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Internal and External Factors Associated with Preoperative Anxiety: A Cross-Sectional Study

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Abstract

Introduction: Anxiety is a common psychological response experienced by patients before undergoing surgery. This condition can affect physiological stability, the healing process, as well as the success of surgery. Factors that affect a patient's anxiety level can come from internal aspects such as age, gender, education level, and knowledge; as well as external factors such as family support, information from health workers, and previous surgery experience. This study aims to analyze internal and external factors related to the patient's anxiety level before surgery.

Methods: This study uses an analytical descriptive design with a cross sectional approach. The population obtained was obtained from the average number of surgery patients each month of 100 people. The number of samples calculated using the slovin formula was obtained by 80 respondents who were taken using *the Random Sampling* technique. Data collection was carried out using the Hamilton Anxiety Rating Scale questionnaire to measure anxiety levels as well as questionnaires of related factors. Data analysis uses chi-square tests to look at the relationships between variables.

Results: The results of the study showed that the factors related to the level of anxiety in pre-operative patients through statistical tests were age (pvalue = 0.04), education level (pvalue = 0.02), surgical experience (pvalue = 0.001) and family support (pvalue = 0.001). Meanwhile, another factor that was not related to the anxiety level of pre-operative patients was gender (pvalue = 0.216).

Conclusions: Both internal and external factors have an influence on the patient's anxiety level before surgery. Efforts are needed to improve pre-operative education and psychological support for patients to reduce anxiety levels and increase readiness for surgery.

Keywords: Anxiety, Pre-operative patients, Internal factors, External factors

Introduction

Surgery is any type of surgery that uses invasive methods, which means opening up areas of the body for treatment. Before surgery, the patient will go through an anesthesia or anesthesia condition including General Anesthesia and Spinal Anesthesia. At each stage of the surgical process, the patient's perception of the surgical procedure will be diverted to a "scary" condition that causes feelings of anxiety. The number of major surgeries in Indonesia is very

high, accounting for 75% of all cases of abdominal surgery, pediatrics, and oncology. There are several levels of risk for patients associated with major surgical procedures. Pre-operative patients may experience anxiety due to the high level of risk. These include anxiety about the effects of anesthesia, injuries that occur during surgery, anxiety about physical changes that cause them to be unable to function normally or work regularly, and more (Hatibie et al., 2021).

Anxiety is an enthusiastic reaction to an evaluation that describes a state of stress, tension, fear, and anxiety combined with different life circumstances as an infectious problem (Didayana et al., 2023). Anxiety can be caused by excessive stress on various occasions in daily life. Anxiety that seems uncontrollable will be related to physical side effects, such as muscle tension, difficulty sleeping and restlessness. The anxiety that arises in patients is affected by different elements, including the tension identified with the patient's illness, medication and current assurance assessments. In addition, an estimated 20% of the world's population experiences anxiety before undergoing surgery. Meanwhile, the prevalence of anxiety in Indonesia ranges from 9-12% (Hastuti, 2024). Another study also mentioned that about 1.2 million people (80%) experienced anxiety before undergoing surgery (Ajang et al., 2023).

The factors that affect preoperative anxiety are multifactorial and can be classified into internal factors and external factors. Internal factors include individual characteristics such as age, gender, previous surgical experience, level of knowledge about the surgical procedure, coping mechanisms, and self-efficacy (Bedaso et al., 2022). Patients with limited knowledge or negative previous surgical experience tend to experience higher levels of anxiety (Veeralakshmanan et al., 2020). In addition, an individual's perception of illness and surgery also plays an important role in determining the level of anxiety experienced. Meanwhile, external factors include environmental and social influences, such as the quality of communication between health workers and patients, the adequacy of preoperative information, waiting time before surgery, the atmosphere of the hospital environment, and family support (Ramírez-Giraldo et al., 2024). Research shows that less effective communication and a lack of preoperative information can increase patient anxiety, while clear education, an empathic approach to nurses, and family involvement can significantly lower anxiety levels (Ramírez-Giraldo et al., 2024).

From a nursing perspective, preoperative anxiety is a condition that can be modified through appropriate nursing interventions. Nurses have a strategic role in conducting anxiety assessments, identifying internal and external contributing factors, and providing holistic interventions in the form of individualized education, emotional support, and patient- and family-centered nursing approaches (Feninets et al., 2022). A comprehensive understanding of

the interconnectedness of these factors is essential to design evidence-based nursing interventions (Althobiti et al., 2020).

The researcher was interested in researching factors related to the anxiety level of pre-operative patients at Bhayangkara Bondowoso Hospital. The results of this study are expected to provide complete information related to the assessment of anxiety in pre-operative patients. This study was conducted to further raise the phenomenon related to factors related to the incidence of anxiety in pre-operative patients so that it is expected to provide a clear picture to be able to choose the right intervention.

Methods

This research design uses a correlational research design using a cross-sectional approach. These anxiety factors include gender, age, education level, surgical experience, and family support in pre-operative patients with General Anesthesia. The number of patients who have undergone surgery during May-June is as many as 100 patients from all surgical classifications. The number of samples was taken using the calculation of the Slovin formula ($d=5\%$) so that the sample was obtained as many as 80 people. The sampling technique used is Random Sampling to ensure that the data collected is representative and reliable. The data was obtained on elective patients during the work shift. Statistical analysis was carried out through univariate and bivariate analysis. Univariate analysis was used to identify respondent characteristics while bivariate analysis in this study included factors obtained on the level of anxiety which were then processed into a data scale. Statistical tests are carried out using Chi-Square. The instrument in this study uses observational sheets obtained through the patient's medical records and measurements made directly through anxiety level questionnaires in the form of HARS. This research was ethically feasible with the number: No.1089/KEPK/UDS/V/2025

Results

Table 1. Analysis of Internal and External Factors Associated with Anxiety Among Patients Before Surgical Procedures (n=80)

Variable	Indicators	Anxiety Among Patients Before Surgical Procedures			Sig
		Mild	Moderate	Severe	
Sex	Male	5 (41,7%)	13 (65%)	33 (68,8%)	0,15
	Female	7 (58,3%)	7 (35%)	15 (31,3%)	
Age	18-25 years old	1 (8,3%)	1 (5%)	5 (10,4%)	0,04
	26-45 years old	1 (8,3%)	7 (35%)	20 (41,7%)	
	46-60 years old	10 (83,3%)	12 (60%)	23 (47,9%)	
Education	Illiterate	8 (66,7%)	4 (20%)	5 (10,4%)	0.02
	Primary	1 (8,3%)	1 (5%)	6 (12,5%)	
	Middle School	0	6 (30%)	12 (25%)	
	Higher School	2 (16,7%)	5 (25%)	19 (39,6%)	
	Graduation	1 (8,3%)	4 (20%)	6 (12,55)	
Operating Experience	First-time	7 (58,3%)	17 (85%)	47 (97,9%)	0,001
	More than once	5 (41,7%)	3 (15%)	1 (2,1%)	
Family Support	Always	8 (66,7%)	3 (15%)	0	0,000
	Often	4 (33,3%)	17 (85%)	34 (70,8%)	
	Sometimes	0	0	14 (29,2%)	

Source: Statistics Agency for the year 2024

Table 1 appears the dissemination of statistic characteristics of the study respondents. Among the 80 respondents, 63,7% were man, aged 46-60 years (56.3%), with a higher school education level (32,5%). During the preparation for the operation, the respondents mentioned that on average they had their first experience of surgery and during the preparation for the operation, the respondents mentioned getting support from their families with the category of frequent (68.8%).

The analysis revealed that gender was not significantly associated with preoperative anxiety among patients ($p = 0.15$). In contrast, age ($p = 0.04$) and educational level ($p = 0.02$) showed significant relationships with anxiety levels prior to surgery. Notably, patients with previous surgical experience ($p = 0.001$) and those receiving strong family support ($p < 0.001$) exhibited markedly lower levels of preoperative anxiety. These findings highlight the influence of sociodemographic and psychosocial factors on patients' anxiety before undergoing surgical procedures.

Discussion

This study provides important insights into factors associated with preoperative anxiety from a nursing perspective, emphasizing the critical role of nurses in perioperative care. The findings indicate that age, educational level, previous surgical experience, and family support

were significantly associated with preoperative anxiety, whereas sex was not, highlighting the need for individualized nursing interventions rather than uniform approaches.

The absence of a significant association between sex and preoperative anxiety suggests that anxiety responses prior to surgery are influenced more by individual psychological and clinical factors than by sex alone. Nurses should therefore assess anxiety using standardized instruments rather than gender assumptions (Marsha et al., 2025). The significant relationship between age and preoperative anxiety underscores the need for age-tailored nursing care. Older patients may experience increased concerns about physical resilience, comorbidities, and postoperative recovery outcomes. Nursing assessment should systematically identify vulnerabilities associated with aging, then tailor education and support to address individual fears and expectations. Evidence indicates that enhanced nurse–patient communication reduces preoperative anxiety and improves perioperative experience across age groups.

The association between educational level and preoperative anxiety highlights the importance of health literacy in perioperative care. Patients with lower educational attainment may have limited understanding of surgical procedures, increasing fear and uncertainty. Nurses serve as primary patient educators, employing plain language, visual aids, and teach-back methods to ensure comprehension and emotional preparedness. Tailored education has been shown to significantly reduce anxiety before surgery (Purnomo et al., 2024). One of the strongest findings in this study was the significant association between previous surgical experience and preoperative anxiety. Patients undergoing their first surgery typically manifest higher anxiety compared to those with prior exposure. This underscores the value of structured preoperative education programs led by nurses, which have been shown to alleviate anxiety by familiarizing patients with procedural steps, pain management expectations, and recovery processes (Agussalim et al., 2025).

The highly significant association between family support and preoperative anxiety reinforces the importance of family-centered nursing care. Family support acts as a crucial buffer against psychological distress, providing emotional reassurance and promoting adaptive coping. Nurses can enhance family involvement by integrating family members into preoperative education sessions and encouraging their supportive presence, which has been linked to lower anxiety levels among surgical patients (Ridho et al., 2024).

Moreover, recent evidence suggests that the role of surgical nurses themselves through communication, education, and emotional support is strongly correlated with lower preoperative anxiety levels. Patients perceiving higher nursing engagement experienced

significantly reduced anxiety, highlighting the direct impact of nursing competencies on psychological outcomes

In summary, the findings of this study emphasize the pivotal role of nurses in identifying and managing preoperative anxiety through holistic, patient-centered, and family-oriented interventions. Strategies such as early anxiety screening, individualized education tailored to patient needs, therapeutic communication, and family engagement should be systematically integrated into perioperative nursing practice. Strengthening these nursing strategies may not only reduce preoperative anxiety but also enhance patient satisfaction, improve coping mechanisms, and optimize surgical outcomes.

The findings of this study have important implications for nursing practice in perioperative settings. Nurses play a central role in the early identification and management of preoperative anxiety, particularly among patients who are older, undergoing surgery for the first time, have lower educational levels, or report limited family support. Routine screening for preoperative anxiety using standardized assessment tools should be integrated into preoperative nursing care. The results also highlight the need for individualized, nurse-led preoperative education tailored to patients' educational and cognitive levels. Clear explanations, the use of visual aids, and teach-back techniques may enhance patient understanding and reduce anxiety. In addition, the significant influence of family support underscores the importance of family-centered nursing care. Actively involving family members in preoperative education and emotional support may strengthen patients' coping mechanisms and psychological readiness for surgery.

Despite these contributions, several limitations should be acknowledged. The cross-sectional design limits causal inference, and the reliance on self-reported anxiety measures may introduce response bias. Furthermore, the study was conducted in a single clinical setting, which may limit the generalizability of the findings. Future research should employ longitudinal or experimental designs to examine the effectiveness of specific nursing interventions—such as structured preoperative education programs, therapeutic communication strategies, and family-centered care models—in reducing preoperative anxiety. Multi-center studies and qualitative investigations are also recommended to further explore patients' experiences and strengthen evidence-based perioperative nursing practice.

Conclusion

Both internal factors (age, educational level, and previous surgical experience) and external factors (family support) significantly influence preoperative anxiety among patients,

whereas gender does not. These findings highlight the need for nurses to assess patients' sociodemographic characteristics and psychosocial support when planning preoperative care. Implementing tailored interventions, such as patient education and family involvement, can help reduce anxiety and improve overall surgical outcomes.

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