

Evaluation Of Anxiety In Patients Applying To Anesthesia Out - Patient Clinic

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Abstract

Objective: To determine the effects of demographic factors as age, education, gender, marital status on anxiety level and anxiety levels and reasons of the patients those will be operated electively.

Method: A total of 800 patients ≥ 18 years who has been prepared for elective surgery and completed the questionnaire at the anesthesia outpatient clinic have been enrolled in this study. Patients ≥ 18 years old, who were classified as ASA I – III according to the American Society of Anesthesiologists (ASA), literate individuals, subjects without any psychiatric or neurological disease, patients who did not use psychiatric drugs or alcohol (chronic consumers) were included in the study.

Results: The highest STAI – I value was found in 31 – 50 age group. Pre-operative STAI – I value was higher in women ($p < 0.001$). When anesthesia history was evaluated 479 of the 700 patients were received anesthesia previously and STAI – I scores were numerically higher in these patients (43.3 ± 9.4 vs. 41.8 ± 9.7) ($p = 0.056$). University graduates had higher levels of anxiety on awakening during surgery ($p = 0.002$). When the relation between the anesthesia anxiety scores and gender was evaluated women mostly anxious about the post-operative pain and their family.

Conclusion: It is natural that one could experience a certain form of anxiety before, during and after a surgical procedure. This research elaborated that being women and no previous history of anesthesia had significantly affected per-operative anxiety. Briefing the patient in anesthesia examination might play an important role to relieve the patient.

Keywords: Anesthesia, Anxiety, State-Trait Inventory Test, Surgery, Survey.

Özet

Amaç: Elektif şartlarda opere edilecek olan hastaların anksiyete düzeylerini, nedenlerini; yaş, eğitim durumu, cinsiyet, medeni durum gibi demografik özelliklerin anksiyete düzeyine etkisini belirlemektir.

Yöntem: Dokuz Eylül Üniversitesi Tıp Fakültesi Anesteziyoloji ve Reanimasyon Kliniği Anestezi Polikliniği'nde, elektif şartlarda operasyon planlanan, 18 yaş üstü 800 yetişkin hasta ankete alındı. American Society of Anesthesiologists (ASA) sınıflamasına göre ASA I ve III grubu, okuma yazma bilen, psikiyatrik ve nörolojik herhangi bir hastalığı olmayan, psikiyatrik ilaç ve kronik alkol kullanmayan hastalar çalışmaya dahil edildi.

Bulgular: Toplanan 800 anket formundan tam doldurulmuş olan 700 anket değerlendirmeye alındı. Hastaların ortalama, yaş değerleri 18-83 (40.95 ± 15.68) olarak bulundu. STAI-I skoru 42.3 ± 9.7 (en düşük 21 ve en yüksek 77) olarak bulundu. En yüksek STAI – I değeri 31 – 50 yaşları arasında hastalarda bulundu. Kadın hastaların preoperatif STAI – I değerleri, erkeklerden yüksek bulundu ($p < 0.001$). Hastaların anestezi öyküsü incelendiğinde 700 hastanın 479'nun daha önce anestezi aldığı ve bu hastaların STAI – I skorlarının sayısal olarak daha önce anestezi öyküsü olmayan hastalara göre daha yüksek olduğu görüldü ($43,3 \pm 9,4$ karşı $41,8 \pm 9,7$). Ancak bu fark istatistiksel olarak anlamlı bulunmadı ($p = 0,056$). Bütün hastaların eğitim durumları ile ameliyat sırasında uyanmaktan endişelenenlerin sayısı üniversite mezunlarında anlamlı olarak yüksek bulundu ($p = 0,002$). Anestezi endişe skorları ve cinsiyet arasındaki ilişki incelendiğinde kadınların en fazla ameliyat sonrası ağrıdan ve geride kalan ailesi için endişelendiği görüldü ($p = 0,000$ vep = $0,000$).

Sonuç: Bir kişinin cerrahi işlem öncesinde, sırasında ve sonrasında belirli bir kaygı biçimi yaşaması doğaldır. Bu araştırmada kadın hastaların ve daha önce anestezi öyküsü olmayan bireylerin ameliyat sırasındaki kaygıyı

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önemli ölçüde etkilediği gösterilmiştir. Anestezi muayenesinde hastayı bilgilendirmek hastayı rahatlatmada önemli rol oynayabilir.

Anahtar Kelimeler: Anestezi; Anksiyete, Durumluk-Sürekli Kaygı Envanteri Testi, Cerrahi, Anket.

INTRODUCTION

Pre-operative evaluation of the patient includes determining the physical and psychological state of the patient, taking the pharmacological and therapeutic history, laboratory findings and determining the risk of anesthesia. This is followed by informing the patient and pre-operative preparation with pharmacological and non-pharmacological methods. Pre-operative medication is an application to prepare the patient psychologically and pharmacologically (1).

Anxiety has been reported before surgery in 60-80% of patients who have undergone surgery (2, 3). Norris and Baird (4) reported that 60% of the patients were anxious before surgery in a cohort of 500 individuals. The State – Trait Anxiety Inventory (STAI) has been commonly used in research to measure the pre-operative anxiety level of the patients. Domar et al. (5) reported a mean anxiety score of 45 according to the STAI scale on 523 patients, 57% of whom were gynecological patients. Similar results were published by Volunteer et al. (6) as they measured the pre-operative anxiety level as 40.76 in 83 patients, Turhan et al. (7) as they found the preoperative STAI-I mean score 46.80 in women and 39.54 in men.

Anxiety levels were found to be higher in women, in patients brought to surgery by their family and friends, in patients who would undergo cardiac and vertebral surgery, in young people and in those with previous negative anesthesia experience (8).

Pre-operative preparation has many purposes. But the most important thing is to relieve anxiety. For this purpose, during the preoperative visit, the patient should be informed about the anesthesia method to be applied, and his fear and anxiety should be eliminated (5). The attention of the anesthesiologist can greatly reduce the patient's anxiety, even without the use of medication. Providing adequate support and accurate information to patients before surgery has a great effect on reducing anxiety and improving patient outcomes (9).

Garden et al. reported that, 82% of the patients who underwent surgery wanted to know more about the pre-operative intervention, and it was understood that the most requested information was the length of stay in the hospital (10). Bugge et al., observed that patients asked more about pain, duration of anesthesia, reduced risk of daily activities, and less sedative or complications (11). Bondy et al. concluded that the anxiety in the preoperative period decreased with the information given in the video or brochure about the anesthesia procedures (12).

Surgical intervention and type of anesthesia have an important place among the causes of preoperative anxiety. Studies have shown that the most common source of anxiety in terms of anesthesia was general anesthesia, and this concern was expressed as “not being able to wake up from anesthesia”. On the other hand, the most important anxiety in patients who will be operated with regional anesthesia was “being awake and aware of what is around” and “the surgical site did not sufficiently become numb” (13).

Anxiety occurs in 60 – 80% of patients pre-operatively and causes increased blood pressure and pulse rate, excessive sympathetic activity during intubation leading to use of higher doses of anesthetic drugs, postoperative nausea, vomiting, increase in pain and analgesic requirement, delay in wound healing, duration of recovery and hospital stay (14).

Within the scope of this study, we aimed to elucidate the causes and level of anxiety and anxiety related to anesthesia in patients who applied to our institution.

METHOD

This research was a cross-sectional survey of 800 adult patients scheduled for elective surgery in order to determine their anxiety levels and evaluate possible causes. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. The study has been approved at by the ethics committee of 9 Eylul University Medical Faculty.

Patients ≥ 18 years old, who were classified as ASA I – III according to the American Society of Anesthesiologists (ASA), literate individuals, subjects without any psychiatric or neurological disease, patients who did not use psychiatric drugs or alcohol (chronic consumers) were included in the study.

Patients < 18 years old, with psychiatric or neurological disorders, had difficulty in establishing cooperation, using psychiatric drugs and chronic alcohol were excluded.

In order to measure the pre-operative anxiety level, the information about the cases has been collected via questionnaire formed with the "preoperative anxiety and anxiety assessment form". The questionnaire consists of 15 questions including the STAI anxiety scale and anxiety scores. Demographic information such as age, gender, education, the type of planned operation and surgical department, whether they have received anesthesia previously were collected. The "STAI FORM TX-I" test, which is used to measure the situational anxiety of patients, consists of two sub-units, each containing 20 statements and measuring trait and state anxiety separately. The trait anxiety part was planned to measure what was felt in the last 7 days, and the other sub-unit was planned to measure what was felt at that moment.

Likert Scale, had a scoring range from 1 to 5, and had been used to evaluate concerns about anesthesia (Concern 1: Strongly Disagree, Worry 2: Disagree, Worry 3: Neither disagree nor agree, Worry 4: Agree, Worry 5: Strongly Agree). The patients were asked to fill out the questionnaire while they were waiting in the Anesthesia Clinic. At the end of the questionnaire, the STAI score and the anxiety score of the patients were calculated by scoring manually.

Statistical Analysis

Statistical analyzes of the data obtained in the study were performed with the SPSS 15.0 (Statistical Package for Social Sciences, Chicago, IL, USA) program. Significance level was accepted as $p < 0.05$. Variables indicated by count were evaluated via Chi-square analysis, when the variables indicated by measurement were in accordance with normal distribution. T-test has been utilized in comparison of 2 groups, with analysis of variance in comparison of more than 2 groups, with Mann Whitney U test. Kruskal Wallis Analysis was utilized when they were not in accordance with normal distribution. KENDALL correlation analysis was applied to categorical variables. The validity of the anesthesia anxiety score was evaluated with Cronbach Alpha.

The power analysis of the sample size has been calculated. Based on monthly number of 160 cases, it was planned to recruit at least 113 patients per month at a 95% confidence interval (CI), with an acceptable error rate of 5%, with a frequency of 50% in cases of

unknown frequency. The data collection period lasted 6 months. It is planned to reach at least 678 people within 6 months. In this study, a total of 700 patient data were evaluated.

RESULTS

A total of 800 patients participated in the survey and 700 fully filled out of the 800 questionnaire forms were evaluated. The mean, minimum and maximum age values of the patients were found to be 18–83 years old (40.95 ± 15.68 years). In this study, the STAI – I score was found to be 42.3 ± 9.7 (the lowest 21 and the highest 77). Crombo alpha test was 0.92.

When the relationship between the genders of the patients and their STAI – I values was examined, it was determined that the STAI – I values of female patients in the pre-operative period were higher than that of male patients, and this difference between the two groups was statistically significant ($p < 0.001$) (Table 1).

Table 1. The Relationship Between Patients' Gender And STAI – I Scores

Gender	n	%	STAI – I	P Value
Male	324	46.29	40.0 ± 10.2	< 0.001*
Female	376	53.71	44.2 ± 8.8	
Total	700	100	42.3 ± 9.7	

*: $p < 0.05$

When the relationship between age groups and STAI – I was examined, the STAI – I values of the 31 – 50 age group and the >51 age group were found to be numerically higher than the 18 – 30 age group. The highest STAI – I value was found in the 31 – 50 age group. These values were found to be statistically significant ($p = 0.034$) (Table 2).

Table 2. The Relationship Between Age Groups And STAI – I Scores

Age Groups (years)	n	%	STAI – I	P Value
18 – 30	210	30	40.9 ± 9.0	0.034*
31 – 50	273	39	42.7 ± 10.2	
≥ 51	217	31	43.2 ± 9.5	

*: $p < 0.05$

When the educational status of all patients was examined, it was seen that the education level did not affect the STAI score ($p = 0.051$). The STAI – I scores of the primary school graduates were numerically high. It was determined that the lowest STAI – I score belonged to university graduates. However, the difference was not statistically significant. When the relationship between occupational groups and STAI – I values of all patients was examined, no significant difference was found between occupational groups ($p = 0.067$).

When the anesthesia history of the patients was examined, it was determined that 479 of 700 patients had received anesthesia before. The number of previous anesthesia was found to be at least 1 and at most 17. It was observed that the STAI – I scores of the patients who had not received anesthesia before were numerically higher. The STAI – I values of patients who had previously received anesthesia and those who did not were 41.8 ± 9.7 and 43.3 ± 9.4 , respectively. When the obtained values were analyzed statistically, this difference was not found significant ($p = 0.056$).

When the relationship between the types of operations planned for the patients and pre-operative anxiety was examined, it was seen that the lowest was 49 (7%) in orthopedics and highest was 153 (21.9%) plastic surgery. The type of operation with the lowest STAI – I score was observed to be eye, and the highest one was obstetrics and urology (Table 3).

Table 3. The Relationship Between Operation Types Of The Patients And The STAI – I Scores

	N(%)	STAI – I Median ± SD	P Value
Obstetrics and Gynecology	112 (16)	45.7±8.0	< 0.001*
General Surgery	95 (13.6)	43.6±10.6	
Urology	61 (8.7)	41.9±11.5	
Plastic surgery	153 (21.9)	39.7±9.16	
Ear Nose Throat	68 (9.7)	40.7±9.11	
Eyelash	38 (5.4)	37.2±11.2	
orthopedics	49 (7)	41.0±9.5	
External Anesthesia	118 (16.9)	45.4±8.4	

*: $p < 0.05$

When the educational status of all patients was examined, it was seen that the number of those who were worried about waking up during the surgery was the highest among university graduates. This difference was statistically significant ($p=0.002$).

Table 4. Evaluation Of The Relationship Between Anesthesia Anxiety Scores And History Of Anesthesia

Anesthesia Concern Questions	Previous History of Anesthesia (n=479)	No History of Anesthesia (n=216)	Total Score	P Value
1	1.94±1.02	2.19 ± 1.07	2.02±2.00	0.002*
2	2.0±1.04	2.23 ± 1.10	2.08±1.06	0.008*
3	2.29±1.18	2.39 ± 1.24	2.32±1.20	0.346
4	2.74±1.26	2.62 ± 1.23	2.70±1.25	0.242
5	2.26±1.17	2.24 ± 1.16	2.25±1.17	0.855
6	2.37±1.22	2.46 ± 1.24	2.40±1.23	0.366
7	2.36±1.18	2.46 ± 1.14	2.39±1.17	0.215
8	2.14±1.09	2.08 ± 1.05	2.12±1.08	0.602
9	2.28±1.14	2.20 ± 1.16	2.25±1.15	0.302
10	2.29±1.15	2.32 ± 1.21	2.30±1.17	0.944
11	2.21±1.21	2.14 ± 1.17	2.19±1.20	0.540
12	2.0±1.05	2.10 ± 1.11	2.03±1.07	0.314
13	2.31±1.27	2.19 ± 1.19	2.27±1.24	0.304
14	2.09±1.12	1.97 ± 1.11	2.05±1.12	0.150
15	2.49±1.37	2.30 ± 1.31	2.43±1.35	0.117

*: $p < 0.05$

When the relationship between age groups and anesthesia anxiety scores was examined, the highest score was reached in the 18 – 30 age group in the 1st item, "I am worried about the lack of knowledge of the anesthesiologist" ($p=0.048$). The highest score in the second item, "I am worried about the lack of experience of the anesthesiologist", was reached in the 18 – 30 age group ($p=0.014$). In the fourth item, "I am worried about post-operative pain," the highest score was reached in the 31 – 50 age group ($p=0.001$). When the answers to the other items were examined, it was found that they were not statistically significant.

When the anesthesia history of the patients was examined, it was determined that 479 of 700 patients had received anesthesia previously. When the anesthesia anxiety scores and the anesthesia history of the patients were examined, it was seen that the anxiety scores of the items "I am worried about the lack of knowledge of the anesthesiologist" and "I am worried about the lack of experience of the anesthesiologist" were higher in those who did not have a history of anesthesia. This difference was found to be statistically significant ($p=0.002$ for item 1, $p=0.008$ for item 2) (Table 4).

DISCUSSION

STAI, which is used to measure pre-operative anxiety, is accepted as the gold standard in the literature (15). It was first developed as a tool to measure the level of anxiety in healthy people, but later it was found to be useful in measuring anxiety in patients (16). In our study, we found the preoperative STAI – I mean score of the patients to be higher in women (44.2 ± 8.8) than in men (40.0 ± 10.2). Our results were also in parallel with the anxiety levels reported in previous studies. Women having higher anxiety in the pre-operative period was due to the fact that women experienced more anxiety related to separation from the family and that they could express their concerns more easily.

When the relationship between age and pre-operative anxiety level was examined, different results were achieved in the literature. Some researchers have reported that age did not affect pre-operative anxiety level (17). Shevde and Panagopoulos (18) published lower pre-operative anxiety levels in the elderly. In our study, a significant correlation was found between age groups and anxiety scores. In this study, the STAI – I values of the group aged 31 – 50 years and the group over the age of 51 were found to be higher. In our study, when the relationship between age and anxiety was evaluated, it was found that the anxiety of patients over 30 years of age was lower than patients under 30 years of age.

In previous literature, there were studies showing that the previous anesthesia experience of the patients was an important variable on the level of pre-operative anxiety. In one study, anxiety levels were found to be high in patients without a history of surgery (19). On the contrary, some studies have suggested that the anesthesia experience did not change the anxiety level (20). In our study, although it was not statistically significant, the anxiety levels of patients who had not received anesthesia before were found to be higher. When the anesthesia history of the patients was examined, it was determined that 479 of 700 patients had received anesthesia previously. Although the STAI – I scores of the patients who had not received anesthesia before were numerically higher, this difference was not statistically significant. Jawaid et al. (21) evaluated pre-operative anxiety before elective surgery with the Visual Analogue Scale (VAS), and in this study, it was found that ASA physical condition and previous anesthesia experiences did not significantly affect the anxiety level. While the VAS score for surgery was 57.65 ± 25.1 , this VAS score for anesthesia was lower as 38.14 ± 26.05 . They questioned the pre-operative anxiety assessment with 15 questions, and the first 3 rank were anxiety about family (89.6%), fear of complications (87.0%), and fear of operation results (82.4%). This was followed by postoperative pain (78.8%), fears of physical impairment (75.1%), and financial loss (65.8%). Awareness during surgery was found to be at the lowest score (38.3%). It has been stated that the establishment of preoperative counseling clinics and obtaining accurate and detailed informed consent will help reduce preoperative anxiety (21).

Şekerci et al. (22) reported the most common causes of anesthesia-related anxiety as being unable to wake up after the operation, pain during the operation, and the experience of the anesthesiologist. Aykent et al. (23) reported that the most common cause of concern was not

waking up after surgery. In this study, they evaluated anxiety with STAI, Amsterdam Preoperative Anxiety and Information Scale (APAIS) and 12 questions including concerns about anesthesia and determined that the use of APAIS in our country's patient population would not be appropriate. In the study of Shevde and Panagopoulos, the causes of anxiety related to anesthesia were identified as 45% of the anesthetist's lack of knowledge, 43% of the anesthetist's lack of experience, 37% of being unable to wake up, and 34% of postoperative pain (18).

In various international studies, the most worrying causes were reported as pain, inability to wake up after surgery and waking up during surgery, respectively (24). Kindler et al. most frequently observed various factors responsible for pre-operative anxiety as worries about the family, afraid of being awake during surgery, afraid of complications and post-operative pain. In this study, half of the patients stated that their anxiety would have been lower if detailed information was given about the operation and anesthesia (25). In our study, separation from the family was the major concern, followed by disability, and having post-operative pain. According to the outcomes of our study, separation from family and post-operative pain were found in the first place, similar to other studies in the literature.

Anxiety causes patients require higher doses of anesthetic drug during anesthesia induction (26). In some studies, it has been shown that pre-operative and post-operative anxiety levels and post-operative pain are lower, recovery is faster and satisfaction is higher in patients who are informed in detail in the pre-operative period (27). Hobson et al. (28) supported this view by emphasizing that many studies in the literature showed that high pre-operative anxiety levels increase the need for post-operative analgesics, prolong hospitalization, cause undesirable per-operative outcomes and poor patient satisfaction (64).

In this study, we evaluated the survey results of 700 patients who were planned for elective surgery. Women had higher anxiety levels in the pre-operative period, had higher anxiety due to separation from the family. Additionally, the STAI – I values of the 31 – 50 age group and the 51+ age group were higher. When the questions were evaluated, it was determined that "I am calm at the moment" was answered at the highest rate and "I feel safe" was the lowest.

CONCLUSION

It is natural that one could experience a certain form of anxiety before, during and after a surgical procedure. This research elaborated that being women, no previous history of anesthesia had significantly affected pre-operative anxiety. Briefing the patient in anesthesia examination might play an important role to relieve the patient.

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Competing interests: The authors declare that they have no competing interests.

Informed consent: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all participants.

Institutional Review Board Approval: The study has been approved at by the ethics committee of 9 Eylul University Medical Faculty.

Abbreviations

APAIS: Amsterdam Preoperative Anxiety and Information Scale

ASA: American Society of Anesthesiologists

CI: Confidence interval

SPSS: Statistical Package for Social Sciences

STAI: State – Trait Anxiety Inventory

VAS: Visual Analogue Scala

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