

Factors Influencing Preoperative Anxiety Among Patients Undergoing Elective Surgery In Kenya: The Role of Nurse Anesthetists

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Abstract

Patients awaiting elective surgery often struggle with preoperative anxiety, which has been associated with unfavorable outcomes. In Kenya, despite notable improvements in surgical and anesthesia services, many patients still continue to experience severe anxiety before surgery. This study examined factors influencing preoperative anxiety among patients undergoing elective surgery in a selected referral hospital in Kenya. Specifically, the study assessed the level of preoperative anxiety, identified factors associated with preoperative anxiety, and examined the role of nurse anesthetists in reducing preoperative anxiety. The study employed descriptive cross-sectional research design. Target population comprised adult patients of 18+ years scheduled for elective surgery in Mathare National Teaching and Referral Hospital, Kenya. Purposive technique was used to sample 19 of them, from whom data was collected using a structured interviewer-administered questionnaire. Measures of socio-demographic and clinical characteristics, preoperative anxiety, and nurse anesthetists' interventions were incorporated into the questionnaire. Of the 19 respondents, 15 successfully completed the questionnaire, accounting for a 78.9% response rate. Data was analyzed using descriptive statistics, Chi-square tests, and exploratory logistic regression. The findings indicated that elevated preoperative anxiety was experienced by 66.7% respondents. The most predominant concerns included fear that something might go wrong during surgery (73.3%), worrying about anesthesia (66.7%), nervousness about surgery (66.7%), and fear of postoperative pain (60.0%). Younger age, inadequate preoperative information, and absence of previous surgical experience indicated potentially significant correlations with anxiety. However, these did not reach statistical significance due to the small sample size. Additionally, there were positive perceptions of nurse anesthetists, especially for their clear explanations of anesthesia, and respectful and empathetic treatment of the patients. The study concluded that preoperative anxiety is a significant concern that requires systematic attention during elective surgical care. Recommendations included structured nurse-led preoperative education, routine anxiety screening, individualized counseling, empathetic communication, and targeted reassurance, especially for first-time surgical patients. Larger and broader studies across Kenyan hospitals are suggested to establish more generalizable evidence.

Keywords: elective surgery, preoperative anxiety, nurse anesthetists, perioperative care

 <https://doi.org/10.31039/ljss.2026.12.394>



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1.0 Introduction

Preoperative anxiety is a common psychological response experienced by patients awaiting surgery. It is characterized by feelings of fear, uncertainty, apprehension, and emotional distress before an operative procedure. Concerns about the surgical outcome, anesthesia, postoperative discomfort, complications, disability, financial expenses, and even mortality sometimes cause anxiety prior to surgery. Excessive preoperative anxiety has been linked to negative physiological and psychological outcomes, such as increased sympathetic nervous system activity, elevated blood pressure and heart rate, higher anesthetic requirements, prolonged postoperative pain, delayed wound healing, longer hospital stays, and lower patient satisfaction. However, a moderate level of anxiety may encourage patients to seek information and actively participate in their care. As a result, lowering preoperative anxiety has emerged as a crucial quality measure for anesthesia and perioperative nursing care globally (Flath et al., 2022; Kassahun et al., 2022).

Globally, due to improvements in access to specialized healthcare services, ageing populations, and advancements in surgical techniques, elective surgery is on the rise. Preoperative anxiety is still a significant problem for patients in various surgical specialties, despite recent advancements. According to a recent observational cross-sectional study conducted in South Korea, 61.8% of adult patients undergoing elective surgery reported experiencing clinically significant preoperative anxiety. The study also found that anxiety was significantly predicted by female gender, younger age, previous negative surgical experiences, lack of knowledge about surgery and anesthesia, and fear of postoperative pain (Oh et al., 2024). These findings show that, despite advancements in perioperative care, psychological readiness is still insufficient.

Similarly, research done in China has shown that a number of psychosocial and demographic factors affect anxiety prior to surgery. According to Xing et al. (2025), anxiety among people anticipating cardiac surgery was substantially predicted by fear of surgical complications, a lack of emotional support, insufficient understanding of the disease, and uncertainty about postoperative recovery. Also, patients in preoperative holding rooms indicated significant unmet information needs on anesthesia, anticipated surgical procedures, pain management, and postoperative recovery, according to Li et al. (2025). The authors came to the conclusion that providing patients with tailored information greatly enhances their psychological preparedness before to surgery. Additionally, studies have shown that preoperative anxiety extends beyond adult patients. Kumari et al. (2024) found a significant positive correlation between parents' anxiety prevalence and anxiety experienced by children awaiting elective surgery under anesthesia. Furthermore, Chan et al. (2024) emphasized that family-centered perioperative education can substantially reduce anxiety among both parents and pediatric patients.

Across African healthcare systems, inadequate preoperative counseling services, insufficient mental health integration, limited healthcare resources, and a lack of specialist personnel are all factors contributing to increased patient anxiety before to surgery. Anxiety among surgical patients is further increased by cultural beliefs about surgery, fear of anesthesia, poor communication between patients and healthcare providers, financial concerns, and low health literacy. The magnitude of this problem is demonstrated by recent data from Nigeria. According to Mbadugha et al. (2025), in tertiary institutions in southeast Nigeria, more than half of adult patients undergoing elective surgery had moderate to severe preoperative anxiety.



Anxiety was found to be significantly predicted by female gender, low educational attainment, lack of prior surgical experience, fear of dying after surgery, poor anesthetic understanding, anticipated postoperative discomfort, and inadequate information from healthcare personnel. To mitigate anxiety and enhance surgical outcomes, the authors suggested promoting preoperative counseling and enhancing patient education.

Despite notable development, anxiety still has a detrimental impact on perioperative outcomes. According to Kassahun et al. (2022), patients who reported high levels of anxiety before to major surgery had worse postoperative outcomes and higher rates of morbidity than patients who reported lower levels of anxiety. Similarly, Flath et al. (2022) emphasized the importance of early detection and treatment of anxiety before surgery by pointing out that acute preprocedural anxiety affects anesthesia management by raising anesthetic requirements and physiological instability during induction. Additionally, a substantial number of African studies have focused primarily on determining the frequency and demographic correlates of anxiety, offering less information about the precise role nurse anesthetists play in lowering anxiety. Understanding nurse anesthetists' role in reducing anxiety is a critical study objective for enhancing patient-centered surgical care throughout the region. This is especially important since they frequently spend a significant amount of time getting patients ready for surgery.

In Kenya, following investments in referral hospitals, the expansion of universal health coverage programs, and improved access to specialized surgical care, the country's surgical services have grown significantly. However, regular perioperative treatment still does not often incorporate psychological preparation for patients undergoing choice surgery. In current practice, systematic anxiety evaluation and psychological support are given relatively less attention than getting informed consent, doing laboratory tests, and physically preparing patients for surgery.

Research from Kenya shows that educational interventions can successfully reduce anxiety before surgery. In a randomized controlled trial involving women undergoing elective caesarean sections, Mung'ayi et al. (2023) discovered that patients who received structured video-based preoperative education had significantly lower State-Trait Anxiety Inventory (STAI) scores than those who received standard verbal information alone. The results indicate that in Kenyan healthcare settings, improved patient education can significantly increase psychological readiness prior to surgery.

Despite these encouraging findings in the Kenyan context, there is still a lack of published data on the prevalence and contributing factors of preoperative anxiety in adult patients receiving general elective surgery in Kenyan referral hospitals. There is limited knowledge of anxiety in larger elective surgery populations because the majority of current Kenyan research have concentrated on particular patient categories, such as obstetric populations. Additionally, there is a dearth of empirical data on how nurse anesthetists currently evaluate, interact with, comfort, and provide psychological support to patients prior to operation. Given the crucial role nurse anesthetists play in preoperative preparation, this constitutes a significant knowledge gap.

Furthermore, despite the fact that numerous demographic, clinical, psychosocial, and informational factors linked to anxiety have been identified in international literature, these determinants may differ across healthcare systems because of variations in socioeconomic



status, culture, health literacy, hospital infrastructure, staffing levels, and perioperative care organization. As a result, research from high-income countries cannot be generalized directly to referral hospitals in Kenya. Therefore, the current study sought to examine factors that influence preoperative anxiety among patients undergoing elective surgery in a selected referral hospital in Kenya. Specifically, it addressed the following objectives.

- i. To assess the prevalence of preoperative anxiety among patients undergoing elective surgery.
- ii. To identifies factors associated with preoperative anxiety among patients undergoing elective surgery.
- iii. Examines the role of nurse anesthetists in reducing preoperative anxiety
- iv. To recommend strategies for improving preoperative patient care in Kenya.

2.0 Theoretical Framework and Empirical Review

2.1 Theoretical Framework: Mishel's Uncertainty in Illness Theory

The Mishel's Uncertainty in Illness Theory (UIT), which was created by Merle H. Mishel in 1988 and further improved in 1990, serves as the foundation for the study. According to the model, doubt develops when people have insufficient, unclear, or inconsistent knowledge that prevents them from understanding illness-related occurrences. According to Mishel, there are four main factors that contribute to uncertainty, including lack of knowledge, complexity of healthcare systems, ambiguity about the illness or treatment, and unpredictability of disease consequences. The theory further postulates that healthcare professionals serve as "structure providers" by providing patients with guidance, emotional support, and clear information that helps them understand health-related events more properly, which minimizes ambiguity and anxiety (Mishel, 1988). In the context of elective surgery, the theory is especially relevant for understanding the psychological processes underlying preoperative anxiety because patients often feel uncertain about anesthesia, the surgical procedure, postoperative pain, potential complications, and recovery outcomes.

This study has a strong conceptual foundation as a result of using Mishel's Uncertainty in Illness Theory. The theory explains how patients undergoing elective surgery experience preoperative anxiety due to a lack of knowledge, a fear of the unknown, prior surgical experiences, and poor communication. The theory supports the first and second objectives by explaining the prevalence of anxiety and identifying patient, procedure, and information-related factors associated with uncertainty before surgery. It also anchors the third objective by highlighting the role of nurse anesthetists as credible healthcare professionals who reduce uncertainty through patient education, therapeutic communication, reassurance, and individualized psychological support. Lastly, the theory contributes to the fourth objective, and guides recommendations for increasing nurse-patient interactions, enhancing preoperative education, and creating patient-centered perioperative care strategies that reduce uncertainty and enhance surgical experiences. Therefore, Mishel's theory provides a suitable framework for understanding factors that contribute to preoperative anxiety as well as the treatments needed to reduce it.

2.2 Empirical Review



2.2.1 Prevalence of Preoperative Anxiety Among Patients Undergoing Elective Surgery

Msoma et al. (2023) carried out a cross-sectional study among patients undergoing elective surgery at Muhimbili National Hospital in Tanzania to understand the prevalence of preoperative anxiety, identify its predictors, and examine associated hemodynamic changes. The findings showed more than half of the patients had clinically significant preoperative anxiety, with fear of anesthesia, female gender, lack of prior surgical experience, and insufficient preoperative information appearing as major predictors. Furthermore, nervous patients showed markedly increased heart rate and systolic blood pressure, underscoring the physiological effects of psychological discomfort before surgery.

The findings by Msoma et al. (2023) are consistent with those of Lami et al. (2025), whose systematic review revealed that preoperative anxiety is consistently prevalent across Ethiopian surgical settings. The same applied with those of Dibabu et al. (2023), where they similarly reported a high prevalence of anxiety among women undergoing elective obstetric and gynecologic surgery in Ethiopia. The Tanzanian study, however, was restricted to a single referral hospital employing a cross-sectional design, which hindered causal inference and broader generalizability despite linking anxiety to objective physiological indicators. Furthermore, it focused more on prevalence and determinants than on the role perioperative healthcare providers have in reducing anxiety. By analyzing prevalence at a Kenyan referral hospital and investigating the function of nurse anesthetists in reducing preoperative anxiety, the current study fills in these conceptual and contextual gaps.

In Nigeria, using a multicenter cross-sectional approach, Mbadugha et al. (2025) examined preoperative anxiety in adult patients receiving elective surgery in tertiary institutions in Enugu, Southeast Nigeria. The study found that more than half of the respondents experienced moderate to severe anxiety before surgery. At the same time, significant associations were observed for female sex, lower educational level, absence of previous surgical experience, fear of death, anticipated postoperative pain, and inadequate information regarding anesthesia and surgery. These findings align with those of Dibabu et al. (2023), where it was discovered that insufficient social support and inadequate knowledge about surgical procedures significantly increased anxiety levels. Similarly, Msoma et al. (2023) identified insufficient patient information and fear of anesthesia as key determinants.

Despite the fact that it benefited from a larger multicenter sample that improved external validity, the Nigerian study was limited to identifying clinical and demographic associations without assessing the efficacy of healthcare professionals' interventions in reducing anxiety. Furthermore, the findings' direct relevance is limited by the disparities between Nigeria and Kenya's healthcare systems, cultural norms, and perioperative nursing practices. Therefore, the current study sought to generate context-specific data about the prevalence of preoperative anxiety in Kenyan patients while taking into account the crucial but unexplored role of nurse anesthetists in perioperative psychological care.

According to Dibabu et al. (2023), preoperative anxiety was highly prevalent among women admitted for elective obstetric and gynecologic surgery in Southern Ethiopia. Significant predictors of anxiety included younger age, low social support, low educational attainment, previous negative surgical experiences, and insufficient knowledge of the planned procedure. The study generated important findings addressing anxiety among female surgical patients. However, its exclusive focus on obstetric and gynecologic populations restricts extrapolation



to the larger elective surgical community. In support of these findings, Lami et al. (2025) conducted a systematic review and meta-analysis of data from several Ethiopian studies and came to the conclusion that preoperative anxiety is still very common within different surgical specialties, supporting the problem's persistence in low-resource environments.

Conversely, rather than evaluating anxiety prevalence directly, Wanyoike (2025) assessed an m-Health application for enhancing adherence to preoperative fasting instructions through a randomized controlled study carried out in Kenya. However, the study showed that digital preoperative education is feasible in Kenya, indicating that better patient preparation can indirectly reduce anxiety. Collectively, these studies demonstrate various methodologies, from meta-analyses and randomized controlled trials to single-center cross-sectional studies. Nonetheless, there is still a dearth of empirical data regarding the prevalence of preoperative anxiety in the general adult elective surgical population in Kenyan referral hospitals. There are limited studies that concurrently measure anxiety prevalence and examine the role nurse anesthetists play in reducing anxiety. The current work is based on filling in these methodological, contextual, and conceptual gaps.

2.2.2 Factors Associated with Preoperative Anxiety Among Patients Undergoing Elective Surgery

A comprehensive systematic review and meta-analysis of the prevalence and contributing factors of preoperative anxiety in low- and middle-income countries (LMICs) was carried out by Bedaso et al. (2022). Numerous demographic, clinical, and psychosocial factors, such as female gender, younger age, low educational attainment, lack of previous surgical experience, fear of anesthesia, insufficient preoperative information, and inadequate social support, were found to have an impact on preoperative anxiety. These findings are in consistent with those of Dibabu et al. (2023), Adhikari et al. (2023), and Ntock et al. (2025), who found comparable predictors related to patients and procedures in various low-resource contexts. However, comparison across settings was limited because the evaluation synthesized research with significant methodological variation regarding anxiety measuring tools, study populations, and surgical specialties.

Furthermore, the majority of the data came from non-Kenyan contexts, indicating a contextual gap that the current study aimed to fill by identifying variables linked to preoperative anxiety in patients undergoing elective surgery in a Kenyan referral hospital. Napora et al. (2024) used a cross-sectional observational approach to examine factors linked to preoperative anxiety in patients undergoing ambulatory hand surgery. Anxiety before surgery was found to be substantially predicted by increased perceived surgical risk, previous negative healthcare experiences, female gender, and psychological fragility.

Similarly, Floros et al. (2024) found that female sex and perceived surgical risk were significant predictors of anxiety in cataract surgery patients, while Adhikari et al. (2023) established that fear of postoperative pain, ignorance of anesthesia, and lack of prior surgical exposure were significant determinants. Despite the fact that these studies consistently illustrate the multifaceted character of preoperative anxiety, their generalizability to patients having a wide range of elective procedures is limited because they were carried out in specialized surgical populations. Moreover, causal inference is not possible due to their cross-sectional designs. In order to overcome these methodological and contextual



constraints, the current study looks at a number of variables that affect anxiety in Kenyan patients undergoing general elective surgery.

Numerous factors that influence preoperative anxiety can be modified by better patient education and perioperative communication, according to recent intervention-focused research. In a randomized controlled trial carried out in Kenya, Kanyeki et al. (2022) discovered that patients who received video-based preoperative information had significantly lower State-Trait Anxiety Inventory scores compared to those who received standard care. This implied that insufficient information plays a significant role in anxiety. Similarly, Connell et al. (2024) found that by improving patient understanding and familiarity with surgical procedures, virtual reality-based preoperative education decreased anxiety in resource-variable settings.

These findings are consistent with those of Ntock et al. (2025), which indicated that fear of the unknown and inadequate patient education were significant predictors of anxiety. However, rather than comprehensively analyzing the range of demographic, psychological, and clinical causes of anxiety, most intervention studies only assessed educational strategies. Furthermore, there is limited data from Kenyan referral hospitals that deal with patients undergoing general elective surgery. In order to inform therapies suitable for perioperative care in Kenya, the current study aimed to provide context-specific evidence on the factors related with preoperative anxiety.

2.2.3 Role of Nurse Anesthetists in Reducing Preoperative Anxiety Among Patients Undergoing Elective Surgery

In a comprehensive study, Krupic et al. (2025) synthesized evidence on strategies used by nurse anesthetists to reduce patients' anxiety and fear before surgery. According to the review, patients' confidence before surgery was consistently increased and preoperative anxiety was decreased by therapeutic communication, individualized patient education, emotional reassurance, active listening, empathy, and building trust. These revelations are consistent with those of Indana and Aniroh (2024), which showed that structured nursing counseling significantly reduced anxiety among patients awaiting major surgery. Likewise, Stucky and Vortman (2022) highlighted nurse-led education and clear perioperative communication as effective anxiety-reduction strategies. The systematic review synthesizes several studies to provide strong evidence. However, it primarily reflects data from high-resource healthcare settings with different perioperative practices compared to Kenya's. As a result, its relevance to referral hospitals in Kenya, where staffing, patient numbers, and resource limitations differ significantly, is yet unclear. In order to close this contextual gap, the current study looks at nurse anesthetists' roles in Kenyan perioperative settings.

Using a qualitative approach, Maharyawan et al. (2023) investigated the experiences of nurse anesthetists in educating patients and families. According to the study, patient education goes beyond simply outlining anesthesia procedures to include psychological reassurance, clearing up misunderstandings, incorporating family members, and fostering trust through continuous communication. Similar findings were noted by Cahyanto et al. (2025), whose qualitative investigation revealed that patients viewed the emotional support, clear explanations, and caring interactions of healthcare providers as crucial coping strategies for reducing preoperative anxiety. Although both studies offer valuable insights into patient-provider



interactions, their qualitative techniques restrict the ability to quantify the effectiveness of these interventions and limit their generalizability across diverse healthcare contexts.

The significance of nursing care in reducing preoperative anxiety is further supported by interventional research. According to Indana and Aniroh (2024), patients who received structured preoperative nursing counseling reported far less anxiety than those who received regular care. This highlighted the need for customized counseling before surgery. Similarly, Stucky and Vortman (2022) promoted nurse-led therapies as useful methods for enhancing psychological readiness, including patient education, relaxation techniques, and regular therapeutic communication. These results are consistent with those of Krupic et al. (2025), which came to the conclusion that nurse anesthetists' interpersonal skills and clinical competence are important factors in reducing anxiety.

However, current intervention studies mainly assess counseling's effectiveness without looking at how nurse anesthetists regularly apply these strategies in routine clinical practice, especially in resource-constrained settings. Furthermore, there is still a dearth of empirical data from Kenyan referral hospitals. By investigating the perceived role of nurse anesthetists in reducing preoperative anxiety and producing context-specific data to guide patient-centered perioperative care in Kenya, the current study fills this methodological and contextual gap. Additionally, neither study looked at the prevalence of anxiety alongside the roles and responsibilities of nurse anesthetists. Therefore, the current study supports these findings by objectively evaluating patients' perceptions of nurse anesthetists' contributions to anxiety reduction among elective surgical patients in a Kenyan referral hospital.

3.0 Research Methodology

Descriptive cross-sectional research design was adopted for the study. The design was suitable for assessing the prevalence of preoperative anxiety, associated factors, and the role of nurse anesthetists among patients undergoing elective surgery in a selected referral hospital in Kenya. The target population comprised adult patients (≥ 18 years) scheduled for elective surgical procedures in Mathare National Teaching and Referral Hospital during the study period. Nineteen (19) of them were identified through a purposive sampling procedure from the daily elective surgery list of the patients.

Data was collected using a structured interviewer-administered questionnaire incorporating standardized measures of preoperative anxiety alongside items on socio-demographic characteristics, clinical factors, and nurse anesthetists' interventions. Quantitative data was analyzed using SPSS computer software, where descriptive statistics (frequencies, & percentages) summarized study variables. Inferential statistics, including Chi-square tests and logistic regression analysis, was used to identify factors associated with preoperative anxiety at a significance level of $p < 0.05$.

Permission was sought from the participating hospital, alongside a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). Written informed consent was obtained from all participants, and confidentiality, anonymity, voluntary participation, and the right to withdraw from the study at any stage without prejudice was strictly upheld.



4.0 Research Findings

4.1 Background Information of the Respondents

Out of the targeted sample size of 19 respondents, 15 managed to successfully complete and return the questionnaires, translating into a 78.9% response rate. Table 1 outlines a summary of the socio-demographic and clinical characteristics of the respondents.

Table 1 Distribution of Respondents by Socio-Demographic and Clinical Characteristics (n = 15)

Item	Response category	Frequency (f)	Percentage (%)
1. Age	18–29 years	4	26.7
	30–39 years	4	26.7
	40–49 years	3	20.0
	50–59 years	2	13.3
	60 years and above	2	13.3
	Total	15	100.0
2. Gender	Male	7	46.7
	Female	8	53.3
	Total	15	100.0
3. Marital status	Single	5	33.3
	Married	7	46.7
	Divorced/Separated	2	13.3
	Widowed	1	6.7
	Total	15	100.0
4. Highest education level	No formal education	1	6.7
	Primary	3	20.0
	Secondary	5	33.3
	College/Diploma	4	26.7
	University	2	13.3
	Total	15	100.0
5. Employment status	Employed	4	26.7
	Self-employed	4	26.7
	Unemployed	5	33.3
	Retired	2	13.3
	Total	15	100.0
6. Type of surgery	General surgery	5	33.3
	Orthopaedic surgery	3	20.0
	Gynaecological surgery	3	20.0
	Urological surgery	2	13.3
	Other elective procedures	2	13.3
	Total	15	100.0
7. Previous surgical experience	Yes	8	53.3
	No	7	46.7
	Total	15	100.0



8. Previous surgical experience was positive*	Yes	6	40.0
	No	2	13.3
	Not applicable	7	46.7
	Total	15	100.0
9. Received information about today's surgery	Yes	12	80.0
	No	3	20.0
	Total	15	100.0
10. Main source of information	Nurse anesthetist	4	26.7
	Surgeon	5	33.3
	Ward nurse	3	20.0
	Other source	0	0.0
	Not applicable/no information	3	20.0
	Total	15	100.0

The distribution indicates that the respondents represented a rather diverse group of adults undergoing elective surgery. Adults in their younger and middle years predominated, with 53.4% of respondents between the ages of 18 and 39 years, while 26.6% were above 50 years of age. Married respondents comprised the largest marital-status group (46.7%), and women were slightly more represented (53.3%) than men (46.7%). Although educational attainment was relatively varied, 60.0% of participants had completed at least secondary school. This implied that the majority of respondents could potentially understand standard preoperative information. Additionally, respondents' employment statuses were mixed, with the largest group being jobless (33.3%), followed by employed and self-employed respondents at 26.7% each.

Clinically, 46.7% of the respondents were having surgery for the first time, whereas 53.3% had previously had surgery. The majority of those with prior surgical experience (6 out of 8) reported a positive experience, whereas two reported a negative one, which could potentially increase their vulnerability to preoperative anxiety. Significantly, 80.0% of respondents said they had received information about their planned surgery. The distribution of information sources indicates that the primary providers were surgeons (33.3%) and nurse anesthetists (26.7%). The fact that 20.0% of patients did not receive any preoperative information is very important because information provision is potentially changeable and may influence anxiety levels. Overall, the background distribution presents a useful basis for investigating whether preoperative anxiety is related to demographic characteristics, prior surgical experiences, information access, and information source.

4.2 Prevalence of Preoperative Anxiety Among Patients Undergoing Elective Surgery

The first study objective was to assess the prevalence of preoperative anxiety among patients undergoing elective surgery. Five different items (statements) were assessed using descriptive (frequencies & percentages) based on 5-points Likert scale (SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree), and inferential (exploratory



Chi-square goodness-of-fit test) to understand the level/pattern of preoperative anxiety. The findings are summarized in Table 2.

Table 2: Prevalence of Preoperative Anxiety among Patients Undergoing Elective Surgery (n = 15)

Preoperative anxiety statement	SD n (%)	D n (%)	N n (%)	A n (%)	SA n (%)	Total n (%)	χ^2 (df=4)	p-value
I feel nervous about today's surgery.	1 (6.7)	2 (13.3)	2 (13.3)	6 (40.0)	4 (26.7)	15 (100.0)	5.33	.255
I am worried about the anesthesia.	1 (6.7)	2 (13.3)	2 (13.3)	5 (33.3)	5 (33.3)	15 (100.0)	4.67	.323
I fear experiencing severe pain after surgery.	1 (6.7)	2 (13.3)	3 (20.0)	5 (33.3)	4 (26.7)	15 (100.0)	3.33	.504
I am afraid something may go wrong during surgery.	1 (6.7)	1 (6.7)	2 (13.3)	6 (40.0)	5 (33.3)	15 (100.0)	7.33	.119
I feel calm and emotionally prepared for surgery. *	5 (33.3)	4 (26.7)	2 (13.3)	3 (20.0)	1 (6.7)	15 (100.0)	3.33	.504
Overall anxiety classification	5 (33.3) Low/normal	—	—	10 (66.7) Elevated	—	15 (100.0)	1.67†	.197

The findings show that preoperative anxiety was generally high among the responders. Compared to 33.3% who had low/normal anxiety, two-thirds (66.7%) were categorized as having increased anxiety. At the individual-item level, 66.7% of respondents agreed or strongly agreed that they were anxious about the procedure, and the same 66.7% expressed concern regarding anesthesia. Similarly, 60.0% of respondents expressed fear of postoperative pain, while 73.3% expressed the greatest worry that something would go wrong during the procedure. On the other hand, only 26.7% of respondents agreed or strongly agreed that they felt emotionally prepared and at ease. This suggested that the majority of respondents had some psychological anxiety before surgery.

According to the Chi-square results, none of the individual anxiety items reached statistical significance at $p < .05$. With the highest concentration of responses toward agreement/strong agreement, the statement concerning anxiety that something might go wrong during surgery ($\chi^2 = 7.33$, $p = .119$) showed the closest pattern. Elevated anxiety was also more prevalent than low/normal anxiety (66.7% versus 33.3%), according to the overall classification. However, this variation was not statistically significant ($\chi^2 = 1.67$, $p = .197$). The absence of statistical



significance should not be interpreted as proof that preoperative anxiety is absent or unimportant, but rather in light of the very small sample size.

Despite the non-significant inferential results, the findings have substantial clinical and practical implications. Preoperative anxiety is a significant concern among elective surgical patients at the study site, as evidenced by the fact that about two-thirds of patients showed heightened anxiety. The three main concerns about surgical outcomes, including anesthesia, postoperative pain, and uncertainty about the outcomes, point to areas that could benefit greatly from targeted preoperative education and reassurance. Therefore, nurse anesthetists and other perioperative professionals should consider routine anxiety assessment, clear explanations of anesthesia and the surgical process as key areas to put emphasis. Furthermore, discussion of pain-management expectations, and opportunities for patients to ask questions before surgery should be emphasized.

4.3 Factors Associated with Preoperative Anxiety Among Patients Undergoing Elective Surgery

The second objective of the study was to identify factors associated with preoperative anxiety among patients undergoing elective surgery. Five different items (statements) were assessed using descriptive (frequencies & percentages) and inferential (Chi-square tests and logistic regression analysis) to identify factors associated with preoperative anxiety at a significance level of $p < 0.05$. The findings are summarized in Table 3

Table 3: Factors Associated with Preoperative Anxiety (n = 15)

Variable	Category	Elevated anxiety n (%)	Low/normal anxiety n (%)	Total n (%)	χ^2	p	Crude OR (95% CI)	Logistic p
Overall anxiety status	Elevated anxiety	10 (66.7)	—	10 (66.7)	—	—	—	—
	Low/normal anxiety	—	5 (33.3)	5 (33.3)	—	—	Reference	—
Age	<40 years	7 (70.0)	1 (20.0)	8 (53.3)	3.750	.053	9.33 (0.74–117.5)	.086
	≥40 years	3 (30.0)	4 (80.0)	7 (46.7)			Reference	
Gender	Female	6 (60.0)	2 (40.0)	8 (53.3)	0.600	.439	1.50 (0.19–11.96)	.700
	Male	4 (40.0)	3 (60.0)	7 (46.7)			Reference	
Previous surgery	No	6 (60.0)	1 (20.0)	7 (46.7)	2.143	.143	6.00 (0.52–69.30)	.149
	Yes	4 (40.0)	4 (80.0)	8 (53.3)			Reference	
Received preoperative information	No	3 (30.0)	0 (0.0)	3 (20.0)	1.875†	.171	2.14 (0.16–28.65)	.559
	Yes	7 (70.0)	5 (100.0)	12 (80.0)			Reference	
Adequate information about surgery	No/uncertain	7 (70.0)	1 (20.0)	8 (53.3)	3.750	.053	9.33 (0.74–117.5)	.086
	Yes	3 (30.0)	4 (80.0)	7 (46.7)			Reference	
Fear of anesthesia	Agree/strongly agree	7 (70.0)	3 (60.0)	10 (66.7)	0.129	.720	1.56 (0.22–11.15)	.656
	Disagree/neutral	3 (30.0)	2 (40.0)	5 (33.3)			Reference	
Fear of postoperative pain	Agree/strongly agree	6 (60.0)	3 (60.0)	9 (60.0)	0.000	1.00 0	1.00 (0.15–6.77)	1.000
	Disagree/neutral	4 (40.0)	2 (40.0)	6 (40.0)			Reference	
Fear that something may go wrong	Agree/strongly agree	8 (80.0)	3 (60.0)	11 (73.3)	0.476	.490	2.67 (0.35–20.47)	.347



According to the descriptive findings, 10 out of 15 (66.7%) respondents were classified as having elevated anxiety, indicating a rather high incidence of preoperative anxiety. Younger patients, those without prior surgical experience, and those having insufficient information regarding their surgery showed the clearest descriptive patterns. For instance, 70.0% of respondents with elevated anxiety were below age 40, compared with only 20.0% of the low/normal-anxiety group. Similarly, compared to 20.0% of respondents with low or normal anxiety, 60.0% of anxious respondents had never had surgery. Eighty percent of responders with elevated anxiety expressed fear that something would go wrong after surgery.

According to the exploratory inferential results, age and the adequacy of preoperative knowledge demonstrated the strongest correlations with anxiety. The odds of elevated anxiety were around nine times higher in patients under 40 than in those above 40 years (OR = 9.33). The odds were equally higher in those who reported little or unclear information (OR = 9.33). Nevertheless, the traditional statistical significance criteria of $p < .05$ ($p = .053$) was not met by either association. Although this was not statistically significant ($p = .143$), prior surgical experience also revealed a potentially important trend, with patients without previous surgery having around six times the odds of high anxiety. In this small sample, there were no statistically significant correlations between gender, fear of anesthesia, and fear of postoperative pain.

The results imply that rather than being taken for granted as a typical or unimportant reaction to surgery, preoperative anxiety should be carefully evaluated. Strengthening individualized preoperative education is supported by the comparatively high percentage of nervous patients and the descriptive correlation between anxiety and insufficient information. Explaining anesthesia, anticipated sensations, pain management, potential complications, and the expected perioperative procedure could be a special area of focus for nurse anesthetists. The absence of statistically significant correlations, however, should not be interpreted as proof that these factors have no effect. The study has very little statistical power and very wide confidence intervals because there were only 15 respondents. As a result, the findings are most conveniently presented as exploratory evidence, with emphasis on effect patterns and clinical implications rather than statistical significance alone.

4.4 Role of Nurse Anesthetists in Reducing Preoperative Anxiety

The third study objective was to examine the role of nurse anesthetists in reducing preoperative anxiety. Five different items (statements) were assessed using descriptive (frequencies & percentages) based on 5-points Likert scale (SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree), and inferential (exploratory Chi-square goodness-of-fit test) for each item. The findings are summarized in table 4.

Table 4: Role of Nurse Anesthetists in Reducing Preoperative Anxiety (n = 15)

Role of nurse anesthetist	SD n (%)	D n (%)	N n (%)	A n (%)	SA n (%)	Total n (%)	χ^2 (df=4)	p-value
The nurse anesthetist clearly explained the anesthesia procedure.	1 (6.7)	1 (6.7)	1 (6.7)	6 (40.0)	6 (40.0)	15 (100.0)	10.33	.035
The nurse anesthetist answered my questions satisfactorily.	1 (6.7)	1 (6.7)	2 (13.3)	5 (33.3)	6 (40.0)	15 (100.0)	9.00	.061



The nurse anesthetist treated me with respect and empathy.	0 (0.0)	1 (6.7)	1 (6.7)	5 (33.3)	8 (53.3)	15 (100.0)	17.67	<.001
The nurse anesthetist helped reduce my fear before surgery.	1 (6.7)	1 (6.7)	2 (13.3)	5 (33.3)	6 (40.0)	15 (100.0)	9.00	.061
I feel more confident after talking with the nurse anesthetist.	1 (6.7)	1 (6.7)	2 (13.3)	6 (40.0)	5 (33.3)	15 (100.0)	9.00	.061
Overall positive assessment of nurse anesthetist's role	1 (6.7)	1 (6.7)	2 (13.3)	5 (33.3)	6 (40.0)	15 (100.0)	9.00	.061

The findings showed that nurse anesthetists helped patients psychologically get prepared for elective surgery. It was further noted that 86.6% of respondents agreed or strongly agreed that the nurse anesthetist treated them with respect and empathy, which was the most positive opinion. Similarly, 73.3% of respondents said the nurse anesthetist adequately addressed their queries, and 80.0% agreed or strongly agreed that the anesthetic procedure was clearly explained. Additionally, 73.3% of respondents said that speaking with the nurse anesthetist helped them feel less afraid. A similar percentage said that their confidence increased as a result of talking to the nurse.

Some of these descriptive patterns were reinforced by the inferential results. A considerable concentration of responses toward agreement and strong agreement was indicated by the statistically significant distribution of responses regarding a clear explanation of the anesthetic technique ($\chi^2 = 10.33$, $p = .035$). Similarly, the distribution of empathy and respect was extremely significant ($\chi^2 = 17.67$, $p < .001$). Although their p-values (.061) were near to significance, satisfactory question answers, decreasing fear, and boosting confidence did not meet the traditional significance threshold of $p < .05$. These findings imply that communication and interpersonal support were predominantly evident dimensions of the contribution of the nurse anesthetist.

The findings indicate that the nurse anesthetist's role in reducing preoperative anxiety should include effective communication, empathy, reassurance, and patient education. Patients benefit when they are aware of what will happen before, during, and shortly after anesthesia, as evidenced by the particularly strong reaction to explicit explanations of anesthesia. Similarly, the high ratings for empathy and respect suggest that the nature of the nurse-patient relationship may be just as crucial as the information given. Therefore, before transferring patients to the operation room, nurse anesthetists should be assisted in routinely assessing patients' concerns, offering individualized explanations, responding to inquiries, exhibiting empathy, and reassuring patients.

5.0 Conclusions, Recommendations, and Study Limitations

5.1 Conclusions



The study concluded that preoperative anxiety is a key concern among patients undergoing elective surgery at Mathare National Teaching and Referral Hospital, where 66.7% of respondents demonstrated elevated anxiety. Fear that something might go wrong during surgery, concerns about anesthesia, anticipated postoperative pain, and general anxiety about the surgical procedure were reported as the main sources of apprehension. Despite the limited statistical power to establish significant correlations between anxiety and individual demographic or clinical characteristics as a result of the small sample size, the study presented credible findings. The observed patterns suggested that younger age, inadequate information, and absence of previous surgical experience might contribute to heightened anxiety.

The study further concluded that nurse anesthetists play an important role in addressing preoperative anxiety. This was demonstrated through clear explanation of anesthesia, satisfactory responses to patients' concerns, respect and empathy in communication, patients' reassurance, and confidence-building among the patients. The significant positive response patterns regarding explanation of anesthesia and respectful treatment underscored the value of effective nurse-patient communication as an integral element of perioperative care. Overall, patients may be better prepared and have a better surgical experience if nurse anesthetists provide more structured preoperative education and psychological support.

5.2 Recommendations

The study recommended for Kenyan referral hospitals to integrate routine preoperative anxiety assessment into standard elective surgical care. This should call for nurse anesthetists' central and more proactive role in providing individualized and simplified preoperative education to the patients. Also, hospitals should strengthen structured nurse-led preoperative counseling and communication protocols. They should also provide suitable patient education materials, and progressively equip nurse anesthetists with the right skills in psychological support and anxiety management. At policy and research levels, Kenyan healthcare institutions should promote patient-centered perioperative care, and support broader studies across Kenyan hospitals to establish more generalizable evidence on the prevalence, determinants, and effective interventions for preoperative anxiety.

5.3 Study Limitations

Despite important findings of the study, because the relatively small sample size ($n = 15$) provides very limited statistical power, the results should be interpreted cautiously. Although the significant Chi-square results demonstrate robust response patterns in this small sample, they may not be generalized to all surgery patients across Kenya. More significantly, rather than objectively proving that the intervention reduced anxiety, the present evaluation measures patients' opinions of the nurse anesthetist's contribution. Stronger proof of effectiveness would come from a larger study sample incorporating pre- and post-intervention anxiety scores. Nevertheless, the current findings provide valuable initial evidence supporting integration of structured nurse-anesthetist counseling and communication into standard preoperative care at Mathare National Teaching and Referral Hospital.



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