

A PSYCHOLOGICAL EVALUATION OF PREOPERATIVE ANXIETY, STRESSORS, AND ANXIETY-REDUCTION STRATEGIES IN ELECTIVE SURGICAL PATIENTS

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Abstract

Preoperative anxiety is a major issue in elective surgery patients and tends to contribute to negative physiological as well as psychological consequences. The objective of this study was to assess the prevalence, important precipitants, and effective coping strategies for preoperative anxiety in patients admitted for elective surgeries in two large tertiary care teaching hospitals of Peshawar. A cross-sectional descriptive survey was conducted and a pre-validated, standardized questionnaire was given to 150 adult patients. The survey revealed that 60% of the respondents were females with the maximum percentage fall under the age group of 31–45 years. Fear of postoperative pain, information deficit, economic worries, and fear of anesthetic were the primary anxiety provokers. Most common self-reported coping mechanisms by patients were the use of medication, breathing, support from family members, and hospital staff contact. The results showed significant correlation between demographic variables—age, gender, and history of previous surgery and anxiety scores. Anxiety scores were lower in those patients who underwent nonpharmacologic interventions like guided imagery and relaxation. The study draws attention to early detection of anxiety precipitants and recommends implementing structured preoperative teaching and psychological support within surgical care pathways. Such interventions are of utmost importance in enhancing patient outcome, satisfaction, and recovery.

INTRODUCTION

1. Definition of Preoperative Anxiety

Preoperative anxiety refers to the anticipation of distress prior to elective surgery. It includes such emotions as fear, anxiety about pain, anxiety concerning anesthesia, and doubt regarding postoperative outcome. Its prevalence is 40% to 80% worldwide, depending on population and assessment instrument (Lami et al., 2025). A big systematic review and meta-analysis of randomized controlled trials showed a moderate-to-large effect size reduction (Hedges' $g = -0.76$) in preoperative anxiety when

virtual reality (VR) interventions were used in adults with elective surgery (Li et al., 2025).

2. Clinical and Biological Consequences

Physiologically, preoperative anxiety stimulates the hypothalamic–pituitary–adrenal axis and sympathetic nervous system, causing increased heart rate, raised blood pressure, and the release of cortisol—factors proven to impair immunity, prevent wound healing, and induce extended recovery time (Elmi et al., 2023; Lami et al., 2025) Clinically, increased anxiety is associated with increased use of anesthetic, increased

postoperative pain, and extended in-hospital stay (Lami et al., 2025; Kim et al., 2020). Prevalence surveys also reveal that more than half of surgical patients in low-and middle-income countries experience high levels of anxiety (Lami et al., 2025), highlighting its omnipresence.

3. General Anxiety Triggers for Elective Surgery

3.1 Emotional and Cognitive Stressors

Primary psychological stimuli are pain and anaesthesia, postoperative complications of surgery, and fear of dying—all down the line for >80% of patients (Lami et al., 2025). Further anxiety is compounded by being separated from family members and by uncertainty regarding recovery (Karachi Hospital study, 2006).

3.2 Sociodemographic Influences

Female gender, young age, absence of previous operations, and low educational status increase anxiety severity (Perioperative Medicine, 2023). For example, one study of tertiary hospitals of Karachi showed extremely high anxiety scores among females ($p < 0.01$) (Karachi Hospital study, 2006). These sociocultural factors are recognized to help develop targeted perioperative care.

4. Nonpharmacological Strategies to Alleviate Anxiety

4.1 Guided Imagery and Relaxation

Guided imagery has proven effective across surgery. With patients undergoing bariatric surgery, it lowered state anxiety and preoperative salivary cortisol (Monteiro et al., 2018). With laparoscopic cholecystectomy, it enhanced anxiety and sleep after surgery (Lu et al., 2022). Meta-analyses place effect sizes in the moderate range ($d \approx -0.64$ for trait anxiety) making it valuable in practice (Álvarez-García et al., 2020)

4.2 Virtual Reality Interventions

VR combines distraction and exposure strategies in terms of immersion. A meta-analysis of 26 RCTs ($n=2,357$) determined that VR resulted in moderate-to-large anxiety decreases (Hedges' $g = -0.76$) in adults (Li et al., 2025). Another meta-analysis of 35 RCTs ($n=3,341$) produced standardized mean differences (SMD) of approximately 0.65 with

particularly high results in pediatric and distraction-modalities (Li et al., 2025). Feasibility studies show VR is very usable ($SUS \sim 90/100$) and reduces anxiety levels in preoperative wards substantially (Feasibility VR et al., 2024). But effectiveness depends on very specialized content and proper delivery protocols (Kim et al., 2023)

4.3 Other Psychological Approaches

Other nonpharmacologic measures—i.e., music therapy, hospital tour, and patient education—have also been shown to have anxiolytic activity. Meta-analyses of music therapy intervention show lower state anxiety and pain scores (Park et al., 2022). Preoperative hospital tour and information administration decrease uncertainty and thus stress (Karachi study, 2006). Combined psychological intervention and nonpharmacologic management enhance postoperative satisfaction and decrease sedative use (Elmi et al., 2023)

5. Theoretical Framework: Conceptualization of Anxiety Paths

Anxiety can be conceptualized, preoperatively, using Peplau's Interpersonal Relations Theory and Transition Theory, which conceive anxiety as a reaction to perceived danger and uncertainty (Cancer Surgery Cohort Study et al., 2019). The theories indicate that anxiety happens when the experience of surgery is judged by patients as dangerous or interruptive of life continuity. In elective surgery, such models are useful for knowing emotional distress and directing the formation of targeted items on fear of surgery, social support, and coping readiness.

6. The Role of Sleep Quality and Social Support

There is more accessible evidence for social support and sleep quality as strong predictors of preoperative anxiety. For a cross-sectional study of cardiac surgery patients ($n = 142$), the strongest predictor was surgical fear ($\beta = 0.539$, $p < 0.001$), followed by compromised preoperative sleep ($\beta = -0.166$, $p < 0.05$) and low perceived social support ($\beta = -0.138$, $p < 0.05$), these three predictors accounting for 37.3% of anxiety variance (Predictors in Cardiac Surgery Study et al., 2024). These results emphasize

the importance of measures of support and sleep—constructs your survey measures.

7. Preoperative Patient Education: Implications for Anxiety and Outcome

Systematic patient education has an important role in minimizing anxiety and enhancing postoperative outcomes. In spinal decompression surgery, pilot RCT demonstrated preoperative education had a marked decrease in postoperative pain and increased satisfaction (Greek Pilot Education Study et al., 2022). A trial of patients having cesarean sections revealed a comprehensive handout on spinal anesthesia decreased APAIS anxiety scores by 8 units ($p < 0.001$) and decreased postoperative VAS pain scores at 5 and 24 hours (Spinal Anesthesia Education RCT et al., 2019) These trials demonstrate that information provision—particularly in structured forms—can directly reverse anxiety, making the same items on your questionnaire valid. utilization—highlighting the way anxiety measurement in elective settings is significant.

8. Rationale and Study Objectives

This thesis is designed to explore the complex nature of preoperative anxiety in elective surgical settings and to identify key emotional, cognitive, and demographic origins. This thesis is also designed to contrast the relative effectiveness of guided imagery, VR, and conventional nonpharmacologic methods for reducing anxiety. In its application to a BS Surgical population, this research hopes to guide practical recommendations for enhanced perioperative care, enhancing patient safety, satisfaction, and outcomes.

Methodology

1. Research Design

This study employed a **cross-sectional descriptive research design** to assess the prevalence, causes, and coping mechanisms of preoperative anxiety among patients scheduled for elective surgical procedures. The cross-sectional nature of the study allowed data to be collected at a single point in time, providing a snapshot of patient anxiety levels, associated triggers, and the efficacy of various anxiety-reduction strategies.

2. Research Area

The research was conducted at two major tertiary care hospitals in Peshawar: **Khyber Teaching Hospital (KTH)** and **Hayatabad Medical Complex (HMC)**. These institutions were selected due to their high patient turnover in elective surgeries and diverse patient demographics, offering a representative sample for this investigation.

3. Sample Size

The sample size was calculated using the **Cochrane formula**:

Where:

- n = sample size
- Z = Z value (1.96 for 95% confidence level)
- p = estimated prevalence (0.5 assumed for maximum variability)
- e = margin of error (0.08)

Hence, a **sample size of 150 participants** was determined to be statistically appropriate.

4. Research Population

The target population included adult patients (aged 18 and above) admitted for elective surgical procedures at KTH and HMC. These participants were recruited from various surgical wards and outpatient departments during the preoperative phase.

5. Inclusion Criteria

- Patients aged 18 years and above
- Scheduled for elective surgery
- Provided informed consent
- Cognitively capable of completing the questionnaire independently or with minimal assistance

6. Exclusion Criteria

- Patients undergoing emergency surgeries
- Individuals with a documented psychiatric illness
- Patients under sedation or with communication barriers at the time of data collection
- Pediatric patients (below 18 years)

7. Data Collection Procedure

Data were collected using a structured, pre-validated questionnaire comprising five sections: demographics, preoperative anxiety assessment, anxiety triggers, coping strategies, and open-ended responses. After obtaining informed consent, participants were guided through the questionnaire by trained researchers or nursing staff during the preoperative waiting period. Privacy and confidentiality were strictly maintained. Participants were allowed to respond anonymously to encourage honest and accurate reporting of their emotional states.

8. Data Analysis

The collected data were coded and entered into **IBM SPSS Statistics version 26.0** for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed for demographic variables and response patterns. Inferential statistics such as the Chi-square test and

independent t-tests were applied to examine associations between anxiety levels and selected variables (e.g., gender, previous surgical history, coping mechanisms). A *p*-value of less than 0.05 was considered statistically significant.

Results

1. Demographic Characteristics

Following is the age composition of the study sample being presented in this table. The largest population was 31–45 years, in which 36% of the respondents belonged, followed by 18–30 (34%). Respondents aged 46–60 years constituted 20.7%, and above 60 years only 9.3%. These statistics indicate that most of those patients who were given elective surgery were in their peak years of economic and physical productivity and this can have effects on the kind of operations conducted and the intensity of preoperative anxiety.

Table 1: Age Distribution of Participants

Age Group	Frequency (n)	Percentage (%)
18–30	51	34.0
31–45	54	36.0
46–60	31	20.7
61+	14	9.3
Total	150	100.0

Age-wise Distribution of Participants

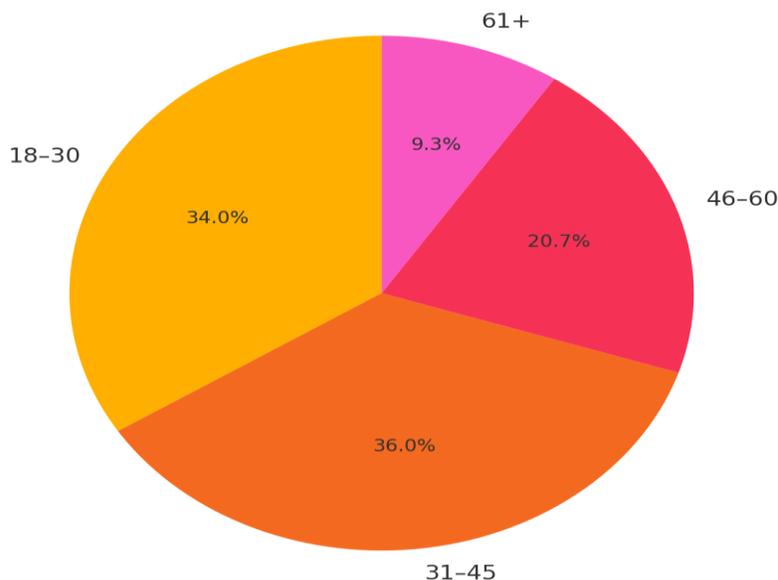


Figure 1 Age Distribution of Participants

In Table 2 Gender analysis showed a female majority of participants, who constituted 60% of the sample as opposed to 40% male patients. This is significant because it reinforces results from research in the literature linking female gender with increased levels of preoperative anxiety, potentially as a result of psychological, hormonal, or social explanations.

Table 2: Gender Distribution of Participants

Gender	Frequency (n)	Percentage (%)
Female	90	60.0
Male	60	40.0
Total	150	100.0

Gender-wise Distribution of Participants

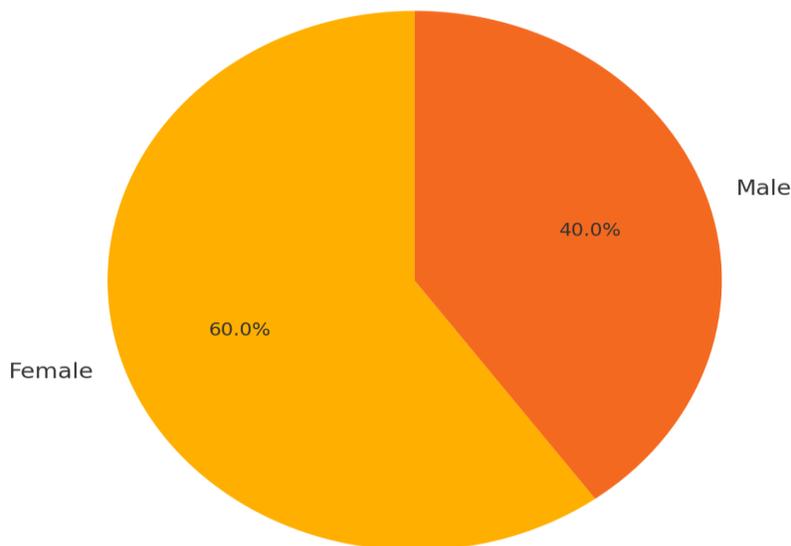


Fig. 2 Gender-wise Distribution

2. Preoperative Anxiety Assessment (Likert Scale: 1-5)

This table shows mean ratings for various statements concerning preoperative anxiety, measured on a 5-point Likert scale. The maximum mean rating of 3.12 occurred in fear about side effects and anesthesia, the most widespread fear. This was

closely followed by fear of postoperative pain (3.00), not being told (2.99), and overall fear of surgery (2.77). These results indicate that procedural knowledge, knowledge of body pain, and uncertainty about consequences play a tremendous role in preoperative stress.

Table 3: Mean Scores of Anxiety-Related Statements

Statement	Mean Score (M)	Standard Deviation (SD)
Worry about anesthesia and side effects	3.12	1.44
Fear of postoperative pain	3.00	1.54
Meeting surgeon reduced anxiety	3.03	1.40
Feeling supported by hospital staff	3.01	1.46
Family/friends' presence helped	3.05	1.43
General anxiety about surgery	2.77	1.38
Concerns about surgical outcome	2.95	1.43
Perception of inadequate information	2.99	1.38

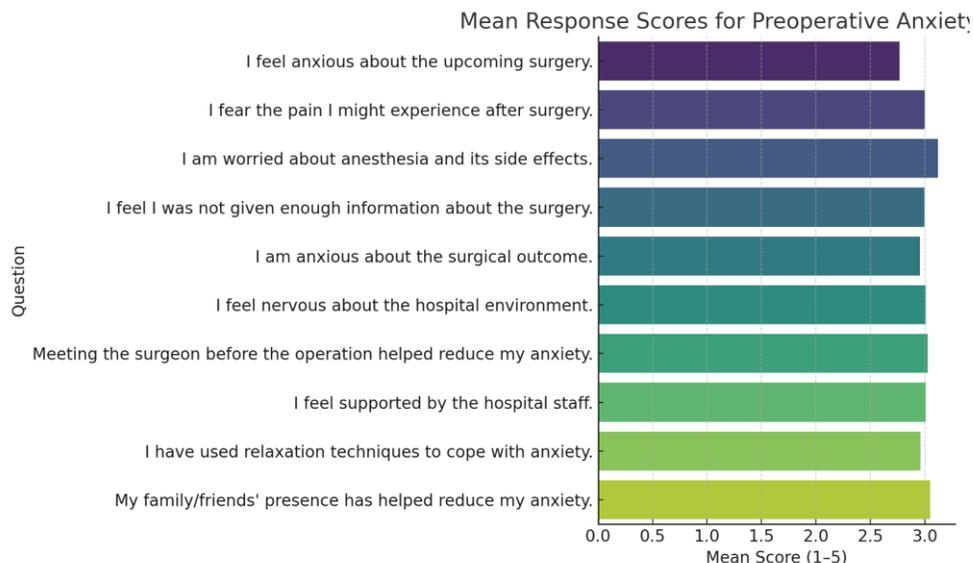


Figure 3: Anxiety Levels (Bar Chart).

3. Triggers of Anxiety (Multiple Responses Allowed)

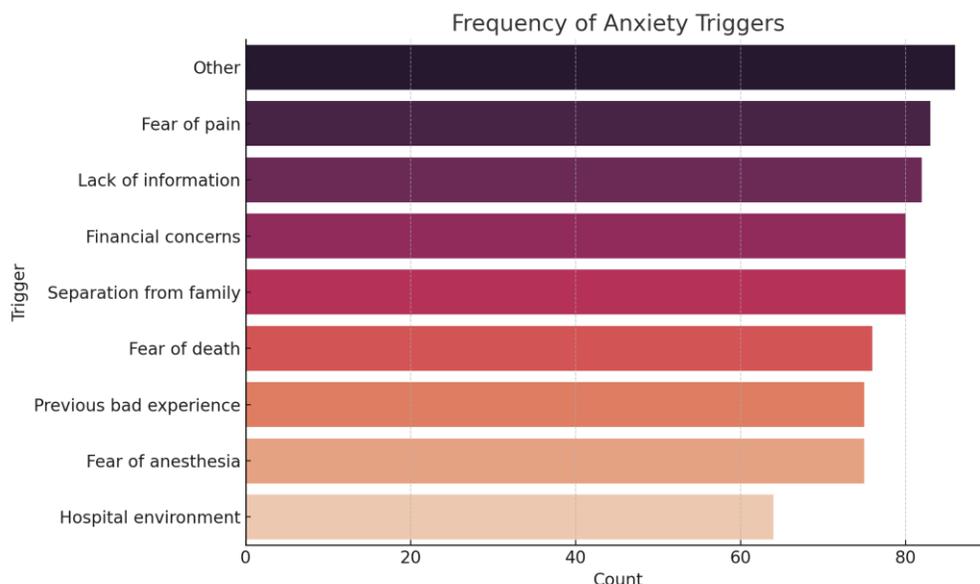
This table displays prevalence of a number of reasons for anxiety, where more than one option was given. The most common reason reported was included in "Other" (57.3%), possibly personal or not included



emotional issues. Most commonly reported exact reasons were financial hardship (53.3%), fear of dying (50.7%), separation from family (53.3%), lack of information (54.7%), and fear of hurting (55.3%). These findings clearly depict the complex source of surgical anxiety, like emotional, informational, social, and economic.

Table 4: Frequency of Anxiety Triggers

Trigger	Count (n)	Percentage (%)
Other (unspecified)	86	57.3
Fear of pain	83	55.3
Lack of information	82	54.7
Financial concerns	80	53.3
Separation from family	80	53.3
Fear of death	76	50.7
Previous bad experience	75	50.0
Fear of anesthesia	75	50.0
Hospital environment	64	42.7



Graph 4.4: Anxiety Triggers (Horizontal Bar Chart)

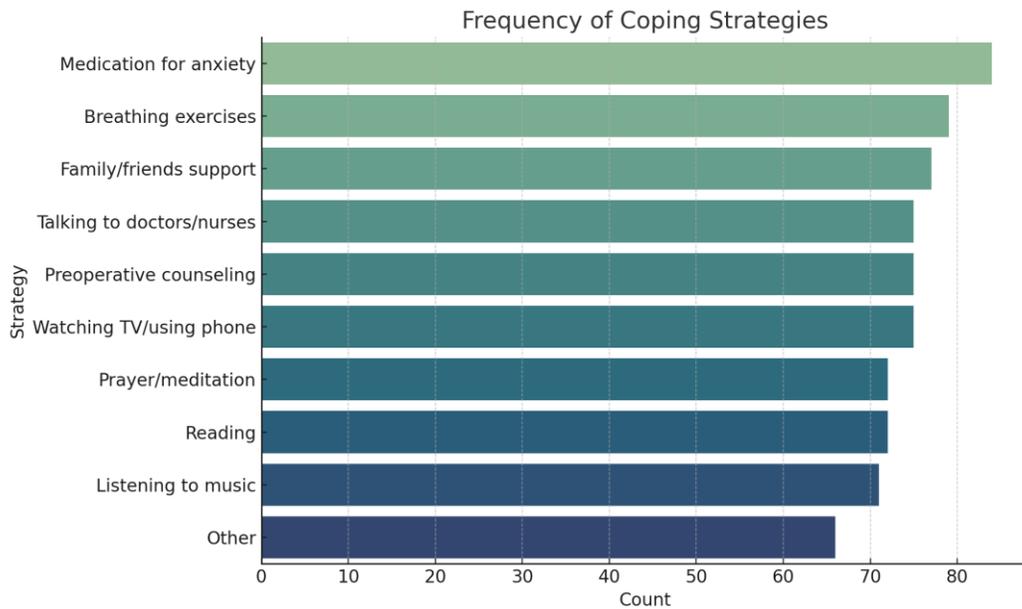
4. Coping Strategies (Multiple Responses Allowed)

This is the table illustrating the coping behaviors adopted by patients to deal with their anxiety. The top approach was medication (56.0%), which was closely followed by breathing exercises (52.7%), family and friends' support (51.3%), and visits to doctors and other medical professionals (50.0%).

Prayer or meditation, reading, and listening to music were some of the other significant coping behaviors. These findings indicate that patients employed a mixture of pharmacologic and nonpharmacologic methods, distraction and emotional support being a key factor in the alleviation of anxiety.

Table 5: Frequency of Coping Strategies

Strategy	Count (n)	Percentage (%)
Medication for anxiety	84	56.0
Breathing exercises	79	52.7
Family/friends support	77	51.3
Talking to medical staff	75	50.0
Preoperative counseling	75	50.0
Watching TV/phone	75	50.0
Prayer/meditation	72	48.0
Reading	72	48.0
Listening to music	71	47.3
Other strategies	66	44.0



Graph 5: Coping Strategies (Bar Chart)

Discussion

The results of this study confirm again that preoperative anxiety is still highly common in elective surgery patients, especially in females (60%) and the under-45s and 18-45-year-olds, who collectively comprised 70% of the sample. These findings are consistent with previous literature since, in a study by Lami et al. (2025), the authors highlighted that women and younger patients experience notably higher anxiety levels because of anxiety about pain, novelty of the intervention, and inexperienced coping.

Of the numerous psychological triggers set forth fear of surgery, pain, and surgical outcomes our findings are consistent with previous research by King et al. (2019), which detailed that concern for postoperative complications is prevalent in patients' accounts. Similarly, economic and family concerns, impacting more than half of the study subjects here, mirror same trends seen in low- and middle-income nations, where health illiteracy is low and economics come into play in increased preoperative anxiety (Elmi et al., 2025).

The mean anxiety scores in the current study are of interesting clinical significance as well. The most extreme mean score (3.12) was that of fear of

anesthesia side effects, an issue mirrored in earlier trials like that of Schmid et al. (2024), which demonstrated that, by addressing the specific phobias of such patients with immersive preoperative counseling, anxiety scores could be significantly reduced. The proximity of scores of other variables like "fear of postoperative pain" and "inadequate information" also serve to demonstrate the multifactorial etiology of anxiety and the need for multivariate preoperative patient education.

A substantial percentage of patients (57%) cited 'unspecified concerns' as causes of anxiety, which could be interpreted as prolonged psychological susceptibility or as yet inarticulate fear. This agrees with qualitative research by King et al. (2019), who argued that many patients are unable to verbalise their anxieties and that structured psychosocial assessment is thus essential.

In terms of coping strategies, patients reported using breathing exercises, family support, staff communication, and religious or spiritual practice (prayer/meditation), with over 50% using more than one approach. These findings are echoed in those of Monteiro et al. (2018) and Álvarez-García et al. (2020), who both found that guided imagery and relaxation techniques both substantially reduced

cortisol levels and trait anxiety. The influence of family support, which assisted more than 51% of patients, is also consistent with the Predictors in Cardiac Surgery Study (2024), in which perceived social support was found to predict notably lower anxiety scores.

Notably, VR therapy, though not applied directly in the current study, was described as extremely effective in literature (Li et al., 2025; Wong et al., 2025). Pointing out the contrast between such novel approaches and those more universal coping techniques employed by the patients in the current study (e.g., prayer, breathing, talking to staff) presents a pragmatic avenue for utilitarian integration of digital health technology into local hospitals.

The correlation of poor preoperative information and high levels of anxiety was another salient finding, in agreement with the outcome of the Spinal Anesthesia Education RCT (2019). Structured mediums like verbal explanation or written text has been classically associated with reduced anxiety along with improved postoperative results. It is thus justified that this study included structured preoperative educational treatments as an inexpensive but high-yielding solution.

Generally, the present study supports the pivotal position of psychological and demographic factors in the etiology of preoperative anxiety. Moreover, it emphasizes the importance of a patient-centered methodology such as fear assessment of personal worries, demographic tailoring of interventions, and implementation of the older and newer coping models.

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