The Fear Beneath the Smiles: A Cross - Sectional Analysis of Dental Anxiety in Pakistani Population

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Abstract

Background: Dental anxiety and fear significantly impact oral health outcomes and patient well-being. This study aims to assess the prevalence and associated factors of dental anxiety and fear among the population of Khyber Pakhtunkhwa, Pakistan, using the Modified Dental Anxiety Scale (MDAS). The findings will provide insights into the distribution of dental anxiety across different genders and socioeconomic and age groups, contributing to existing literature and informing dentists and policy makers in Pakistan.

Results: Total 118 participants were surveyed, males 55% and females 44.9% most in 20-30 years of age, mostly from middle class socioeconomic background. In general most participants were slightly anxious about getting a dental treatment showing extreme anxiety about the their tooth being pulled out, very anxious about their getting a local anestheic injection and tooth drilling and non anxious about scaling and polishing.

Conclusion: MDAS has proven to be a reliable tool for assessing dental anxiety in Pakistan, further research is needed to explore additional factors such as cultural influences and education levels. Such studies will enhance our understanding of dental anxiety's multifaceted nature and inform more effective strategies for its management.

Introduction

Dental anxiety and fear are prevalent concerns that significantly influence individuals' oral health behaviors and outcomes. These psychological barriers often lead to the avoidance or postponement of dental treatments, resulting in adverse oral health conditions. The phenomenon of dental anxiety is not merely a personal challenge; it poses broader implications for public health and healthcare systems, particularly in regions where oral health awareness and access to care are limited.

Dental anxiety can arise due to multiple factors, such as previous negative or traumatic experience, especially in childhood (conditioning experiences), vicarious learning from anxious family members or peers, individual personality characteristics such as neuroticism and self-consciousness, lack of understanding, exposure to frightening portrayals of dentists in the media, the coping style of the person, perception of body image, and the vulnerable position of lying back in a dental chair [1].

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The MDAS is a brief, well-validated five-item questionnaire with 5-point Likert scale responses to each question, ranging from "not anxious" to "extremely anxious". The responses are scored from 1 to 5. The score for the scale ranges from a minimum of 5 to a maximum of 25. The higher the score, the higher the dental fear, and a cutoff point for high dental fear has been suggested at a score of 19, based on clinical relevance [2].

In Khyber Pakhtunkhwa, a province of Pakistan characterized by diverse socio-cultural dynamics, there exists a notable gap in empirical data regarding dental anxiety and its determinants. This study is predicated on the need to bridge this gap by providing a comprehensive assessment of dental anxiety levels across various socio-economic groups and genders within this region. The insights garnered from this research are anticipated to contribute significantly to the existing body of literature on dental anxiety in Pakistan and serve as a foundation for informed clinical practices and policy-making.

Furthermore, this study seeks to validate the use of the Modified Dental Anxiety Scale (MDAS) within the Pakistani context. The MDAS is a widely recognized tool for measuring dental anxiety, yet its applicability across different cultural settings warrants continuous evaluation. By employing the MDAS in Khyber Pakhtunkhwa, we aim to ascertain its effectiveness in capturing the nuances of dental anxiety among the Pakistani population.

This expanded introduction provides a more detailed background on dental anxiety, emphasizes the significance of the study within Khyber Pakhtunkhwa's context, and offers a rationale for the selection of key demographic variables.

Materials and Methods

Data collection was done from - March 2024 till - May 2024 through online questionnaire based on Modified Dental Anxiety Scale by Humphris et al. A total of 118 patients participated in the research. Consent was taken from all patients and proper explanation was given that the Data will be used for research purposes. The data was divided and analyzed in three groups, including Age, Gender, and Socio-economic status of the patients. The MDAS score was categorized into three groups as 1-low (Cumulative score below 11), 2-moderate (Cumulative score between 12 and18), and 3-high (Cumulative score above 19). Bar-graph is introduced for MDAS and Location.

Inclusion Criteria

Literate people, who can fill out the online questionnaire.

Age between 12 to 65 years.

Exclusion Criteria

Non-literate people, who cannot fill out online

People who visited dental clinics outside pakistan.

Ethical Statement

The study is granted exemption from any ethical approval board because It is conducted through an online questionnaire form which was approved by all the co-authors.

Informed Consent

Consent to participate and consent to publish were obtained from all participants above 18 years of age and from legal guardian or a parent below 18 years of age.

Results

The data was analysed using SPSS version 27. Descriptive statistics were obtained for MDAS Score Table 1.0. Total number of patients were 120, most participants were in their mid 20 graph 2.0, males 55% and females 44.9%, Tab.1.1 and predominantly from middle class socioeconomic background 64.4%, lower class 17.8%, upper class 17.8 %, Table 1.2. most of the participants 39 were slightly anxious about having a dental treatment Table 2.0. Most participants 36 were very anxious about having a tooth drilled Table 2.1, 34 participants were very anxious about a the local anesthetic injection Table 2.2. Most Participants 51 were not anxious about scaling and polishing Table 2.3, 43 participants were extremely anxious about having a tooth pulled out Table 2.4.

Table 1.0: Average Percentages of Each Group.

Modified Dental Anxiety Scale		
	N	%
Low Dental Anxiety	31	26.3%
Moderate Dental Anxiety	64	54.2%
High Dental Anxiety	23	19.5%

Table 1.1: Average Percentages from Each Gender.

Gender of the Patients		
	N	%
F	53	44.9%
M	65	55.1%

Table 1.3: Average Socio-economics of Participants. Cross tabulation between Gender and MDAS Scores was done and were of the values:

Socioeconomic Status of the Patients		
	N	%
Lower Class	21	17.8%
Middle Class	76	64.4%
High Class	21	17.8%

How anxious do you feel about the thought of having a dental treatment? * Gender of patient cross tabulation.

Table 2.0: Dental Treatment vs Fear.

		Gender of Patient		
		Female	Male	Total
How anxious do you feel	Extremely Anxious	3	2	5
about the thought of having a Dental	Fairly Anxious	11	9	20
treatment?	Not Anxious	10	19	29
	Slightly Anxious	16	23	39
	Very Anxious	14	13	27
Total		54	66	120

How anxious do you feel about the thought of having a tooth drilled?* Gender of patient cross tabulation.

Table 2.1: Dental Filling vs Fear.

Count		Gender of Patient		
		Femal	Male	Total
How anxious do you feel	Extremely Anxious	11	5	16
about the thought of having a tooth drilled?	Fairly Anxious	12	15	27
	Not Anxious	5	10	15
	Slightly Anxious	8	18	26
	Very Anxious	18	18	36
Total		54	66	120

How anxious do you feel about the thought of having a local anesthetic injection in your mouth? * Gender of patient cross tabulation.

Table 2.2: Dental Anesthetic Injection vs Fear.

		Gender of Patient		
		Femal	Male	Total
How anxious do you feel	Extremely Anxious	12	6	18
about the thought of having a local anesthetic	Fairly Anxious	11	9	20
injection in your mouth?	Not Anxious	4	15	19
	Slightly Anxious	12	17	29
	Very Anxious	15	19	34
Total		54	66	120

How anxious do you feel about the thought of having a scale and polish of your teeth? * Gender of patient cross tabulation.

Table 2.3: Dental Scaling vs Fear.

Count		Gender of Patient		
		Femal	Male	Total
How anxious do you feel	Extremely Anxious	4	1	5
about the thought of having a scale and polish	Fairly Anxious	13	10	23
of your teeth?	Not Anxious	20	31	51
	Slightly Anxious	10	18	28
	Very Anxious	7	6	13
Total		54	66	120

How anxious do you feel about the thought of having a tooth out? * Gender of patient cross tabulation.

Table 2.4: Dental Extraction vs Fear.

| Count		Gender of Patient		
		Female	Male	Total
How anxious do you feel	Extremely Anxious	22	21	43
about the thought of having a tooth out?	Fairly Anxious	6	7	13
	Not Anxious	5	5	10
	Slightly Anxious	7	11	18
	Very Anxious	14	22	36
Total		54	66	120

A bar-graph was also made for showing MDAS Scores on Location of participants and were of the values shown in Graph: 1.0.
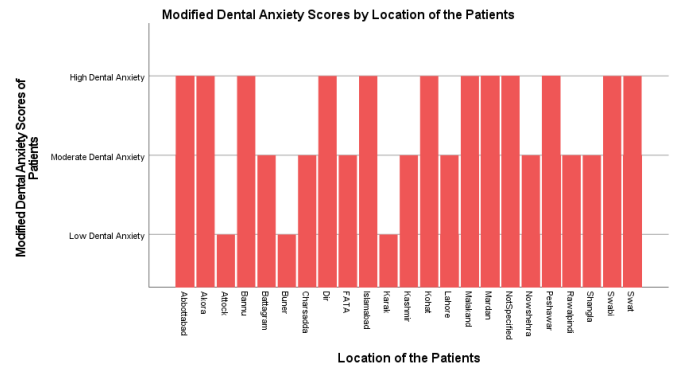
Graph 1.0: MDAS Scores correlation with location of Participants.

Low scores of MDAS was appreciated in people of Attock, Buner and Karak and were of the percentages 0.847% each group to the 23 groups.

MDAS Score correlation was also check with Age and it may seem that Age does not have any significant effect Graph 2.0.
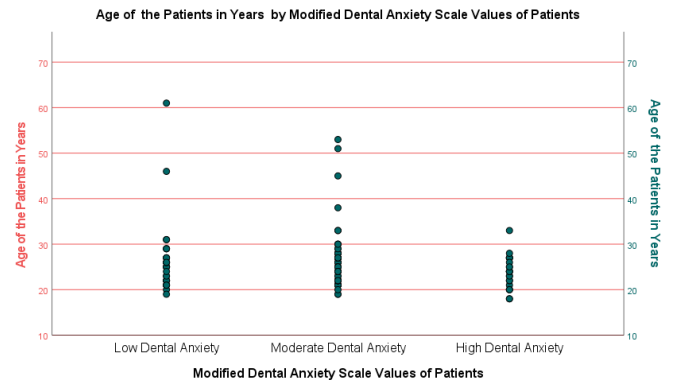
Graph 2.0: MDAS correlation with Age.

Discussion

The findings of this study offer a compelling insight into the prevalence and determinants of dental anxiety in Khyber Pakhtunkhwa, Pakistan. The Modified Dental Anxiety Scale (MDAS) has proven to be a valuable instrument in this context, effectively capturing the nuances of dental fear and anxiety among different demographic groups. The applicability of the MDAS in a Pakistani setting is particularly noteworthy, given the socio-cultural specificity that influences health behaviors and perceptions in this region.

Gender differences in dental anxiety levels observed in this study are consistent with global trends, where females typically report higher levels of dental fear [4,5]. This gender disparity underscores the necessity for dental professionals in Pakistan to adopt gender-sensitive communication strategies and interventions tailored to address the unique needs and concerns of female patients.

Socio-economic status emerged as another significant determinant of dental anxiety, with lower scores associated with higher socio-economic groups. This finding highlights the impact of socio-economic disparities on oral health outcomes and emphasizes the importance of making dental care more accessible and affordable for all socio-economic strata.

The geographic variation in MDAS scores across different districts within Khyber Pakhtunkhwa points to the need for localized approaches to managing dental anxiety. Understanding the interplay of cultural norms, healthcare infrastructure availability, and community support systems can inform targeted interventions that are culturally congruent and geographically specific.

Furthermore, this study's results have important implications for clinical practice and policy. Recognizing the factors that contribute to dental fear can enable dentists to tailor their approach to patient care, potentially improving patient outcomes and satisfaction. For policymakers, these insights can inform the development of programs that address barriers to oral healthcare access, particularly among vulnerable populations.

Conclusion

While the MDAS has proven to be a reliable tool for assessing dental anxiety in Pakistan, further research is needed to explore additional factors such as cultural influences and education levels. Such studies will enhance our understanding of dental anxiety's multifaceted nature and inform more effective strategies for its management.

This detailed discussion addresses the comments provided by incorporating an in-depth analysis of the MDAS's applicability to the Pakistani population, generalizability conclusions, and practice and policy implications.

Compliance with ethical standards

Conflict of Interest: The author and co-authors have no known conflicts of interest associated with this publication. They also confirm that there are no personal, professional, or financial relationships that could potentially influence or bias the work done.

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Ethical Approval: This study was conducted using methods that did not require formal ethical approval.

Informed Consent: All participants provided informed consent willingly before taking part in the research.

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