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Evaluation Of Anxiety Level In Patients Before And After Meeting A Dentist In Dental Clinics Of Hyderabad City, Telangana State, India

Research Article

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Abstract

Background: Dental anxiety is a significant challenge for many patients and clinicians as it remain a barrier to dental care for a consistent proportion of the population. Helping patients to overcome such anxiety can reduce the incidence of delayed or missed dental visits and the negative repercussions from avoidance of needed care.
Objective: The purpose of the study is to evaluate the difference in state anxiety scores of the patients before and after dental visits in dental clinics of Hyderabad city.
Method: This is a cross sectional study conducted on 384 patients using modified dental anxiety scale and short version of Spielberg state anxiety inventory scale. The modified dental anxiety scale was recorded prior to the dental visit of the patients. The state anxiety scale was recorded before and after the dental visit.
Results: Of the 384 patients who were included in the study 65% of them were not at all calm before the treatment which decreased and only 4% being not at all calm after the treatment. 37% of the patients were very much worried before the treatment and only 9% were worried even after the treatment.
Conclusion: Assessment of dental anxiety prior to treatment appears to confer a beneficial effect on the state anxiety of patients.

Keywords: Dental Anxiety; Dental Clinics; Dentists.

Introduction

Over recent decades, the everyday clinical practice of dentistry has benefited from major advances in techniques, technologies and materials, as well as in infection control procedures. At the same time, public awareness of oral health has improved. Despite these gains, anxiety related to the dental environment and to specific dental treatments is a problem suffered by many patients worldwide [1].

Dental anxiety is a significant challenge for many patients and clinicians as it remain a barrier to dental care for a consistent proportion of the population. Dental anxiety has many negative and pervasive effects, and is a significant barrier to the receipt of regular dental care. Furthermore, there is a strong association between avoidance of dental care and poor oral health. Dental anxiety is therefore a contributing factor to oral health problems [2]. Anxiety about dental procedures are prevalent and have an impact on the quality of life and the quality of dental treatment performed - both in terms of limiting attendance for treatment and in the nature of the dental treatment likely to be performed.

Delay in seeking treatment as a result of dental anxiety often means that conservative treatment options are not viable. Skipping regular dental visits as a result of dental anxiety leave the teeth vulnerable to tooth decay; and when cavities form, bad breath follows. Cavities and the bacteria in your mouth can cause

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your fresh breath to turn into bad breath [3]. As a result, patient's self-confidence is compromised, which can limit their social interactions.Its one thing when anxiety affects your relationships but something else altogether when it begins to impact their physical well-being. The health consequences of dental anxiety are very real and can be quite serious [4].

Several methods are used to assess dental anxiety and themeasures based on the Dental Fear Survey consist of many questions and are more suitable for intensive research purposes than routine clinical use. Other measures are based on Corah's Dental Anxiety Scale (CDAS). The CDAS unfortunately does not enquire about local anesthetic injection, which is a focus for some patients' anxiety. Psychometric details for another dental anxiety measure, the Modified Dental Anxiety Scale (MDAS) are available for the UK. This measure, modelled on the original CDAS, includes a question on local anesthesia. The Modified Dental Anxiety Scale is a brief, 5 item questionnaire with a consistent answering scheme for each item ranging from 'not anxious' to 'extremely anxious'. It is summed together to construct a Likert scale with a minimum score of 5 and a maximum of 25. It is the most frequently used dental anxiety questionnaire in the UK and does not increase patient fears when completed. Existing data suggest that completion of the questionnaire can significantly reduce state anxiety in the practice setting. It has good psychometric properties, is relatively quick to complete and scoring is easy. A cut-off value of 19 and above has been determined empirically to indicate high dental anxiety that may require special attention by dental personnel. The measure has been used in research studies and helped to contribute to the knowledge of this important dental related psychological construct. It is one of a number of instruments that have been designed to help study the properties of this unpleasant feeling. The MDAS has been translated into a number of world languages, many of which have published psychometrics (Spanish, Turkish,Greek,and Chinese)[4, 5].

The Spielberger State-Trait Anxiety Inventory (STAI) is one of the most frequently used measures of anxiety in applied psychology research. It is a reliable and sensitive measure of anxiety. Its popularity has meant that researchers are able to compare their results with those of others, a useful but rare occurrence in such research. It is a self-report measure indicating the intensity of feelings of anxiety; it distinguishes between stateanxiety (a temporary condition experienced in specific situations) and trait anxiety (a general tendencyto perceive situations as threatening). It was originally developed as a research instrument to studyanxiety in normal adult population samples, but it can also be used to screen for anxiety disorders andcan be used with patient samples.State anxiety refers to transitory unpleasant feelings of apprehension, tension, nervousness or worry,often accompanied by activation of the autonomic nervous system; it reflects how threatening a personperceives his environment to be. Spielberger referred to it as "a temporal cross-section in theemotional stream-of-life of a person". Trait anxiety is a personality disposition that describesa person's tendency to perceive situations as threatening, and hence to experience state anxiety in stressful situations. Trait anxiety is not observed directly, but is expressed as state anxiety whenstress is experienced [6]. Many studies conducted by Humphris GM, Dailey YM, using these both scales in assessing the anxiety level before and after undergoing dental treatment [7].

Helping highly anxious patients to overcome their fear of dental treatment is a challenge, however if achieved it can reduce the incidence of delayed or missed dental visits and the negative repercussions from avoidance of needed care which ultimately result in improvement in their oral health and in their overall quality of life and well-being. The assessment of dental anxiety is important for assisting the dentist in the management of anxious patientswhich will ultimately affect the state anxiety of the patient. However, on reviewing the literature, one could find little evidence of the studies using psychometric measures of dental anxiety conferring a beneficiary effect on state anxiety. So the study is to evaluate the difference in state anxiety scores of the patients before and after dental visits in dental clinics of Hyderabad city.

Methodology

A cross sectional study was conducted in the private dental clinics of Hyderabad city, Telangana from January 11th to April 15th 2019 to evaluate the anxiety level of the patients before and after meeting the dentists. Informed consent (verbal) was taken from the dentists after discussing in detail about the purpose of the study. A pilot study was conducted on 32 patients to check the feasibility of the study, to note any practical difficulties encountered during the data collection and to determine the sample size.

A sample size of 384 was determined and an area sampling was followed to recruit the representative sample from various clinics located in the five zones of Hyderabad city. From each zone few wards were randomly picked and the clinics in those particular areas were included in the study to reach the desired sample size. Patients who were willing in participate in the study were included and an informed consent was taken from the patients prior to conducting the study.

The study included two scales modified dental anxiety scale (MDAS) and Spielbergers state anxiety scale (STAI-S).The questionnaire was translated into Telugu (local) language. The translated Telugu version was then back-translated to the source language by two independent bilingual translators. The modified dental anxiety scale is a 5-item scale which included the questions regarding various dental treatments was recorded prior to the dental visit of the patients and was rated using the 5 point Likert scale. The state anxiety scale which consists of six questionnaires about how the patient feels at that moment was recorded before and after the dental visit. The MDAS was applied as a screening tool in order to select a sample of dentallyanxious participants. Inaddition, it provides further insight into a respondent's anxiety about a particular dental situation or procedure. The MDAS scores of the patients were informed to dentist before treatment. The six-item short form of the 'State 'Scale of the Spielberger State-Trait anxiety Inventory was used to construct the principal outcome measure. The STAI-S is a self-report measure designed toassess patient state anxiety at the time of completion. The respondent-selects an answer from four response categories ranging from 'not at all' to 'verymuch'.

The change in STAI-Sscores over the course of the visit, from pre-appointment (baseline) to post appointment (follow-up) was used as an outcome measure. The data was compiled, tabulated and subjected to statistical analysis using the SPSS package.The means of MDAS and STAS-S were compared. The t-test was applied to the STAS-S data to determine difference between the two

study arms. Pearson correlation was used to know the association between MDAS and STAS before meeting the dentist.

Results

Out of 384 patients 222 (57.8%) were males and 162(42.1%) were females. the mean age group of the patients were 39.3 with SD 13.2.

Total score is a sum of all five items, range 5 to 25: Cut off is 19 or above which indicates a highly dentally anxious patient, possibly dentally phobic Of 384 patients, 206 patients are considered highly anxious (MDAS>19) and 178 patients are considered as low anxious (MDAS <19).

Table 1 shows the mean scores, standard deviations of state anxiety before and after the dental treatments and significant difference was found between state anxieties before and after treatment, t-test was used to determine the state anxiety before and after the treatment there was a significant change with a p-value set at 0.001.

When Pearson correlation was used there was a moderate significant positive correlation between MDAS and SAB (state anxiety before) scores (r=0.352, p=0.019). There was a significant correlation between the dental anxiety and state anxiety of the patients before undergoing treatment.

There was a significant relation between state anxieties before treatment andmodified dental anxiety (highly anxious) using the t-test with a p-value set at 0.001.

Discussion

In spite of improvements in dental equipments and procedures and methods of prevention, dental anxiety, pain and/or discomfort associated to dental treatment seem not to have changed over the years. Dental anxiety is a significant challenge for many patients and clinicians as it remain a barrier to dental care for a consistent proportion of the population. Anxiety about dental procedures are prevalent and have an impact on the quality of life and the quality of dental treatment performed - both in terms of limiting attendance for treatment and in the nature of the dental treatment likely to be performed. The health consequences of dental anxiety are very real and can be quite serious.

This study has deliberately tested for the immediate effects on state anxiety of the patients before and after the dental visits using the questionnaires MDAS and STAI-S. The strength of the present study is that patients completed the questionnaire by themselves and sufficient time was given to them to complete the questionnaires.

The Modified Dental Anxiety Scale is a brief, 5 item questionnaire with a consistent answering scheme for each item ranging from 'not anxious' to 'extremely anxious. The measure has been used in research studies and helped to contribute to the knowledge of this important dental related psychological construct. It is one of

Table 1. Distribution Of The Patients According To Score Given To The Mdas Scale In Percentages.

MDAS	NOT ANXIOUS	SLIGHTLY ANXIOUS	FAIRLY ANXIOUS	VERY ANXIOUS	EXTREMELY ANXIOUS	MEAN
If you went to dentist for treatment tomorrow	15%	17%	26%	29%	11%	3.04
If you were sitting in the waiting room	9.40%	18.20%	22.7&	31%	18.80%	3.31
If you were about to have a tooth drilled	1.80%	11.40%	18.20%	39.30%	29.10%	3.82
If you were about to have your teeth scaled and polished	7.03%	21.80%	20.50%	34.30%	16.60%	3.31
If you were about to have a local anesthetic injection in your gum	6.50%	11.90%	7.80%	31.70%	41.90%	3.9

Table 2. Means Of State Anxiety Before And After Dental Treatment.

STAI			
	Mean	Mean	p- value
I feel calm	3.53	2.05	<0.001; Sig
I am tense	2.44	1.69	<0.001; Sig
I feel upset	2.46	1.7	<0.001; Sig
I am relaxed	3.56	2.25	<0.001; Sig
I feel content	3.54	2.09	<0.001; Sig
I am worried	3.02	1.56	<0.001; Sig
SA score	18.55	11.34	<0.001; Sig

a number of instruments that have been designed to help study the properties of this unpleasant feeling.It has good psychometric properties, is relatively quick to complete and scoring is easyand total score is a sum of all five items, range 5 to 25: Cut off is 19 or above which indicates a highly dentally anxious patient, possibly dentally phobicthat may require special attention by dental personnel.

Of 384 patients in the present study, 206 patients are considered highly anxious (MDAS>19) and 178 patients are considered as low anxious (MDAS <19). Majority of the patients were fairly and extremely anxious regarding the dental procedures when MDAS scale was used which was similar to the study conducted by Gerry M etal. 2008 [7].

This might be due to that most of the patient's expectation of experiencing pain, the sound or vibration of the drill and due to fear of being injured in to their gum can act as a major trigger for dental anxiety.

Majority of the patients were highly anxious when they were about to have their tooth drilled and above to have a local anesthetic injection in to their gum suggests that most of them dislike the sound or vibration of the drill and due to fear of being injured in to their gum. The study results are also similar to the study conducted by Appukuttan DP where they concluded that tooth drilling for restorative purposes and local anesthetic injections, were the most common reasons for dental anxiety when conducted on the patients attending the dental educational institution in Chennai [8].

When patients have to meet their dentist for treatment the next day most of them were very anxious as they were worried about the condition of their mouth, not enough information about the procedure and about the cost of the dental treatment. When they have to sit in the waiting room for the treatment majority of them were very anxious because they were worried that they need a lot of dental treatments, smells and sounds in the dental office. When they were about to have their teeth scaled and polished, most of them were fairly anxious because of sound and feel of scraping during teeth cleaning. These results are close to the study conducted by Irene Ketal when the anxiety was assessed among the primary school teachers in Ngara district, Tanzania [9].

In a study conducted by Kanegane K et al to assess the frequency of dental anxiety and/or fear among patients in an emergency dental service using the MDAS scale and Gatchel fear scale where they found a correlation between the anxiety and fear during the emergency dental service which is in contrary to our study where we used MDAS and state anxiety scale [10].

State anxiety is conceptualized as consisting of an individual's unpleasant, consciously perceived feelings of tension and apprehension. A-State is a transitory condition that varies in intensity and fluctuates in time in reaction to circumstances that are perceived as threatening. The scale was used in assessing the state anxiety in the patients receiving mechanical ventilator support in a study conducted by Linda C etal, 2003 [11].

The scores of state anxiety used in the study show that the patients who were very much anxious before the dental visits have become less anxious after the visit. About 66% of the patients were not at all calm or very much anxious before the treatment and only 5% were not at all calm after the treatment.There was a greater reduction in mean scores of highly anxious patients where the results are similar to the study conducted by Dailey et al.,2002 that a significant change in state anxiety scores was seen from base line to post treatment [14].

The scores of the questions I feel tense, I am upset, I am relaxed, I feel content has reduced significantly before and after the treatment stating that dentist behaviors such as having a calm manner, being friendly, giving moral support, being reassuring about pain, preventing pain, and working efficiently, have been shown to reduce state anxiety of the patients.

The significant correlation found between dental anxiety and state anxiety of the patients before undergoing treatment is due to the fact that the fear of the dental treatments significantly affects the state anxiety of the patients before meeting the dentists.

There was also an association found between highly anxious patients who were screened using the MDAS and the state anxiety of the patients before the treatment and after treatment ie the state anxiety of the highly anxious patients has been greatly reduced when the MDAS score were informed to the dentists, these results are also similar Humphris GM, 2002 where the scores of highly anxious has been greatly reduced after being informed to the dentist. In an another study conducted by Humphris GM, 2002, Hull P intervention was made on three groups which were made based on the scores of MDAS and found significant decrease of means score of state anxiety of the highly anxious patients [12, 13].

In the study conducted by Dailey et al., 2002 where randomization was made into two groups ie only STAI and both MDAS and STAI group showed a great reduction in mean change STAI-S scores of patients whose pre-treatment dental anxiety was assessed using MDAS which is similar to the results of the present study [14].

This study has shown a significant effect on a patient's state anxiety on leaving the dental clinic when his/her pretreatment assessment of dental anxiety was done.

Conclusion

Assessment of dental anxiety prior to treatment appears to confer a beneficial effect on the state anxiety of patients. Helping highly anxious patients to overcome their fear of dental treatment is a challenge, however if achieved it will result in improvement in their oral health and in their overall quality of life and well-being. Dentists need to be trained in managing patients who are highly anxious by being empathetic and reducing the barrier between dentists and Patients.

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