Assessment of Dental Anxiety in Patients Undergoing Surgical Extraction of Teeth: Study from Western Maharashtra

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ABSTRACT

Background: Dental treatment involving anaesthetic injection and surgical extraction of teeth causes anxiety and fear, resulting in emotional uneasiness, prolonging the intervention and complicating postoperative recovery.

Aims: To quantitate the anxiety level associated with patient undergoing surgical extraction of teeth and to compare the anxiety levels between males and females.

Materials and Methods: This study was conducted on 100 patients who reported to the Department of Oral and Maxillofacial Surgery, requiring surgical extraction of teeth. Patients were randomly enrolled for the study, as and when they reported to the department. Patients were given a questionnaire before surgical removal of teeth. The anxiety levels were evaluated based on the scores of the Corah’s Dental Anxiety Scale.

Results: The results of the present study showed that the dental anxiety was higher among the subjects undergoing surgical extraction of teeth. Female patients had higher dental anxiety and fear than male patients and the difference in the anxiety level between male and female patients was statistically significant.

Conclusion: In conclusion, a maxillofacial surgeons should consider that patients initially visit dental office for treatment of surgical extraction of teeth with severe anxiety which could be due to conditioning or learned responses which these patients might have experienced. Thus a prior awareness of the patient’s predisposition to dental anxiety may be of value, enabling to take appropriate measures pre-operatively. Thus our aim is to give anxiety free dental treatment to the patients and better postoperative recovery.

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Introduction

The most common problem faced by oral and maxillofacial surgeons is patients fear and anxiety regarding the pain and discomfort associated with the treatment. Anxiety is a term generally used to present nervousness, fear and worrying. It is an unpleasant emotional state, the causes of which are less clear. It is often accompanied by physiological changes and behaviours similar to those caused by fear. We are aware that dental treatment causes fear among patients.1

Anxiety related to surgical extraction of teeth is a fairly common phenomenon. It is a problem in simple extraction and a factor in the avoidance of extraction.2 Dental anxiety is generally considered to have origin in childhood and develops further as a result of aversive conditioning and family influences.3 It is most commonly provoked by treatments involving anaesthetic injection and use of the drill for tooth removal. Diverse factors have been implicated in the etiology of dental anxiety including congenital determinants, trauma and the experiences of family and friends.4 The complete questionnaires pertaining to patient’s preoperative assessment of anxiety about the procedure and to know the amount of explanation required.5 Reassurance and adequate pain control are the most important factors which should start from the first visit of the patients or else it is difficult to give meaningful responses without adequate explanation.5 Dental anxiety may be specific to dental context, or a manifestation of a more general state of anxiety.4 Comprehensive management of the anxious patients is of prime concern because of the formidable difficulties and obstacles inherent in the performance of intricate procedures on patients whose actions can range from co-operative to obstructive. There has been little study of patient’s anxieties about surgical removal of teeth, despite its widespread practice. The complete Questionnaires to patient’s preoperative assessment of fear and anxiety about the procedure are required. Reassurance and adequate pain control are the most important factors which should start from the first visit of the patients or else it is difficult to give meaningful responses without adequate explanation.

Methodology

The present questionnaire based study was carried out on 100 patients, divided randomly into 50 males and 50 females, reported to the Department of Oral and Maxillofacial Surgery. All the patients were informed with regard to the purpose of the study. After the consent of each patient and case history, preoperative investigations, and relevant findings were recorded using a prestructured proforma. Inclusion criteria includes patients who required surgical removal of teeth and medically compromised patients (ASA I and II). Patients with ASA III and IV were excluded from the study. Dental anxiety level was measured by using Corah’s Dental Anxiety scale (DAS). These questionnaires were given to patients requiring surgical removal of teeth. Ethical Clearance was obtained from Institutional Ethics Committee.

In 1969 Corah published a scale for assessment of dental anxiety. The scale contains four multiple choice items dealing with the patients subjective reactions about going to the dentist, waiting in dentist’s office for the procedure and anticipation of drilling.

Answers to individual questions are scored 1 to 5 (with “a” as 1 and “e” as 5). The maximum score possible is 20. Scores
of 15 or above indicate severely anxious than normal levels.

Scores
5 to 10 are considered as slightly anxious, 10 to 15 are moderately anxious and 15 to 20 are severely anxious.²

Results
When participants were asked “how would you feel, if you have to go to the dentist tomorrow?”, 56% males answered very uneasy, 32% males were would not care and 12% males were afraid about it. 56% females were more afraid about the dental visit. 24% females were uneasy and 20% were frightened of what the dentist might do. Difference between males and females was statistically significant. (Table 1)

When participants were asked “how would you feel, when you are waiting in the dentist’s office for your turn”? 60% of males answered little uneasiness and 20% males were anxious. 56% of females felt very uneasy and 40% females were anxious about it. Overall it was found that males were a little uneasy and females were tenser. (Table 2)

For the questionnaire 3 “how would you feel when you are in the dentist’s chair to have your tooth removed and the dentist is getting out the instruments”, majority of males (64%) were answered little uneasy and 20% males were Tensed about it. majority of females (56%) answered they get sweats or almost feel physically sick and 20% females felt Anxious. (Table 3)

When subjects were asked “How would you feel When you are in the dentist’s chair waiting for dentist to get the drill ready and begin working on your tooth.” 32% of males were relaxed, 32% were felt little uneasy and 20% of males were anxious. 44% of females were anxious followed by 28% of females were felt physically sick and gets sweats. (Table 4)

Graph 1 reveals that about 80% of males had moderate anxiety and 76% of females had severe anxiety levels before undergoing surgical removal of teeth. Thus anxiety levels are significantly higher in females than the males.

Discussion
Everyone experiences fear and anxiety. Fear is an emotional, physiological, and behavioural response to a recognized external threat. Anxiety is an unpleasant emotional state, the causes of which are less clear. It is often accompanied by physiological changes and behaviours similar to those caused by fear.¹ Also emotional and psychological factors can alter the hormonal, vascular and muscular functions, which may produce peripheral changes varying from pain, disturbance in jaw movement, xerostomia and ulcerations.⁷

Emotional factors have potential influence on the oral cavity and body as well. Many oromucosal diseases may arise as a direct expression of emotions or indirect result of psychological alterations.⁸,⁹ It is reported that many dental treatment causes fear and anxiety among patients. Although anaesthetics make dental treatment easy and painless, undergoing such treatment arouses patient’s fears and often results in great anxiety.¹

Anxious behaviour to specific stimuli can be interpreted as a physiological mechanism of adaptation in unknown situations. Nevertheless, multiple negative effects of such a state of mind accompanying surgical treatment have nearly always been proved by multiple studies within last 50 years. Moderate to high anxious patients suffer from significant more intense postoperative pain and show higher psychological co-morbidity and
incidence of post-traumatic stress reactions.\textsuperscript{10,11}

One of the most common causes of preoperative dental anxiety is surgical extraction of a tooth. Anxiety not only produces emotional unease but may also provoke patient behaviour that hinders procedure, in some cases prolonging the intervention and complicating postoperative recovery.\textsuperscript{4}

The intensity of dental anxiety is different among certain groups in population. Several studies have shown that younger group people, people with low income or socioeconomic status, and people with lower levels of education tend to have more severe dental anxiety than people who are elderly, more affluent, or better educated.\textsuperscript{2}

Many different scales, such as Corah’s Dental Anxiety Scale (DAS), Kleinknecht’s Dental Fear Survey (DFS), Spielberger’s State-Trait Anxiety Inventory (STAI), Litt’s Oral Surgery Confidence Questionnaire (OSCQ), Gale’s Ranking Questionnaire (RQ), Stouthard’s Dental Anxiety Inventory (DAI), Weiner’s Fear Questionnaire (FQ), Morin’s Adolescents Fear of Dental Treatment Cognitive Inventory (AFDTCI), the Visual Analog Scale (VAS), and the Original Questionnaire, have been used to qualitatively or quantitatively measure dental anxiety.\textsuperscript{10} Studies found that the DAS is reliable, valid, and useful predictor of patient’s anxiety before treatment helping the clinician in two ways. Dentist can become aware of what to expect from the patient, and he can take measures to help alleviate the anxiety of the patient.\textsuperscript{6} thus in the present study we used Corah’s DAS to quantitate the anxiety level associated with patient undergoing surgical extraction of teeth.

In a study by Yusa et al, they concluded that the use of multiple scales is the best way to accurately investigate dental anxiety within a study population; however, it is complicated to conduct and evaluate the anxiety of patients using multiple different scales.\textsuperscript{2} A study by Peretz and Efrat, they included that Corah’s DAS in their study.

A study done by Mendez and Freitos to evaluate dental anxiety in patients who consulted for surgical removal of teeth and to assess possible relationships with general trait of anxiety. Dental anxiety was measured using Corah’s DAS, the Dental Fear Survey (DFS), and the State Trait Anxiety Scale of the State Anxiety Inventory (STAI). The result suggested that the trait anxiety may be a useful predictor of a patient’s predisposition to dental anxiety.\textsuperscript{4}

But in the present study only preoperative anxiety was recorded using Corah’s DAS and no relation was compared with DFS and STAI.

Study conducted by Liau F L et al on 180 adult patients scheduled to receive routine dental extraction under local anesthesia, anxiety was measured at 15 minutes before local anesthetic delivery using Corah’s DAS. They concluded that Corah’s DAS is a useful tool for estimating the impact of anxiety, and younger patients with anxiety were more likely to have high levels of anxiety. In the present study we also used the Corah’s DAS preoperatively just before the removal of tooth.\textsuperscript{12}

Preoperative assessment of the anxiety levels in present study revealed significantly higher anxiety in patients undergoing surgical extraction of teeth. Anxiety levels are more in female patients than in male patients. These findings were in accordance with the studies conducted by Berggren Ulf et al, Corah N L et al.\textsuperscript{13,6}

Many authors’ assessed the anxiety level by using multiple scales however very few studies evaluated anxiety level using Corah’s DAS.\textsuperscript{14,15} We found that Corah’s DAS more reliable and useful predictor of
patient’s anxiety before treatment helping the clinician to be aware of what to expect from the patient, and measures to be taken to help alleviate the anxiety of the patient.

Conclusion

The present study results showed that the dental anxiety was greatest amongst people who visited a dentist for the first time and lower among those who routinely visited for preventive care showing higher scores in females than males. We conclude that maxillofacial surgeons should consider that patients initially visit dental office for treatment of surgical extraction with severe anxiety which could be due to conditioning or learned responses that these patients have experienced earlier. And thus a prior awareness of the patient’s predisposition to dental anxiety may thus be of value, enabling them to take appropriate measures, thus giving anxiety-free treatment to the patients and better postoperative recovery.

Conflict of interest

No.

Funding source

No.

References

**Table 1.** If you have to go to the dentist tomorrow how would you feel about it?

<table>
<thead>
<tr>
<th>Options</th>
<th>Males(50)</th>
<th>%</th>
<th>Females(50)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) I would look forward to it as a reasonably enjoyable experience</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(b) I would not care one way or the other</td>
<td>16</td>
<td>32%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(c) I would be very uneasy about it</td>
<td>28</td>
<td>56%</td>
<td>12</td>
<td>24%</td>
</tr>
<tr>
<td>(d) I would be afraid that it would be unpleasant and painful</td>
<td>6</td>
<td>12%</td>
<td>28</td>
<td>56%</td>
</tr>
<tr>
<td>(e) I would be frightened of what the dentist might do</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>20%</td>
</tr>
</tbody>
</table>

Chi-square=23.318 P-value=0.0001

**Table 2.** When you are waiting in the dentist’s office for your turn in the chair, how would you feel?

<table>
<thead>
<tr>
<th>Options</th>
<th>Males(50)</th>
<th>%</th>
<th>Females(50)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Relaxed</td>
<td>6</td>
<td>12%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(b) A little uneasy</td>
<td>30</td>
<td>60%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(c) I would be very uneasy about it</td>
<td>4</td>
<td>8%</td>
<td>28</td>
<td>56%</td>
</tr>
<tr>
<td>(d) Anxious</td>
<td>10</td>
<td>20%</td>
<td>20</td>
<td>40%</td>
</tr>
<tr>
<td>(e) So anxious that I sometimes break out in a sweat or almost feel physically sick.</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>

Chi-square=39.086 P-value=0.0001

**Table 3.** When you are in the dentist’s chair to have your tooth removed while you are waiting and the dentist is getting out the instruments, how would you feel?

<table>
<thead>
<tr>
<th>Options</th>
<th>Males(50)</th>
<th>%</th>
<th>Females(50)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Relaxed</td>
<td>2</td>
<td>4%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(b) A little uneasy</td>
<td>32</td>
<td>64%</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>(c) Tense</td>
<td>10</td>
<td>20%</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>(d) Anxious</td>
<td>6</td>
<td>12%</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>(e) So anxious that I sometimes break out in a sweat or almost feel physically sick.</td>
<td>0</td>
<td>0</td>
<td>28</td>
<td>56%</td>
</tr>
</tbody>
</table>

Chi-square=26.500 P-value=0.0001
Table 4. When you are in the dentist’s chair waiting for dentist to get the drill ready and begin working on your tooth, how would you feel?

<table>
<thead>
<tr>
<th>Options</th>
<th>Male(s)(50)</th>
<th>%</th>
<th>Females(50)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Relaxed</td>
<td>16</td>
<td>32%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(b) A little uneasy</td>
<td>16</td>
<td>32%</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>(c) Tense</td>
<td>6</td>
<td>12%</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>(d) Anxious</td>
<td>10</td>
<td>20%</td>
<td>22</td>
<td>44%</td>
</tr>
<tr>
<td>(e) So anxious that I sometimes break out in a sweat or almost feel physically sick.</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>28%</td>
</tr>
</tbody>
</table>

Chi-square=21.338          P-value=0.0003

Graph 1. Distribution of participants according to anxiety level