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ASSESSING THE CHANGE IN ANXIETY OF PATIENTS BEFORE AND AFTER THE ELUCIDATION OF DENTAL PROCEDURE AT A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

OBJECTIVE

To compare the levels of anxiety among patients prior to and subsequent to having a description of dental procedures, and also to examine differences in patient anxiety between various dental departments.

STUDY DESIGN

Cross-sectional research.

PLACE AND DURATION OF STUDY

The research was conducted at Foundation University College of Dentistry & Hospital in Islamabad, Pakistan for a period of 3 months from March 2023 to May 2023.

METHOD

There were two hundred and thirty-eight (238) patients who took part in the research. The patients filled in a Proforma consisting of 2 parts: the initial section demonstrated demographic and the portion followed included the Beck Anxiety Inventory (BAI) scale one before explaining the procedure and one after it.

RESULTS

Using the Wilcoxon Test, there is high evidence to determine that the intervention (elucidation) had a significant impact in decreasing anxiety levels. Prior to procedure explanation, 65.5 % of patients had low anxiety. Moderate anxiety was exhibited by 31.9%, while 2.5% had severe level of anxiety. But upon explanation, severe anxiety decreased significantly at 0.2%. A drop to 15.1% of moderate anxiety, and most i.e., 83.2% of the participants were low-anxious. This difference is indicative of the positive effect procedure explanation has on minimizing anxiety

CONCLUSION

Our research illustrates that educating patients about dental treatments in a transparent manner helps a great deal in reducing anxiety. By dispelling patient anxieties and maintaining openness, healthcare professionals can increase the comfort of patients during dental treatment.

KEYWORDS

Anxiety; Beck Anxiety Inventory; Dental Anxiety; Dentistry; Dentition; Phobic Disorders; Quality of Life.

INTRODUCTION

The Fifth Edition of DSM (Diagnostic and Statistical Manual of Mental Disorders), asserts "excessive fear, anxiety, and related behavioural disturbance are features shared by anxiety disorders," and these disorders comprise generalised anxiety disorder, panic attacks, social anxiety and specific phobias.[1] Patients usually face apprehension concerning dental procedures, and approximately 36% of individuals are believed to have dental fear or anxiety, and 12 percent have extreme dental phobia.[2] With regard to gender, dental fear proves to be higher among women compared to men.[3] A few research studies show that dental fear subsides with advancing age,[4,5] but no firm evidence relates age to dental anxiety. Patients with intense dental phobia present with unhealthy dentitions,[6] which increases the need for regular examinations. Anxious patients, as equated to non-anxious patients, had more missing, carious, and fewer filled teeth.5 These patients tend to delay regular dental visits because of fear of procedures, making treatment more challenging.[7] Due to unpleasant past dental experience, particularly ones who experienced pain during the procedure, develop increased terror and anxiety, that lead to the escaping of further treatments.[8] Additionally, dental anxiety is likely to affect the quality of life.[9]

Odontophobia, which is an extreme fear of dental treatment or dentists, has widespread effects on individuals' lives.[10] Dentists discover that patients with anxiety are hard to treat as compared to the non-phobic patient since such people require more stretched appointments for treatment and exhibit behavioural issues.[11] Anxiety about dental procedures evidently has ill effects; hence, it is imperative to give treatments to such patients carefully. Some practitioners may find mildly to moderately anxious patients may be managed with careful consideration, compassion, and effective dialogue.[12,13] Several studies revealed optimistic impacts of communications about dental fear,[14] but none has documented an effect of elucidation of dental procedure on anxiety. Thus, the objectives of this research are to compare the levels of anxiety among patients prior to and after having a description of dental procedures, and also to examine differences in patient anxiety between various dental

departments. The dentists/professionals aim for alleviation of anxiety in a manner that leaves a patient feeling satisfied in the short term and also constructively encourages them to return to them for further treatment.

METHOD

This cross-sectional quantitative research was conducted at Foundation University College of Dentistry & Hospital, following approval from the Ethical Review Committee of Foundation University College of Dentistry & Hospital (ref. FF/FUCD/632/ERC/30, dated 14 April 2022). A total of 238 of participants were recruited at Foundation Dental Hospital at their first appointment. All the potential participants were provided with a consent form. The duration of the study was from March 2023 to May 2023, a period of 3 months.

The inclusion criteria for study participants required individuals aged between 18 to 60 years who were undergoing dental treatment, regardless of the type of procedure, and included patients from all five dental departments: Orthodontics, Prosthodontics, Operative Dentistry, Oral and Maxillofacial Surgery, and Periodontology. The exclusion criteria were intellectually disabled patients, those with psychiatric illnesses, and patients requiring treatment under general anaesthesia because of extreme behavioural problems.

All the patients were evaluated in five dental departments by distributing a questionnaire that contained two sections. The first part required the sociodemographic information, and the second had the BAI (Beck Anxiety Inventory) scale.[15] Every query had 4 options. All participants were approached and helped by a clinician, and the proforma was completed while keeping confidentiality, both prior to the explanation of the treatment process and after elucidation verbally. An explanation in words by dentists in simple non-technical terminology to describe the procedure, benefits and risks was executed.

The level of anxiety prior to and following clarification of treatment was measured by the Beck Anxiety Inventory (BAI) scale, which is a self-report tool and comprises a four-point Likert scale for 21 items based on anxiety symptoms that range from 0 to 3 and raw scoring from 0 to 63. The revised Hamilton Anxiety Rating Scale (.51) and Hamilton Depression Rating Scale (.25) had a moderate and mild correlation, respectively, with the BAI.[16] The total of the 21 items is utilised in computing the concluding score. Levels of anxiety are scored from 0 to 21 (low), 22 to 35 (moderate), and 36 and above (potentially of concern).

Data collected were statistically analysed using SPSS 21. Mean, Standard deviation, chi square and Wilcoxon Signed-Ranks Test t tests were employed for evaluation of the relationship with dental anxiety. All levels of significance were fixed at .05.

RESULTS

Among 238 participants, 37% belonged to the age group 21 to 40 out of which maximum i.e., 80.7% were females, and only 19.3% were males. The majority (75.6%) participants were from middle class, while 21.8% were from the lower class and just 2.5% from the upper class. Approximately 73.1% of the patients were literate, and 26.9% were uneducated. These findings indicate a strong effect of literacy on the anxiety.

Under BAI, 65.5% of participants had low anxiety, 31.9% had moderate and 2.5% had severe anxiety prior the explanation of the treatment to be conducted. The explanation of technique prior to beginning the treatment reduced the high anxiety rate to 0.8%, moderate to 15.1% and low was changed to 83.2%, which is a significant variation.

Table 1
Non parametric Wilcoxon test.

Test Statistics[a]	Anxiety after elucidation* Anxiety before elucidation
Z	-6.194[b]
Asymp. Sig. (2-tailed)	.000

Note. a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

The Wilcoxon Signed-Ranks Test was used, and the Z-value = -6.194, as shown in Table 1. Since the Z-value was negative, it means that the level of anxiety following elucidation was lower than that prior to it. The Asymptotic Significance (2-tailed) being less than 0.001 showed that the disparity in anxiety level prior to and following elucidation are statistically significant. As the p-value is lower than the usual cut-off point (e.g., 0.05), the outcome is statistically significant. It indicates that there is sufficient evidence to accept that the intervention (elucidation) was effective in lowering anxiety levels. This showed an inverse relationship between anxiety levels and clarity of procedure.

Before the clarity of procedure, the most anxious patients were the ones who came to the department of Oral and Maxillofacial Surgery, followed by the department of Restorative Dentistry and least in periodontology. Anxiety levels among patients treated in various departments—Maxillofacial, Operative, Prosthodontics, Periodontics, and Orthodontics—were analysed, irrespective of treatment type. The chi-square test ($p = 0.002$) indicated a significant difference ($p < 0.05$).

Table 2
Effect of Frequency of Dental Visits on Anxiety of Patients.

Frequency of dental visit	Anxiety before explanation of procedure			Total	Chi-square p-value
	Low	Moderate	Concerning high levels		
0-1	70	40	2	112	
2-3	44	20	4	68	
4-5	6	8	0	14	0.041
5-6	36	8	0	44	
Total	156	76	6	238	

Table 2 shows the frequency of dental visit association with anxiety. The p-value of 0.041 suggests that there is a statistically significant difference in anxiety levels prior to the explanation of the procedure by frequency of dental visits. However, there was a statistically significant correlation between the waiting period prior to the procedure and anxiety levels, since the p-value of 0.003 was below the standard significance value of 0.05 (Table 3).

Table 3
Effect of Waiting Time on Anxiety of Patients Prior to Treatment.

Waiting period	Anxiety before elucidation			Total	Chi-square p-value
	Low	Moderate	Concerning high levels		
0 to 30 min	102	58	4	164	
30 to 60 min	40	16	2	58	
61 to 120 min	10	2	0	12	0.003
121 to 180 min	4	0	0	4	
Total	156	76	6	238	

DISCUSSION

Findings of our research indicate that explanation of procedure prior to beginning the procedure had a noteworthy role in reducing a patient's anxiety. There was a negative relationship between the level of anxiety and the explanation of procedures. In another study, the estimated prevalence of the adult population with dental anxiety is 40%.[16] The study revealed that patients with multiple dental visits were less anxious compared to first-time visitors, that aligned with existing research which showed an inverse relationship between visit frequency and anxiety levels.[16,17] Only 16.5% of patients reported visiting the dentist regularly, a percentage significantly lower than the 50-72% seen in developed nations.[16]

In our study, the most anxious patients were observed at the department of Oral and Maxillofacial Surgery followed by the department of Restorative Dentistry and least in periodontology, with a significant difference and this remains a common response among patients prior to dental treatments.[18] A study illustrated extraction of the tooth (Oral and Maxillofacial Surgery department) and then the drilling of tooth (Operative dentistry department) and injection of local anaesthetic procedures caused greater anxiety in the patients.[19]

Patients can develop higher levels of anxiety and stress because of fear of pain, uncertainty about the outcome of the procedure, and complications, though there is evidence that giving clear information and explanations regarding the procedure can help decrease anxiety levels in patients to a great extent. Results of the studies reported a strong association between postoperative self-care and a decrease in anxiety level.[19] Clarification of dental treatment, such as giving detailed facts and explanations regarding the treatment, has been shown to decrease patients' anxiety levels both pre- and post-treatment. Also, there is proof to show if the patient is prepared well enough for a surgery, their contentment with the preoperative education increases.[20]

The research also showed that instruction sessions designed for addressing specific desires and expectations of the patients who needed to undergo dental treatment also enhanced satisfaction even more. Explanation of the treatment by in-depth information and individualised education sessions has proven to be beneficial in lessening the anxiety of patients prior to and after the process, while enhancing their general satisfaction and readiness. Moreover, research shows that sharing information regarding a patient's illness and treatment decreases stress, as well as enhances treatment compliance.[21] Hence, the inclusion of informed consent and open communication in the educational and counselling process can also go a long way in lowering the levels of anxiety and improving the well-being of patients.

The explanation of the dental procedure using comprehensive information and individualised education sessions has proved quite effective in lowering the levels of anxiety among patients both prior to and following the procedure, boosting their general satisfaction and readiness.[22]

Limitations

The study had a limited sample size, that reduced its generalisability to a broader population, as it was a single centre study. This research was conducted in a tertiary care hospital, so its findings may be limited to specific clinical settings, which might restrict the applicability to other environments or situations. The research assessed anxiety only at a single time point, which may lack insights into how communication influenced anxiety levels over multiple dental visits.

CONCLUSION

This research highlighted the critical role that clear communication played in managing patients' anxiety during dental treatment. By responding to patients' apprehensions and maintaining simplicity in explanations, the dental professionals made patients more comfortable.

Recommendations

The future studies should focus more on the areas influencing the level of anxiety and discuss customised interventions. The waiting time before the treatment also decides the level of anxiety and it should be measured. Further longitudinal studies with larger sample sizes and multi-centres can be done for a better understanding of communication influences over anxiety levels. More indexes like the revised Hamilton Anxiety Rating Scale (.51) and Hamilton Depression Rating Scale (.25) can be used to further relate and compare the results, as they have moderate and mild correlation, respectively, with the Beck Anxiety Inventory.

CONFLICT OF INTEREST

None.

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DISCLOSURE

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2	Muhammad Umair	Oral Medicine and Diagnostic Department, Foundation University College of Dentistry, Islamabad	Supervision Data Collection. Writing- review and editing of manuscript
3	Waqas Sabir	Orthodontics Department, Watim Medical & Dental College	Data Collection. Writing- review and editing of manuscript
4	Fahwa Naz	Foundation University College of Dentistry, Islamabad	Data Collection. Writing- review and editing of manuscript
5	Faiza Habib	Foundation University College of Dentistry, Islamabad	Data Collection. Writing- review and editing of manuscript
6	Iqraa Shakeel Malik	Oral Pathology Department, Liaquat Institute of Medical and Health Sciences, Karachi	Data Collection. Writing- review and editing of manuscript