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Levels of Anxiety in Patients Undergoing Simple Tooth Extraction: The Possible Contributing Factors.

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Abstract

Aims: The current study aims to assess the levels of patients' anxiety towards simple tooth extraction, and the difference in pre-extraction anxiety levels; if present; between genders and among different age groups. **Materials and Methods:** Two hundred and ninety-two patients who presented for simple tooth extraction were recruited. Each participant filled a self-administrated questionnaire; the tooth-extraction anxiety (TEA) scale and asked to rate the amount of their anxiety toward tooth extraction on 11- point Numeric Rating Scale (NRS). **Results:** Two hundred and sixty-three patients (90.07%) filled-out the questionnaire completely. Cronbach's α for the present sample was 0.84 correlated significantly with NRS (0.48, P<0.01). Anxiety among patients was moderate, and mean scores of 4.68 and 2.76 were recorded on NRS and TEA scale respectively. The scores of anxiety in female patients was slightly higher than in male patients but without statistical significance. When considering the age groups of participants, significantly higher anxiety was depicted in the young and old adult age groups than in middle-age adult group of patients. **Conclusions**: Anxiety may be more predicted in female, young, and old-adult patients.

الخلاصة

الأهداف: تهدف الدراسة الى تقييم مستويات قلق المرضى تجاه قلع الأسنان البسيط، والفرق في مستويات القلق قبل القلع؛ إن كان موجودا؛ بين الجنسين وبين مختلف الفئات العمرية. **المواد وطرائق العمل:** تم تقييم مائتين واثنين وتسعين مريضاً ممن احتاجوا لعملية قلع أسنان بسيط. ملئ كل مشارك إستبانة مقياس القلق تجاه قلع الأسنان وكذلك طلب تقييم مقدار قلقه على مقياس التصنيف الرقمي المكون من ١١ نقطة. **النتائج:** مائتان وثلاثة وستون مريض (٩٠,٠٧٪) قاموا بملئ الاستبانة بالكامل. كانت قيمة ألفا كرونباخ للعينة الحالية مرتبطة بشكل كبير مع مقياس التصنيف الرقمي (٠,٤٨ ، P<٠,٠١). كان مستوى القلق بين المرضى متوسطا حيث معدل القلق ٤,٦٨ و٢,٧٦ على مقياسي التصنيف الرقمي والقلق تجاه قلع الاسنان على التوالي. كان القلق عند المرضى الإناث أعلى بقليل من المرضى الذكور ولكن دون دلالة إحصائية. ولكن بإعتبار الفئات العمرية للمشاركين، تم تسجيل قلق أعلى وبشكل ملحوظ في الفئات العمرية من الشباب وكبار السن مقارنة بمجموعة البالغين في منتصف العمر. **الاستنتاجات:** يجب على أطباء الأسنان بذل المزيد من الجهود لتقليل القلق قبل قلع الأسنان لدى المرضى من الإناث والشباب وكبار السن.

INTRODUCTION

Anxiety toward unpleasant stimuli is common psychological responses of patients seen in dental practice [1]. Anxiety is a psychological and physiological state that prepare a person for actual or potential threatening situations [2]. Previous studies found that the prevalence of mild dental anxiety among population were about 40-43% [3, 4]. Anxiety related to dental treatment is associated with reduced dental visits, deteriorated oral health, more functional and aesthetic impairment, and subsequently a reduced quality of life [5, 6]. Researchers found that different dental procedures have different levels of anxiety, and the tooth extraction is in the top list of most frightening dental procedures [7, 8]. Similarly, Oosterink et al. [9] reported that dental patients considered oral surgery to be the most fearful procedure among other dental interventions and up to 91% oral surgery procedures were tooth extraction.

Tooth extraction is an invasive procedure associated with pre and postoperative anxiety, so it needs attention from the psychological point of view with special preparation and mood modification [1]. As it is difficult for dentists to deal with anxious patients, identification of such patients and the possible contributing factors are required. Therefore, the current study aimed to assess the difference in pre-extraction anxiety levels; between genders and among different age groups, and to shed the light on the possible contributing factors.

MATERIALS AND METHODS

Subjects:

We studied patients who presented to the departments of the oral surgery in the specialized dental centres, Mosul, Iraq, for simple tooth extraction. A local ethics committee approved the study (19/53-183), and all the patients provided with a written informed consent. Exclusion criteria were patients <18 years old, cognitive or mental disability, and illiteracy.

Patients grouped according to their gender and according to their age in to three groups; young adults (18-39 years), middle-age adults (40-59 years), and old adults (≥ 60 years).

Procedure:

Three oral surgeons, with a request to participate, approached subjects in the waiting room. Candidates asked to rate the amount of their anxiety toward tooth extraction on a 0 (no anxiety) to 10 (extreme anxiety) Numeric Rating Scale (NRS) [10], in addition to answering questions of the Arabic-language version of the tooth extraction anxiety questionnaire; the TEA scale [11]. It comprised 9 items, rated on a Likert type scale, scored from 1 (no anxiety at all) to 5 (extreme anxiety) with a total score range of 9-45.

Statistical analysis:

The data were analysed using IBM SPSS Statistic 23 (SPSS Inc., Chicago, IL, USA). Mean scores and standard deviations of each item of TEA scale and NRS were

computed. Then, the independent samples t-tests and ANOVA test were used to compare the means between genders and different age groups respectively. For all statistical analysis, the level of significance was set at $P= 0.05$.

RESULTS

Of the 292 patients enrolled in the study, 263 (90.07%) filled-out the questionnaires completely, 146 (55.51%) of whom were male and 117 (44.49%) female. Patients mean age (SD) was 28.57(9.95) years, range18-71. Two hundred and twenty-six (85.93%) patients aged between 18 and 39 years (young adult), 32 patients (8.75%) were middle-aged adults, and 14 (5.32%) patients were old adults ($\geq$ 60 years).

According to assumed NRS values, 119 patients (45.3%) presented with mild anxiety. In contrast, 83 (31.6 %), 39 (14.8%), and 22 (8.3%) participants had moderate, severe, and panic levels of anxiety respectively. The level of anxiety in both genders and for different age groups are shown in Tables 1 and 2.

The TEA scale used in this study was highly reliable (Cronbach's alpha= 0.839) and correlated significantly with NRS (0.48, P<0.01). The total mean score of TEA scale was 2.76 (SD=0.81) and the mean score of questions varied from 2.59 to 2.97, but no statistically significant difference existed among them (ANOVA test, $P= 0.904$). The mean of scores for female was 2.86 (SD=0.84) and slightly higher than for male patients 2.68 (SD=0.78), but with no significant difference between genders (t- test, $P=0.07$). Similarly, non-significantly (t-test, $P=0.26$) higher NRS mean values were recorded in female patients (5.34, SD=2.66) compared with male patients (4.14, SD=2.34).

The picture is different when considering the age groups of participants. The mean of scores were statistically significant higher (ANOVA test, $P=0.006$) in the young and old adult age groups (2.81, SD=0.79; 2.73, SD=1.06) than in middle-age adult group of patients (2.27; SD=0.68). Although same results were depicted when evaluating the NRS values in respect to different age groups with highest mean of NRS scores in young adults (4.76, SD= 2.5) and lowest mean of scores in middle-age adult group (4.09, SD=3); no significant difference(ANOVA test, $P=0.436$) was existed among groups (Table 3).

Table (1): NRS values grouped by gender.

	Mild	Moderate	Severe	Panic	Total
Female	38(32.5%)	42(35.9%)	22(18.8%)	15(12.8%)	117
Male	81(55.5%)	41(28.1%)	17(11.6%)	7(4.8%)	146
Total (%)	119(45.3%)	83 (31.6)	39 (14.8%)	22 (8.3%)	263

Table (2): NRS values of different adult age groups.

	Mild	Moderate	Severe	Panic	Total
Young adults	98(43.4%)	76(33.6%)	33(14.6%)	19(8.4%)	226
Middle-age adults	13(56.5%)	4(17.4%)	4(17.4%)	2(8.7%)	23
Old adults	8(57.2)	3(21.4%)	2(14.3%)	1(7.1%)	14
Total (%)	119(45.3%)	83 (31.6)	39 (14.8%)	22 (8.3%)	263

Table (3): Mean of anxiety scores (SD) for different study groups.

	Total	Female	Male	*P* value	Young adults	Middle-age adults	Old adults	*P* value
NRS	4.68 (2.56)	5.34 (2.66)	4.14 (2.34)	0.26	4.76 (2.5)	4.09 (3)	4.36 (2.7)	0.436
TEA Scale	2.76 (0.81)	2.86 (0.84)	2.68 (0.78)	0.07	2.81 (0.79)	2.27 (0.68)	2.73 (1.06)	**0.006***

SD= Standard deviation.

NRS= Numeric rating scale

TEA= Tooth-extraction anxiety.

*= Significant difference at 0.05 level

DISCUSSION

Tooth extraction is invasive surgical procedure with pre and intra-operative anxiety that should carefully managed psychologically [12].

In the current study, The TEA scale is used to assess patient's anxiety toward tooth extraction through nine questions. These items are the most common anxious aspects of tooth extraction based on surgeons' experience. It is possible for the surgeon to notice patient's psycho-emotional state before, during, or after the procedure, even if the patient does not report any negativity. The 11-point NRS to assess the level of pre-operative anxiety was used. It is simple, quick, widely used, and its scores are suitable for parametric analysis [13].

This study provides a data on the possible factors contributing in anxiety related to dental extraction. The results show that, female scored slightly higher anxiety than male patients do, but without statistical significance. This is in an agreement with the findings of other studies [14, 15]. This can be attributed to the fact that females are more interactive to stimulus than males as reported before [16] or males may have tried to hide their dental anxiety because they believe in their leading gender role [17].

Another point for discussion is that, why young-adult patients scored significantly higher than other patients? This may be explained by the fact that, dental anxiety is negatively correlate to age, and this is in agreement with the findings of other studies [18, 19]. The young patients are relatively having no or low experience with different dental procedures and

expect to overestimate their anxiety towards tooth extraction [18, 20].

In the current study, the sample size adds limitations in age groups and socio-economic status, which may affect the final response to scale items. It is accepted that peoples with different age groups and cultures have different life experiences that affect their anxiety towards tooth extraction [21, 22].

CONCLUSION

Anxiety may be more predicted in female, young, and old-adult patients.

REFERNCES

1. Al-Samman AA, Al-Nuaime OS, Sulaiman SA, Mohamedtaib OJ. Role of Encouraging Words in Reducing Anxiety and Pain during Tooth Extraction. Al–Rafidain Dent J 2018, 18(1):73-82.

2. Van Wijk AJ, de Jongh A, Lindeboom JA .Anxiety Sensitivity as a Predictor of Anxiety and Pain Related to Third Molar Removal. J Oral Maxillofac Surg 2010; 68:2723-29.

3. Armfield JM, Heaton LJ. Management of fear and anxiety in the dental clinic: a review. Aust Dent J 2013; 58: 390–407.

4. Stouthard ME, Hoogstraten J. Prevalence of dental anxiety in the Netherlands. Community Dent Oral Epidemiol 1990; 18: 139–142.

5. Vermaire JH, de Jongh A, Aartman IH. Dental anxiety and quality of life: the effect of dental treatment. Community Dent Oral Epidemiol 2008; 36: 409-16.

6. Eitner S, Wichmann M, Paulsen A, Holst S. Dental anxiety–an epidemiological

study on its clinical correlation and effects on oral health. J Oral Rehabil 2006; 33: 588–93.

7. Liu Y, Huang X, Yan Y, Lin H, Zhang J, Xuan D. Dental fear and its possible relationship with periodontal status in Chinese adults: a preliminary study. BMC Oral Health 2015; 15:18.

8. Oosterink FM, de Jongh A, Aartman IH. What are people afraid of during dental treatment? Anxiety-provoking capacity of 67 stimuli characteristic of the dental setting. Eur J Oral Sci 2008; 116: 44–51.

9. Oosterink FM, de Jongh A, Hoogstraten J. Prevalence of dental fear and phobia relative to other fear and phobia subtypes. Eur J Oral Sci 2009; 117: 135-43.

10. Turk DC, Melzack R: Handbook of Pain Assessment. New York, Guilford Publications, 1992.

11. Al-Samman AA, Mohamad BS, Sami GM, Hamakhan RI. Development of a Tooth Extraction-Anxiety Scale: A Proposal of New Scale. Int J Dent & Oral Heal. 2019;5: 63-7.

12. Astramskaitė I, Juodbalys G. Scales used to rate adult patients' psycho- emotional status in tooth extraction procedures a systematic review. Int J Oral Maxillofac Surg 2017; 46: 886-98.

13. Al-Samman A A, Al-Nuaime OS, Othman HA. Validity and Reliability of Full Cup

21. Astramskaitė I, Poškevičius L, Juodžbalys G. Factors determining tooth extraction anxiety and fear in adult dental patients: a systematic review. Int J Oral Maxillofac Surg 2016; 45:1630-43.

Test in Pain Evaluation after Dental Surgery: A Comparison with Four Pain-Rating Scales in a Sample of Iraqi Patients. JODR 2016; 3:2-7.

14. Hakeberg M, Berggren U, Carlsson SG. Prevalence of dental anxiety in an adult population in a major urban area in Sweden. Community Dent Oral Epidemiol 1992; 20:97–101.

15. Stouthard MEA, Hoogstraten J. Prevalence of dental anxiety in the Netherlands. Community Dent Oral Epidemiol 1990; 18: 139–42.

16. Holtzman JM, Berg RG, Mann J, Berkey DB. The relationship of age and gender to fear and anxiety in response to dental care. Spec Care Dent 1997; 17: 82–7.

17. Pierce KA, Kirkpatrick DR. Do men lie on fear surveys? Behav Res Ther 1992; 30:415–8.

18. Van Wijk AJ, McNeil DW, Ho CJ, Buchanan H, Hoogstraten J. A short English version of the fear of dental pain questionnaire. Eur J Oral Sci 2006; 114: 204-8.

19. Locker D, Liddell A, Burman D. Dental fear and anxiety in an older adult population. Community Dent Oral Epidemiol 1991; 19: 120–4.

20. vanWijk AJ, Hoogstraten J. Experience with dental pain and fear of dental pain. J Dent Res 2005; 84: 947–50.

22. Muglali M, Komerik N. Factors related to patients' anxiety before and after oral surgery. J Oral Maxillofac Surg 2008; 66: 870–7.