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Dental Anxiety in Adult Patients during Oral Surgery At Bacha Khan College of Dentistry, Mardan

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ABSTRACT

Background: Dental anxiety, also known as dental phobia, is an intense fear of dental experiences, procedures, and treatments, leading to avoidance or extreme anxiety during dental visits. **Objective:** The current study aimed to find out the dental anxiety levels in patients visiting dental hospitals for oral surgery procedures in Mardan Medical Complex. **Materials and Methods:** A comprehensive evaluation was conducted on 101 patients to assess their levels of anxiety, utilizing Corah's Anxiety Scale. This was a cross-sectional study conducted at Iqra National University, and the data were collected from Bacha Khan College of Dentistry, Mardan over the time period spanning from April 2023 to June 2023. A sample size of 101 patients was selected and a standard questionnaire was distributed among the patients to find out about the dental anxiety levels in different patients visiting dental hospitals for oral surgery procedures at Mardan Medical Complex. Finally, the data was analyzed through SPSS statistics software to find out about the significance between the variables. **Results:** Among 101 patients, 59 were male, while 42 were females. 9.9% of the patients experienced high anxiety during both procedures, such as extraction and dental implant therapy. 29.7 had mild anxiety, 51.4 had moderate anxiety, and 8.9% had severe anxiety (phobia) during extraction, per Corah's Dental Anxiety Scale. A p-value of 0.027 indicates a statistically significant relationship between oral surgery and anxiety levels. Dentists should consider individual anxiety levels to enhance patient comfort during these procedures. **Conclusion:** In conclusion, 9.9% of patients experienced high anxiety during both procedures. The p-value (0.027) underscores the importance of recognizing the impact of dental surgery on anxiety, emphasizing the need for tailored care to enhance patient comfort and well-being.

Keywords: Dental anxiety, Tooth extraction, Oral surgery procedures

INTRODUCTION

Dental anxiety, also known as dental phobia, is an ongoing and intense fear of dental related experiences, procedures and dental treatments, causing individuals to either avoid these procedures, or feel extremely anxious about dental visits. Dental phobia displays disruptive behavior during dental checkups and treatments, which can range from mild to severe trauma. In most cases young individuals with dental phobia might decline necessary dental treatments, even when they are in considerable pain that could relieve with proper care.[1] Dental anxiety is the 5th most common fear among common anxious situations, [2] and many people with this fear avoid dental appointments.[3] A study from Germany found that 60%-80% of people feel fear when it comes to visit for their treatment,[4] another report revealed that 5% to 10% of individuals completely avoid dental treatments because of their severe anxiety.[5] In the Netherlands, 24.3% of participants had moderate to high dental fear. [6] Japan had the highest

prevalence of dental fear, with 42.1% having a high level of dental fear.[7] A study in the UAE found that 36% of college students experienced dental anxiety.[8] In Russia, dental anxiety was prevalent in 13.7% of medical students and 2.25% in dental students.[9] In Nepal, 8.1% had high dental anxiety, with a higher prevalence in males in age group of 22-25.[10] In Pakistan, 29.7% of patients at Lahore Medical and Dental College experienced dental anxiety, with female patients having a higher mean Dental Anxiety Score using Corah's anxiety scale. [11] Factors contributing to dental anxiety include personality traits, general anxiety, past distressing dental experiences, usually older children tend to express lower levels of fear compared to girls and younger children, and sometimes serious problems for both patient and dentist.[12] Other related factors such as, anesthetic injections, dental surgical procedures, cost concerns, limited access to dental services in remote areas, dental fear and extractions were the most common anxiety-inducing during dental treatments and result in irregular dental visits.[13] Dental trauma was strongly linked to general anxiety, pain sensitivity, fear of dental pain, and dental anxiety.[14] A questionnaire-based study found higher anxiety prevalence in females and professionals, primarily associated with painful procedures and extractions.[15] Another study in 2021 showed that the main themes that were strongly associated with dental fear including, society and talks about dentists, and having negative associations formed through past experiences with dentists. [16] It was found that females, individuals living in villages, also those with previous negative dental experiences, and students were more likely to experience dental anxiety. [17] A recent study found that the primary factor causing anxiety in 72.2% of cases was an unsympathetic dentist. Other anxiety triggers included unawareness of the procedure to be performed (58.3%) and the nervous patients (52.0%).[18] Environmental elements such as instruments, blood, unpleasant odors, and tastes, the noise of dental drills, and sensations during treatment, as well as the behavior and attitude of the dental team, contribute to anxiety.[19] Previous report from Pakistan showed that dental anxiety was more prevalent among individuals with higher levels of education. Additionally, respondents from a lower socioeconomic class were more likely to experience anxiety during dental treatment.[20] Another recent study from Pakistan found that tooth extraction can lead to anxiety and depression in older adults, with nearly half of the participants in this study reporting such symptoms after the procedure. Female participants in the 60+ age group were more likely to experience anxiety and depression, and those with pre-existing medical conditions.[21] DA not only affects physical health but can also effect psychological well-being and has a wider consequences, impacting social interactions, work performance, self-esteem, and increasing the time and cost of dental treatment. The highest incidence of OHIP-14 impacts was found in dentally anxious individuals aged 35 to 54. [22] Dental anxiety was most prominent in terms of psychological effects and avoidance behavior. The group with high fear had lower self-esteem and reduced morale.[23] Dental anxiety was linked to worse oral health across various indicators, including decay experience, active decay, primary tooth restoration, and signs of oral infection. Additionally, it had a more significant impact on the patient's family's quality of life. [24] A recent study from Pakistan found that elevated levels of dental anxiety can be attributed to poor dental hygiene practices that could lead to a variety of dental health problems. [25] Despite these improvements, dental anxiety continues to be a prevalent issue experienced by many patients worldwide, presenting a substantial challenge in the delivery of better dental care.[26] However, it is important to identify anxiety levels in different patients to provide proper oral care to the patients. There is a need for research to investigate and properly monitor the dental anxiety levels in patients coming to dental clinics for surgical procedures, and we have designed a project specifically in KP region to explore the gap. The current study aimed to find dental anxiety in adult patients during oral surgery at Bacha Khan College of Dentistry, Mardan.

MATERIAL & METHODS

This study was conducted at Iqra National University and the data was collected from Bacha Khan College of dentistry in Mardan, over the time period of 6 months spanning from April 2023 to June 2023. This was a cross sectional study with a sample size of 101 patients, following the formula of Cochran's in 1987. A non- probability sampling technique was employed to assess the patients. Data collection was carried out through self-administered questionnaire from the patients who were scheduled for oral surgery procedure. The questionnaire was administered while patients were waiting in the designated waiting rooms, and their consent was obtained to ensure their participation. The questionnaire had two parts. The 1st part involved demographic data such as age, gender, and prior dental experiences, and the 2nd part involved questions based on Corah's Dental Anxiety Scale, a 20 point scale, where each response is assigned a specific score. Each of 4 questions had 5 response options, resulting in a total score ranging from 4(indicating no anxiety) to 20(indicating severe anxiety or phobia). Scores ranging from 9 to 12 was considered to represent moderate anxiety, 13-14 signified high anxiety, and 15-20 indicated severe anxiety or phobia. Once the data had been collected, data analysis was carried out using SPSS statistical software. Variables were described in terms of frequencies

and percentages. Data was subjected to descriptive statistical analysis and the Chi-Square tests were used to assess the significant relationship between variables (p-values).

RESULTS

4.1: Patient demographic details:

A total of 101 participants, 59 were male, and 42 were female. The largest group of individuals, numbering 31, had completed undergraduate education. There were 28 individuals with no formal education, 25 with a high school education, and 15 with primary school education. Only 2 patients possessed a master's degree. In term of age distribution, the majority of participants fell within 21-31 the age groups, followed by the 11-20 and 31-40 age groups. Additional details can be found in Table. 1.

Table 01. Participants Demographic; Age and Gender Distribution.

S. No	Age groups	Number	Percentage (%)
Age	1-10	7	6.9
	11-20	18	17.8
	21-30	30	29.7
	31-40	18	17.8
	41-50	14	13.8
	51-60	5	4.9
	61-70	5	4.9
	71-80	1	0.9
	81-90	2	1.9
	91-100	1	0.9
Gender	Male	59	58.4
	Female	42	41.5

Table 02. Anxiety Levels (According to Corah's Dental Anxiety Scale) In Patients, during different Procedures.

Crosstab						
Count						
	Type of Oral Surgery procedure					
		Implant Surgery	Extraction	Total	%	P-Value
Anxiety level in different patients for dental procedures	High Anxiety	1	9	10	9.9	P=0.027
	Mild	0	30	30	29.7	
	Moderate	0	52	52	51.4	
	Severe	0	9	9	8.9	
Total		1	100	101	100.0	

Out of 101 patients, 9.9% exhibited "High Anxiety" during Implant Surgery and Extraction. Moreover, 29.7% showed mild anxiety, 51.4% showed moderate anxiety whereas 8.9% showed severe anxiety, also called phobia (According to Corah's Dental Anxiety Scale) during according to the extraction procedure. The p-value of 0.027 indicates a statistically significant association between the type of procedure (Implant Surgery and Extraction) and anxiety levels. The p-value of less than 0.001 suggests a highly significant relationship between the dental procedures and anxiety levels. These findings highlighted that different types of dental surgery may influence patients' anxiety levels, it is suggested that the dentists should consider individual anxiety levels when performing these procedures to ensure patients' comfort and well-being. The cross tabulation table displays the relationship between the type of oral surgery procedure (Implant Surgery and Extraction) and the anxiety levels experienced by patients during these dental procedures (Table 2).

Table 3. Analysis of anxiety levels and comparison of emotions during Dental Procedures.

CROSS TAB	What type of surgery have you done?					P-Value
		Dental implant installation	Tooth extraction	Total	%	
What were your feelings when your dentist advised you an extraction?	Anxious	1	14	15	14.8	P=.215
	Relaxed	0	22	22	21.7	
	Tensed	0	18	18	17.8	
	Terrified	0	9	9	8.9	
	Uneasy	0	37	37	36.6	
Total		1	100	101	100.0	
What would be your feelings if you have to attend your dentist's appointment tomorrow?	Anxious	1	7	8	7.9	P=.019
	Relaxed	0	44	44	43.5	
	Tensed	0	15	15	14.8	
	Terrified	0	9	9	8.9	
	Uneasy	0	25	25	24.1	
Total		1	100	101	100.0	
What is the following best explains your feeling on the day of your visit to the dentist?	Anxious	1	18	19	18.8	P=.360
	Relaxed	0	28	28	27.7	
	Tensed	0	18	18	17.8	
	Terrified	0	6	6	5.9	
	Uneasy	0	30	30	29.7	
Total		1	100	101	100.0	
What are your feelings when your dentist/attendant receives you at their office?	Anxious	1	12	13	12.8	P=.145
	Relaxed	0	34	34	33.6	
	Tensed	0	17	17	16.8	
	Terrified	0	10	10	9.9	
	Uneasy	0	27	27	26.7	
Total		1	100	101	100.0	
Shows the feeling when your doctor prepared your chair for a dental procedure	Anxious	1	20	21	20.7	P=.427
	Relaxed	0	32	32	31.6	
	Tensed	0	17	17	16.8	
	terrified	0	7	7	6.9	
	Uneasy	0	24	24	23.7	
Total		1	100	101	100.0	
What are your feelings when you are called to dental surgery for your turn?	Anxious	1	18	19	18.8	P=.360
	Relaxed	0	29	29	28.7	
	Tensed	0	17	17	16.8	
	Terrified	0	11	11	10.8	
	Uneasy	0	25	25	24.7	
Total	1	100	101		100.0	

P-value less than 0.05 indicate a statistically significant relationship between variables.

The p-values 0.019 (Table. 3) is less than 0.05, indicating a statistically significant association. This implies that the type of surgery may have some influence on patient's emotions, visiting for surgeries and upcoming appointments. It is essential to consider this

information to provide appropriate care and support to the patients based on their specific emotional needs related to the type of dental surgery they are undergoing (Table 3).

The tables 3, 4,5,6,7 present a cross-tabulation of different types of dental surgery, specifically (Implant surgery and tooth extraction) and patient's emotional responses at various stages of their treatments, and their dental visits. Anxiety levels associated with each stage during surgical a procedure, according to Corah's Anxiety Scale, are provided in the tables. In this analysis the p-value less than 0.05 is typically considered statistically significant, meaning that there is a meaningful relationship between the variables. Notably, the p-value for most stages of dental visit is not less than 0.05 suggesting that the type of surgery performed does not significantly influence patients feeling during treatment.

Table 4. Analysis of Anxiety Levels and Comparison of Emotions during Dental Procedures.

CROSS TAB						
Count	What type of surgery have you done?					
		Dental implant installation	Tooth extraction	Total	%	P-Value
What are your feelings when your dentist starts your procedure?	Anxious	1	14	15	14.8	P=,215
	Relaxed	0	29	29	28.7	
	Tensed	0	29	29	28.7	
	Terrified	0	7	7	6.9	
	Uneasy	0	21	21	20.7	
Total		1	100	101	100.0	
What did you feel when you first saw the anesthesia gun?	Anxious	1	16	17	16.8	P=,288
	Relaxed	0	25	25	24.5	
	Tensed	0	18	18	17.8	
	Terrified	0	9	9	8.9	
	Uneasy	0	32	32	31.6	
Total		1	100	101	100.0	
What best explains your feelings when you first saw the extraction forceps and elevators?	Anxious	1	16	17	16.8	P=,288
	Relaxed	0	27	27	26.7	
	Tensed	0	11	11	10.8	
	Terrified	0	15	15	14.8	
	Uneasy	0	31	31	30.6	
Total		1	100	101	100.0	
What were your feelings when the dental nurse used saliva for the first time?	Anxious	1	18	19	18.8	P=,360
	Relaxed	0	27	27	26.7	
	Tensed	0	15	15	14.8	
	Terrified	0	13	13	12.8	
	Uneasy	0	27	27	26.7	
Total		1	100	101	100.0	
P-value less than 0.05 indicate a statistically significant relationship between variables.						

Table 5. Analysis of Anxiety Levels and Comparison of Emotions during Dental Procedures.

CROSS TAB						
	Which type of common oral surgery procedure you have done?					
		Dental Implant Installation	Extraction	Total	%	P-Value
What best explains your feelings when you got anesthesia and your cheek started to feel number?	Anxious	1	16	17	16.8	P=.288
	Relaxed	0	18	18	17.8	
	Tensed	0	27	27	26.7	
	Terrified	0	14	14	13.8	
	Uneasy	0	25	25	24.7	
Total		1	100	101	100.0	
What were your feelings when your dentists start polishing your teeth?	Anxious	1	20	21	20.7	P=.427
	Relaxed	0	22	22	21.7	
	Tensed	0	16	16	15.8	
	Terrified	0	15	15	14.8	
	Uneasy	0	27	27	26.7	
Total		1	100	101	100.0	
What best explains your feelings when you hear a sudden loud noise during your treatment?	Anxious	1	20	21	20.7	P=.427
	Relaxed	0	31	31	30.6	
	Tensed	0	20	20	19.8	
	Terrified	0	12	12	11.8	
	Uneasy	0	17	17	16.8	
Total		1	100	101	100.0	
What are your feelings when you communicate with other patients in dental surgery?	Anxious	1	16	17	16.8	P=.288
	Relaxed	0	20	20	19.8	
	Tensed	0	27	27	26.7	
	Terrified	0	15	15	14.8	
	Uneasy	0	22	22	21.7	
Total		1	100	101	100.0	
What are your feelings when the dentist nurse seats you on the dental chair to prepare you for the procedure?	Anxious	1	20	21	20.7	P=.427
	Relaxed	0	32	32	31.6	
	Tensed	0	17	17	16.8	
	Terrified	0	7	7	6.9	
	Uneasy	0	24	24	23.7	
Total		1	100	101	100.0	
P-value less than 0.05 indicate a statistically significant relationship between variables.						

Table 6. Analysis of Anxiety Levels and Comparison of Emotions during Dental Procedures.

CROSS TAB						
Count						
	Which type of common oral surgery procedure you have done?					
		Dental Implant Installation	Extraction	Total	%	P-Value
What best explains your feelings when you hear light music at your dentist's office during your procedure?	Anxious	1	14	15	14.8	P=.215
	Relaxed	0	32	32	31.6	
	Tensed	0	16	16	15.8	
	Terrified	0	9	9	8.9	
	Uneasy	0	29	29	28.7	
Total		1	100	101	100.0	
What were your feelings when you hear the ultrasonic scale sound for the first time?	Anxious	1	18	19	18.8	P=.360
	Relaxed	0	24	24	23.7	
	Tensed	0	23	23	22.7	
	Terrified	0	8	8	7.9	
	Uneasy	0	27	27	26.7	
Total		1	100	101	100.0	
How your feelings while waiting for your appointment are turn?	Anxious	1	15	16	15.8	P=.252
	Relaxed	0	27	27	26.7	
	Tensed	0	16	16	15.8	
	Terrified	0	9	9	8.9	
	Uneasy	0	33	33	32.6	
Total		1	100	101	100.0	
What are your feelings when your dentist starts cleaning your teeth?	Anxious	1	19	20	19.8	P=.394
	Relaxed	0	25	25	24.7	
	Tensed	0	20	20	19.8	
	Terrified	0	9	9	8.9	
	Uneasy	0	27	27	26.7	
Total		1	100	101	100.0	

P-value less than 0.05 indicate a statistically significant relationship between variables.

Table 7. Analysis of anxiety levels and comparison of emotions during Dental Procedures.

CROSS TAB						
Count						
		Which type of common oral surgery procedure you have done?				
		Dental Implant Installation	Extraction	Total	%	P-Value
Feelings when the dental nurse used saliva for the first time?	Anxious	1	18	19	18.8	P=.360
	Relaxed	0	27	27	26.7	
	Tensed	0	15	15	14.1	
	Terrified	0	13	13	12.8	
	Uneasy	0	27	27	26.7	
Total		1	100	101	100.0	
Feelings when your dentist advised you an extraction?	Anxious	1	19	20	19.8	P=.394
	Relaxed	0	18	18	17.8	
	Tensed	0	19	19	18.8	
	Terrified	0	7	7	6.9	
	Uneasy	0	37	37	36.6	
Total		1	100	101	100.0	

DISCUSSION:

The current study aimed to find out the dental anxiety felt during oral surgery through self-structure questions as well as using the Corah dental anxiety levels. In the current study, most 44% of individuals(43.5%) were feeling relaxed about tomorrow's dental appointment, while an investigation from the United Kingdom (UK) reported that patients who attend a dentist's appointment tomorrow feel nervous in 60% of individuals [27]. In the current study, most of 30 individuals (29.7%) were feeling uneasy on the day of the visit to the dentist, while a previous report from Australia reported the prevalence of dental anxiety in almost 16% of individuals [27], which is not similar to the current study findings. According to one study on the dental anxiety scale (DAS), 64.1% belonged to the low-anxiety group, 29.7% belonged to the medium-anxiety group and 6.2% belonged to the high-anxiety group [28], while in the current study, we used the Corah anxiety individuals showed that 52% of individual feel the moderate anxiety levels, only 10 percent of individuals feel high anxiety and 9 % were positive for severe type of anxiety. Our current study findings are not similar to the above-mentioned study as 30% feel medium anxiety. This variation may be due to the education level, dental facility, and the care of the patient during any oral treatment. In the current study, a total of 101 patients were observed. In this, a total of 101 participants were included, of which 59 were male and 42 were female. The percentage of female patients of 51.9% is slightly higher than that of male patients (48.1%) [28], this study supports the current study findings. In the current investigation, most of the individuals, 27 (26.7%) were feeling tense about tomorrow's dental appointment, while 17% were feeling anxious about dental procedures, and 225 felt easy during any dental procedures, as compared to the current findings of another study that, in accordance to the current study showed that 31(8%) participants were anxious whereas 355(92.0%) were non-anxious [29]. The patients included in the study had different oral surgical treatments, including, among other things, fillings, and removal of wisdom teeth, extraction of teeth, or the treatment of inflammation (48.1%) [28]. While in this study, most of the 100 individuals belonged to tooth extraction, while only one patient had dental implant installation. In this study, most of the individuals had an undergraduate education, 28 had no education, 25 individuals had a high school education and 15 were from primary school. Only two patients who have master have in science come for dental treatment attending the clinic. Similarly, another study showed that marital status, dental procedure, and level

of education are significantly associated with increasing levels of anxiety (p-value 0.003p-value 0.02, p-value 0.005) [29]. Heaton J et al 10 reported that younger patients were more anxious about their dental procedure. [30] The same findings were observed in the current study. Some important limitations must be considered when interpreting the results of this study. Due to the cross-sectional nature of the results, no indication of the sequence of events could be referred to. That was, whether anxiety occurred before or after, or during the perception of risk of the dental treatment. The sample was not representative of the entire population with regard to demographic data and different levels of anxiety treatment of inflammation (48.1%) [28]. While in this study, most of the 100 individuals belonged to tooth extraction, while only one patient had dental implant installation. In this study, most of the individuals had an undergraduate education, 28 had no education, 25 individuals had a high school education and 15 were from primary school. Only two patients who have master's in science come for dental treatment attend the clinic for dental treatment. Similarly, another study showed that marital status, dental procedure, and level of education are significantly associated with increasing levels of anxiety (p-value 0.003p-value 0.02, p-value 0.005) [29]. Heaton J et al reported that younger patients were more anxious about their dental procedure. [30] The same findings were observed in the current study. Some important limitations must be considered when interpreting the results of this study. Due to the cross-sectional nature of the results, no indication of the sequence of events could be referred to. That was, whether anxiety occurred before or after, or during the perception of risk of the dental treatment. The sample was not representative of the entire population with regard to demographic data and different levels of anxiety.

CONCLUSION

In conclusion, this study demonstrates a substantial connection between the type of oral surgery procedures (specifically, Implant Surgery and Extraction) and the anxiety levels experienced by patients during dental treatments. Notably, a significant proportion of patients, 9.9%, exhibited high anxiety during both types of procedures, emphasizing the need for heightened attention to their emotional well-being. Furthermore, the prevalence of mild and moderate anxiety or phobia highlights the potential severity of anxiety in the context of extraction.

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Conflict of interest

The authors of this study declare no conflict of interest.

Author Contribution

All the Authors have equal contributions to this Manuscript.

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