Research Article

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Evaluation of Anxiety Levels in Patients Undergoing Oral Surgical Procedures

Dr. Santosh Kandel,[1] Dr. Raju Shrestha,[2] Dr. Rajesh Shrestha[3]

[1,2]Department of Dental Surgery, Lumbini Medical College, Palpa, Nepal

[3]Department of Psychiatry, Lumbini Medical College, Palpa, Nepal

Correspondence:

Dr. Santosh Kandel, Email: drsantoshkandel@gmail.com

ABSTRACT

Introduction: Dental anxiety poses significant barrier to dental care. Dental anxiety may be decreased if the attributing factors are known and necessary measures are applied to increase the outcome of treatment.

Objective: The main purpose of the study was to assess dental anxiety and factors influencing dental anxiety in patients undergoing oral surgical procedures.

Materials and Method: This cross-sectional analytical study included 251 patients with age 18 years and above undergoing oral surgical procedures recruited by convenience sampling. All patients who gave the informed consent for study were selected from August 2020 to November 2020. Structured questionnaire containing information about sociodemographic profile and modified dental anxiety scale (MDAS) was used. Descriptive analysis and independent t-test was used to compare the mean difference between different parameters and dental anxiety score.

Result: Of all 124 (49.40%) of participants had total MDAS of <7, whereas 118 (47%) had total MDAS of 7-10 and 9 (3.60%) had total MDAS of 11-15. Females were found to have higher level of total MDAS than males with a P value of 0.003. Participants with age group 18-40 years, presence of accompanying person and past negative dental experience were found to have statistically significant level of dental anxiety (P value <0.05)

Conclusion: A plethora of factors like age, sex, past dental history, negative dental experiences, accompanying person, etc. influences dental anxiety levels. Understanding the factors causing dental anxiety may enable operating surgeon to pursue better patient management strategies and policy making.

Keywords: Dental anxiety; modified dental anxiety scale; oral surgery.

INTRODUCTION

Despite technological progress in dental care, anxiety to dental procedures are widespread. About 3% to 20% of the population are found to be anxious to dental treatments.[1] Among dental procedures, oral surgical procedures have high anxiety levels.[2]

The fear to oral surgical procedures have led to significant barrier in dental care like poor doctor-patient rapport, avoidance of treatment, seeking

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emergency treatment, postponing dental visit resulting into poor oral health related quality of life.[3] The uncooperative behaviour of anxious patient may result into poor surgical outcome due to stress on operating surgeon, prolonged duration and impaired operative performance.[2] Anxiety may be affected by age, gender, previous dental treatments and experiences, companionships, etc.[2] Knowing the factors increasing patient's anxiety may help surgeon to take necessary measures for lowering anxiety.

The main objective of this study was to evaluate the anxiety level in patients undergoing oral surgical procedures and to know the factors responsible for dental anxiety.

MATERIALS AND METHOD

The present cross-sectional analytical study was carried out in Department of Dental Surgery, Lumbini Medical College and Teaching Hospital, Palpa, Nepal. With a non-response rate of 30% and precision of 6%, the minimum sample size was calculated to be 228 based on prevalence of dental anxiety which was reported as 20.67%.[4] Although the minimum sample size required was 228, we selected 251 patients undergoing oral surgical procedures. All patients who gave the informed consent for study were selected from August 2020 to November 2020. A convenience sampling technique was used to collect the data. The study was approved from institutional review committee of Lumbini Medical College (Ref. IRC-LMC 01-G/020).

Patients of age group 18 years and above who gave consent to participate in the study were included. In this hospital-based study, patients undergoing oral surgical procedures which included extraction, enucleation and curettage of cystic lining, transalveolar extractions and biopsies all of which required only local anaesthesia were included. The exclusion criteria were intellectual disability and not having completed the survey form. The instrument used in the study was a structured questionnaire. The questionnaire was self-administered to the participants. Sociodemographic profile (age, gender, address, accompanying person), previous dental visit and treatment, past negative dental experiences and questions related to modified dental anxiety scale were present in the questionnaire. In order to measure dental anxiety, translated and validated modified dental anxiety scale (MDAS) Nepalese version was used.[4] Out of five, only three multiple choice questions concerning patient's anxiety during oral surgical procedures were chosen from MDAS Nepali version which included: anticipating a visit to dental clinic; waiting in dental waiting room and waiting in dental chair for receiving a local anaesthetic injection. The pattern of questionnaire was followed as in the previous study conducted.[1] Each response could range from "non-anxious" with a value of one to "extremely anxious" with a value of five. The total possible score ranged from three to 15. The total response was interpreted based on dental anxiety score of three questions from MDAS Nepalese version which included only oral surgical procedures that was calculated for each patient.

Data collected from the survey were entered in Microsoft Excel sheet and were subjected to statistical analysis. IBM SPSS Statistics for Windows, version 21 (IBM Corp., Armonk, N.Y., USA) was used for statistical analysis. Descriptive analysis was done to determine frequency distribution among all the variable. To carry out further statistical analysis, the normality test was done using skewness and kurtosis. Data was found to be normally distributed, hence, independent sample t-test was performed to compare the mean difference between different parameters and dental anxiety score. The level of statistical significance was set at a P value <0.05.

RESULT

A total of 251 patients were enrolled in the study. The study sample comprised of 165 (65.70%) females and 86 (34.30%) males with age ranging from 18 to 83 years. The mean age of the sample was 39.53±16.04. The most commonly performed procedure was extraction (n=198) followed by transalveolar extractions (n=26), biopsy (n=13) and cyst enucleation and curettage (n=11). Of 251

Table 1: Total modified dental anxiety scale.

MDAS score	n (%)
<7	124 (49.40%)
7-10	118 (47%)
11-15	9 (3.60%)
Total	251 (100%)

patients, 162 (64.50%) had previously undergone dental examinations and treatment. Among them, 30 (12%) had negative dental experience. Of all 124 (49.40%) of participants had total MDAS of <7, whereas 118 (47%) had total MDAS of 7-10 and 9 (3.60%) had total MDAS of 11-15 (Table 1).

The mean of total MDAS score was 6.53 with standard deviation of 2.53. The mean and standard deviation for anticipation prior to dental treatment, sitting in waiting room and waiting to receive local anaesthetic injection were 1.73±0.88, 1.94±0.88, and 2.86±1.19 respectively. Prior to dental treatment 138 (55%) of the study participants were non-anxious whereas 63 (25.10%) were fairly anxious and 3 (1.20%) were very anxious. However, while sitting in waiting room 91 (36.30%) were non-anxious, 49 (19.50%) were fairly anxious and 14 (5.60%) were very anxious. While waiting to receive local anaesthetic injection, 21 (8.40%) of the participants were extremely anxious (Table 2).

When MDAS score was compared among males and females, the females had significantly greater anxiety scores than males with P value of 0.003. The age group 18-40 years and age group 41 years and above showed no difference among total MDAS. However, age group 41 years and above had statistically significant dental anxiety score while anticipating prior to dental treatment.

The total MDAS score was significantly higher in patients with past history of dental treatment with P value of 0.044. Also, patients with history of negative dental experience had statistically significant relationship with participants status of dental anxiety. (P value <0.001, Table 3)

Table 2: Level of dental anxiety among study participants at different settings, n (%).

	Non-anxious	Slightly anxious	Fairly anxious	Very anxious	Extremely anxious	Total
Anticipation prior to dental treatment	138 (55)	47 (18.70)	63 (25.10)	3 (1.20)	-	251 (100)
Sitting in waiting room	91 (36.30)	97 (38.60)	49 (19.50)	14 (5.60)	-	251 (100)
Receiving local anaesthetic injection	41 (16.30)	54 (21.50)	75 (29.90)	60 (23.90)	21 (8.40)	251 (100)

Table 3: Comparison of dental anxiety scale score with various parameters.

Parameters	Dental anxiety	Mean±SD	Mean±SD	P value
Sex		**Males**	**Females**	
	Anticipation prior to dental treatment	1.55±0.83	1.82±0.89	0.020
	Sitting in waiting room	1.76±0.85	2.04±0.88	0.014
	Receiving local anaesthetic injection	2.57±1.16	3.02±1.18	0.005
	Total MDAS	5.87±2.45	6.88±2.51	0.003
Age group		**18-40 years**	**41 years and above**	
	Anticipation prior to dental treatment	1.68±0.86	1.79±0.90	0.305
	Sitting in waiting room	1.98±0.87	1.89±0.90	0.441
	Receiving local anaesthetic injection	3.09±1.16	2.54±1.16	<0.001
	Total MDAS	6.74±2.51	6.23±2.54	0.111
Past dental history		**Yes**	**No**	
	Anticipation prior to dental treatment	1.65±0.85	1.85±0.91	0.086
	Sitting in waiting room	2.01±0.93	1.82±0.77	0.099
	Receiving local anaesthetic injection	2.88±1.14	2.83±1.29	0.746
	Total MDAS	6.55±2.44	6.51±2.70	0.044

Parameters	Dental anxiety	Mean±SD	Mean±SD	P value
Past negative dental experience		Yes	No	
	Anticipation prior to dental treatment	2.23±0.67	1.66±0.88	0.001
	Sitting in waiting room	2.83±0.74	1.82±0.83	<0.001
	Receiving local anaesthetic injection	3.77±0.56	2.74±1.20	<0.001
	Total MDAS	8.83±1.31	6.22±2.50	<0.001
Accompanying person		Yes	No	
	Anticipation prior to dental treatment	1.64±0.80	1.82±0.96	0.103
	Sitting in waiting room	1.9±0.85	2±0.92	0.363
	Receiving local anaesthetic injection	2.7±1.20	3.06±1.16	0.017
	Total MDAS	6.24±2.46	6.89±2.57	0.044

DISCUSSION

Oral health is an integral part of general health of an individual. Although dental treatment is readily available and various advancement are made in dental care, the number of patients with the dental problem and patient undergoing treatment voluntarily is highly disproportional.[5] This disproportion is most likely due to misconception about dental treatment, negative impression, and fear from family and friends. Because of the dental anxiety, patients are forced to live with poor oral health related quality of life.

Oral surgical procedures are found to be associated with higher level of dental anxiety.[2] The most common surgical procedure performed in dental setup is extraction. In the present study, extraction was the frequently performed procedure followed by impaction, biopsies and cyst enucleation and curettage.

According to medical research, female tend to have less tolerance to pain and higher level of anxiety with the given stimulus than male.[6] When gender and dental anxiety is compared, few literatures suggest no relationship between gender and dental anxiety.[7,8] However, majority of research suggest that females demonstrate higher level of dental anxiety as compared to males.[9-11] The result in our study were consistent with the literature and the frequency of dental anxiety was significantly greater in females. The greater level of dental anxiety in females may be because of self-expressive nature of females to fear. Also, physiological condition like phobia, depression, panic, stress, and fear are common in females and dental anxiety may be associated with these conditions.

In the literature, study conducted by Kanegane et al. suggested that there was no relation between dental anxiety and age.[8] However, various literature data reports that the dental anxiety is higher in younger ages and dental anxiety decreases as people get older, depending on their past experience.[12,13] Similarly, the result of this study suggested that the participants with age group 18-40 years have statistically significant dental anxiety level while receiving local anaesthetic injection. Although, there was no statistically significant difference between the age group 18-40 years and age group 41 years and above in terms of total MDAS score, mean total MDAS score was greater in age group 18-40 years.

Furthermore, this study also observed that the participants with previous history of dental examination and treatment had statistically significant total MDAS score when compared to that without past dental history. Also, among the participants with past dental history, patients having negative dental experience had highly significant dental anxiety levels while anticipating dental treatment, sitting in waiting room and receiving local anaesthetic injection. The finding recorded in this study are consistent with the previous studies.[14,15]

The participant in current study without accompanying person had statistically significant high anxiety level while waiting in dental chair for receiving local anaesthetic injection. The total

MDAS score was also highly significant among participants without accompanying person when compared to that of participants with accompanying person. According to study conducted by Alatram, 74.6% of the study participants said that the presence of accompanying person was an important factor in helping them to relax.[5] The decrease in anxiety level in participants with accompanying person is thought to be due to additional reassurance provided by accompanying person.

Since, this study was single centre study, it did not include the variations of dental clinic in this area. Moreover, this study only included patients undergoing oral surgical procedures, thus patients coming for other dental procedures were not involved in the study. Therefore, it is difficult to use findings of the study for generalising the prevalence of dental anxiety among the population.

CONCLUSION

The findings in this study concludes that females were more dentally anxious than males. Previous negative dental experience was the important factor which has significant impact for increasing patient's anxiety for oral surgical procedures. Operating surgeon can use necessary measures to decrease patient's dental anxiety if the attributed factors are known.

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