

## Effect of counseling on preoperative anxiety levels in surgical patients, a randomized controlled trial in a teaching institution

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Submission 06.05.2022

Acceptance : 08.06.2022

Publication : 30.06.2022



[https://www.doi.org/10.56136/BVMJ/2022\\_00045](https://www.doi.org/10.56136/BVMJ/2022_00045)

### Abstract

**Introduction:** Preoperative period can be anxiety-inducing. The study aims to examine if bringing about the cognizance of diagnosis, surgery, and anesthesia will help reduce anxiety. It also intends to analyze factors that may cause or decrease preoperative anxiety in these patients. **Methods and Materials:** Following an ethics committee approval, eighty-four patients were randomized into two equal groups (n=42 in each): Group I (Counseled) and Group II (Routine information). All patients were made to rate each question from a questionnaire (16 questions stating possible causes of anxiety) on a scale of 0-100 (Numeric rating scale (NRS)) to define their level of anxiety. Group I was then explained about the surgical procedure outlined, diagnosis, and anaesthetic procedure planned and made to rate the points on the questionnaire again. Group II patients were given routine information. Data from two group was compared with pre and post-intervention using Statistical Package for the Social Science (SPSS). **Results:** Group I had an average score of 44.119% prior to counseling which significantly reduced to 29.78% after counseling. Group II curiously showed a lower average score of 23.92%. On further probing, it was established that those of firm religious beliefs in group II gave average scores close to or equivalent to 0%. **Conclusion:** Providing awareness on diagnosis, planned surgery, and anesthesia can significantly reduce preoperative anxiety. Religious beliefs can also allay the fear of the unknown. Preoperative counseling to form cognizance of the situation ahead should be promoted to decrease anxiety in patients who are to be operated on.

**Key words:** Anxiety, pre-operative, counselling

### Introduction

Anxiety is defined as “an abnormal and overwhelming sense of apprehension and fear often marked by physical signs (such as tension, sweating, and increased pulse rate), by doubt concerning the reality and nature of the threat, and by self-doubt about one's capacity to cope with it”<sup>(1)</sup>. Its source can be specific or unknown<sup>(2)</sup>. Preoperative anxiety leads to the requirement of a higher dose of induction agents and maintenance of anaesthesia<sup>(3)</sup>, which may prove to be uneconomical<sup>(4)</sup>. It also causes tachycardia and hypertension, which can lead to arrhythmias. A higher incidence of postoperative pain has been observed in such patients<sup>(5,6)</sup>. Starkweather et al. observed that patients with preoperative anxiety were predisposed to a higher incidence of postoperative wound infection due to accelerated metabolism leading to increased protein breakdown and decreased wound healing<sup>(7)</sup>.

This study aims to explore the effect of counseling on preoperative anxiety.

Behavioral interventions such as counseling, distraction, attention focusing, and relaxation procedures may be effective in allaying anxiety, with limitations in patients with intellectual disability, low health literacy, or poor education and reading ability. Information can be given at the optimal time point in order to create a proper balance between excess and insufficient information. Preoperative education may increase patients' knowledge, satisfaction, and coping and may reduce anxiety levels, especially when delivered face-to-face<sup>(7)</sup>.

### Objectives

**Primary objective:** To evaluate the effect of providing information and counseling on anxiety levels the day before surgery.

**Secondary objective:** To determine the factors that cause preoperative anxiety in patients as well as factors that allay it.

### Methods and Materials

This was a randomized controlled study done in 2015-2016, approved by Ethics Committee and registered in the Clinical

Trial Registry India (CTRI) retrospectively; trial registration no. CTRI/2016/08/007214, date 19/08/2016. A pilot study was conducted on 20 patients to estimate the sample size and validate the questionnaire and the scale (Table 1). These participants were not included in the present study. The pilot study showed a difference of 46% in the prevalence of anxiety of patients using the State Trait Anxiety Inventory - Score (STAI-S) among counseled and non-counseled groups. The sample size was estimated using nMaster software (version 2.0), with the power of the study as 90% and  $\alpha$ -error as 5%; the sample size was calculated to be 84 in each group.

Patients classified as per American Society of Anaesthesiology physical status 1 and 2, aged between 18-65 years coming for elective surgery, were included in the study. Pregnant women with pre-existing neurological or psychiatric diseases on anxiolytic treatment and those unable to read were excluded from the study.

A questionnaire consisting of 16 possible causes of anxiety and a seventeenth question where patients could add any other reasons (as an open question) that caused anxiety or reduced their anxiety was used for this study (Table 1). The patients were asked to score each factor on a numerical scale of 0 to 100, where 0 meant no anxiety and 100 meant extremely anxious. According to a study by Kindler<sup>6</sup> 45% on the 100-point scale corresponded to 44mm on the State Trait Anxiety Inventory (STAI) scale, indicating significant

anxiety. Thus, in order to find out the incidence of preoperative anxiety by VAS of the 16 factors, a score of at least 45mm on the VAS, that is correlate with a score of 44 on the State Version of the State Trait Anxiety Inventory (S-STAI)<sup>7</sup>, was regarded as significant anxiety for each factor. Thus the total score values ranged from 0 - 1600 and the significant anxiety corresponded to a value of 675. The last seventeenth question was not considered for score analysis.

The patients were randomized into two groups by a series of computer-generated numbers. Group I was the group that received preoperative counseling from the study team member who had at least one year of experience in anesthesiology. They would receive information about the diagnosis, the surgery to be performed, and the type of anesthesia that would be given. For any queries regarding the same, they would be further counseled. Group II was the group that received routine information. A day prior to surgery, both groups were given the questionnaire and asked to fill it in. After the questionnaire was returned, Group I was told about their diagnosis and the type of anesthesia planned for the patient, including all the points on the questionnaire. Group II participants were not counseled but were asked to reassess the points on the questionnaire and asked about reasons why they were not worried about the upcoming surgery.

Informed consent of patients was taken prior to study.

**Table 1: Factors responsible for anxiety questionnaire**

<b>POSSIBILITIES CAUSING ANXIETY</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>SCORE</b>
	<b>Not at all</b>	<b>Somewhat</b>	<b>Moderately</b>	<b>Very Much</b>	
1. Postponement of surgery					
2. Harm from a mistake during surgery					
3. Insufficient attention from caregivers					
4. Not waking up after surgery					
5. Intraoperative analgesia not long enough					
6. Inadequate postoperative analgesia					
7. Ineffective Intraoperative analgesia					
8. Unsuccessful surgical operation					
9. Financial loss during hospitalization					
10. Complications from anesthetic drugs					
11. Unfamiliar surroundings					
12. Hospital smell and noises					
13. Inability to pay the hospital bill					
14. Blood transfusion					
15. Postoperative nausea and vomiting					
16. Awareness during surgery					
<b>TOTAL</b>					
<b>ANXIETY SCORE</b>	Pre-counseling assessment				
	Post-counseling assessment				

**Statistical Analysis**

The results were assessed using SPSS 17.0 (Chicago, IL) and Microsoft Excel 2013. Descriptive data are explained in proportions.

**Results**

The number of participants in Group I and Group II was 84,

with 42 participants in each group. The mean age of the patients in Group I and Group II was  $38.85 \pm 16.09$  and  $41.36 \pm 13.19$ , respectively. Group I consisted of 47% males and 53% females, while Group II had 67% males and 33% females. Table 2 reveals details of education, comorbidities, previous surgical procedure and experience.

**Table 2: Demographic characteristics of study participants**

Demographic characteristics	Group I (Counseled) n (%)	Group II (Non-counseled) n (%)
<b>Comorbidities</b>		
Yes	14 (33)	10 (24)
Nil	28 (67)	32 (76)
<b>Education</b>		
Primary	11 (26)	12 (29)
Secondary	19 (46)	20 (47)
Tertiary	9 (21)	6 (15)
No formal	3 (7)	4 (9)
<b>Previous surgery</b>		
Yes	21 (50)	20 (47)
No	21 (50)	22 (53)
<b>Previous experience of surgery</b>		
Nil	21 (50)	22 (53)
Worst	0 (0)	1 (2)
Poor	2 (4)	1 (2)
Comfortable	19 (46)	18 (43)

Table 3 shows cognizance and their VAS score. In all, 88% of patients in group I and 81% in group II knew about their diagnosis. Total 71% of the patients in group I, while 81% of the patients in group II were aware of the surgical procedure planned. Regarding their knowledge of the anesthesia planned for the procedure, just 19% in Group I and 12% in group II were cognizant.

Significant preoperative anxiety was noted in 20 (47.61%) patients under group I and 10 (23.8%) under group II. Following preoperative counseling, a significant drop in anxiety was observed in 28% of the patients in group I reporting significant anxiety. However, there was no difference in the anxiety level of patients in group II.

**Table 3: Cognizance of the diagnosis, surgery details, and anaesthesia planned, and anxiety VAS score**

Demographic characteristics	Group I n (%)	Group II n (%)
Diagnosis	37 (88)	34 (81)
Surgery	30 (71)	34 (81)
Anaesthesia	8 (19)	5 (12)
Pre-counseling Anxiety VAS Score (Mean $\pm$ SD)	44.12 $\pm$ 27.43	22.38 $\pm$ 20.81
Post Counselling Anxiety VAS Score (Mean $\pm$ SD)	28 $\pm$ 20.24	22.38 $\pm$ 20.81

## Discussion

Anxiety is an emotional condition characterized by fear, uneasiness, and worry over potentially dangerous situations, as well as a physiological state of awareness. It is known that hospitalization for surgery is an anxiety-provoking event. In a study by Sankar et al, 65% of the patients had severe anxiety. There was no significant association between the anxiety level and demographic variables like age, gender, religion, occupation, previous history of surgery, and name of surgery<sup>(5)</sup>. The causes may be related to anesthesia, surgery scar, pain, etc.

In a study done in Germany by Eberhart et al., not a single specific fear is considered important by most patients. Patient education should address a wide spectrum of concerns. Discussion with the patient allowing for an individualized approach, may be better to alleviate fear and anxiety<sup>(8)</sup>.

Bedaso et al. in Ethiopia found a high prevalence of preoperative anxiety (47%). Factors contributing to anxiety were an unexpected result of the operation, harm due to an error by a doctor or nurse, need for blood transfusion, and unable to recover; and were found to be statistically significant for preoperative anxiety<sup>(9)</sup>.

An observational study by Amit Kumar et al. revealed preoperative anxiety as a problem in operation theater (OT) our patient population. Anxiety related to anesthesia and surgery significantly increased as patients moved from the ward to the operation room. Gender, history of previous surgery, history of substance abuse, educational status, and change in season influenced preoperative anxiety at different time points<sup>(10)</sup>.

In a cross-sectional study in Northwest Ethiopia, the high prevalence of preoperative anxiety was associated with fear of complications, concern about family, and fear of postoperative pain. They recommended preoperative psychosocial assessment as routine preoperative nursing practice and providing appropriate preoperative information before surgery<sup>(11)</sup>.

Pokharel et al. reported that frequency of anxious patients varied at different time points before surgery. Providing information to those individuals was the only modifiable option. There are two types of counselling for addressing anxiety<sup>(12)</sup>. Similar findings were seen in gynaecological patients<sup>(13)</sup>.

Patients undergoing elective spinal surgery are highly stressed and anxious, regardless of the magnitude of surgery, and such psychologic factors may mediate a reduction in natural killer cell activity (NKCA)<sup>(14)</sup>.

Group I in our study showed a significant decrease in anxiety levels after counseling. Curiously, group II showed a lower percentage of anxiety compared to Group I even after the

latter was counseled. On further inquiry, it was found that 52.38% (22) of the patients in group II were religious, and those patients gave responses close to 1 for most of the points on the questionnaire. We could not find many studies that claim religious beliefs help reduce anxiety; although universally acknowledged, it is scientifically novel.

During pandemic times, the prevalence of preoperative anxiety among patients admitted for elective surgeries in a large tertiary care teaching hospital during this COVID-19 pandemic was not related to a patient's preoperative anxiety trait. Our population's anxiety levels were less compared to the quoted values in the literature<sup>(15)</sup>.

In the study by Akkamahadevi<sup>(16)</sup>, personal interviews, brochures, and videos were good at alleviating perioperative anxiety. Transfer of knowledge and information through video seemed effective in decreasing anxiety and apprehension, especially in illiterate people. Hence, a personal interview along with a video may be a good option in allaying the anxiety. Counseling can be directive, while the other is non-directive. Our study used directive counseling. It gives more importance to intellectual than emotional concepts. Here, the counselor assumes that the patient cannot solve his own problem due to a lack of information<sup>(16)</sup>. Hence, if patients take cognizance and are counseled, preoperative anxiety can be decreased significantly.

## Limitations

The anxiety levels of the two groups differed at baseline. Also the sample size was smaller and we did not adjust for other confounding factors. The study used a non-invasive intervention. Although counseling is now a part of routine standard of pre-operative care, we observed difference due to our counseling. However it cannot be confirmed that the difference in the anxiety level was only due to the effect of counseling.

## Conclusion

Preoperative anxiety is prevalent in almost 50% of the patients. It can be decreased by providing them with information on their diagnosis, surgical procedure, and the anesthesia planned. Religious beliefs may also help allay anxiety.

**Conflict of Interest:** Nil

**Source of Support:** Nil

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