

Evaluation of Anxiety and Fear of Anesthesia in Adults Undergoing Plastic Surgery with General Anesthesia

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Abstract

Background: Pre-operative anxiety is a universal reaction experienced by patients who are admitted to hospitals for surgery. The present study aimed to assess the causes of anxiety and concerns about anesthesia in adults undergoing surgery. **Methods:** This cross-sectional study was conducted in Dastgheyb and Mother and Child Hospitals, Shiraz, in 2015. The data were collected using a demographic information form and a questionnaire including questions about the patients' fears from anesthesia. Besides, the patients were required to score their anxiety from 0 to 10 in a specific form. An expert also measured the patients' anxiety levels using a standard visual analog scale ranging from 0 to 10. **Results:** Totally, 72 of the 74 distributed questionnaires were completed (response rate: 97%). The results showed that the patients with more than 12 years of education, below 40 years of age, in the very important person section, and working in non-medical jobs, females, and single patients were more afraid of anesthesia. Besides, the results of Pearson's correlation coefficient revealed a significant positive relationship between the anxiety scores reported by the patients and the expert ($r = 0.813$, $P < 0.001$). **Conclusion:** Identification of the causes of anxiety and concerns about anesthesia could be useful for designing specific preventive interventions to relieve patient suffering.

Key words: Anesthesia, anxiety, fear, plastic surgery

INTRODUCTION

Pre-operative anxiety is a universal reaction experienced by patients who are admitted to hospitals for surgery.^[1] The very initial idea of having surgical procedures can bring about high levels of anxiety in patients.^[2] Pre-operative anxiety, in turn, has a significant effect on anesthesia and surgery outcomes.^[3]

The incidence of pre-operative anxiety varies according to the surgery setting. It has been reported to be around 60–80% in the western population.^[4-6] The findings of various studies indicated that there were many different fears that could cause pre-operative anxiety. These fears included surgical failure, loss of personal identity, pain after surgery, paralysis after surgery, unsuccessful recovery, and death.^[7] Moreover, many different factors play a role in the level of anxiety a patient might experience. These factors included previous hospital experiences, sociodemographic characteristics (such as age, marital status,

and education level), psychological characteristics (such as coping strategies and perceived social support), and gender (females tend to have higher levels of pre-operative anxiety compared to males).^[8-10] Subsequently, anxiety might cause behavioral and cognitive changes, which could increase tension, apprehension, nervousness, and aggression.^[11] It might also lead to a lower level of satisfaction with the treatment. Therefore, individuals in charge of pre-operative management would probably be more effective in handling a patient's pre-operative anxiety.^[12,13]

Anxiety can be measured using different methods. For instance, it can be measured directly by measuring plasma

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cortisol and urinary catecholamine or indirectly by measuring blood pressure and pulse.^[14,15] In general, assessment of anxiety is important because response to anesthesia in anxious patients is different from that in non-anxious ones. For example, patients with extreme pre-operative anxiety tend to require larger doses of induction agents and analgesics and have longer hospital stays.^[16,17]

Identifying the main causes of anxiety and its prevention can increase patients' satisfaction and make them feel relaxed and more cooperative.^[18] Thus, the present study aims to assess the causes of anxiety and concerns about anesthesia in adults undergoing surgery.

METHODS

This cross-sectional study was conducted in Dastgheyb and Mother and Child Hospitals, Shiraz, in 2015. The 18–85-year-old patients, with or without a history of the previous surgery regardless of gender, who were candidate for elective surgery with general anesthesia were enrolled into the study. On the other hand, the patients who refused to participate in the study, those who could not complete their questionnaires and those who consumed antianxiety drugs and antidepressants, were excluded from the study.

During routine screening 1 day before the operation, the patients were invited to sign written informed consents for participating in the study. Then, a researcher-made questionnaire containing open and closed question about fear, worry, and anxiety was completed by an anesthesiologist. Afterward, the patients were asked to complete the study questionnaire. The first section of the questionnaire contained the patients' information including gender (male or female), age (≤ 40 or > 40 years old), education level (≤ 12 or > 12 years), marital status (single or married), type of surgery, type of anesthesia, and previous experience of anesthesia. The second section also included questions about the causes of anxiety and fear from anesthesia during surgery. In the third section, the patients were asked to indicate their anxiety levels from 0 to 10. An expert also measured the patients' anxiety levels using a standard visual analog scale (VAS) ranging from 0 to 10. The reliability and validity of the questionnaire were assessed through a pilot study, revealing Cronbach's alpha of 0.89.

After all, the data were analyzed using the Statistical Package of the Social Sciences for Windows, version 20 (SPSS, Chicago, IL, USA). Descriptive statistics (frequency distributions) were used for patient's demographics and responses to the questions. Since the data did not follow normal distribution, Mann–Whitney U-test was employed. Besides, Chi-square test was used to examine the relationship between the patients' demographic variables and answers to the questions. Pearson's correlation coefficient was also used for the measurement of the association between

the quantitative variables. $P < 0.05$ was considered to be statistically significant.

RESULTS

Totally, 72 of the 74 distributed questionnaires were completed (response rate: 97%). The basic characteristics of the patients have been presented in Table 1. Accordingly, the patient's characteristics related to their fears were as follows:

Gender

In comparison to males, females were more afraid of vomiting (31.9% vs. 8.3%, $P = 0.003$) and paralysis after surgery (51.4% vs. 20.8%, $P = 0.037$).

Education level

Compared to the patients with lower education levels, those with more than 12 years of education were more afraid of revealing personal issues (31.5% vs. 12.3%, $P = 0.005$) and post-operative pain (41.9% vs. 20.9%, $P = 0.014$).

Age

The patients under the age of 40 years were more afraid of paralysis after surgery compared to those older than 40 years (63.9% vs. 9.7%, $P = 0.008$).

Table 1: The basic characteristics of the patients

Variables	Frequency (%)
Gender	
Male	18 (25)
Female	54 (75)
Age (years)	
≤ 45	57 (79.2)
> 45	15 (20.8)
Marital status	
Single	47 (63.5)
Married	27 (36.5)
Education level	
≤ 9 years	34 (45.9)
> 9 years	40 (54.1)
Occupational status	
Medical jobs	16 (26.1)
Non-medical jobs	58 (78.4)
Previous experience of anesthesia	
Yes	19 (26.3)
No	53 (73.7)

Type of service

In comparison to the patients in the general section, those in the very important person (VIP) section were more afraid of post-operative vomiting (36.5% vs. 2.5%, $P = 0.031$), absence of the anesthesiologist during surgery (37.8% vs. 4.1%, $P = 0.034$), and post-operative pain (55.4% vs. 9.5%, $P = 0.046$).

Marital status

Compared to married patients, single ones were more afraid of waking up during the procedure (52.1% vs. 21.9%, $P = 0.001$) and post-operative vomiting (33.8% vs. 5.4%, $P = 0.028$).

Occupational status

Compared to the patients with medical jobs, those working in non-medical jobs were more afraid of losing their intellectual power (35.1% vs. 16.2%, $P = 0.033$) and absence of the anesthesiologist during the surgery (25.7% vs. 16.2%, $P = 0.002$).

Previous experience of anesthesia

The results revealed no significant difference between the patients undergoing anesthesia for the 1st time and those with

the previous experience of anesthesia regarding pre-operative anxiety.

The results of Mann–Whitney U-test demonstrated a significant difference between the patients ≤ 40 and > 40 years old regarding the anxiety scores reported by the patients and the expert. A significant difference was also found between the patients in the VIP and general sections regarding the anxiety scores reported by the expert. The results have been presented in Table 2.

The results of Pearson's correlation coefficient showed a significant positive relationship between the anxiety scores reported by the patients and the expert ($r = 0.813$, $P < 0.001$). A scatter plot of correlation between anxiety scores reported by the patients and the expert demonstrated in Figure 1.

DISCUSSION

Our study results showed that females compared to males were more afraid of vomiting and paralysis after the surgery. A similar study conducted in Greece also indicated that compared to males, females were more afraid of post-operative pain, not waking up after surgery, being nauseous postoperatively, needles and drains, and vomiting postoperatively.^[19] In another study, stress had a more significant role in post-operative nausea and vomiting among females compared to males.^[20] McCleane and Cooper also showed in their study that women were more afraid of

Table 2: Comparing the anxiety scores reported by the patients and the expert with some variables

Variables	Reported by the patients			Reported by the expert	
	<i>n</i>	Mean rank	<i>P</i> -value	Mean rank	<i>P</i> -value
Gender					
Male	18	35.5	0.829	39.7	0.444
Female	54	36.8		35.4	
Education level					
≤ 12 years	34	34.6	0.294	34.3	0.238
> 12 years	40	39.9		40.2	
Age					
≤ 40 years	57	40.5	< 0.001	41.1	< 0.001
> 40 years	15	21.2		18.9	
Type of service					
General	16	31.1	0.182	25.1	0.009
VIP	58	39.2		40.9	
Marital status					
Single	47	39.3	0.322	40.8	0.078
Married	27	34.2		31.7	
Occupational status					
Medical jobs	16	34.3	0.500	35.5	0.687
Non-medical jobs	58	38.3		38.1	

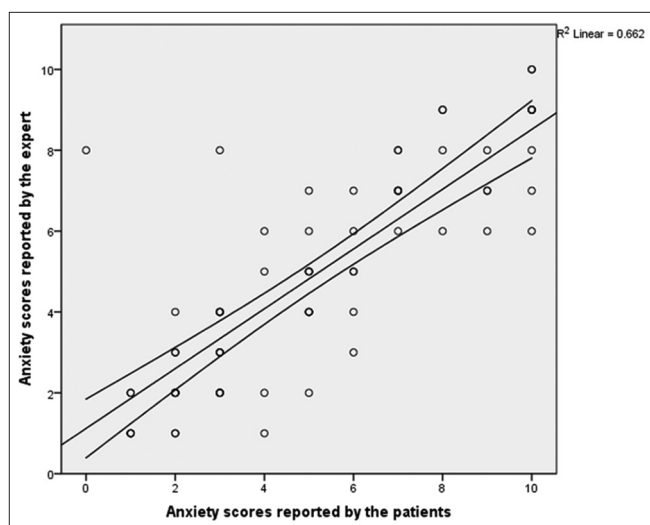


Figure 1: The correlation between anxiety scores reported by the patients and the expert

post-operative vomiting compared to men.^[21] This could result from the fact that males compared to females cannot show their stress and consider it as a sort of weakness.

Our study results indicated that compared to the patients with lower education levels, those with more than 12 years of education were more afraid of revealing personal issues and post-operative pain. In Mavirdou's study also compared to the patients with more than 9 years of education, those who had <9 years of education were more afraid of waking up during the procedure and vomiting postoperatively.^[19] In another study, pre-operative anxiety was associated with up to 12 years of education (odds ratio = 1.36).^[22] One possible explanation may be that these individuals may express themselves better in self-reported assessments of anxiety. Another explanation is that individuals with higher education levels are aware of the risks involved in surgery and anesthesia. Some studies have mentioned education as a predictor of pre-operative anxiety^[22] although Wells and Howard^[23] came to the opposite conclusion.

The results of our study demonstrated that the patients under the age of 40 years were more afraid of paralysis after surgery compared to those older than 40 years. In similar studies, the patients under the age of 45 years were more afraid of feeling pain and waking up during the procedure compared to those older than 45 years. However, they were less afraid of being permanently paralyzed due to anesthesia.^[19]

In the present study, the single patients were more afraid of waking up during the procedure and vomiting postoperatively compared to the married ones. However, another study revealed no significant difference in pre-operative anxiety based on marital status.^[4] This might be due to the fact that married individuals are more relaxed compared to single ones.

Our results indicated that in comparison to the patients with medical jobs, those with non-medical jobs were more afraid of losing their intellectual power and absence of the anesthesiologist during surgery. This finding might be attributed to distrust about anesthesia among the individuals working in non-medical jobs. Unfortunately, review of literature revealed no similar studies for comparison of the results.

The findings of the current study showed no significant difference between the patients with and without the previous experience of undergoing anesthesia regarding pre-operative anxiety. In a similar study conducted in Greece, compared to the patients with the previous experience of anesthesia, those undergoing anesthesia for the 1st time were more afraid of revealing personal issues and impact of anesthesia on their judgment and clarity of thoughts.^[19]

Pre-operative anxiety has been extensively studied by a variety of researchers. Scales, such as VAS^[24] and more specific ones; for example, Spielberger State-Trait Anxiety Inventory for adults^[25] and Amsterdam Preoperative Anxiety and Information Scale (APAIS),^[26] have been used to measure anxiety levels. The present study findings revealed a significant positive relationship between the anxiety scores reported by the patients and the expert, which is in agreement with the results of other studies.^[24,27] A possible reason for this result could be the patients' proper perception of fear and anxiety in a surgery.

CONCLUSION

Overall, identification of the causes of anxiety and concerns about anesthesia could be useful for designing specific preventive interventions to relieve patient suffering.

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