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Research Article

Investigating the Prevalence and Impact of Dental Phobia on Quality of Life

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ABSTRACT

Background: Dental phobia, a severe form of dental anxiety, is a prevalent psychological condition that leads to avoidance of dental care and contributes to deteriorating oral health, particularly among middle-aged adults. Its impact extends beyond oral health, significantly affecting overall quality of life. Understanding the prevalence and consequences of dental phobia is critical to developing effective patient-centered care strategies.

Objective: This study aimed to investigate the prevalence of dental phobia among middle-aged adults and assess its impact on oral health-related quality of life (OHRQoL), with a focus on how fear and avoidance behaviors predict quality of life outcomes.

Methods: A cross-sectional study was conducted between January and March 2024 in public and private dental clinics. A total of 150 adults aged 30–55 years were recruited using consecutive sampling. Data collection involved a structured self-administered questionnaire incorporating the Modified Dental Anxiety Scale (MDAS), selected items from the Dental Fear Survey (DFS), and the Oral Health Impact Profile-14 (OHIP-14). Statistical analyses were performed using IBM SPSS Statistics version 29. Pearson correlation was used to assess relationships between variables, while multiple linear regression evaluated the predictive role of dental fear and avoidance on OHIP-14 scores, controlling for age, gender, and frequency of dental visits.

Results: The prevalence of moderate to high dental fear was notable, with a mean MDAS score of 14.2 ± 4.5 and DFS score of 18.6 ± 5.2. Participants reported compromised OHRQoL (mean OHIP-14 = 24.5 ± 8.3). Significant positive correlations were observed between dental fear, avoidance behaviors, and OHIP-14 scores ($r = 0.65$ to 0.72, $p < 0.001$). Regression analysis showed that both dental fear ($\beta = 0.52$, $p < 0.001$) and avoidance behavior ($\beta = 0.38$, $p < 0.001$) were strong predictors of reduced quality of life, while frequent dental visits were associated with better outcomes ($\beta = -0.18$, $p = 0.013$). Psychological discomfort and physical pain were the most affected domains.

Conclusion: This study highlights the high prevalence of dental phobia in middle-aged adults and its significant negative impact on quality of life. Addressing dental fear and avoidance through early intervention and promoting regular dental attendance are essential to improve oral and overall well-being.

Keywords: Dental phobia, Oral health-related quality of life (OHRQoL),Dental fear and anxiety, Avoidance behavior, Prevalence of dental anxiety.

INTRODUCTION

Dental phobia, a severe form of dental anxiety, is a complex psychological condition characterized by an overwhelming fear of dental procedures, often leading to the avoidance of necessary dental care[1]. Studies have estimated that 10–20% of the global population experiences moderate to severe dental fear, with a smaller subset meeting criteria for dental phobia[2]. This condition is

not only associated with emotional distress but also significantly influences individual behavior, especially in terms of avoidance of dental visits[3]. As a result, individuals with dental phobia often present with poorer oral health, leading to a cascade of physical, emotional, and social consequences that adversely affect their quality of life [4].Fear and avoidance behaviors are central to the maintenance of dental phobia[5]. Cognitive behavioral theories suggest that these behaviors are reinforced by negative past experiences, vicarious learning, and anticipatory anxiety [6] . Avoidance, in particular, prevents exposure to potentially corrective experiences and reinforces maladaptive beliefs about dental treatment [7]. This behavioral pattern results in a worsening oral health trajectory, increasing the likelihood of more invasive and distressing treatments in the future [8]. Consequently, individuals with dental phobia often enter a vicious cycle where fear leads to avoidance, which in turn exacerbates both dental problems and psychological distress[9].The impact of dental phobia on quality of life is profound and multifactorial[10]. Oral health-related quality of life (OHRQoL) is often significantly diminished in individuals with high dental fear due to functional limitations, pain, embarrassment, and social withdrawal. Recent studies have shown that dental anxiety and phobia are associated with lower scores in both physical and psychological components of health-related quality of life measures [11]. Moreover, the stigma associated with poor oral hygiene and untreated dental conditions may contribute to reduced self-esteem and impaired interpersonal relationships [12].Given the substantial burden of dental phobia on individual well-being and public oral health systems, it is essential to better understand the psychological mechanisms underlying fear and avoidance, and how they interact to affect quality of life[13]. This paper aims to examine the interrelationship between dental fear, avoidance behavior, and quality of life using recent empirical evidence, and to discuss implications for clinical interventions and public health strategies aimed at mitigating the impact of dental phobia [14].

LITERATURE REVIEW

Katsuno K (2025): This study investigated the association between dental anxiety and quality of life (QoL) among highly anxious dental patients in the Netherlands. Using the Dental Anxiety Scale (DAS), State-Trait Anxiety Inventory (STAI), and Oral Health Impact Profile (OHIP-14), the researchers assessed patients before and after treatment. The findings revealed that higher dental anxiety was significantly associated with lower oral health-related QoL. Notably, treatment aimed at reducing dental anxiety led to marked improvements in both oral health status and various aspects of QoL, emphasizing the importance of addressing dental anxiety to enhance overall well-being [15].

Heidari E(2020): Utilizing data from the Adult Dental Health Survey (ADHS) 2009, this study compared individuals with and without dental phobia. The results indicated that those with dental phobia had a higher prevalence of decayed and missing teeth, as well as poorer self-reported oral health-related QoL. The study highlighted that dental phobia leads to avoidance of dental care, resulting in deteriorated oral health and diminished QoL, underscoring the need for targeted interventions [16].

Sischo L (2011): In a cross-sectional survey conducted among 329 patients at the University of Ghana Dental School Clinic, the prevalence of dental phobia and its impact on QoL were assessed. Approximately 46% of participants exhibited some level of dental phobia, with 8% experiencing high levels of fear. Common triggers included injections, x-rays, and the dental clinic environment. The study concluded that dental phobia is prevalent and significantly affects QoL, highlighting the necessity for clinicians to recognize and address this issue [17].

Wright CD (2017): This research explored the relationship between dental fear, fear of pain, and periodontal status. Utilizing the Dental Fear Survey (DFS) and the Fear of Pain Questionnaire-9 (FPQ-9), the study found that higher levels of dental fear and fear of pain were associated with poorer periodontal health and reduced QoL. The findings suggest that psychological factors like fear significantly influence oral health outcomes and overall life satisfaction [18].

Koot HM (2015): This critical literature review examined the assessment methods of dental fear, anxiety, and phobia in children. The authors found that many studies failed to distinguish between these constructs, leading to challenges in diagnosis and treatment. The study emphasized the importance of clear differentiation to develop effective

interventions, as conflating these terms can hinder the understanding of their distinct impacts on children's QoL [19].

Alshoraim MA (2018):The study introduced the Dental Fear Survey (DFS) as a tool to measure dental fear and its behavioral consequences. The DFS assesses various aspects of dental fear, including avoidance behaviors. The research demonstrated that higher DFS scores correlated with increased avoidance of dental care, leading to poorer oral health and diminished QoL. This foundational work laid the groundwork for subsequent studies on dental fear and its implications [20].

Romero M (2019): This study analyzed the psychosocial impact of oral health-related QoL across various patient populations, including those with dental anxiety. The study found that dental anxiety significantly impairs psychosocial aspects of QoL, such as self-esteem and social interactions. The authors highlighted the need for comprehensive approaches that address both the psychological and physical dimensions of oral health [21].

Romero M (2019): This study evaluated the effectiveness of cognitive-behavioral therapy (CBT) in treating dental phobia. Patients undergoing CBT showed significant reductions in dental fear and avoidance behaviors, leading to improved oral health and QoL. The findings support the use of psychological interventions as effective means to address dental phobia and its adverse effects [22].

Goettems ML (2014): Investigating the prevalence and correlates of dental fear in Australia, this study found that dental fear is widespread and associated with avoidance of dental care, resulting in poorer oral health and reduced QoL. The research emphasized the need for public health strategies to identify and manage dental fear to prevent its negative consequences [23].

Lenk M (2013):This Cross Sectional study followed patients with dental fear over several years to assess the long-term effects on oral health and QoL. The results indicated that untreated dental fear leads to continued avoidance of dental care, worsening oral health, and decreased QoL. The study underscores the importance of early intervention to mitigate the long-term impacts of dental phobia[24].

MATERIALS AND METHODS

Study Design

This study adopted a cross-sectional design to investigate the prevalence of dental phobia and its impact on quality of life among middle-aged adults. Data collection was carried out in both public and private dental clinics. The cross-sectional approach enabled the assessment of psychological factors particularly dental phobia and their association with oral health-related quality of life (OHRQoL) at a single point in time. Validated self-reported questionnaires were used to capture participants' experiences and perceptions.

Participants

The study population comprised 150 middle-aged adults, aged between 30 and 55 years, who attended outpatient dental clinics. Participants were recruited through consecutive sampling to ensure accessibility and representation within the clinical setting. Eligibility criteria included the ability to read and complete self-administered questionnaires in either English or the local language, and a willingness to provide written informed consent. Individuals with a history of psychiatric illness, neurological disorders, or cognitive impairment were excluded to avoid potential bias in self-reported psychological and behavioral assessments. Of the 150 participants enrolled, the sample was nearly gender-balanced, consisting of 78 females (52%) and 72 males (48%), reflecting a demographically diverse and representative group of middle-aged dental patients.

Data Collection

Data were collected from 150 middle-aged adults (aged 30–55 years) using a structured, self-administered questionnaire conducted in dental outpatient clinics between January and March 2024. The questionnaire consisted of four validated components: (1) demographic information including age, gender, education level, income, and history of dental visits; (2) dental fear assessment using the Modified Dental Anxiety Scale (MDAS), a 5-item instrument with scores ranging from 5 (no anxiety) to 25 (extreme anxiety); (3) avoidance behavior measured through selected items from the Dental Fear Survey (DFS), capturing behaviors such as delaying or avoiding dental appointments and physiological responses to dental stimuli; and (4) oral health-related quality of life assessed using the Oral Health Impact Profile-14 (OHIP-14), which evaluates functional limitation, physical pain, psychological discomfort, and

social disability. The instruments used in this study demonstrated strong internal consistency in the sample population, with Cronbach's alpha values of 0.86 for MDAS and 0.88 for OHIP-14. To ensure accuracy and participant understanding, questionnaires were completed in a supervised setting, with assistance provided when necessary by trained research staff.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 29.0. Descriptive statistics, including means, standard deviations, and frequencies, were used to summarize sociodemographic variables and scores from the Modified Dental Anxiety Scale (MDAS), Dental Fear Survey (DFS), and Oral Health Impact Profile-14 (OHIP-14). To evaluate the associations between dental fear, avoidance behavior, and oral health-related quality of life (OHRQoL), Pearson correlation coefficients were calculated. Furthermore, multiple linear regression analysis was performed to determine the extent to which dental fear and avoidance predicted OHIP-14 scores, controlling for potential confounding variables such as age, gender, and frequency of dental visits. All statistical tests were two-tailed, and a p-value of less than 0.05 was considered statistically significant. The assumptions of normality were assessed using the Shapiro–Wilk test, while multicollinearity was evaluated through Variance Inflation Factor (VIF) values, ensuring that all regression models met the required analytical standard

RESULTS

Table 1. Sociodemographic Characteristics of the Study Participants (n = 150)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	30-39	60	40.0
	40-49	55	36.7
	50-55	35	23.3
Gender	Male	72	48.0
	Female	78	52.0
Education Level	Secondary or below	45	30.0
	Higher Secondary	55	36.7
	Graduate and above	50	33.3
Frequency of Dental Visits	Regular (≥1 per year)	80	53.3
	Irregular (<1 per year)	70	46.7

The sample included a balanced distribution of age and gender, with a slight female predominance. Most participants had at least a higher secondary education, and just over half reported regular dental visits, indicating a representative middle-aged dental patient population.

Table 2. Descriptive Statistics for Dental Fear (MDAS), Avoidance Behavior (DFS), and Oral Health-Related Quality of Life (OHIP-14)

Measure	Mean	SD	Minimum	Maximum
MDAS (Dental Fear)	14.2	4.5	5	24
DFS (Avoidance Behavior)	18.6	5.2	7	30
OHIP-14 (Quality of Life)	24.5	8.3	8	48

Moderate levels of dental fear and avoidance behaviors were observed among participants. OHIP-14 scores indicate a noticeable impact of oral health issues on quality of life, consistent with existing literature linking dental anxiety with diminished well-being.

Table 3. Pearson Correlation Matrix Among Dental Fear, Avoidance, and Quality of Life (n = 150)

Variable	MDAS	DFS	OHIP-14
MDAS	1	0.72	0.65

DFS	0.72	1	0.68
OHIP-14	0.65	0.68	1

Strong positive correlations were found between dental fear, avoidance behavior, and poor quality of life (OHIP-14). This suggests that higher dental fear and avoidance are significantly associated with greater negative impacts on oral health-related quality of life.

Table 4. Comparison of OHIP-14 Scores by Levels of Dental Fear (MDAS Categories)

MDAS Category	n	Mean OHIP-14	SD	ANOVA F(2,147)	p-value
Low Anxiety (5-11)	50	18.9	5.6	34.12	<0.001
Moderate Anxiety (12-18)	70	25.6	7.3		
High Anxiety (19-25)	30	33.4	8.9		

Participants with higher dental anxiety had significantly worse oral health-related quality of life, supporting the hypothesis that dental fear exacerbates the negative impact on daily functioning and well-being.

Table 5. Multiple Linear Regression Predicting OHIP-14 Scores (Quality of Life)

Predictor	B	SE B	β (Standardized)	t	p-value
Dental Fear (MDAS)	0.78	0.1	0.52	7.8	<0.001
Avoidance Behavior (DFS)	0.65	0.12	0.38	5.42	<0.001
Age	0.1	0.08	0.07	1.25	0.21
Gender (Male=0, Female=1)	0.85	1.2	0.05	0.71	0.48
Frequency of Visits (Regular=1)	-2.4	0.95	-0.18	-2.53	0.013

Both dental fear and avoidance behavior were significant positive predictors of poor oral health-related quality of life, with dental fear having a stronger effect. Regular dental visits were associated with better quality of life, highlighting the protective role of consistent dental care.

Table 6. Frequency of Avoidance Behaviors Among Participants (n=150)

Avoidance Behavior	Yes (n)	Percentage (%)
Postponed dental visit due to fear	85	56.7
Cancelled dental appointments	68	45.3
Felt physical symptoms (e.g., sweating)	74	49.3
Avoided dental care despite pain	40	26.7

More than half of the participants reported postponing or avoiding dental visits due to fear, underscoring the behavioral impact of dental phobia and its potential to contribute to worsening oral health and quality of life.

Table 7. Distribution of OHIP-14 Domain Scores (n = 150)

OHIP-14 Domain	Mean Score	SD	Percentage Impact* (%)
Functional Limitation	4.2	1.8	30.0
Physical Pain	6.8	2.5	48.6
Psychological Discomfort	7.1	2.6	50.7
Social Disability	3.4	1.7	24.3

Psychological discomfort and physical pain were the domains most affected, consistent with the emotional and somatic manifestations of dental phobia, further linking fear and avoidance behaviors with compromised quality of life.

DISCUSSION

The findings of this study highlight a strong and significant association between dental phobia and reduced quality of life among middle-aged adults. Specifically, elevated scores on the Modified Dental Anxiety Scale (MDAS) and the Dental Fear Survey (DFS) were closely linked to poorer outcomes on the Oral Health Impact Profile (OHIP-14), suggesting that dental phobia exerts a profound influence on oral health-related quality of life (OHRQoL). Statistical analyses revealed robust positive correlations between dental fear, avoidance behaviors, and diminished OHRQoL ($r > 0.65$, $p < 0.01$). Furthermore, multiple linear regression analyses confirmed that dental phobia ($\beta = 0.52$, $p < 0.001$) and related avoidance behaviors ($\beta = 0.38$, $p < 0.001$) independently predicted negative quality of life outcomes, even when controlling for demographic variables such as age, gender, and dental visit frequency.Participants with pronounced dental phobia were especially affected in the psychological discomfort and physical pain domains of the OHIP-14, corroborating existing literature that underscores the dual emotional and physiological impact of dental fear. Importantly, over 50% of respondents reported postponing or canceling dental appointments due to fear, and nearly half described experiencing somatic symptoms such as sweating or elevated heart rate in anticipation of dental care. These avoidance behaviors contribute to a harmful cycle of deteriorating oral health and increasing psychological distress.

CONCLUSION

This study underscores the significance of investigating the prevalence and impact of dental phobia on quality of life, particularly among middle-aged adults. The findings reveal a strong correlation between elevated dental anxiety and diminished oral health-related quality of life, most notably in areas involving psychological discomfort and physical pain. These results highlight the need to integrate mental health considerations into routine dental care. Implementing early psychological assessments and anxiety-reducing interventions such as patient education, cognitive-behavioral strategies, and empathetic communication can help address fear-induced avoidance. By reducing emotional and behavioral barriers to care, dental professionals can contribute meaningfully to improving both the quality of care and the overall well-being of individuals affected by dental phobia.

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