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Research Article

Dental Fear & Anxiety and Dental Pain in Adolescents

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ABSTRACT
Dental fear and anxiety (DFA) are prevalent psychological issues that significantly affect patients undergoing dental procedures, particularly in the context of tooth extractions. These emotional responses can range from mild discomfort to severe distress, influencing patients' willingness to seek dental care and potentially leading to avoidance of necessary treatments. A prospective and descriptive clinical study was performed on. All patients who underwent the conventional dental extraction. DA levels were assessed by virtue of the modified dental anxiety scale (MDAS) and dental fear survey (DFS). Tests were made in an isolated room preoperatively. The differences in anxiety levels according to age and gender were also evaluated. Understanding the psychological aspects of dental fear and anxiety is crucial for improving patient outcomes, enhancing the overall dental experience, and fostering a more positive therapeutic relationship between dentist and patient.

Keywords - Dental Anxiety, Dental Fear, Modified Dental Anxiety Scale, Dental Fear Scale.

INTRODUCTION

Modern dentistry has made much progress in providing a patient-friendly environment, but despite revolutionary new dental techniques, anxiety and fear toward dentistry has stayed relatively constant over the past many years. Dental fear is a normal emotional reaction to one or more specific threatening stimuli in a dental situation and is said to be ranked fourth among common fears and ninth among intense fears.[1] Dental anxiety is a feeling of unease, nervousness, or fear associated with dental visits or procedures. It can vary in intensity, from mild discomfort to significant distress, and may result in physical symptoms like increased heart rate, sweating, or dizziness.[2] Dental fear is a more intense form of dental anxiety, where individuals experience a strong, often overwhelming fear of visiting the dentist or undergoing dental treatments. This fear can be linked to past traumatic dental experiences, fear of pain, or general anxiety about medical procedures. People with dental fear may avoid dental visits altogether, leading to poor oral health. Unlike general dental anxiety, dental fear may be more difficult to manage and often requires specific interventions, such as relaxation techniques, therapy, or sedation during dental procedures Dental fear and anxiety represent significant barriers to accessing necessary dental care, particularly when it comes to procedures like conventional tooth extractions. These emotional responses, often caused by fear of pain, discomfort, or negative past experiences, can lead to patients delaying or avoiding dental treatments altogether. This avoidance can result in worsening dental health, the need for more invasive treatments, and increased overall healthcare costs. Despite advancements in pain management and sedation techniques, many individuals still experience significant distress when faced with dental extractions, which can negatively impact their overall well-being and quality of life. Addressing and mitigating dental fear and anxiety is essential for improving patient outcomes, ensuring timely dental care, and promoting better oral health. In this context, it is critical to explore the underlying causes of dental fear, the available management strategies, and how they can be effectively implemented in the context of conventional tooth extractions to ensure patients receive the care they need in a comfortable and supportive environment If dentists are aware about the level of anxiety among their patients, they can anticipate patient's behaviour and be better prepared to take measures to help alleviate anxiety. Hence, the present study has been carried out to assess the dental anxiety and fear among a group of adult patients undergoing conventional dental extraction procedure.[3-5]

AIM

To determine how many patients experience anxiety and fear before and during the dental extraction procedure. To measure the severity of anxiety and fear levels using standardised

scales (e.g., MDAS or DFS) and classify them into low, moderate, or severe categories.

MATERIAL AND METHODS

A total of 101 adult patients waiting in the out-patient Department of Dentistry were included in the study. The sample size decided was considered as an appropriate one to suggest significant differences between the variables of interest. Subjects were selected by convenience sampling. Informed consent was taken from the patients prior to the data collection. All the above specifications related to the number of patients and time duration for collection of data was so designed to minimise bias related to length of waiting period, diurnal variation, etc.

The inclusion criteria of the study were as follows:

1. Patients older than 18
2. Patients with no controlled systemic disease
3. Patients who were able to complete the questionnaire by themselves

Exclusion criteria were established as follows:

1) Patients under anti-anxiety and antipsychotic drug treatment with a history of mental illness
2) Patients who were not willing to participate in the study.
3) Paediatric and adolescent patients, and elderly patients (above 80 years) were excluded.

Survey Instruments

The survey instrument consists of two scale

1. modified dental anxiety scale (MDAS) and
2. kleinknecht's dental fear survey (DFS).

The Modified Dental Anxiety Scale (MDAS) is a commonly used tool to assess the level of anxiety a person experiences in relation to dental visits and procedures. It is an updated version of the original Dental Anxiety Scale (DAS) and is designed to be a quick and reliable measure of dental anxiety.

The MDAS consists of five questions that ask patients to rate their anxiety levels on a scale from 1 to 5, with 1 indicating "not anxious" and 5 indicating "extremely anxious."

The questions typically cover various aspects of dental visits, such as:

1. How do you feel about having someone examine your teeth?
2. How do you feel about having a dental cleaning?
3. How do you feel about having a filling (or restoration) placed?
4. How do you feel about having a tooth extracted?
5. How do you feel about receiving an injection in your gum or mouth?

Each question is scored on a 5-point scale, and the total score can be used to assess the patient's level of anxiety. The higher the score, the more anxious the individual may be. Typically, the score ranges from 5 to 25, and the levels of anxiety are classified as:

- Low anxiety: 5-9
- Moderate anxiety: 10-15
- High anxiety: 16-20
- Severe anxiety: 21-25

The Dental Fear Scale (DFS) is another commonly used tool designed to measure the level of fear an individual experiences in relation to dental visits and procedures. It specifically focuses on assessing a patient's fear of dental treatment and its impact on their behaviour.

The DFS typically consists of 20 questions that ask the patient to rate their level of fear on a 5-point scale, where:

1. = Not afraid at all
2. = Slightly afraid
3. = Fairly afraid
4. = Very afraid
5. = Extremely afraid

The questions in the DFS cover various aspects of dental experiences, such as:

1. Fear of dental injections (e.g., anaesthetic shots)
2. Fear of dental instruments (e.g., drills, scalpels)
3. Fear of the sounds or sights of the dental office
4. Fear of pain during dental procedures
5. Fear of loss of control or embarrassment in the dental chair

After scoring the responses, a total score is calculated. Higher scores indicate more significant dental fear. The scale helps dental professionals identify individuals who may need additional support, such as relaxation techniques, sedation, or psychological interventions, to help manage their dental fear. Generally, a higher score on the DFS reflects stronger dental fear, which may lead patients to avoid dental care or feel distressed during treatments. This tool assists in creating a personalised treatment approach to alleviate fear and ensure better oral health care outcomes. The validity and reliability of the Turkish version of MDAS and DFS have been demonstrated in previous studies. All patients were taken into an isolated room before the extraction and asked to fill both questionnaires by the same dental assistant. Besides the

questionnaires, the informed consent forms were also signed by patients.

Statistical Analysis

The collected data was entered in Microsoft excel spreadsheet. The entire data is statistically analysed using Statistical Package for Social Sciences 26.0 for MS Windows. The Shapiro-Wilk test was used to check the normality of the continuous variable. Categorical groups were compared by Chi-square ($\chi 2$) test. Mann-Whitney U test was used to check significant difference between two groups. Kruskal-Wallis H test was used to check significance between more than two groups. Probabilities of greater than 0.05 considered as statistically not significant. Probabilities of less than 0.05 were accepted as statistically significant.

Table 1: Comparison of Score between Female and Male

Gender	Mean	SD	Median	Mean Rank	U	p-value
Female	25.64	12.31	21	57.42	972.5	0.042
Male	21.91	10.08	17.5	45.5	_	_

$: Mann-Whitney U test

Table 2: Comparison of Score among Age Groups

Age (in years)	Mean	SD	Mkedian	Mean Rank	H	p-value
<25	24.78	10.54	24.5	54.97	5.533	0.237
26-30	21.33	8.57	17	50.06	_	_
31-35	31.75	13.75	30.5	72.06	_	_
36-40	23.36	11.2	21.5	49.39	_	_
>40	22.48	11.38	17.5	46.98	_	_

&: Kruskal-Wallis H test

DISCUSSION

There were no statistically significant differences between different age groups of study patients for DFS and MDAS scores (Table2). Anxiety levels for the age groups when compared for dental anxiety did not reveal statistically significant difference. Anxiety scores were higher for the subjects below 25 years of age. Almost similar results have been reported by Udoye et al.while Thomson et al.and Stabholz et al.havereported that anxiety was higher among subjects in the age group 35–44 years.[6-8] None of the studies showed statistically significant difference. The result obtained in the present study might be due to the well-accepted fact that dentally anxious individuals are homogenous group but differ in terms of origin and manifestation of their fears of dental treatment. Female showed a significantly increase in MDAS and DFS ($p<0.05$) (Table 1)

In this study, the average score of female MADS was higher than that of males, that is, the degree of female dental anxiety was significantly higher than that of males. This result was consistent with many existing studies. This may be related to the fact that females expressed more fear than males in psychological aspect.[9-10] currently, it is believed that female's ability to cope with dental visits is significantly lower than that of male, and their desire to control themselves and the weak coping ability in actual dental visits may increase their psychological stress. On the other hand, etiological studies showed that fear of pain was one of the main causes of DA. They generally differ in their perception and control of pain, and females have lower pain thresholds than males. The above may cause females to have a higher degree of DA than males. However, there were very few researchers, such as Locker et al. who believed that there was no significant correlation between gender and DA. Gender was a common and important factor in current DA research. According to most scholars' research, the DA difference between males and females suggested that female patients were more likely to have DA. Dental anxiety and fear are common psychological responses among patients undergoing dental procedures, with extraction being one of the most anxiety-inducing treatments.[11-12] This fear is particularly prevalent in patients with a history of negative dental experiences, those

with a low pain threshold, or individuals with generalized anxiety disorders. Among these patients, it has been observed that women tend to experience higher levels of dental anxiety than men, especially in the context of conventional tooth extraction.[13-14] Understanding this phenomenon requires a look at various factors including biological, psychological, and sociocultural influences. Multiple studies have consistently shown that female patients experience more intense dental anxiety compared to male patients. This can be attributed to a variety of factors. Biologically, women may have higher levels of anxiety due to hormonal fluctuations, which can affect their overall stress responses. From a psychological perspective, women are generally more likely to express their feelings of fear and anxiety, whereas men might internalize their emotions, leading to less overt anxiety expression. Social conditioning may play a role as well—women are often more open about their emotions and are more likely to seek help or express their discomfort, including dental fears.[15-17]

Study Limitations

The limitation of the present study includes small sample size and that data collection was done from only one College, another was that the patients included in the study were from the same locality and this affected the outcome of the study. Pretreatment anxiety levels are assessed by Modified Dental Anxiety Scale but there is until now no anxiety scale developed that will assess post treatment anxiety level.

CONCLUSION

Dental fear and anxiety, particularly in the context of conventional tooth extraction, are significantly more pronounced among female patients compared to their male counterparts. This difference can be attributed to a combination of biological, psychological, and sociocultural factors that contribute to heightened emotional responses. Understanding these factors is essential for dental practitioners in order to provide effective care that minimizes anxiety and maximizes patient comfort. Future research should continue to explore how gender-specific approaches can further alleviate dental anxiety, ultimately improving the patient experience for both men and women.

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