Effect of Physician's Experience on Patient's Anxiety During Impacted Third Molar Surgery

Gömülü Üçüncü Molar Ameliyatlarında Hekim Deneyiminin Hastaların Anksiyetesi Üzerine Etkisi

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ABSTRACT

Objective: To determine the prevalence of preoperative anxiety and postoperatif satisfaction in patients who is going to have third molar surgery and also to determine the influence of surgeon's experience on anxiety level.
Materials and Methods: Patients were randomly divided into 3 groups who applied for extracting impacted lower third molar surgery. Each group was operated by different surgeons; by professor, senior assistant or junior assistant. Preoperative anxiety values were measured with Spielberg State and Trait Anxiety Inventory (STAI) test and postoperative satisfaction were measured by the self-prepared satisfaction questionnarie.
Results: Preoperative dental anxiety values of female patients were found to be statistically higher than male patients ($p < 0.05$). In addition, It was determined that there was no statistically significant difference between the mean STAI-I scores of the female patients under and over age of 30 ($p > 0.05$). However, the mean STAI-I score of those aged 30 and under is higher than the those over the age of 30 in male patients ($p < 0.05$). It was determined that the experience of the surgeon performing the operation have no significant effect on preoperative anxiety values ($p > 0.05$).
Conclusion: In this study, three oral surgeons with different year experience performed all the operations and no significant change of anxiety was recorded. Results of this study indicates that female patients at all ages and male patients under age of 30 were more anxious than the rest of the patients.

Keywords: Anxiety; Dental treatment; Experience; Third molar tooth; Surgeon, Surgery.

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ÖZET

Amaç: Bu çalışmanın amacı; gömülü üçüncü molar ameliyatı olacak hastalarda, ameliyat öncesi anksiyete ve ameliyat sonrası memnuniyet derecelerini ve cerrah deneyiminin anksiyete düzeyine etkisini belirlemektir.
Yöntem: Gömülü alt üçüncü molar çekimi için başvuran hastalar rastgele 3 gruba ayrıldı. Her grup farklı bir cerrah tarafından ameliyat edildi; profesör, kıdemli asistan veya çömez asistan tarafından. Ameliyat öncesi kaygı değerleri Spielberg Durumluk ve Sürekli Kaygı Envanteri (STAI) testi ile, ameliyat sonrası memnuniyet düzeyi ise hazırlanan memnuniyet anketi ile ölçüldü.
Bulgular: Kadın hastaların preoperatif dental anksiyete değerleri, erkek hastalara göre istatistiksel olarak yüksek bulundu ($p<0.05$). Ayrıca 30 yaş altı ve üstü kadın hastaların STAI-I puan ortalamaları arasında istatistiksel olarak anlamlı fark olmadığı belirlendi ($p>0,05$). Ancak erkek hastalarda; 30 yaş ve altındakilerin STAI-I skor ortalaması, 30 yaş üzerindekilere göre daha yüksektir ($p<0,05$). Ameliyatı yapan cerrahın tecrübesinin ameliyat öncesi kaygı değerleri üzerinde anlamlı bir etkisinin olmadığı belirlendi ($p>0,05$).
Sonuç: Bu çalışmada, farklı deneyime sahip üç oral cerrah tüm operasyonları gerçekleştirdi ve kaygıda önemli bir değişiklik kaydedilmedi. Bu çalışmanın sonuçları, her yaştaki kadın hastaların ve 30 yaşın altındaki erkek hastaların diğer hastalara göre daha endişeli olduğunu göstermektedir.

Anahtar Sözcükler: Ameliyat; Cerrah; Deneyim; Diş tedavisi; Endişe; Üçüncü azı dişi

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INTRODUCTION

Dental anxiety is a feeling of fear that may often arise during dental treatment. Dental anxiety can be seen in all ages, genders and social classes. Various demographic factors can be effective such as age, gender, education level, socioeconomic status, previous dental experiences and personality (1). Previously, female gender, young age, low socioeconomic status and low educational attainment are reported to be associated by high levels of anxiety (2).

Generally, oral surgical procedures are the most feared procedures for patients in term of dental treatment. Impacted third molar tooth extraction is one of the most common surgical procedures in oral surgery. For this reason, it is recommended to determine the anxiety level of patients preoperatively before the surgical interventions (3). Anxiety that develops before the dental surgery may cause delay or cancellation of the treatment causing patient's condition become more serious and painful. Furthermore, such cancellation may even cause patient's general health status to worsen, increasing sensitivity to pain, inability to communicate by the physician during the operation (4). Indications of impacted third molar removal can be listed as existing deep caries, pericoronitis, cyst formation, periodontal and orthodontic problems (5).

The most widely used test for anxiety measurement is the State-Trait Anxiety Inventory (STAI) scale. The state anxiety scale is a test consisting of expressions that indicate how the person feels himself at a particular moment, while the trait anxiety scale is a test consisting of statements that indicate how the person usually feels in life (4).

In this study, total of 83 impacted lower third molar teeth were extracted from 83 otherwise healthy patients by the 3 different oral surgeons with various year experience. The aim of this study is to measure patient's preoperative anxiety level using STAI scale and to determine their satisfaction according to the self prepared questionnaire. Patients were asked to fill out the form following the surgical operation in order to determine if experience of surgeon can make any difference and decrease the level of patients anxiety.

MATERIALS and METHODS

Ethical Approval

The present study protocols were approved by the clinical research ethics review committee of the Ankara University Faculty of Dentistry (Ankara, Turkey; Number 36290600/113). Informed consent was obtained from all the participants. This study followed the Declaration of Helsinki on medical protocol and ethics.

Study Design

For the purpose of the research, we designed a prospective, randomized, clinical trial. The study population included patients who applied to Gazi University Faculty of Dentistry, Department of Oral and Maxillofacial Surgery for the impacted lower third molar surgery between 2018 and 2019. Informed consent was obtained from the patients for the procedures to be performed.

Patients And Grouping

All of the patients included in this study were over 18 years old, otherwise healthy patients and not on use of antidepressant. Study design included only the surgery of Parant I, II, III scale and mesioangularly impacted lower third molars (6). Patients were divided in 3 groups; total of 31 patients were operated by senior assistant in group A; 30 patients were operated by junior assistant in group B and rest of the 22 patients were operated by a professor in group C. Pre-operatively, State-Trait Anxiety Inventory forms (Table 1-2) were given to each patient to be filled out. Following the operation self-prepared satisfaction questionnaire (Table 3) were also asked to be filled out by each patients.

Table 1: STAI-I Form

		Never	A Little	A Lot	Completely
1.	I feel calm				
2.	I feel secure				
3.	I'm tense				
4.	I feel strained				
5.	I feel at ease				
6.	I feel upset				
7.	I'm presently worrying over possible misfortunes				
8.	I feel satisfied				
9.	I feel frightened				
10.	I feel comfortable				
11.	I feel self-confident				
12.	I feel nervous				
13.	I'm jittery				
14.	I feel indecisive				
15.	I'm relaxed				
16.	I feel content				
17.	I'm worried				
18.	I feel confused				
19.	I feel steady				
20.	I feel pleasent				

Table 2: STAI-II Form

		Almost never	Sometimes	Most of the time	Almost always
1.	I feel pleasent				
2.	I feel nervous and restless				
3	I feel satisfied with myself				
4	I wish I could be as happy as others seem to be				
5	I feel like a failure				
6	I feel rested				
7	I'm "calm, cool and collected"				
8	I feel that difficulties are pilling up so that I cannot overcome them				
9	I worry too much over something that really doesn't matter				
10	I'm happy				
11	I have disturbing thoughts				
12	I lack self-confidence				
13	I feel secure				
14	I make decisions easily				
15	I feel inadequate				
16	I'm content				
17	Some unimportant tought runs through my mind and bothers me				
18	I take disappointments so keenly that I can't put them out of my mind				
19	I'm a steady person				
20	I get in a state of tension or turmoil as I think over my recent concerns and interests				

Table 3: Self-prepared satisfaction questionnaire

		YES	NO
1)	The operation was not as difficult as I expected		
2)	The operation did not take time as long as I expected		
3)	I felt safe during the operation		
4)	I think sedation is necessary for such operation		
5)	Surgeon who performed the operation was very kind		
6)	I became even more concerned about my future dental treatments followig this operation		
7)	I don't want my other third molar tooth extracted unless it is urgent		
8)	My fear increased due to the voices that dental equipment makes		
9)	I would prefer a professor to perform the operation.		

STAI Forms and Score Calculation

The STAI forms included 40 questions, 20 of which relate to state anxiety and the other 20 to trait anxiety. Participants were asked to respond to each question using a 4-point scale, where 1 represented no anxiety and 2, 3, and 4 represented mild, moderate, and severe anxiety, respectively. The points for each question were summed separately as total STAI-I (state) and STAI-II (trait) scores. A predetermined and unchanging constant of 50 for the State anxiety scale and 35 for the trait anxiety scale was added to the number found. Consequently, the score for either STAI-I or STAI-II could range from 20 to 80, with the higher score representing more severe anxiety. The last value obtained is accepted as the anxiety score of each patient, and the big score was considered as high anxiety level and small score as low anxiety level (Table 1-2) (7).

Statistical Analysis

The data obtained in the study were analyzed using SPSS 25.0 (Statistical Package for Social Sciences) program. Descriptive statistical methods (number, percentage, mean, standard deviation, minimum and maximum) were used when evaluating the data. In the comparison of quantitative data, the difference between the two groups was used for independent sample t test in measurements with normal distribution, and F test (ANOVA) for measurements with normal distribution in comparisons of more than two groups.

RESULTS

A total of 83 patients, 47 female and 36 male, aged between 17 and 53 years (mean 24.79) were included in this study.

State-Trait Anxiety Inventory (STAI I and II) Forms Results

Descriptive statistics of the STAI-I and STAI-II scales used in the study were prepared according to Nakazato et al and scores were displayed in Table 4 (7). It was determined that the participants received a score of minimum 20, maximum 66, an average of 38.03∓9.43 according to the STAI-I scale. In addition, minimum of 25 and maximum of 40 scores was determined on the STAI-II scale, the avarage was 34.19∓2.83.

Table 4: Average values of STAI-I and STAI-II

		V Very High		IV High		III Normal		II Low		I Very Low	
STAI-I	Female	≥ 51		50-42		41-31		30-22		≤ 21	
		n	%	n	%	N	%	n	%	n	%
		6	7.2	28	33.7	30	36.1	17	20.5	2	2.4
	Male	≥ 50		49-41		40-32		31-23		≤ 22	
		n	%	n	%	N	%	n	%	n	%
		7	8.4	30	36.1	24	28.9	19	22.9	3	3.6
STAI-II	Female	≥ 55		54-45		44-34		33-24		≤ 23	
		n	%	n	%	N	%	n	%	n	%
		0	0.0	0	0.0	51	61.4	32	38.6	0	0.0
	Male	≥ 53		52-44		43-33		32-24		≤ 23	
		n	%	n	%	N	%	n	%	n	%
		0	0.0	0	0.0	63	75.9	20	24.1	0	0.0

In order to test whether there was a statistically significant difference between the STAI-I score by gender an independent t test was performed. According to the results of the analysis, a statistically significant difference was found between the mean values of STAI-I scores by gender (p=0.002), female patients had a higher STAI-I score than male patients (Table 5).

Table 5: STAI-I scores by gender

	Gender	n	Mean	Standard deviation	t	p
STAI-I	Male	36	34.44	10.57		
	Female	47	40.79	7.47	-3.203	0.002*

**p<0.05*

According to the surgeons who performed the operation, a variance analysis (ANOVA) was performed to determine if there was a statistically significant difference between the STAI-I scores whether surgeon's experience of years makes any difference. Total of 37.3% of patients were operated by senior assistant with 4 year experience; 36.1% of patients were operated by junior assistant with 1 year experience only and 26.5% of patients were operated by professor with 29 year experience. It was found that there was no statistically significant difference between STAI-I scores and surgeons experience (p=0.162).

Moreover, an independent t-test was conducted to test whether there was a statistically significant difference between the mean STAI-I scores by gender. Female patients were more anxious than male patients (p=0.027). Moreover, it was determined that there was no statistically significant difference between the mean STAI-I scores of the female patients under and over age of 30 (p=0.800). However, mean STAI-I score of those aged 30 and under is higher in male patients than those over the age of 30 (Table 6).

Table 6: Comparison of STAI-I scores in terms of age groups by gender

		n	Mean	Standard deviation	t	p
Male	Age 30 and under	28	35.89	11.33	2.340	0.027*
	Over 30 years	8	29.38	5.04		
Female	Age 30 and under	42	40.69	7.71	-0.255	0.800
	Over 30 years	5	41.60	5.68		

**p<0.05*

Impacted third molars were classified according to Parant scale (6). Total of 20.5% of the impacted third molar teeth exracted were Parant II and Parant III and 79.5% was Parant I. In order to test whether there was a statistically significant difference between the mean STAI-I score and Parant scale, independent t test was performed. There found to be no statistically significant difference was exist (p=0.294).

Patients education status was also studied. There was only 7.2% of the patients with primary school education, 56.6% with high school education, and 36.1% with university degree. ANOVA was performed to test whether there was a statistically significant difference between the mean STAI-I scores and patients educational status. It was found that there was no statistically significant difference (p=0.673).

Independent t test was performed to analyse whether there was a statistically significant difference between mean STAI-I scores of patients for the following previous experiences of patients: 1. Previous dental experience (p=0.816); 2. Previous experience for tooth extraction (p=0.587) and 3. Previous experience for toothache (p=0.757). Results displayed that there was no statistically significant difference when they compared by the results mean value of STAI-I scores by each previous experience.

In addition, when patients were asked by Satisfaction Questionnarie if they would prefer a professor to perform their operation, results of their choice is given in Table 7. When the operation time was evaluated, the shortest operation time was 15 minutes and the longest was 50 minutes, it is observed that 63.9% of the operations were below 30 minutes and 36.1% were 30 minutes or more, found that operation time was not effect their anxiety level significantly (p>0.05) (Table 3).

Table 7: Percentage of patients who said yes to "I would prefer a professor to perform the operation"

	Yes		No		Total	
	n	%	n	%	n	%
Senior Asistant	22	71.0	9	29.0	31	100.0
Junior Asistant	14	46.7	16	53.3	30	100.0
Professor	20	90.9	2	9.1	22	100.0
Total	56	67.5	27	32.5	83	100.0

*X^2= 11.595, p=0.003**

DISCUSSION

Dental practices can be frightening for individuals of all ages. Oosterink et al. (8) was observed fear of dental treatment (49.4%) much more than many other known fears, such as animal (39%), height (30.7%), storm (21.1%), and fear of flying (13.2%).

Dental anxiety may increase depending on the procedure to be performed. In various studies, it has been reported that the most feared dental practices are tooth extraction and root canal treatment (9,10). There have been many studies investigating the factors affecting the fear that develops due to tooth extraction (2,11,12). But there was no study in the literature measuring the degree of satisfaction of patients following the operations performed by doctors with different year experiences. For this reason, this study evaluates general factors on fear, but also explores the effect of physicians experience on the patient.

It is necessary to reveal all dimensions of dental fear and anxiety and evaluate them correctly. Patient fear and anxiety can be determined by a specially developed scales. These scales are easy to use and reliable, and most of them consist of questionnaire forms that can be read and answered by the patient easily. It has been reported that filling these scales before dental treatment has no negative effect on the patient's fear and anxiety levels (13). For this purpose, we asked patients to fill out the STAI forms before the surgery, and satisfaction questionnarie following the surgery.

Thomsan et al. (14) reported that those who never went to the dentist had higher anxiety levels than those who went for routine control. Kaakko et al. (15) reported that the anxiety levels of patients who were given dental injections for the first time were higher than those who had previously been injected. In addition, Jongh et al. (16) reported that higher anxiety occurs in patients who have previously experienced painful local anesthesia when they go to the dentist for the second time, the procedure they fear most is dental injection. In this study, there was no signifant difference between patients previous dental experience and anxiety level in all the groups (p>0.05).

Anxiety disorder can be seen at any age. Educational status, gender, age, and past dental experience may effect patient's anxiety levels (17). In studies reported by Doerr et al. (18) and Marakoğlu et al. (19) , it was observed that dental anxiety disorder occurs more often in patients with low educational level, living in the countryside and who have not been previously underwent to any dental treatment. Stouthard and Hoogstraten (20), reported that the 18-21 age group was more anxious than older individuals. Horst and Wit (21), reported that women are more anxious than men universally. In this study, it was found that anxiety levels of female patients were higher than male patients. In addition, men aged 30 and over have higher levels of anxiety than men under age 30 (p<0.05).

Hallstrom and Halling (22), reported in their study that dental anxiety was higher in individuals with low educational levels. However, Ilgüy et al. (23) have not found any significance between dental anxiety and educational level in their study. Primary school, secondary school, high school and university graduates were included in the present study and no significant difference was observed between different educational level and anxiety level in all groups (p>0.05).

In the study conducted by Xu and Xia (24) all patients were operated by the same surgeon with more than 5 years of work experience. In many other studies, operations were performed by a single surgeon, but no information about the surgeon's experience was provided (25-27). In this study, surgeons with 3 different work experiences performed all the operations. According to the statistical analysis, it was found that the experience of the surgeon have not made any statistically significant increase for patients anxiety level however when patients were asked most of them stated that they would prefer a senior assistant or professor to perform their surgery (Table 7).

Dental procedures are frightening and worrying for patients. Factors such as age, gender, educational background can effect the level of anxiety. However, there is no study in the literatüre investigating the effect of physician's work experience on dental fear and anxiety. In this study, we determined that the physician's experience had no significant effect on dental anxiety.

However, results of this study indicated that female patients at all ages and male patients under age of 30 were more anxious than the rest of the patients.

Conflict of interest

No conflict of interest was declared by the authors.

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