

PREVALENCE AND FACTORS ASSOCIATED WITH DENTAL ANXIETY AMONG PATIENTS ATTENDING BACHA KHAN MEDICAL COMPLEX (BKMC) AND DISTRICT HEADQUARTERS (DHQ) HOSPITAL, SWABI: A COMPARATIVE CROSS-SECTIONAL STUDY

^{*1}Arshad Ahmad, ²Hazrat Ali, ³Nadia Gul, ⁴Wajeaha Shah

^{*1}Demonstrator, Institute of Health Sciences, Swabi, Khyber Medical University, Peshawar, Khyber Pakhtunkhwa, Pakistan

²Department of Dental Technology, Institute of Health Sciences, Swabi, Khyber Medical University, Peshawar, Khyber Pakhtunkhwa, Pakistan.

³Department of Dental Technology, Institute of Health Sciences, Swabi, Khyber Medical University, Peshawar, Khyber Pakhtunkhwa, Pakistan.

⁴Department of Dental Technology, Institute of Health Sciences, Swabi, Khyber Medical University, Peshawar, Khyber Pakhtunkhwa, Pakistan.

^{*1}arshad.ipms@kmu.edu.pk, ²hazratali17190@gmail.com

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ABSTRACT

Background: Dental anxiety is a widespread psychological condition that adversely affects treatment, attendance at dental appointments, and overall oral health. *Objective:* To determine the prevalence of dental anxiety among the people attending the dental OPDs of Bacha Khan Medical Complex and District Headquarters (DHQ) Hospital, Swabi, and associated sociodemographic and clinical factors associated with dental anxiety. *Methods:* A comparative cross-sectional study was conducted in the Dental Outpatient Department of BKMC & DHQ, Swabi, from February to April 2026. Data were collected using a validated and pre-tested questionnaire (Modified Dental Anxiety Scale (MDAS)). Descriptive statistics were computed; chi-square test and independent-sample t-test were used for inferential analysis. A p-value of less than 0.05 was used as the cutoff value for statistical significance. *Results:* This study included 528 participants. Overall, 77.6% of the respondents were determined to be dentally anxious, among whom 58.5% were determined to have moderate dental anxiety, and 19.1% were determined to have high dental anxiety. The mean MDAS score was 13.08 (\pm 4.84). The injection of a local anesthetic was the most stressful stimulus. Sex, age, level of education, monthly income, marital status, occupation, previous dental experience, and reason for dental visits were significantly correlated with dental anxiety. A specific relationship existed among females, younger adults with negative or no prior dental experience, and those with lower socioeconomic status. There was a significant difference between the healthcare environments in terms of anxiety ($p < 0.001$). *Conclusion:* Dental anxiety is a common issue among dental outpatients in Swabi, and the factors that can lead to dental anxiety are diverse sociodemographic and experiential factors. A standardized screening protocol based on evidence-based instruments and tools and/or behavioral and clinical interventions (when indicated) can help reduce the anxiety experienced by patients and lead to more patient-centered oral health care.

Keywords: Dental Anxiety; Dental Fear; Dental Patients; Cross-Sectional Studies; Risk Factors; Pakistan

Introduction

Oral health is a critical aspect of overall health and is associated with an individual's physical, emotional, and social functioning (1,2). Oral diseases are among the most common non-communicable diseases worldwide, although they are mostly preventable by timely clinical interventions and health-promoting behaviors, as defined by the World Health Organization (WHO) as "absence of conditions affecting the oral cavity and craniofacial complex that impair vital functions, such as speaking, eating, smiling, and psychosocial interaction" (3). Approximately 2.5 billion people worldwide have dental caries, and periodontal diseases have a high financial cost not only for individuals but also for health systems, resulting in many years lived with disability (4,5). Given the structural inequalities in access to oral health services, lack of integration of oral health into primary healthcare systems, and low investment in preventive care in low- and middle-income countries (LMICs), the psychological aspects of oral health, particularly dental anxiety, have become a major but often overlooked challenge to oral health care utilization. Delayed or avoided dental care is consistently and strongly associated with dental anxiety, and irregular dental attendance and deterioration of oral health status are particularly important in resource-constrained environments, creating a vicious cycle of dental care avoidance and deterioration (6,7). Dental anxiety is a significant psychological problem that affects oral health behaviors and oral health care utilization patterns (8). Dental anxiety has been consistently linked to poor access to dental care, low attendance at dental visits, and poor oral health, and is an anticipatory emotional reaction to an imagined threat to dental care (9,10). It has been identified as the fifth most common cause of anxiety (11). Dental anxiety is also different from dental fear, which is a response to a particular identifiable stimulus, and dental phobia, which is

a persistent and diagnosable condition (10). It has been described as being more serious than many of the common fears, is relatively stable over time, and is more frequently reported by women (12). An integrated cognitive-behavioral and conditioning model is best suited for understanding the etiology of dental anxiety. Classical conditioning theory proposes that a painful or traumatic dental experience is an aversive unconditioned stimulus that is associated with the dental stimulus and brings about conditioned responses of fear, which remain and might even get intensified every time the dental stimulus is presented (13,14). Standardized measurement of dental anxiety is a prerequisite for valid prevalence estimation and meaningful cross-study comparisons. The Corah Dental Anxiety Scale (CDAS) was historically the dominant instrument; however, it has well-recognized limitations, including the absence of an item assessing anxiety related to local anesthetic injection, which is consistently the most anxiety-provoking procedure in clinical research, and inconsistency in response option scaling across its four items (15). The Modified Dental Anxiety Scale (MDAS), developed and validated by Humphris, Morrison & Lindsay, addresses both limitations (16). The MDAS demonstrates high internal consistency (Cronbach's alpha 0.85–0.90) and strong criterion validity against clinically assessed dental anxiety. It has been widely adopted in South Asian and Pakistani dental anxiety research, facilitating meaningful comparison of findings across studies.

Literature Review

Dental anxiety is a common psychological condition which significantly affects dental attendance, oral health practices and treatment outcomes. It has been well studied in a number of communities and health care settings, and is established as a public health and clinical problem. The overall prevalence of dental anxiety

globally was estimated to be 15.3%, with 12.4% of patients having high-level dental anxiety and 3.3% having severe dental anxiety (17). There is geographical diversity in prevalence estimates, with a significant burden of dental anxiety in emerging healthcare settings in Nepal (47.8%), highlighting the significant burden of dental anxiety in emerging healthcare settings (18). In contrast, a major population-based study with over 7,000 participants in Australia found that 16.1% of people had severe dental fear, indicating geographical diversity (19). The prevalence rates are much higher in the region of Pakistan; for example, one study in Khyber Pakhtunkhwa found that 59.3% were worried about visiting the dentist (20), while another study in Multan on hospital-based patients showed a moderate-to-high prevalence rate of 61.4% (21). Dental anxiety distribution was significantly affected by the sociodemographic features. Gender disparities have been frequently reported, with women being more anxious than men (12). Another significant factor is the age of the person; younger people tend to have more anxiety. This pattern is in contrast to that of older adults, which could be due to decreased exposure to dental procedures and reduced coping abilities (22). Another significant factor that has been found is socioeconomic status. Dental anxiety is also more prevalent in individuals from low socioeconomic groups, which may be because these groups tend to seek dental care later in life, have less knowledge about oral health, and have less access to oral health care (23). Previous dental experiences are important determinants of dental anxiety (24). Systematic reviews suggest that childhood and adult trauma impact dental fear and anxiety, with more recent traumas having a greater impact. In addition, fear of injection pain and procedural anxiety are cited as significant contributors to the severity of anxiety, and regular dental visits and good routine experiences are cited as

contributing factors to less anxiety (25). A review of the existing literature reveals a clear and substantive gap in region-specific comparative data on dental anxiety in Pakistan. The Swabi district, located in Khyber Pakhtunkhwa, hosts a diverse population spanning urban, semi-urban, and rural communities with varying levels of healthcare exposure and socioeconomic resources. Bacha Khan Medical Complex (BKMC), as a tertiary-care teaching hospital, serves a different patient profile from District Headquarters Hospital (DHQ) Swabi, which primarily attends to the general public, including patients from lower socioeconomic and rural backgrounds. This institutional contrast offers a natural comparative framework that has not been exploited in previous research. Thus, this study aimed to explore the prevalence of dental anxiety, demographic and clinical factors linked to dental anxiety, and compare the prevalence of dental anxiety across the two healthcare settings to guide contextually appropriate interventions. This is a much-needed regional evidence gap study and baseline for future longitudinal and interventional studies.

Methodology

A multicenter, comparative, cross-sectional study was conducted at the dental outpatient departments of Bacha Khan Medical Complex (BKMC), Swabi, a tertiary care teaching hospital, and District Headquarters (DHQ) Teaching Hospital, Swabi, a public sector hospital that mainly serves people from lower socioeconomic status and rural areas. The study was conducted over three months (February to April 2026). Cochran's formula was used to determine the sample size ($n = Z^2 \times P(1-P) / d^2$). Where $Z = 1.96$ (95% confidence level), $P = 0.59$ (prevalence from a prior Pakistani study) (20), and $d = 0.05$ (margin of error). The minimum sample size required was calculated to be 372, and 528 participants were enrolled in the study for additional power and to have room for non-

response. A non-probability consecutive sampling technique was used. The adult population aged ≥ 18 years who were attending dental outpatient departments of BKMC and DHQ Swabi were included. Patients with mental disabilities, those with anxiolytic or antidepressant medications, and those requiring urgent dental care due to severe pain were excluded. Two sections of a validated and pretested questionnaire were used for data collection. The first section consisted of sociodemographic and clinical data, including age, sex, marital status, educational level, occupation, monthly income, place of residence, dental visits, and previous dental experiences. The second section was the Modified Dental Anxiety Scale (MDAS), a five-item scale used to measure anxiety to wait in the dental chair, anticipation of the dental visit, local anesthetic injection, tooth drilling, and scaling and polishing. All items were scored on a 5-point Likert scale from 1 (not anxious) to 5 (extremely anxious), with a total score ranging from 5 to 25. 5-9 = low anxiety, 10-18 = moderate anxiety, and scores ≥ 19 = severe anxiety or potential dental phobia (16). The MDAS had a high internal consistency (ranging from 0.85 to 0.90), and it was reported to have good reliability in the present study (Cronbach's $\alpha = 0.851$). Ethical approval was sought, and those amenable to participation were told about the aims of this study, and written informed consent was obtained before inclusion. Ensuring confidentiality and anonymity of the information gathered during the study. Data was coded and analyzed using SPSS version 22. Descriptive statistics, either frequencies and percentages for

categorical variables or means and standard deviations for continuous variables, were computed. The dental anxiety categories were analyzed for association with categorical variables by the chi-square test, and the difference in mean MDAS scores was examined between the two hospitals by the independent-samples t-test. P-values < 0.05 were regarded as statistically significant. The Research Committee of the KMU Institute of Health Sciences (IHS) (Swabi: KMU-IHS/SWB/DOC/632) and the Institutional Research and Ethical Board (IREB) of Bacha Khan Medical Complex (Approval Letter No: 84/TRC/MTI-GKMC) provided ethical approvals. The Institutional Review and Ethical Board of DHQ Teaching Hospital, Swabi, with approval No. 2281, provided additional ethical and administrative permission to conduct the study at DHQ Teaching Hospital, Swabi. Written informed consent was obtained from all the participants.

Results

1. Sociodemographic Characteristics

There was a total of 528 participants (250 from BKMC and 278 from DHQ Swabi). There were more females ($n = 289$) than males ($n = 239$) in the study. The mean age was 34.36 ± 11.55 years (median = 32; range, 18–67 years). The largest age group was 26–35 years ($n = 178$). Regarding education, 189 were illiterate, 125 received primary education, 159 received secondary education, 21 were graduates, and 34 were postgraduates. The majority of all participants were from households with a monthly income of less than 30 thousand PKR. Most of them were married ($n = 413$) and housewives ($n = 228$).

Table 1: *Sociodemographic characteristics of study participants (n = 528)*

Variable	Category	n (%)
Hospital	BKMC	250 (47.3%)
	DHQ	278 (52.7%)
Sex	Male	239 (45.3%)
	Female	289 (54.7%)
Age (years)	18–25	136 (25.8%)

	26–35	178 (33.7%)
	36–45	124 (23.5%)
	46–55	60 (11.4%)
	56–67	29 (5.5%)
Education	Illiterate	189 (35.8%)
	Primary	125 (23.7%)
	Secondary	159 (30.1%)
	Graduate	21 (4.0%)
Monthly income (PKR)	Postgraduate	34 (6.4%)
	< 30,000	454 (86.0%)
	30,000–60,000	45 (8.5%)
Marital status	> 60,000	29 (5.5%)
	Single	115 (21.8%)
Occupation	Married	413 (78.2%)
	Unemployed	147 (27.8%)
Residence	Student	84 (15.9%)
	Housewife	228 (43.2%)
	Skilled worker	33 (6.3%)
	Professional	36 (6.8%)
Residence	Urban	204 (38.6%)
	Rural	324 (61.4%)

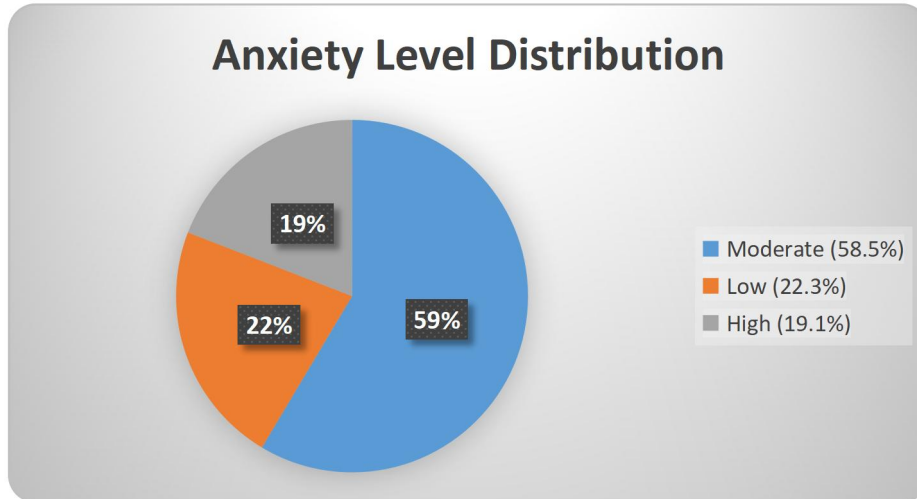
2. Prevalence of Dental Anxiety

The overall mean MDAS score was 13.08 ± 4.84 , indicating moderate dental anxiety. Local anesthetic injection had the highest mean level of anxiety (3.95 ± 1.14), followed by scaling and polishing, which was the second highest (3.22 ± 1.27), and tooth drilling (2.77 ± 1.26). The scores for the waiting room (1.78 ± 0.74) and

expectation of a visit to a dentist were lower (1.78 ± 0.74 and 1.36 ± 0.53 , respectively). Overall, 77.6% of the participants were dental anxious (MDAS score ≥ 10). Moderate anxiety was the most prevalent category (58.5%, $n = 309$), followed by low (22.3%, $n = 118$) and high (19.1%, $n = 101$) anxiety, respectively.

Table 2: Prevalence of dental anxiety according to MDAS categories ($n = 528$)

Anxiety Level	MDAS Score	n (%)	Cumulative %
Low Anxiety	5–9	118 (22.3%)	22.3%
Moderate Anxiety	10–18	309 (58.5%)	80.9%
High Anxiety	≥ 19	101 (19.1%)	100.0%
Total	5–25	528 (100%)	–



3. Association Between Dental Anxiety and Hospital of Attendance

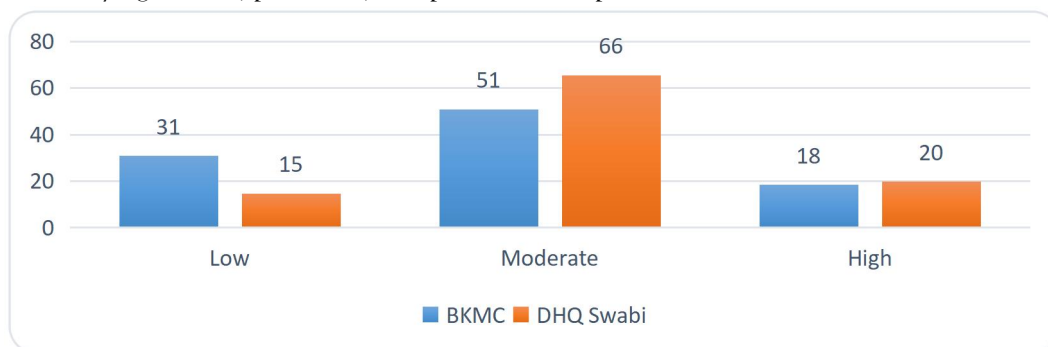
The difference in the distribution of anxiety levels was significant between the two hospitals ($p < 0.001$). A higher percentage of moderate (65.5%) and high (19.8%) anxiety was observed

in the DHQs than in the BKMC, which showed a higher percentage of low anxiety (30.8%). Compared to the mean BKMC score (12.51 ± 4.33), the mean DHQ score (13.49 ± 3.71) was substantially higher ($t = -2.780$, $df = 493.01$, $p = 0.006$).

Table 3: Comparison of dental anxiety between BKMC and DHQ (n = 528)

Anxiety Level	BKMC (n = 250)	DHQ (n = 278)	p-value
Low Anxiety	77 (30.8%)	41 (14.7%)	
Moderate Anxiety	127 (50.8%)	182 (65.5%)	< 0.001
High Anxiety	46 (18.4%)	55 (19.8%)	
Mean MDAS Score	12.51 ± 4.33	13.49 ± 3.71	0.006

χ^2 = statistically significant, $p < 0.001$; independent t-test $p = 0.006$



4. Association Between Dental Anxiety and Sociodemographic Factors

Dental anxiety significantly differed between the sexes ($\chi^2 = 57.195$; $p < 0.001$). Females had significantly higher anxiety levels than males (29.1% vs. 7.1%), and males had significantly lower anxiety levels than females (33.5% vs.

19.5%). Dental anxiety was significantly correlated with age ($p < 0.001$). The highest levels of anxiety were seen in the youngest participants (18-25 years; 27.2%), and anxiety level was negatively associated with age. The lowest percentage of high anxiety (10.3%) was in the 56-67 age group. There was a significant correlation

between educational level and anxiety level ($\chi^2 = 30.57$; $p < 0.001$). Higher education level was negatively associated with anxiety; no one reported high anxiety at the graduate level. Monthly income also had a significant association ($\chi^2 = 15.35$, $p = 0.004$), with participants of low income having greater anxiety

levels. The other factors that were found to be significantly associated with anxiety were marital status ($\chi^2 = 10.82$, $p = 0.004$) and occupation ($\chi^2 = 50.89$, $p < 0.001$), with housewives having high anxiety levels and single people showing high anxiety levels. However, this difference was not statistically significant ($\chi^2 = 5.28$, $p = 0.071$).

Table 4: Association between dental anxiety and sociodemographic factors (n = 528)

Variable	Low anxiety, n (%)	Moderate anxiety, n (%)	High anxiety, n (%)	P-value
Sex				<0.001
male	80 (33.5)	142 (59.4)	17 (7.1)	
female	38 (13.1)	167 (57.8)	84 (29.1)	
Age group				<0.001
18–25 years	28 (20.6)	71 (52.2)	37 (27.2)	
26–35 years	27 (15.2)	116 (65.2)	35 (19.7)	
36–45 years	31 (25.0)	81 (65.3)	12 (9.7)	
46–55 years	22 (36.7)	25 (41.7)	13 (21.7)	
56–67 years	10 (34.5)	16 (55.2)	3 (10.3)	
Education				<0.001
illiterate	30 (15.9)	115 (60.8)	44 (23.3)	
primary	28 (22.4)	72 (57.6)	25 (20.0)	
secondary	34 (21.4)	95 (59.7)	30 (18.9)	
graduate	12 (57.1)	9 (42.9)	0 (0.0)	
postgraduate	14 (41.2)	18 (52.9)	2 (5.9)	
Monthly income				0.004
<30,000 PKR	91 (20.0)	267 (58.8)	96 (21.1)	
30,000–60,000 PKR	15 (33.3)	27 (60.0)	3 (6.7)	
>60,000 PKR	12 (41.4)	15 (51.7)	2 (6.9)	
Marital status				0.004
single	25 (21.7)	56 (48.7)	34 (29.6)	
married	93 (22.5)	253 (61.3)	67 (16.2)	
Residence				0.071
urban	47 (23.0)	128 (62.7)	29 (14.2)	
rural	71 (21.9)	181 (55.9)	72 (22.2)	

5. Association Between Dental Anxiety and Clinical Factors

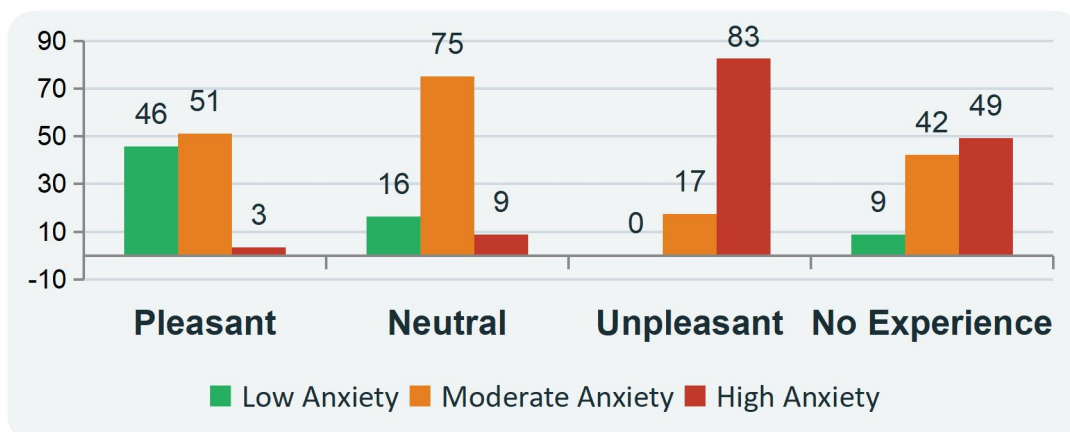
Previous experience with dental visits was found to be statistically significant with the level of anxiety ($\chi^2 = 215.19$, $p < 0.001$). The group who had unpleasant experiences was much more anxious than the group who had pleasant experiences, which, in general, had low to moderate anxiety. Interestingly, the anxiety of

participants with no previous dental experience was the highest (49.1%), indicating that lack of familiarity is an important factor in anxiety. Previous visits to the dentist were also significantly associated with anxiety ($P < 0.001$). Among those with no previous dental visits, 47.5% had high anxiety, compared to 11.0% among those with prior visits ($p < 0.001$). Anxiety level was significantly associated with the reason

for the dental visit ($\chi^2 = 22.19$; $p < 0.001$). Patients who complained of pain were more likely to be moderately or highly anxious than those who came in for check-ups (Table 5).

Table 5: Association between dental anxiety and clinical factors (n = 528)

Variable	Low anxiety (%)	Moderate anxiety (%)	High anxiety (%)	P-value
Previous dental experience				<0.001
Pleasant	69 (45.7%)	77 (51.0%)	5 (3.3%)	
Neutral	39 (16.3%)	180 (75.0%)	21 (8.8%)	
Unpleasant	0 (0.0%)	4 (17.4%)	19 (82.6%)	
No experience	10 (8.8%)	48 (42.1%)	56 (49.1%)	
Previous dental visit				<0.001
Yes	108 (26.3%)	257 (62.7%)	45 (11.0%)	
No	10 (8.5%)	52 (44.1%)	56 (47.5%)	
Reason for current visit				<0.001
Pain	83 (18.9%)	262 (59.7%)	94 (21.4%)	
Routine check-up	11 (42.3%)	12 (46.2%)	3 (11.5%)	
Treatment continuation	24 (38.1%)	35 (55.6%)	4 (6.3%)	



6. Anxiety Related to Specific Dental Stimuli

Injection of local anesthetic was the most anxiety-provoking stimulus, with 44.7% of the participants reporting extreme anxiety, and 23.1% reporting very high anxiety, and only 0.6% of the participants stating they were not anxious when having injections. The correlation between injection anxiety and overall anxiety level was significant ($\chi^2 (8, N = 528) = 410.18$, $p < 0.001$). Tooth drilling anxiety was also significantly correlated with overall anxiety, in this case with a strong positive correlation ($\chi^2 (8, N = 528) = 678.80$, $p < 0.001$).

4. Discussion

This study aimed to determine the prevalence and causes of dental anxiety among the dentate population visiting two medical centers in Swabi (Pakistan). The prevalence of dental anxiety was 77.6%, substantially higher than the pooled prevalence of 15.3% reported in a systematic review and meta-analysis of predominantly population-based studies (17). This disparity is attributable in part to the fundamental methodological difference: the global meta-analysis included population-based surveys, whereas this study used a hospital-based design that inherently selects patients already presenting

with dental problems. The hospital-based design included patients with primarily pain complaints, along with more patients with more advanced dental conditions, which have been linked to greater anxiety. Sociocultural factors, such as low oral health literacy, restricted access to preventive oral health care, and fear of invasive procedures, are also likely to be associated with increased anxiety in this population (26). Similar prevalence rates have been observed in other developing countries; a study conducted in Nepal reported a prevalence rate of 47.8% (9), a study conducted in Khyber Pakhtunkhwa reported a prevalence rate of 59.3%, and another study conducted in Multan had a prevalence rate of 61.4% (20,21). Similarly, in Karachi and Lahore, the prevalence values were found to be between 57.1% and more than 60%, indicating that dental anxiety is prevalent among various populations in different geographical areas of Pakistan (27,28). The prevalence rates differ between studies because of differences in patient characteristics, assessment tools, and study design. The mean MDAS scores were significantly different between the patients from the BKMC and the DHQ, and the anxiety for patients of DHQ was higher than that for BKMC, with a higher percentage of moderate and severe anxiety. As a teaching hospital, BKMC might provide a more well-structured and patient-centric care setting and focus on preventive or communicative treatment, thus reducing patients' anxiety. In contrast, they mostly treat patients from lower socioeconomic and rural communities. However, the interpretation should be viewed with caution, as other factors not captured in this study may explain the differences. Other unmeasured factors include patient-provider interactions and prior treatment experiences.

Based on the literature reviewed, it was observed that the most stressful procedure was local anesthetic injection (20,21). A fear reaction that

can be attributed to needle fear has been documented as a conditioned fear reaction based on previous experience, a feeling of lack of control, and a feeling of expected pain (13,29). The results showed that the following behavioral management techniques were important: slow injection technique, therapeutic communication, and topical local anesthetic before injection. The literature supporting dental anxiety showed a significant association with sex ($p < 0.001$), with females having a much greater dental anxiety than males (29.1% versus 7.1% of high dental anxiety, respectively) (18,22). The answers may be heightened emotion levels, heightened pain perception, and cultural norms that promote fear expression in women. This could be due to social desirability, since men are less inclined to express worry.

The dental anxiety scores were inversely related to the age of the participants, with younger (18-25 years) participants being the ones with the highest dental anxiety score. Having more and more dental appointments, patients can get accustomed as they grow older and learn coping strategies, becoming less uncertain of the dental operations (22,30).

There is also a very similar relationship between educational level, SES, and dental anxiety as observed in both national and international studies. Oral health literacy and confidence in oral health services improve through education, whereas lower income levels affect access to timely, preventative oral health services. Patients were not receiving timely treatment because of cost; this led to more serious illness and invasive treatments, increasing anxiety and the cycle (23,31).

In this study, the most significant factors were a history of dental experiences and dental anxiety ($\chi^2 = 215.19$, $p < 0.001$). These results are consistent with cognitive conditioning theory, which proposes that negative dental experiences result in anxiety reactions and thus the

likelihood of avoiding future dentally unpleasant experiences (14). It was interesting to find that those with no previous dental experience had the second highest overall proportion of severe anxiety (49.1%), indicating that anticipation of anxiety and uncertainty are important factors in addition to past traumatic events (32). Also, there was a moderate correlation between anxiety and the reason for the current dental visit, with the most intense anxiety level being for the presentation of the pain. This probably has to do with the growing demand for the use of invasive treatment in emergency cases and the actual level of sickness (33).

5. Conclusion

Dental anxiety was very common among the patients who visited the dental outpatient departments of Swabi, in which 77.6% of patients had dental anxiety to some extent. The condition was significantly influenced by sex, age, education, monthly income, previous dental experience, and the dental appointment's reason. Females, young people, and individuals with low socioeconomic status or with adverse dental experiences in the past are the highest-risk populations. There are significant differences in anxiety between the two groups—BKMC and DHQ—which suggests that features of the healthcare setting can influence patient anxiety. Injection with a local anesthetic is the most anxiety-provoking trigger.

The findings of the study reveal the pressing need to introduce dental anxiety screening in clinical practice in Pakistan, which includes the use of a validated dental anxiety screening technique like the MDAS. Behavioral therapy that specifically targets dental anxiety, treatment adherence, and oral health outcomes, patient education programs, and training for dental staff to help manage dental anxiety are all important interventions for this population to reduce dental anxiety, improve treatment adherence, and oral health outcomes. Future longitudinal

and multicenter studies with probability sampling are recommended for determining causal linkages and evaluating the effectiveness of treatments for anxiety.

The results of this study are relevant for clinical practice, especially in public healthcare in developing countries, where resources are limited. Brief validated patient assessment tools, such as the MDAS, should be routinely used to identify those who are anxious as early as possible, by making a part of the normal dental evaluation process. Empowering patient management techniques, such as communicating with empathy, reassuring the patient, telling, showing, and doing, distracting and gradual exposure to dental treatments, can be used chairside to minimize patient anxiety and cooperation with treatment. The local anesthetic injection itself came out as the most anxiety-provoking stimulus, so it is the best practice on the part of the clinician to use pain-minimizing strategies such as topical anesthetic, slow injection, and explanation of the procedure before the injection. Additionally, fostering effective dentist-patient communication by actively listening, educating patients, and engaging them in an anxiety-sensitive manner can improve patient trust, treatment adherence, and oral health experiences.

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Author Contributions

Hazrat Ali: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing - Original Draft. Nadia Gul: Data Collection, Writing - Review & Editing. Wajeaha Shah: Data Collection, Writing - Review & Editing. All authors have read and approved the final manuscript.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request, subject to participant confidentiality constraints and institutional approval.

Conflict of Interest

The authors declare no conflict of interest.

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