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RESEARCH ARTICLE

PREOPERATIVE ANXIETY ASSESSMENT IN PATIENTS UNDERGOING FIRST MANDIBULAR THIRD MOLAR IMPACTION SURGERY

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ABSTRACT

Anxiety is the major reason for skipping the dental appointments by the patient. Anxiety differs from one individual to another and past dental treatment experienced by the patient also determine the anxiety levels of the patients. In this clinical study pre operative anxiety levels and the changes in the vitals such as blood pressure, pulse and oxygen saturation of the patients undergoing first mandibular third molar impaction surgery were recorded and analysed its anxiety associated changes prior to the procedure. In this clinical study it was found that the patients were more anxious about the treatment environment room, females were more anxious than males. No significant changes in blood pressure, heart rate and oxygen saturation were reported preoperatively. The anxious score were found to be insignificant between previously operated and non-operated patients.

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INTRODUCTION

Anxiety may be considered as an emotional reaction & is defined as tension, apprehension or nervousness, to danger or diffuse advancing threat accompanied by activation of autonomous nervous system (ParveenAkhter Lone *et al*., 2015). Among the total dental patients 6-14% of the population avoid dental care due to anxiety. In fact, anxiety is considered the majorreason for broken appointments. Tense and anxiouspatients disrupt scheduling, make treatment difficult, andarouse uncomfortable feelings to the dentist. Anxiouspatients typically expect more pain than they experience. (Parveen Akhter Lone *et al*., 2015) Dental anxiety can vary from one patient to another or even in the same patient depending on the dental procedure to be performed. Studies show that women experience more stress to dental treatment than men do. The level of preoperative anxiety also depends on following factors.

- Socio-demographic characteristics such as age, sex, current partnership and level of educational background.
- Characteristics of the medical surgery such as the underlyingillness, the expected success, possible complications, previous surgeries, duration of hospital stay, the kind of preoperative information or the method of anaesthesia.
- Psychosocial variables are the general level of anxiety, personality characteristics, psychological or psychiatric comorbidity, sensitivity to pain, social support life satisfaction. (The Amsterdam Preoperative Anxiety and Information Scale (APAIS) 2007)

BP measured at a dental office may be slightly higher than elsewhere due to anxiety and fear of dental treatment, which negatively impacts on the individual's systemic conditions. The nerve stimulation is one of the factors causing BP elevation so the fear and anxiety at the dental office are predisposing factors that trigger those BP changes in patients. According to Malamed, surgical anesthesia causes a state of stress in the patient. This causes a number of changes in humans. In these cases, there is an increase in the release of cortisol by stimulation of the adrenal cortex, thus affecting BP during stress. At the same time, there is also the stimulation of the adrenal medulla by the autonomic nervous system, and this in turn releases endogenous catecholamines epinephrine and norepinephrine in an amount 40 times higher than the level at rest, causing faster heart rate, elevation in the systolic volume of the heart, and the constriction of the vascular bed, thereby increasing both systolic and diastolic pressures. Therefore, it is of fundamental importance that the dentist has as routine

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practice in his office the measurement of BP in patients prior to procedures, especially surgical, in order to avoid possible complications such as hypertensive crises that can cause rapid heartbeat, sweating, mydriasis, pulmonary hyperventilation, agitation, and increased arterial pressure. Factors other than the sympathetic input to the heart contribute to the increase in blood pressure during dental surgery (The Amsterdam Preoperative Anxiety and Information Scale (APAIS) 2007; Changes in Blood Pressure and Heart Rate Variability During Dental Surgery, 1998) According to the Ministry of Healthand the Brazilian Society of Hypertension., high BP is defined as systolic BP (SBP) ≥140 mmHg and a diastolic BP (DBP) ≥90 mmHg, in individuals who are not making use of antihypertensive medication. BP is classified as optimal, normal, borderline, Stage 1 hypertension, Stage 2 hypertension, Stage 3 hypertension and isolated systolic hypertension, which have SBP values <120 mmHg, <130 mmHg, 130-139 mmHg, 140-159 mmHg, 160-179 mmHg, and ≥180≥140, respectively; and DBP values of <80 mmHg, <85 mmHg, 85-89 mmHg, 90-99 mmHg, 100-109 mmHg, ≥110 mmHg and <90, respectively. (The Amsterdam Preoperative Anxiety and Information Scale (APAIS) 2007) The aim of this study is to determine the subjective preoperative anxiety by questionnaire method that contain set of six questions and to determine the vitals such as blood pressure, pulse and oxygen saturation prior to the first impaction surgery.

MATERIALS AND METHODS

This is a randomized prospective clinical trial, approved by the institutional review board and the ethical committee. Informed consent was obtained from all patients before their inclusion in the study. This study was conducted on 100 patients with an age range of 19 to 35years, who were reported to the Department of Oral and Maxillofacial Surgery, Best Dental Science College, Madurai. Patients who need surgical removal of impacted teeth for the first time were included. Those patients who underwent minor oral surgery other than impaction surgery were also included. Patients with systemic medical conditions and patients under medication for psychological disorders were excluded.

Subjective recording of anxiety level by questionnaire method

Each patient were given a set of six questions shown in table and explained in their native language. Patients were asked to mark their anxious level for each question from to 1 to 5 according to the severity of anxiety (Anxious Scale -Not at all =1, Slight=2, Moderate=3, Moderately severe =4, Severe =5). Finally anxious score was determined in each patient.

Objective recording of blood pressure, heart rate and oxygen saturation

Patient's vitals such as blood pressure, heart rate and oxygen saturation were recorded in a pulse oximetrymultimeter monitor 10 minutes prior to the procedure in the waiting room. Three consecutive readings were taken in 3 minutes interval period. Mean value of three readings were noted and recorded. This value is compared with standard baseline value.

Table 1. Profile of cases studied

Characteristics	Values
a)Number of cases studied	100
b)Age	
Up to 20 yrs	4 (4%)
21 – 30 yrs	81(81%)
Above 30 yrs	15(15%)
Range	19 – 35 yrs
Mean	25.5 yrs
S.D.	4.1 yrs
c)Sex	
Male	52 (52%)
Female	48 (48%)
d)Previous dental surgery	
Yes	43 (43%)
No	57 (57%)

Table 2. Anxiety level scores

Anxiety about	Anxiety level										Anxiety score	
	Not at all		Slight		Moderate		Severe		Extreme			
	No.	%	No.	%	No.	%	No.	%	No.	%	Mean	S.D
Treatment room environment	5	5	22	22	30	30	26	26	17	17	3.29	1.16
Instruments & Equipments	23	23	24	24	23	23	23	23	7	7	2.67	1.26
Health care Personnel	22	22	25	25	31	31	20	20	2	2	2.55	1.1
Injection	13	13	31	31	33	33	16	16	7	7	2.73	1.1
Procedure	26	26	27	27	32	32	12	12	13	13	2.79	1.23
Post operative discomfort	14	14	27	27	27	27	18	18	14	14	2.91	1.26

Table 3. Changes in Blood Pressure / Pulse / Oxygen levels

Variable	Values at							
	1st reading		2nd reading		3rd reading		Average	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Systolic B.P.	125.04	2.93	124.96	2.96	125.04	3.13	125.0	2.59
Diastolic B.P.	83.0	2.02	83.08	1.98	83.08	2.08	83.04	1.46
Pulse	72.24	2.8	72.23	2.97	72.38	2.85	72.3	2.83
SPO2	99.47	0.69	99.28	0.92	99.43	0.74	99.36	0.72

RESULTS

A randomized prospective clinical trial was conducted to determine preoperative anxiety level and variations in vitals (Blood pressure, heart rate and oxygen saturation) of the patients undergoing first impaction surgery. Tabe-1 shows study population consisted of 100 patients out of which 48 were females and 52 were males. Among the study population 43 % have undergone previous dental surgeries other than impaction like periodontal flap surgery, implant placement and transalveolar extraction, biopsy, etc. Table-2 shows the mean anxiety level scores of treatment room environment was found to be higher (3.29 ± 1.16) when compared to other anxiety parameters such as, instruments and equipment's, health care personnel, injection, procedure, post-operative discomfort were found to be 2.67± 1.26, 2.55±1.1, 2.73±1.1, 2.79±1.3, 2.91±1.26 respectively. Table -6 shows the total average anxious score ranges from 1.8 to 3.8 with mean value of 2.81± 0.47. The total average anxious score for females was found to be higher (2.83±0.42) when compared to males (2.78±0.51) which was found to be statistically not significant (p > 0.57760). Table-7 shows the total average anxiety score for those patients who had undergone previous dental procedures other than impaction surgery was 2.81±0.42 and for patients who undergoing first impaction surgery was 2.8±0.5 which was also found to be insignificant (p>0.9515). Table-3 shows the variations in the blood pressure, Pulse and oxygen saturation 10 minutes prior to the procedure at an interval of 3 minutes between each reading and the mean value of those readings. Table-5 shows the mean average anxiety level score for 16 to 20 years, 21 to 30 years and 31 to 35 years were 2.95±0.53, 2.77±0.45, 2.95±0.53 respectively.

Table 4. Total Average Anxiety Score

Parameter	Total Average Anxiety Score
Range	1.8 – 3.8
Mean	2.81
S.D.	0.47

Table 5. Age & Total Average Anxiety Score

Age group	Total Average Anxiety Score	
	Mean	S.D.
Up to 20 yrs	2.95	0.53
21 – 30 yrs	2.77	0.45
Above 30 yrs	2.95	0.53
'p'	0.347 Not significant	

Table 6. Sex & Total Average Anxiety Score

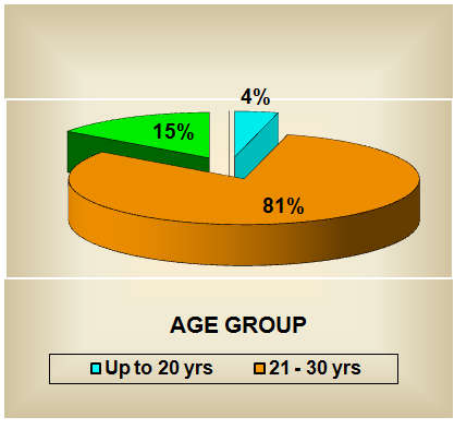
Sex	Total Average Anxiety Score	
	Mean	S.D.
Male	2.78	0.51
Female	2.83	0.43
'p'	0.5776 Not significant	

Table 7. Previous Dental Surgery & Total Average Anxiety Score

Previous Dental Surgery	Total Average Anxiety Score	
	Mean	S.D.
Yes	2.81	0.42
No	2.8	0.5
'p'	0.9515 Not Significant	

DISCUSSION

In the present study the total average anxious score for females was found to be higher (2.83±0.42) when compared to males



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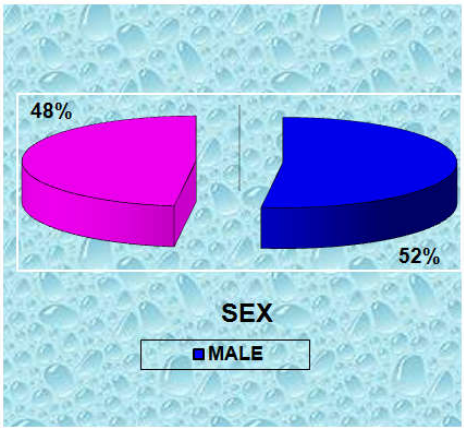

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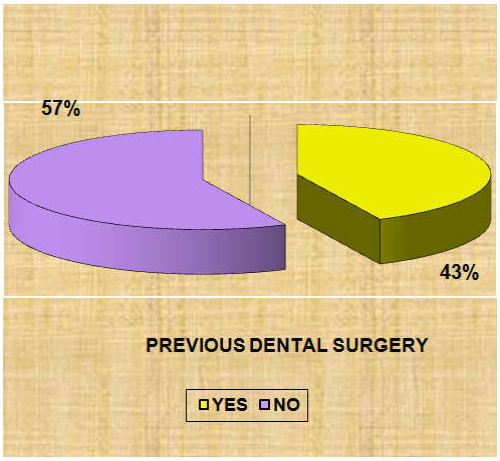
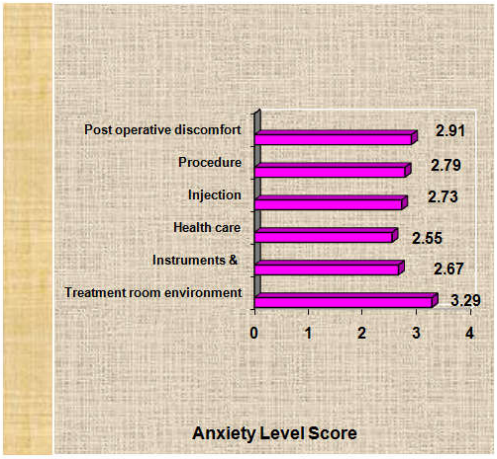


Previous Dental Surgery



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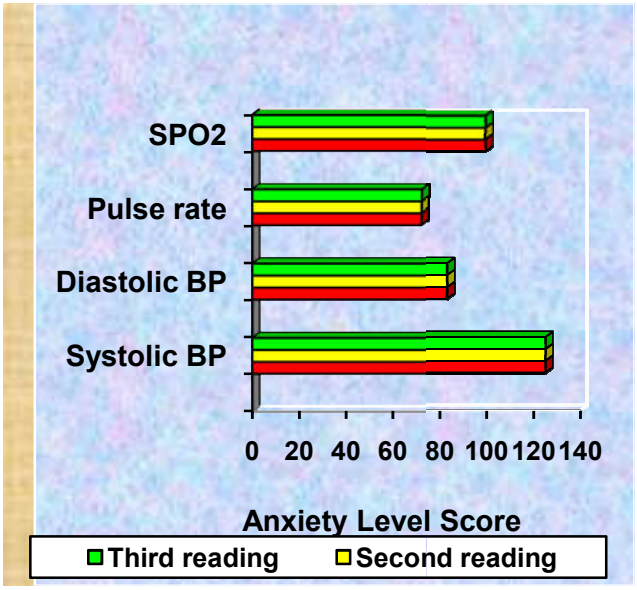

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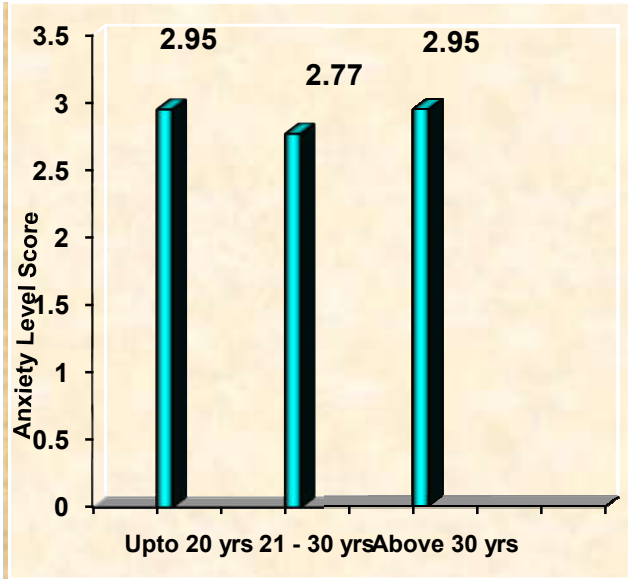
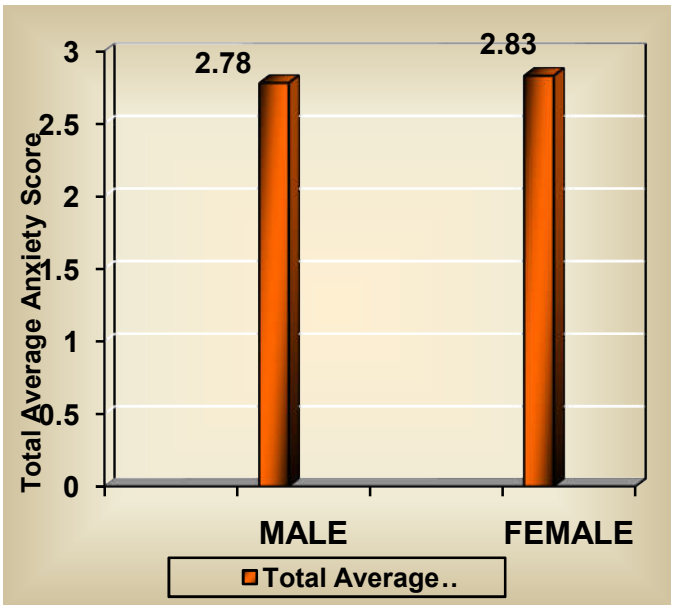
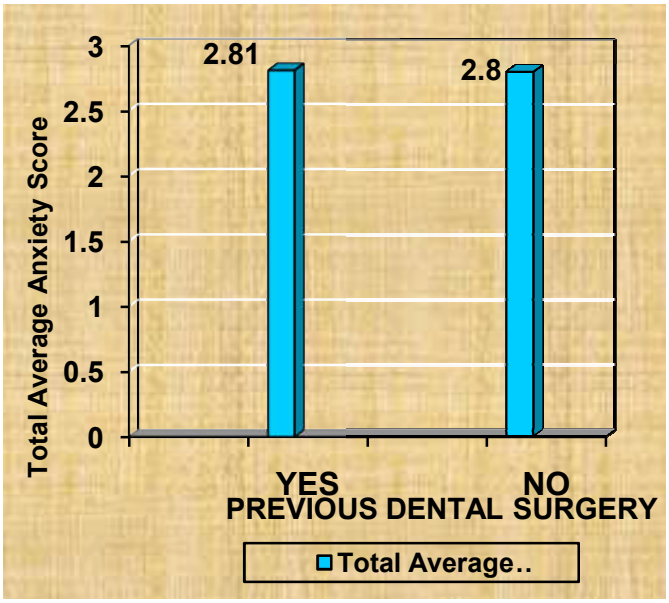


Age & Total Average Anxiety Score



Sex & total average anxiety score



Previous dental surgery & total average anxiety score

(2.78±0.51) this is similar to the study conducted by Lago-Méndez *et al* mean anxiety scores. (Lago-Méndez *et al*., 2006) Another study investigated in a Turkish population and they also found out similar results. (Garip *et al*., 2004) According to Moore *et al* males were highly anxious than females. (Rome and Moore, 1998) According to Saadat *et al* the mean systolic BP was 120±17 mmHg and mean average diastolic BP was 78±10 mmHg which were similar to our study 125±2.59 mmHg and 83.04±1.46 mmHg respectively. The heart rate of the same study was 71±12 per minute which also similar to our study (72.3±2.83 per minute). (Saadat *et al*., 2006) In our study we reported no significant increase pre-operative oxygen saturation which was found to be 99.36±0.72.which was very much closer to the results obtained by Sharath Chandra Pani *et al*. (97). (Sharat Chandra Pani *et al*., 2014) There will be increase in oxygen saturation due to hyperventilation in anxious persons (Studer *et al*., 2012) and in patients with anxiety disorder (Kossowsky *et al*., 2013). But in our study we found no significant changes in pulse as well as in oxygen saturation. In our study we reported highest anxiety scores for treatment room environment. The ParveenAkhter Lone*et al* reported that 30% of patients were anxious about the procedure and 60% of patients were anxious about the injection prior to the procedure. (Parveen Akhter Lone *et al*., 2015) We reported a mean value of 2.79±1.3 and 2.73±1.1 as an anxious score which was found to be 3rd and 4th highest score in subjective anxious score level in our study. In our study there was no significant differences found in patients who had previous oral surgical experience other than impaction (2.81±42) in comparison to those who have had come first time for treatment (2.8±0.5). p>0.9515. H. Garip *et al*. also reported similar results in Turkish population. (Garip *et al*., 2004) But according to ParveenAkhter Lone *et al*, Patients who had previous oral surgical experience were less anxious in comparison to those who have had come first time for treatment. (ParveenAkhter Lone *et al*., 2015) In our study the total average anxiety mean score for the procedure anxious score. But in study conducted by Aznar-Arasa L *et al*. patients with deep impactions who need tooth sectioning for the procedure were highly anxious. (Aznar-Arasa *et al*., 2014)

Conclusion

In our study we found out that the patients were more anxious about the treatment environment room, females were more anxious than males. No significant changes in blood pressure, heart rate and oxygen saturation were reported preoperatively. The anxious score were found to be insignificant between previously operated and non-operated patients.

REFERENCES

Aznar-Arasa L, *et al*. 2014. Patient anxiety and surgical difficulty in impacted lower third molar extractions: A prospective cohort study, *Int J Oral MaxillofacSurg.,* Sep;43(9):1131-6

Changes in Blood Pressure and Heart Rate Variability During Dental Surgery, AJH–NOVEMBER 1998–VOL. 11, NO. 11, PART 1

Garip H. *et al*. 2004. Anxiety and extraction of third molars in Turkish patients, *British Journal of Oral and Maxillofacial Surgery*, 42, 551—554

Kossowsky J, Wilhelm FH, Schneider S. 2013. Responses to voluntary hyperventilation in children with separation anxiety disorder: Implications for the link to panic disorder. *Journal of Anxiety Disorders*, 27: 627-634.

Lago-Méndez *et al*. 2006. Dental Anxiety Before Third Molar Removal. *J Oral MaxillofacSurg 64:1404-1408*

Minor Oral Surgical Procedures & Pre Operative Anxiety (original Research Article) DrParveenAkhter Lone, Dr Mohan Singh, Drvarun Salgotra, e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 7 Ver. IV (July. 2015), PP 96-101

Rome M. and Moore T. 1998. Self-report measures of dental fear: Gender differences. *Am J Health Behav*., 22:243.

Saadat *et al*. 2006. Ambulatory Anesthesia Hypnosis And Anxiety AnesthAnalg., 102:1394–6

Sharat Chandra Pani *et al*. 2014. Assessment of the Impact of Stress and Anxiety on Pain Perception in Patients Undergoing Surgery for Placement of their First Dental Implant, OHDM - Vol. 13 - No. 2 – June.

Studer RK, Danuser B, Hildebrandt H. *et al*. 2012. Hyperventilation in anticipatory music performance anxiety. *Psychosomatic Medicine*, 74: 773-782.

The Amsterdam Preoperative Anxiety and Information Scale (APAIS) - the first trial of a German version, GMS Psycho-Social-Medicine 2007, Vol. 4, ISSN 1860-5214.

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