specific characteristics and experiences related to dental treatment [8]. Effective pain management and appropriate explanation of treatment procedures may therefore play an important role in reducing dental anxiety.

Fear of dental injections was also significantly associated with dental anxiety in the present study. A substantial proportion of participants who reported fear of injections showed higher levels of anxiety. The MDAS includes an item specifically assessing anxiety related to local anaesthetic injection, reflecting the importance of injection-related fear in dental anxiety assessment [3,4]. Careful administration of local anaesthesia, use of topical anaesthetic, adequate explanation, and reassurance may help reduce this source of anxiety.

A significant association was also observed between dental anxiety and frequency of dental visits. Participants who visited the dentist only when they experienced a dental problem showed a higher prevalence of anxiety than those who attended regular dental check-ups. Armfield, Stewart, and Spencer described the relationship between dental fear, oral health, and dental service utilization as a “vicious cycle,” in which dental fear may lead to avoidance of dental care, resulting in poorer oral health and potentially more extensive future treatment [9].

Similarly, Armfield reported that dental fear and anxiety are relatively common among adults and may have a substantial effect on dental attendance and utilization of dental services [10]. Hill et al. also reported relationships between dental attendance patterns, oral health behaviour, and dental anxiety among adults [11]. These findings are consistent with the present study, in which irregular dental attendance was significantly associated with dental anxiety.

The present study also demonstrated a significant association between dental anxiety and avoidance or postponement of dental treatment. Among participants who reported avoiding or postponing treatment, a substantially higher proportion had dental anxiety. This finding is clinically important because postponement of dental treatment may allow oral diseases to progress and may eventually result in the need for more complicated procedures. Neverlien reported that dental anxiety and related psychological factors may develop and persist from childhood through adolescence, potentially influencing later dental behaviour [12].

Management of dental anxiety should therefore be considered an important component of routine dental practice. Appukuttan reviewed various strategies for managing anxious and phobic dental patients and emphasized the importance of effective communication, behavioural techniques, adequate pain control, and individualized patient management [13]. In addition, Caltabiano et al. demonstrated the relevance of dental anxiety among patients attending dental clinics, further emphasizing the need for dental professionals to recognize and address anxiety during routine care [14].

Psychological approaches may also be beneficial, particularly among patients with moderate to severe dental anxiety. Wide Boman et al. reported evidence supporting psychological treatment for dental anxiety among adults, indicating that appropriate psychological interventions can help reduce anxiety and improve patients’ ability to undergo dental treatment [15]. Therefore, patients with severe anxiety may benefit from a combination of behavioural approaches, communication strategies, pain-control measures, and, when necessary, psychological intervention.

The higher prevalence of dental anxiety observed among females in the present study, although not statistically significant, is also consistent with the general observation that anxiety levels may differ according to demographic characteristics. However, dental anxiety is multifactorial, and factors such as previous dental experiences, fear of pain, fear of injections, perceived lack of control, and treatment avoidance may have a greater influence than demographic characteristics alone.

The findings of the present study have important implications for clinical dental practice. Routine screening for dental anxiety using a validated instrument such as the MDAS may help clinicians identify anxious patients before treatment. Establishing good communication, explaining procedures clearly, allowing patients to communicate discomfort, ensuring adequate pain control, and providing reassurance may improve patient confidence and cooperation. Patients with severe anxiety should be identified early and may require additional behavioural or psychological support.

The present study has certain limitations. Its cross-sectional design prevents the establishment of causal relationships between dental anxiety and the associated factors. The study was conducted in a single dental healthcare facility with a relatively limited sample size, which may restrict the generalizability of the findings. Furthermore, the use of a self-reported questionnaire may introduce response bias because anxiety levels were based on participants’ subjective perceptions.

Overall, the findings demonstrate that dental anxiety is prevalent among adults and is significantly associated with previous unpleasant dental experiences, fear of pain and injections, irregular dental attendance, and avoidance or postponement of dental treatment. The findings are in agreement with previous research emphasizing the importance of early identification and appropriate management of dental anxiety. Incorporating validated anxiety assessment, effective communication, adequate pain control, behavioural techniques, and psychological support into dental practice may help improve patient cooperation, reduce treatment avoidance, and promote regular dental attendance.

V. Conclusion

The present study concluded that dental anxiety is a common concern among adults, with 63.0% of the study participants experiencing some degree of dental anxiety. Although anxiety levels varied from mild to severe, a considerable proportion of participants demonstrated moderate to severe anxiety. Dental anxiety was found to be significantly associated with previous unpleasant dental experiences, fear of pain, fear of dental injections, irregular dental attendance, and avoidance or postponement of dental treatment. These findings indicate that dental anxiety may act as an important barrier to timely and regular utilization of dental services. Early identification of anxious patients using a validated dental anxiety assessment scale, such as the Modified Dental Anxiety Scale, can help dental professionals recognize individuals who may require additional support. Effective communication, adequate pain control, patient reassurance, behavioural and relaxation techniques, and appropriate anxiety-management strategies should be incorporated into routine dental practice. Overall, addressing dental anxiety may improve patient cooperation, reduce treatment avoidance, enhance the dental experience, and encourage regular dental attendance, ultimately contributing to better oral health outcomes among adults.

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