

## The Impact of Preoperative Education on Reducing Anxiety among Patients Undergoing Elective Surgery at Shahidan Qaladze Teaching Hospital in Kurdistan Region/Iraq

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### Abstract

**Background:** Preoperative anxiety is a common reaction experienced by patients who are admitted to the hospital for surgery. It can be described as an unpleasant state of tension or uneasiness that results from a patient's doubts or fears before an operation.

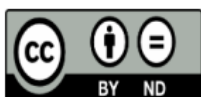
**Aim:** Examine the effect of an educational intervention for patients who are scheduled for a surgical operation on reducing their anxiety prior to the surgery.

**Methods:** This quasi-experimental/Static-group comparison design was used to on a purposive sample of 150 patients attending operation waiting room in Shahidan Qaladze Teaching Hospital from May 28 to July 27, 2022. Data were collected by direct interview. The patients were divided into two groups; the control and the educational group.

**Results:** 150 participants were selectedpurposively, (75 control; 75 educational) group. Participants who received a preoperative education program experienced a greater decrease ( $30.906 \pm 6.959$ ) in anxiety scores (Mean difference =  $14.146$ , 95% confidence interval 11.54 to 16.75; P-value < 0.001) compared with those who did not ( $45.053 \pm 9.043$ ). More than half (65.3%) of the control group participants experienced severe preoperative anxiety while the majority (88%) of the intervention group who received the education program experienced mild anxiety as suggested by the S-STAI score.

**Conclusions:** The verbal education before surgery has a significant effect on reducing patients' anxiety before they transfer to the operating room.

**Keywords:** Patient, surgery, preoperative anxiety, education program.



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## INTRODUCTION

Preoperative anxiety is a common reaction experienced by patients who are admitted to a hospital for surgery. It can be described as an unpleasant state of tension or uneasiness that results from a patient's doubts or fears before an operation. (Moser et al., 2003) Preoperative anxiety is a challenging problem in the preoperative care of patients. (Masood, Haider, Jawaid, & Alam, 2009)

The higher level of preoperative anxiety may result in worry about complication, fear of death, fear of the unknown, fear of physical impairment, financial loss, worry about family, post-operative pain, change of environment, the outcome of the operation, harm from doctor/nurse error, waiting for the operation, and awareness during surgery. (Mulugeta, Ayana, Sintayehu, Dessie, & Zewdu, 2018). Result in fear and anxiety, a majority number of patients have difficulty in dealing with the operation process or extending the healing process, elevate the quality of life and health during the post-surgical treatment (Kalogianni et al., 2016)

The level of a patient experiences anxiety before surgery is determined by a lot of factors, including age, gender, level of education, the nature of the surgical operation, and previous surgical experience (Bedaso & Ayalew, 2019). A lot of recent research has explored the link between preoperative anxiety and morbidity/mortality rates.

However, many health care providers are concerned about anxiety, the causes still remain like a puzzle. Some current findings have demonstrated a correlation between educating patients and anxiety; patients may complain anxiety if they have a few or no information related to the diagnoses and treatment mechanisms. (Bayraktar et al., 2018)

Pre-operative education is identified as an offering health-related information, psychological support, and the possibility to learn specific skills in preparation for surgery to the patient (Kalogianni et al., 2016). The goal of administering preoperative education to patients who scheduled to surgery is to avoid or alleviate anxiety and postoperative complications associated with mortality, morbidity, and longer hospital stay, in addition to accelerate postoperative recovery. (Lemanu, Singh, MacCormick, Arroll, & Hill, 2013)

## METHOD

A quasi-experimental/Static-group comparison design was used to conduct this study on a purposive sample of 150 patients attending in operation waiting room in Shahidan Qaladze Teaching Hospital. A self-administered questionnaire was developed to assess the patients' preoperative anxiety in both control and intervention groups. Patients anxiety measured by using a standard measurement scale for anxiety(Y-1) (The State-Trait Anxiety Inventory; STAI). Data were collected by direct interview from May, 28 to July, 27, 2022. The patients were divided into two groups; educational (interventional) group who received verbal education program before surgery and control group who did not receive. The obtained data were analysis by using the SPSS application, version 23. The data P-value was set at  $\leq 0.05$ .

### Study tools and Instruments:

Data collected using constructed questionnaire included two parts;

*Part I* is patient's socio-demographic characteristics; *Part II* is Standard measurement scale for anxiety(Y-1) (The State-Trait Anxiety Inventory; STAI) (Speilberger et al 1983).

Responses for the S-Anxiety scale evaluate the severity of current feelings "at this moment" (1 for Not at all, 2 for Somewhat, 3 for Moderately so, 4 for Very much so).

The scores of STAI range from a minimum score of 20 to a maximum of 80.

The score values of STAI were ordered as:

- Score 20 = No anxiety
- Scores 21-40 = Mild anxiety
- Scores 41-60 = Moderate anxiety
- Scores 61-80 = Severe anxiety

The determining of these values were based on previously published research conducted by (Shirin A, Sirwan K, & A., 2010) .

### Inclusion criteria:

Both male and female patients that have surgery with general, spinal and local anesthesia, patients between 18-70 years old, and those who are ready to participate in the study.

**Exclusion criteria:** Patients under 18 and over 70 years.

**The sample of the study:**

A non-probability sampling method /a convenience sample of patients who will meet the eligibility criteria of the study.

**RESULTS**

To analyse the specific objectives of the present study, 150 samples of patients undergoing elective surgery at Shahidan Qaladze Teaching Hospital were used.

75 patients in the control group and 75 patients in the educated group. The Shapiro-Wilk test was used to evaluate the normal distribution of the distance variables studied in this research; all of the variables followed the normal distribution. Therefore, considering the number of 150 samples, parametric tests have been used. Also, to investigate the significant difference between the mean of anxiety scores of participants and their demographic variables, the independent sample t-test was used in the case of two groups and One-way NOVA test was used in the case of three groups or more.

Table (1). A total of 150 patients scheduled for elective surgery participated in the present study, most participants were at the age group (32-38) which (26%), the majority (66.7%) were female, married (78%), almost (32%) were at the level of primary school, mostly (58.7%) were housewives, 86% lived in the urban area, nearly two-third (65.3%) reported barely sufficient financially, more than half (53.3%) had major surgery, finally, mostly (61.3%) had previous surgical operation.

Table (2). Association of certain demographic characteristics of the Educational Group and Anxiety’s scores

Table (3). Association of certain demographic characteristics of the Control Group and Anxiety’s scores

Table (4). Distribution of the study sample for both groups (educational and control) according to their anxiety level. This table showed that (1.3%) of participants in the educational group have no anxiety while no one has no anxiety in the control group. (88%) in the educational group were at the mild level of anxiety with (30.7%) in the control group. (10.7%) of participants in the educational group were at the moderate level of anxiety whereas the range rose in the control group to (65.3%). Finally, no one in the educational group reached to the severe level however (4%) of the control group participants reached to that level. The differences between educational and control group levels were significant with *P value* of <0.001.

Table (5). Mean anxiety score difference between Control and Educational group. This table show that the control group marked (45.053±9.043) scores of anxiety which means that the participants in control group have high anxiety level, whereas the educated (interventional) group marked (30.906±6.959) scores of anxiety which mean they have low anxiety level and the differences between control and educational group mean scores were significant with P-value of <0.001.

**Table 1. Distribution of the study sample (N=150) for both groups (educational and control) by certain socio-demographic attributes**

Variables	(N=150) No. (%)	Educational group (75)	Control group (75)
		No. (%)	No. (%)
<b>Age (Years)</b>			
18-24	26 (17.3)	6 (8)	20 (26.7)
25-31	20 (13.3)	9 (12)	11 (14.7)
32-38	39 (26)	22 (29.3)	17 (22.7)
39-45	24 (16)	11 (14.7)	13 (17.3)
46-52	19 (12.7)	14 (18.7)	5 (6.7)
53-59	8 (5.3)	3 (4)	5 (6.7)
60-66	8 (5.3)	6 (8)	2 (2.7)
≥67	6 (4)	4 (5.3)	2 (2.7)

<b>Gender</b>			
Male	50 (33.3)	26 (34.7)	24 (32)
Female	100(66.7)	49 (65.3)	51 (68)
<b>Marital status</b>			
Single	24 (16)	8 (10.7)	16 (21.3)
Married	117 (78)	62 (81.3)	56 (74.7)
widow\er	9 (6)	6 (8)	3 (4)
<b>Educational level</b>			
Illiterate	41 (27.3)	26 (34.7)	15 (20)
Primary	48 (32)	25 (33.3)	23 (30.7)
Preparatory	41 (27.3)	20 (26.7)	21 (28)
Institute/College	20 (13.3)	4 (5.3)	16 21.3)
<b>Occupation</b>			
Housewife	88 (58.7)	46 (61.3)	42 (56)
Self employed	25 (16.7)	14 (18.7)	11 (14.7)
Government employer	22 (14.7)	10 (13.3)	12 (16)
Retired	5 (3.3)	3 (4)	2 (2.7)
Jobless	10 (6.7)	2 (2.7)	8 (10.7)
<b>Residence area</b>			
Urban	129 (86)	66 (88)	63 (84)
Rural	21 (14)	9 (12)	12 (16)
<b>Financial status</b>			
Sufficient	43 (28.7)	23 (30.7)	20 (26.7)
Barely sufficient	98 (65.3)	49 (65.3)	49 (65.3)
Insufficient	9 (6)	3 (4)	6 (8)
<b>Types of operation</b>			
Minor	70 (46.7)	34 (45.3)	36 (48)
Major	80 (53.3)	41 (54.7)	39 (52)
<b>Types of anesthesia</b>			
Local anaesthesia	10 (6.7)	7 (9.3)	3 (4)
Spinal anaesthesia	69 (46)	31 (41.3)	38 (50.7)
General anaesthesia	71 (47.3)	37 (49.3)	34 (45.3)
<b>Previous operation</b>			
Yes	92 (61.3)	49 (65.3)	43 (57.3)
No	58 (38.7)	26 (34.7)	32 (42.7)

**Table 2. Association of demographic characteristics of the Educational Group (N=75) and Anxiety's scores.**

Variables	N	Mean	SD	P value
<b>Age (Years)</b>				
18-24	6	48.50	8.62	0.690**
25-31	9	45.27	8.97	
32-38	22	45.65	9.72	
39-45	11	44.76	8.45	
46-52	14	44.80	6.83	
53-59	3	38.40	7.02	

## The Impact of Preoperative Education

60-66	6	29.00	2.82	
≥67	4	39.50	4.94	
<b>Gender</b>				
Male	26	29.73	5.88	0.290*
Female	49	31.53	7.45	
<b>Marital status</b>				
Single	8	28.37	2.50	0.459**
Married	61	31.37	7.54	
widow\er	6	29.50	3.14	
<b>Educational level</b>				
Illiterate	26	28.30	5.97	0.030**
Primary	25	31.16	5.99	
Preparatory	20	32.60	7.49	
Institute/College	4	37.75	10.62	
<b>Occupation</b>				
Housewife	46	31.06	6.88	0.167**
Self employed	14	28.85	4.50	
Government employer	10	34.40	9.78	
Retired	3	24.66	0.57	
Jobless	2	33.50	3.53	
<b>Residence area</b>				
Urban	66	31.22	7.19	0.283**
Rural	9	28.55	4.47	
<b>Financial status</b>				
Sufficient	23	32.00	7.85	0.354**
Barely sufficient	49	30.69	6.48	
Insufficient	3	26.00	7.21	
<b>Types of operation</b>				
Minor	34	31.61	5.74	0.424*
Major	41	30.31	7.84	
<b>Types of anesthesia</b>				
Local anaesthesia	7	28.42	3.55	0.256**
Spinal anaesthesia	31	32.38	7.17	
General anaesthesia	37	30.13	7.13	
<b>Previous operation</b>				
Yes	49	29.53	5.61	0.018*
No	26	33.50	8.49	

\*Independent t-test, \*\*One-way ANOV

**Table 3. Association of certain demographic characteristics of the Control Group (N=75) and Anxiety's scores**

Variables	N	Mean	SD	P value
<b>Age (Years)</b>				
18-24	20	34.00	7.82	0.297 **
25-31	11	32.33	6.34	
32-38	17	31.27	6.82	
39-45	13	33.00	9.54	
46-52	5	30.57	6.76	
53-59	5	28.00	2.64	
60-66	2	27.00	2.09	
≥67	2	24.50	2.88	
<b>Gender</b>				
Male	24	44.33	9.34	0.639 *
Female	51	45.39	8.97	
<b>Marital status</b>				
Single	16	48.12	7.83	0.225 **
Married	56	44.00	9.39	
widow\er	3	48.33	3.78	
<b>Educational level</b>				
Illiterate	15	39.53	8.78	0.003 *
Primary	23	43.82	7.11	
Preparatory	21	45.80	9.63	
Institute/College	16	51.00	7.89	
<b>Occupation</b>				
Housewife	42	44.35	8.56	0.226 **
Self employed	11	43.81	8.29	
Government employer	12	45.75	10.3	
Retired	2	37.50	7.77	
Jobless	8	51.25	9.73	
<b>Residence area</b>				
Urban	63	46.14	8.69	0.016 *
Rural	12	39.33	9.03	
<b>Financial status</b>				
Sufficient	20	43.30	10.02	0.498 **
Barely sufficient	49	45.95	8.89	
Insufficient	6	43.50	6.80	
<b>Types of operation</b>				
Minor	36	46.11	9.79	

Major	39	44.07	8.30	0.334*
<b>Types of anesthesia</b>				
Local anaesthesia	3	45.33	8.14	0.655**
Spinal anaesthesia	38	44.10	9.46	
General anaesthesia	34	46.08	8.75	
<b>Previous operation</b>				
Yes	43	43.27	8.64	0.048*
No	32	47.43	9.15	

\*Independent t-test, \*\*One-way ANOV

**Table 4. Distribution of the study sample (N=150) for both groups (educational and control) according to their anxiety level.**

Anxiety levels	N (150)	Educational group (75)	Control group (75)	P value
		No. (%)	No. (%)	
No anxiety	1	1 (1.3)	0 (0.0)	<0.001
Mild anxiety	89	66 (88)	23 (30.7)	
Moderate anxiety	57	8 (10.7)	49 (65.3)	
Severe anxiety	3	0 (0.0)	3 (4)	

Anxiety scores	Mean (SD)	Mean difference	t-test (df)	P value	95% CI	
Control group	45.053 (9.043)	14.146	10.736(148)	<0.001	Lower	Upper
Educational group	30.906 (6.959)				11.54	16.75

**Table 5. Mean anxiety score difference between Control and Educational group**

**Note:** (CI= Confidence Interval)

**DISCUSSION**

The present study conducted to find out the impact of verbal educational program on reducing preoperative anxiety, it conducted on 150 patients (75 control group and 75 education group) undergoing elective surgery at Shahidan Qaladze Teaching Hospital.

Analysis of the socio-demographic variables of the patients (Both groups) revealed that most of the participants were (32-38) years old. The majority were female, married, primary school. Mostly were housewife and resident in urban area. About two-thirds reported barely-sufficient financially. Regarding certain medical profile; more than half of

them had a major operation and previous surgical operation.

**Control group**

One of the main objectives of this study was to assess the level of anxiety among patients prior to conducting surgery. The present study found that more than half (65.3%) of the participants who scheduled for elective surgery experienced moderate preoperative anxiety as suggested by the S-STAI score. The finding in this study was similar to the results of a study conducted in northwest Ethiopia

which the prevalence of preoperative anxiety was 65.7% (Mulugeta et al., 2018). Also, the results of this study were near with another recent Ethiopian study found that overall 61% of patients had a significant level of preoperative anxiety (Bedaso & Ayalew, 2019).

As compared this study (Mean score  $45.05 \pm 9.043$ ) with the recent regional studies, the level of preoperative anxiety among Iranian surgical patients reported it as moderate which the mean score for state anxiety was ( $40.2 \pm 11.2$ ) (Khalili, Karvandian, Ardebili, Eftekhar, & Nabavian, 2020). Another Turkish study reported the level of preoperative anxiety as moderate to severe which state anxiety score was ( $38.0 \pm 9$ ) (Erkilic et al., 2017). A present study revealed that the level of preoperative anxiety in our country was more than regional countries.

Accordingly, (Homzová & Zeleníková, 2015) found that patients with previous experience of surgery had a significantly higher anxiety score which was compatible with the results of this study. (Mulugeta et al., 2018) found preoperative anxiety is higher among young age. Additionally, a more recent study by (Mulugeta et al., 2018) concluded a significantly high level of pre-operative anxiety among female patients.

In this study history of previous surgical experience was a significant factor for preoperative anxiety. Patients with a history of previous surgical experience were less anxious than patients coming for surgery for the first time. This was in line with other similar studies (Matthias & Samarasekera, 2012). (Homzová & Zeleníková, 2015).

### Educational group

Several literature reviews found the impact of preoperative verbal education on minimizing anxiety in patients undergoing various surgical or invasive procedures under local, spinal, or general anaesthesia. In this recent study the level of anxiety was measured using an anxiety scale, including the State-Trait Anxiety Inventory (STAI) scale. (Speilberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The present study determined that informing patients on the day of appointment significantly decreased the STAI mean score.

According to a present study, there were comparatively similar self-rating anxiety score between the intervention (educational) and the

control group before giving education program. After giving verbal educational program, anxiety score of the educational group ( $MS\ 30.906 \pm 6.959$ ) was significantly lower than control group ( $MS\ 45.053 \pm 9.043$ ). The result is supported by (Du, Wang, & Yan, 2018) and also compatible with the study done by (Sadati et al., 2013).

A recent results showed that, there were a significant difference in the mean score (MS) of educational level of participants ( $p$ -value=0.030). It means educational program was affected according to level of education. Illiterate participants ( $MS\ 28.30 \pm 5.97$ ) more affected with education program than Institute/college ( $MS\ 37.75 \pm 10.62$ ) participants. Also according to previous operation there was a significant difference between those who operated before and who did not. Patients who have history of surgical operation ( $MS\ 29.53 \pm 5.61$ ) more affected to the education program than the patients who have not ( $MS\ 33.50 \pm 8.49$ ) this may due to previous skill and experiment from surgery they feel less anxious than the patients which operated for the first time.

According to the results of present study, there was no significant relationship between participants' age and the effectiveness of education program on their anxiety level ( $p$ -value=0.690). Similarly, it has been reported in the literature (El-Hassan, McKeown, & Muller, 2009), (Ünal et al., 2011), (Bensusan, Martín, & Álvarez, 2016) that age does not affect preoperative anxiety level, it can be said that age is not a single factor that affects preoperative anxiety levels. Similarly, the results of recent study showed that, there was no significant relationship between participants' (gender, marital status, occupation, residence area, financial status, types of operation and types of anesthesia) and the effectiveness of education program on their anxiety level, all of them have ( $P$ -value > 0.05)

### CONCLUSIONS

Based on the results, anxiety was reduced in the educational group compared with the control group, the educational group marked ( $30.906 \pm 6.959$ ) scores of anxiety which means that the participants in educational group have low level of anxiety, whereas the control group marked ( $45.053 \pm 9.043$ ) scores of anxiety which mean they have high anxiety level, and the differences between control and educational group mean scores were significant with  $P$  value of <0.001.



## ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

Participant were informed about the current study and its aims, and then verbal consent was obtained from participants to participate in the study. Also, told that they have the right to agree or refuse to participate in the study. Regarding confidentiality and anonymity of participants, The proposal of present study approved by the ethical committee at the College of Nursing /University of Raparin.

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## AUTHOR'S CONTRIBUTIONS

Study concept; Writing the original draft; Data collection; Data analysis and Reviewing the final edition by all authors

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