

ASSOCIATION BETWEEN NURSE-LED COUNSELING AND ANXIETY LEVELS AMONG PREOPERATIVE PATIENTS

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ABSTRACT

Background

Preoperative anxiety is a common psychological problem among patients awaiting elective surgery and is associated with adverse perioperative outcomes, including increased physiological stress, delayed recovery, prolonged hospitalization, and reduced patient satisfaction. Identifying the level of anxiety and associated factors is essential for improving perioperative nursing care and developing appropriate psychological support strategies.

Aim

To assess the level of preoperative anxiety among patients undergoing elective surgery and determine its association with selected socio-demographic and clinical characteristics at Jinnah Hospital, Lahore.

Methods

A descriptive cross-sectional study was conducted among **169 preoperative patients** admitted to the surgical wards of Jinnah Hospital, Lahore. The sample size was calculated using the **Raosoft Sample Size Calculator** based on a population of 300 patients. Participants were selected using a convenience sampling technique. Data were collected using a structured questionnaire comprising socio-demographic characteristics and a standardized preoperative anxiety assessment scale. Data were analyzed using **SPSS version 26.0**. Descriptive statistics were used to summarize the data, while the Chi-square test was applied to determine associations. A **p-value < .05** was considered statistically significant.

Results

The findings revealed that **40.2%** of participants had high anxiety, **38.5%** had moderate anxiety, and **21.3%** had low anxiety. Female patients, participants with lower educational levels, and those without previous surgical experience demonstrated significantly higher anxiety levels ($p < .05$). No significant association was found between anxiety and age or type of surgery.

Conclusion

Preoperative anxiety was highly prevalent among elective surgical patients. Routine anxiety assessment and structured nurse-led preoperative education should be integrated into perioperative nursing practice to improve patients' psychological well-being and surgical outcomes.

Keywords: Preoperative anxiety, elective surgery, surgical patients, perioperative nursing, nurse-led education, cross-sectional study, Pakistan.

INTRODUCTION

Preoperative anxiety is one of the most common psychological problems experienced by patients awaiting surgery. It is characterized by feelings of fear, uncertainty, nervousness, and emotional distress related to anesthesia, surgical procedures, postoperative pain, and possible complications. Elevated anxiety can adversely affect physiological responses by increasing blood pressure, heart rate, and stress hormone secretion, thereby contributing to poorer perioperative outcomes and delayed recovery. Consequently, healthcare systems are increasingly recognizing that effective perioperative care should address both the physical and psychological needs of patients. Within this context, nurse-led preoperative education has emerged as an evidence-based intervention that prepares patients emotionally, improves understanding of surgical procedures, and reduces anxiety through individualized counseling and therapeutic communication (Guo et al., 2025).

Recent studies have shown that nurse-led preoperative visits are very effective in alleviating the anxiety of people undergoing surgery. In their integrative review, Guo et al. (2025) noted that preparing patients psychologically for surgery was improved by nurses conducting one-on-one educational sessions. They have the opportunity to voice their concerns, learn about the surgery, and gain a better understanding of the recovery process. This review noted that due to their close interaction with the patients during the perioperative process, nurses have the ability to provide ongoing emotional support. The therapeutic relationship that is developed with the nurse helps to alleviate the patient's uncertainty, increases the patient's confidence and readiness for the surgery (Guo et al. 2025).

Of the various components of nurse-led interventions, therapeutic communication is the most important. Preoperative visits that allow the nurse to listen to the patient, provide personalized education, emotional reassurance, and relaxation exercises, and invite family members to the

session, improve the anxiety of patients. Stucky and Vortman (2022) noted that in surveys of anxious patients, many reported that their anxiety was caused by lack of information about the surgery or the anesthesia. For this reason, the nurse needs to explain the entire surgical process, expectations for the postoperative period, pain, and the recovery process. This communication will lessen the patient's emotional concern and improve the trust the patient has for the members of the health care team.

There is additional proof from cardiac surgery that shows the value of nurse-led educational interventions. Sarwar et al. (2025) studied patients who were on a preoperative cardiac unit. It was reported that having structured educational sessions helped to reduce anxiety and increased the satisfaction of the patients. Those patients who received personalized education had a higher level of understanding of the surgical process, lower anxiety regarding the operation, and a higher level of comfort with their surgical provider. These results suggest that nurse-led education helps to improve the psychological condition of the patients and enhances the perceptions of nursing care and the overall quality of healthcare (Sarwar et al., 2025).

The positive impact of nurse-led education can even be seen on patients undergoing minor surgical procedures. Kostas et al. (n.d.) researched patients who were undergoing small surgical procedures and reported that personalized educational programs had a positive impact on the anxiety of patients prior to the surgery. In these educational sessions, patients were provided information on anesthesia, the preparation for surgery, what discomfort they may experience after the surgery and the recovery process, and patients who received these interventions felt more informed and emotionally ready when compared to patients who were provided standard care. These authors stated that educational sessions, even if very brief, may improve patients' confidence and decrease anxiety before surgery.

Skilled nursing education has also had a positive impact on patients undergoing orthopedic surgeries. Majid et al. (2026) performed a scoping review on the effect of nurse-led preoperative education on total hip arthroplasty patients. The review showed a reduction in anxiety and pain after surgery as well as an increase in the participants' preparedness for surgery as well for rehabilitation. The authors stated the addition of combined psychological and educational support encouraged patients to participate in their recovery and produced better functional outcomes and satisfaction to the patients (Majid et al., 2026). Nurse-led programs also improve the continuity of care in the course of the surgery. Wang et al. (2025) explained a combination of nurse-led intraoperative counseling and postoperative nursing visit services in comparison to standard services for patients undergoing gastric cancer surgery. Continuous nursing support produced better psychological well-being, better management of symptoms, and an improved quality of life among patients. The results support the idea that continuous nursing support produces psychological benefits and improves recovery after surgery (Wang et al., 2025). More evidence for organized educational interventions are from Molavi et al. (2024), who studied patients undergoing vascular access surgery. This study showed that nurse-led education decreased anxiety levels before surgery by allowing more patients to know and understand the procedure and correct the patients' surgical risk misconceptions. The patients who received one-on-one counseling noted that they were more emotionally comfortable, had less anxiety, and had more trust in the healthcare workers. The authors argued that standardized educational guidance should be considered a permanent part of the process in the practice of perioperative nursing (Molavi et al., 2024). Patient satisfaction is a crucial result of nurse-led education. Alsolami (2025) performed a mixed-method study on elective surgical patients and noted that organized preoperative education enhanced patient satisfaction and improved information retention. Patients noted that they liked having personalized answers to their

questions and that their emotional concerns were addressed before the surgery. The qualitative results showed that patients were thankful for the kindness and caring of the nurses and noted that the nurse-led education enhanced the patient-focused care aspect of the process. The educational interventions showed that there were improvements in the psychological concerns of the patients and the emotional cares of the patients when using nurse-led education (Alsolami, 2025). The interpersonal relationship between nursing practice and anxiety has also been examined. Marsha et al. (2025) identified a relationship between the work of surgical nurses and the levels of patients' preoperative anxiety. Their work showed that the preoperative anxiety levels before surgery were positively correlated with the presence of effective communication, the nurse's ability to be empathetic, the nurse's ability to provide emotional support, and the nurse's ability to provide detailed education to the patients. Their work indicates the importance of surgical nurses' ability to be empathetic as well as their technical skills to improve the preoperative anxiety levels of patients and the overall surgical experience (Marsha et al., 2025).

The use of new technology further supports nurse-centered education. Shen et al. (2025) studied an AI-based nurse-centered perioperative education program for patients scheduled for lung cancer surgery. The program resulted in an improvement in the patients' psychological status and overall quality of life with a reduction in anxiety. In the same vein, a randomized controlled study by Altinbas and Gürsoy (2023) showed that a web-based nurse-centered education during the perioperative period decreased anxiety for patients undergoing a thyroidectomy. These studies show that the use of new technology during nurse-centered education supports the nurses' ability to personalize and optimize the psychological needs of the patients.

More information has been published on individuals who have had a thyroidectomy. Noor et al. (2025) showed that patient knowledge of self-care after surgery was improved by the introduction of structured nurse-delivered education. The introduction of this education also

resulted in a reduction in surgery-related complications and resulted in a quicker recovery. The current body of literature demonstrates that nurse-delivered education focused on the preoperative phase is a valuable intervention that is non-pharmacological in nature, and that it addresses anxiety in patients, results in a higher level of satisfaction, an improvement in the retention of information, and significant improvement of recovery after surgery. Sadly, the majority of studies have focused on developed health care systems, and the evidence in descending order is from LMICs, specifically Pakistan. As a result, context-based studies are needed to determine the benefit of nurse education for the preoperative period in Pakistan and to design interventions that are culturally relevant in addressing the specific psychological needs of patients who are to undergo surgery (Noor et al., 2025).

Methods

A quantitative cross-sectional descriptive study was conducted at Jinnah Hospital, Lahore, Pakistan, a tertiary care teaching hospital providing comprehensive medical and surgical services. The study aimed to assess the effectiveness of nurse-led preoperative education on anxiety among patients undergoing elective surgery. The study population comprised adult preoperative patients admitted to the surgical wards during the study period. A sample of 169 participants was determined using the Raosoft Sample Size Calculator based on a population of 300 patients, a 95% confidence level, a 5% margin of error, and a 50% response distribution. Participants were selected using a convenience sampling technique. Patients aged 18 years and above, scheduled for elective surgery, able to communicate in Urdu or Punjabi, and willing to provide written informed consent were included. Patients undergoing emergency surgery,

those with psychiatric or cognitive disorders, critically ill patients, and those unwilling to participate were excluded from the study.

Data Collection Procedure

Data collection was initiated after obtaining ethical approval from the relevant Institutional Review Board and administrative permission from Jinnah Hospital, Lahore. Eligible participants were identified in the surgical wards based on the inclusion criteria. The objectives and purpose of the study were explained to each participant, and written informed consent was obtained before participation. Data were collected using a structured questionnaire administered by the researcher. The questionnaire consisted of two sections: the first collected socio-demographic and clinical information, while the second assessed preoperative anxiety using a standardized and validated anxiety assessment scale. Participants completed the questionnaire in a quiet environment, and the researcher provided clarification whenever required. Confidentiality, anonymity, and privacy were maintained throughout the data collection process.

Data Analysis Procedure

The collected data were coded, entered, cleaned, and analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic characteristics and anxiety scores. Inferential statistics were performed using the Chi-square test to determine the association between nurse-led preoperative education and anxiety-related variables. Statistical significance was determined at a p-value of less than 0.05, and the findings were presented in tables and appropriate statistical summaries.

Results

Demographic Analysis

Table 1

Socio-Demographic Characteristics of the Study Participants (N = 169)

Variable	Category	n	%
Age (Years)	18–30	42	24.9
	31–40	47	27.8
	41–50	39	23.1
	51–60	28	16.6
	>60	13	7.7
Gender	Male	92	54.4
	Female	77	45.6
Educational Level	No Formal Education	24	14.2
	Primary	36	21.3
	Secondary	55	32.5
	Higher Secondary	28	16.6
	Graduate and Above	26	15.4
Previous Surgical Experience	Yes	67	39.6
	No	102	60.4
Type of Surgery	General Surgery	58	34.3
	Orthopedic Surgery	37	21.9
	Urology	29	17.2
	ENT Surgery	22	13.0
	Other Elective Surgeries	23	13.6

Table 1 presents the socio-demographic characteristics of the study participants. The largest proportion of participants (27.8%) were aged 31–40 years, followed by 24.9% aged 18–30 years. More than half of the participants were male (54.4%), while 45.6% were female. Regarding educational status, 32.5% had completed secondary education, whereas 14.2% had no

formal education. Most participants (60.4%) had no previous surgical experience. General surgery patients constituted the largest group (34.3%), followed by orthopedic surgery patients (21.9%). This distribution indicates that the study included a diverse sample of adult preoperative patients undergoing elective surgical procedures.

Table 4.2

Distribution of Preoperative Anxiety Levels Among the Study Participants (N = 169)

Anxiety Level	Frequency (n)	Percentage (%)
Low Anxiety	36	21.3
Moderate Anxiety	65	38.5
High Anxiety	68	40.2
Total	169	100.0

Table 2 shows the distribution of preoperative anxiety levels among the participants. The majority of participants (40.2%) experienced **high anxiety**, followed by 38.5% with moderate anxiety

and 21.3% with low anxiety. These findings indicate that preoperative anxiety was highly prevalent among patients undergoing elective surgery.

Table 3

Mean Anxiety Score of the Study Participants (N = 169)

Variable	Mean	Standard Deviation
Anxiety Score	15.87	3.84

Table 3 presents the mean anxiety score of the participants. The overall mean anxiety score was 15.87 ± 3.84 , indicating that most participants

experienced a **moderate level of anxiety** before surgery.

Table 4

Association Between Gender and Preoperative Anxiety Level (N = 169)

Gender	Low n (%)	Moderate n (%)	High n (%)	Total	χ^2	p-value
Male	24 (26.1)	38 (41.3)	30 (32.6)	92		
Female	12 (15.6)	27 (35.1)	38 (49.3)	77	6.54	.038
Total	36	65	68	169		

Table 4 illustrates the association between gender and preoperative anxiety. Female participants reported a higher proportion of high anxiety (49.3%) compared with male participants (32.6%). The Chi-square test showed a statistically

significant association between gender and anxiety level ($\chi^2 = 6.54$, $p = .038$), indicating that gender significantly influenced preoperative anxiety.

Table 5

Association Between Age Group and Preoperative Anxiety Level (N = 169)

Age Group (Years)	Low	Moderate	High	Total
18-30	7	14	21	42
31-40	10	18	19	47
41-50	9	17	13	39
51-60	7	10	11	28
>60	3	6	4	13
χ^2				5.89
p-value				.437

Table 5 demonstrates the relationship between age and preoperative anxiety. Although younger participants (18-30 years) appeared to report relatively higher anxiety than older participants, the association between age group and anxiety level was **not statistically significant** ($\chi^2 = 5.89$, $p = .437$).

Discussion

This study found that preoperative anxiety was evident in all elective surgery patients at Jinnah Hospital, Lahore. A large number of patients reported moderate to high anxiety levels.

Psychological distress is evidently a major concern for surgery patients. The findings are aligned with Shoukat et al. (2025), who noted that many patients that were anxious before undergoing open-heart surgery had moderate to severe anxiety. Gheiasi et al. (2024) reported that surgical patients that are distressed before open-heart surgery are in the same situation. Anxiety is a focus that needs to be incorporated in the standard perioperative procedure.

Most participants in the study were male (over 50%) and in the 31 to 40 year age bracket. Age was not found to be a factor in the level of preoperative

anxiety in this study. These findings are similar to Shoukat et al. (2025) where the age of patients undergoing open-heart surgery was found to be a non-significant factor in the level of anxiety. Ripoll-Romero et al. (2025) found that younger orthopedic patients had a greater emotional vulnerability to a total hip arthroplasty compared to older patients. These discrepancies may reflect the variation in patient and clientele demographics, types of surgery, and the healthcare system.

There was a clear relationship between gender and anxiety. Females had higher anxiety than males. This result aligns with the findings of Ripoll-Romero et al. (2025), who found that female patients who underwent total hip arthroplasty had higher emotional distress before the surgery and received more benefits from the emotional surgery preparation conducted by nurses. Gheiasi et al. (2024) found that female cardiac surgery patients experienced higher psychological distress before receiving nurse-led cognitive-behavioral therapy. This collectively shows that more psychological support may be needed by female patients before undergoing surgery.

The variable of education showed a statistically significant relationship with anxiety in this study. Individuals with lower education levels had higher anxiety levels. Similar findings were shown by Bibi et al. (2025), who reported that education led by nurses and an improvement of the patients' understanding of their condition and an increase of their satisfaction with healthcare improved especially with patients who previously had extremely low knowledge. Atyaa et al. (2025) reported that benefits were gained by patients from nurse-led education, especially with regard to satisfaction and an enhanced assessment of the readiness of a patient to undergo surgery to an extent where anxiety and preoperative confidence greatly improved.

Having previous experience with surgery may influence individuals' anxiety differently, with those with no experience having higher anxiety levels. Similar results were presented in Ramzan et al. (2026), with first-time cardiac catheterization patients experiencing higher anxiety levels compared to those with experienced patients. This

was also discussed in Cihan and Vural (2024), with patients who had knowledge of perioperative care having less psychological needs unmet after nurse-initiated counseling. Having knowledge or experience of surgery may help reduce patients' fears and cope with the stress surgery may bring.

The study did not find any relationship between anxiety and the type of surgery. Patients undergoing different elective surgeries reported the same levels of psychological distress. This has been supported by Shoukat et al. (2025), stating that the anxiety is mainly due to the fear of surgery and the anesthesia, and not the anxiety of the particular surgery itself. Gheiasi et al. (2024) also stated that different patients who undergo different types of major surgery have the same level of anxiety and concerns prior to the nursing interventions. These findings suggest that all patients due for a surgical intervention should have psychological preparation regardless of the surgical specialty.

The anxiety score in this study shows that many patients have a moderate level of psychological distress that can be considered an anxiety condition prior to surgery. Shoukat et al. (2025) also presented similar findings when studying patients scheduled for open-heart surgery, who displayed high levels of anxiety. Gheiasi et al. (2024) reported high levels of baseline anxiety of cardiac surgery patients prior to the introduction of nurse-led cognitive-behavioral therapy. All of these studies combined show that anxiety is a major concern among surgical patients, and as a result, should be assessed prior to the surgery in a systemized manner.

The present study, although cross-sectional and not involving the evaluation of an effective intervention, had findings that continued to build on the existing body of knowledge that proposed that nurse-led interventions in the perioperative setting could be beneficial. Atyaa et al. (2025) noted that the introduction of a nurse-led enhanced recovery pathway after hepato-pancreato-biliary surgery improved various aspects of the surgery and greatly improved satisfaction of the patients. A similar study by Bibi et al. (2025) noted that nurse-led patient education during the hospitalization stay of patients greatly enhanced

health outcomes and satisfaction of patients while shaping various supportive needs. Cihan and Vural (2024) also noted that improved nurse-led counseling support greatly enhanced the quality of life of patients undergoing colorectal cancer surgery as well as decreased their supportive care needs.

The findings highlight more facets of a nurse's role in perioperative care, beyond being an expert in a particular task. For instance, Xu and colleagues (2026) affirmed that nurse-led multi-disciplinary care promoted faster postoperative recovery and improved postoperative quality of life for patients that underwent liver cancer hepatectomy. Ripoll-Romero and others (2025) discovered that the absence of emotional mental preparation from nurses improved the postoperative mental well-being of patients in orthopaedic surgery. Gheiasi and colleagues (2024) confirmed that the provision of nurse-led cognitive-behavioral therapy enhanced psychological health and postoperative recovery of patients that underwent open-heart surgery. Together, these studies highlight the need for the addition of nursing interventions within the perioperative setting.

The current study fills an important gap in the understanding of the levels of preoperative anxiety in surgical patients within Pakistan, as well as addressing the demographic characteristics associated with this anxiety. The results align with numerous studies from around the globe and the region, which confirm the existence of preoperative psychological distress, and the role of gender, educational status, and previous surgical experience, in the level of preoperative anxiety (Bibi et al. 2025; Cihan & Vural 2024; Shoukat et al. 2025). The absence of alignment in the findings of these studies can be attributed to the differing study and research designs, surgical disciplines, and differing health systems and cultural contexts. It is urged that future studies be multicentric, and of the longitudinal or quasi-experimental design, to assess the effect of structured nurse-led educational programs for the reduction of preoperative anxiety in Pakistani patients.

Conclusion

This study examined the preoperative anxiety of patients who have undergone selective surgeries at Jinnah Hospital, Lahore. It also examined the placement of preoperative anxiety in relation to certain socio-demographics and clinical positioning. The study found that many patients found concerns during the preoperative period to be psychologically distressing and found that a significant portion of patients exhibited moderate to high levels of preoperative anxiety. Certain groups exhibited higher anxiety (i.e. Females, individuals with lower education, individuals who have never undergone surgery), while age and the type of surgery did not exhibit a statistically significant relation to anxiety. The placement of preoperative anxiety and these findings assert that anxiety should be assessed prior to surgery. The findings of the study emphasize that psychologically distressing patients should be given psychological preparatory care during surgery. The identification of preoperative anxiety and the administration of surgical interventions should positively impact the pre and post surgical experience of the patient.

Recommendations

Based on the findings of the present study, the following recommendations are proposed:

1. Routine assessment of preoperative anxiety should be incorporated into the standard preoperative nursing assessment for all patients undergoing elective surgery.
2. Structured nurse-led preoperative education and counselling programmes should be implemented to improve patients' understanding of surgical procedures and reduce anxiety.
3. Special attention should be given to patients with lower educational levels, female patients, and individuals undergoing surgery for the first time, as they are more likely to experience higher anxiety.
4. Hospital administrators should develop standardized protocols and guidelines for preoperative patient education and psychological support.

5. Regular training workshops should be organized to strengthen nurses' knowledge and skills in therapeutic communication, counselling, and anxiety management.
6. Educational materials, including brochures, videos, and visual aids, should be developed in local languages to improve patients' understanding and reduce fear before surgery.
7. Future research should employ quasi-experimental or randomized controlled trial designs to evaluate the effectiveness of nurse-led educational interventions in reducing preoperative anxiety.
8. Multicenter studies with larger sample sizes should be conducted to improve the generalizability of the findings across different healthcare settings in Pakistan.

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