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Impact of Perioperative Nursing Assessment Round on Anxiety and Complications of Elective Surgeries: A Quasi-Experimental Study at a Teaching Hospital in Nigeria

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ABSTRACT

Background: A surgical patient is a person who receives medical treatment that involves operating procedures to treat, diagnose, or manage a condition.

Objective: This study examined the impact of perioperative nursing assessment rounds on anxiety levels and postoperative outcomes among patients undergoing elective surgeries at Kwara State University Teaching Hospital, Nigeria. The study assessed preoperative anxiety, postoperative anxiety, and postoperative complications in treatment and control groups.

Methods: A quasi-experimental design was adopted involving 92 adult patients scheduled for elective surgeries, equally divided into treatment and control groups. Data were collected using a structured questionnaire assessing demographic characteristics, anxiety levels, pain experience, and satisfaction with preoperative education. Data were analyzed using SPSS version 27 with descriptive and inferential statistics at a significance level of $p < 0.05$.

Results: Most participants were female (68.5%) with tertiary education (47.8%), and 63% reported high preoperative anxiety. The treatment group showed a significant reduction in anxiety (4.28 to 3.54; $p < 0.001$), lower postoperative anxiety than controls (mean difference = 1.09; $p < 0.05$), declining pain from Day 1 to Days 12–15, and reduced later pain associated with higher satisfaction with preoperative education.

Conclusion: The study concludes that perioperative nursing assessment rounds effectively reduce anxiety and enhance postoperative recovery, highlighting the need for improved nurse-led patient education and anxiety management.

Keywords: *Anxiety; Preoperative Anxiety; Postoperative Anxiety; Perioperative Nursing; Assessment Round; Elective Surgeries; Postoperative Complications; Pain Levels.*

INTRODUCTION

A surgical patient is a person who receives medical treatment that involves operating procedures to treat, diagnose, or manage a condition. Surgical patients may vary widely in terms of age, health, and the sort of operation they are undergoing. Preoperative care, which involves thorough assessments and may help reduce risks and consequences, plays a major role in determining whether a patient is suitable for surgery [1]. There are many categories into which operations may be categorized according to their objective, difficulty, and urgency. They may range from small procedures to major surgeries, and each one requires different levels of preoperative and postoperative care. Infection, hemorrhage, anesthetic complications, and postoperative complications including pneumonia, thromboembolic events, and wound healing issues are common risks connected to surgical treatments [1]. Instead of being performed in an emergency, elective operations are ones that are planned.

Often non-urgent, these treatments are performed to improve quality of life or to address non-life-threatening conditions, such as joint replacements, cataract removal, or cosmetic surgeries. Because elective treatments provide patients the opportunity to be well prepared by preoperative examinations and educational activities, better outcomes are likely [2]. Because of the uncertainties and potential risks involved, elective operations sometimes lead patients to feel very anxious even if they are planned. Preoperative anxiety has often been associated with poor outcomes, including greater postoperative pain, a slower recovery, and a higher risk of complications including infection, wound dehiscence, and cardiovascular events [3]. Untreated anxiety may also make it more difficult for the patient to comprehend and comply with postoperative treatment, which would make recovery even more difficult [4].

Preoperative anxiety and postoperative problems have been extensively researched worldwide. According to research, people who are having elective procedures often have elevated anxiety, especially when it comes to worries about anesthesia, pain, and surgical risks. Nearly 40% of patients, according to U.S. research, suffer from moderate to severe anxiety prior to surgery. This is associated with negative postoperative outcomes, such as higher rates of infection, cardiovascular stress, and delayed wound healing [4]. Furthermore, organized perioperative care, which includes preoperative nursing evaluations, has been shown in European trials to considerably lower anxiety and enhance clinical results. For instance, it has been shown that nursing-led preoperative treatments, including evaluation rounds, reduce patient anxiety and the likelihood of problems [5]. Furthermore, treatments including psychological support, patient education, and nurse-led preoperative evaluations are acknowledged as successful methods for managing anxiety throughout the perioperative period [6].

To facilitate a seamless transition through surgery and expedite recovery, research has emphasized the significance of attending to both psychological and physiological factors during perioperative rounds [7]. Surgery is required to address a few conditions, such as infections, heart disease, cancer, and injuries. Over 300 million major operations are performed globally each year [8]. Major complications after inpatient surgery may occur up to 22% of the time, and the mortality rate may be as high as 0.8%, according to studies. According to previous research conducted in 25 countries, one-tenth of surgical patients in Africa experienced a preoperative issue, and five out of them died postoperatively due to inadequate preoperative instruction [9].

MATERIALS AND METHODS

Research Design

Patients who undergo perioperative nursing assessment rounds are compared to those who do not in a comparative study design utilizing the Quasi-Experimental (Pretest-Posttest, Non-Randomized Control Group) technique. A standardized perioperative nursing evaluation round was performed by the research group patients one day before to surgery, however

all patients received routine preoperative and postoperative care. Anxiety levels before and after surgery, as well as postoperative pain levels, were gathered and evaluated using a standardized questionnaire.

The study adopts a quasi-experimental design because it seeks to evaluate the effect of an intervention (perioperative nursing assessment rounds) on patient outcomes (anxiety levels and postoperative complications) within a real-world clinical setting. In the context of Kwara State University Teaching Hospital (KWASUTH), the quasi-experimental approach is appropriate because: The intervention is implemented within routine clinical practice, the hospital also operates within structured surgical schedules and ward systems that make strict experimental control difficult, it allows comparison between an intervention group and a control group without disrupting standard care processes, it is practical, feasible, and ethically acceptable in a clinical environment. This design enables the researcher to examine cause-and-effect relationships while maintaining the natural hospital workflow.

Research Setting

Kwara State University Teaching Hospital, Ilorin (previously General Hospital Ilorin), was the setting used for this study.

Target Population

The target population are patients who presented to the surgical department of the Kwara State University Teaching Hospital.

Sample size determination

All patients who presented to the Surgical Department of Kwara State University Teaching Hospital for orthopedic, obstetric and gynecologic, plastic, and general surgical procedures were considered for inclusion. An average of 20–30 elective surgeries are performed weekly across these specialties. In January 2025, the hospital recorded 120 elective surgical cases; 110 cases were recorded in February 2025, and 130 cases in March 2025. According to the hospital's main theatre manager, the monthly volume of elective surgeries is variable and may increase or decrease relative to these figures. The sample size was determined using the simplified Yamane formula (Israel, 1992) to ensure adequate representation of the study population.

Formula n= N/(1 + N(e^2))

Where n is the sample size

N = population size, the number of patient for the previous three months before the study was conducted divided by 3 (120+110+130 =360/3) = 120

e= level of confidence, 0.05

N = Taken population size as 120

$$n= \frac{120}{1 + 120(0.05^2)}$$

$$n= 92.31 \cong 92$$

Therefore, 92 patients were used, which was divided in two group of 46 per group (Control and study group)

Sampling technique

Convenience sampling was employed to recruit participants for this study. The participants were allocated into two groups: the intervention group and the control group. Due to surgeon availability, the hospital currently provides services in four surgical specialties; therefore, patients were recruited from Monday to Friday and categorized according to specialty (general surgery, orthopedic surgery, plastic surgery, and obstetrics and gynecology). Obstetric and gynecological surgeries are scheduled on Mondays, Wednesdays, and Thursdays; orthopedic surgeries on Tuesdays and Fridays; general surgery on Thursdays; and plastic surgery on Wednesdays. All patients received routine preoperative and postoperative care. In addition, patients in the intervention group underwent a standardized perioperative nursing

evaluation round conducted by the researcher and an assistant researcher one day prior to surgery. Preoperative and postoperative anxiety levels, as well as the severity of postoperative pain, were assessed using a structured questionnaire.

Convenience sampling was adopted in this quasi-experimental study due to the clinical and operational realities of conducting research at Kwara State University Teaching Hospital (KWASUTH), Nigeria. The study focused on patients undergoing elective surgeries within a defined timeframe, and participant recruitment was limited to those who were available, eligible, and consented during the data collection period. Elective surgical patients are admitted and scheduled based on hospital booking systems and surgeon availability. Recruiting participants as they presented for surgery ensured feasibility and minimized disruption to routine perioperative care.

Inclusion Criteria

Patients were eligible to participate in this study if they met the following are:

1. Adults aged 18 years and above.
2. Presented to the Surgical Out-Patient Department of the Kwara State University Teaching Hospital.
3. Non-emergency surgical procedure at least 24 hours prior to surgery.
4. Patients that receive perioperative nursing assessment round as part of the standard clinical practice.
5. Patients that are medically stable and able to provide informed consent.
6. Patients that are willing to participate and provide free voluntary consent to be part of the study.

Exclusion Criteria

Patients were excluded from the study if they met any of the following criteria:

1. Required emergency surgery or had an emergent surgical procedure.
2. Did not receive preoperative education.
3. Had surgery more than two weeks prior to the study or were scheduled for surgery after the study period.
4. Experienced significant postoperative complications that required intensive care or prolonged hospitalization (over 14 days).
5. Were unable to provide informed consent due to cognitive or communication impairments.
6. Declined to participate in the study.

Instrument for data collection

The primary data collection tool for this study was a structured questionnaire which was divided into six sections to gather comprehensive information from pre and post-operative patients, each tailored to address specific aspects of the research objectives.

Validity of the Instrument

The instrument was validated through face and content validity criteria. The questionnaire was given to the experts for review and corrections before administering it.

Reliability of the Instrument

A pilot study was conducted using 10% of the calculated sample size to evaluate the reliability and suitability of the research instrument. Participants for the pilot study were selected using convenience sampling. The administered questionnaires were retrieved immediately after completion to minimize attrition and non-response. Reliability was assessed using Cronbach's alpha coefficient, a measure of internal consistency that is particularly appropriate for multi-item survey instruments.

METHOD OF DATA COLLECTION

Pre-operative Phase

Preoperative data were collected one day prior to surgery, before the introduction of the assessment guide by the researcher and research assistants. The researcher established rapport with each patient and their relatives and assigned a unique identification code to ensure confidentiality. Participants in one group were coded A1–A46, while those in the other group were coded B1–B46. These identification codes were recorded on the corresponding questionnaires. The questionnaire was administered verbally to each patient, and responses were documented accordingly. All completed questionnaires were retrieved immediately after administration.

Intervention Phase

A validated intervention guide was utilized during this phase of the study. All patients assigned to the intervention group received structured preoperative education sessions based on the standardized preoperative education guide. The data collection procedure lasted four weeks. The educational intervention included an introduction to preoperative education and the proposed surgical procedure, a discussion of surgery as the most appropriate treatment option and possible alternatives, and detailed information on what to expect during the preoperative, intraoperative, and postoperative phases.

Perioperative Nursing Assessment Round

The perioperative nursing assessment round refers to a structured and systematic process in which nurses evaluate patients before, during, and after surgery to ensure comprehensive care and early detection of potential complications [15]. This round is a key component of perioperative nursing care and typically involves a multidisciplinary approach that includes not only nurses but also surgeons, anesthesiologists, and other healthcare professionals. Its purpose is to assess various patient parameters, identify potential risks, address concerns, and ensure that all necessary interventions are in place to promote patient safety and optimize outcomes [16]. In the perioperative period, which spans from the time a patient is scheduled for surgery through to their recovery in the postoperative phase, nursing assessments play a crucial role in reducing complications and ensuring safe and effective care [17]. These assessments include evaluating physical, psychological, and functional aspects of a patient's health, and they form the foundation for clinical decision-making and care planning [18].

The perioperative nursing assessment round encompasses a comprehensive evaluation of several key domains to ensure the patient's readiness for surgery and to identify any risks that may affect the surgical outcome:

- **Physical Assessment:** Nurses assess the patient's physical health, including vital signs (e.g., blood pressure, heart rate, respiratory rate, and temperature), and review medical history, including comorbidities (such as diabetes or hypertension) that may affect surgical risks [19]. The physical assessment also includes evaluating the surgical site, checking for any infections, and ensuring that the patient's body systems are stable and ready for surgery [20].
- **Psychosocial Assessment:** Anxiety, fear, and emotional stress are common among patients preparing for surgery, and nurses play a crucial role in identifying these factors through interviews or using standardized anxiety scales, such as the State-Trait Anxiety Inventory (STAI) [21]. Managing these emotional states is critical, as unaddressed preoperative anxiety can impair immune function and slow recovery [22]. Perioperative nursing rounds include providing emotional support, addressing concerns, and implementing strategies like relaxation techniques or preoperative education to alleviate anxiety [23].
- **Functional Assessment:** This includes evaluating the patient's ability to perform basic daily activities, their mobility status, and whether they require any assistive devices postoperatively. Nurses also assess the patient's nutritional status, as malnutrition can increase the risk of complications like infection and delayed wound healing [24].

- **Preoperative Teaching:** Preoperative education is essential to reducing anxiety and improvement in patient care outcomes. Nurses use the perioperative nursing round to educate patients about the procedure, the anesthesia process, expected recovery, and pain management [25]. Providing detailed information helps patients feel more in control, reducing fear and ensuring that they have realistic expectations about the surgery and recovery [15].
- **Identification of Potential Risks:** The nursing assessment round is an opportunity to identify patients at high risk for complications, including those with allergies, previous adverse reactions to anesthesia, or those with uncontrolled chronic conditions [19]. Nurses also ensure that patients are properly prepared for the surgical procedure, including fasting requirements, medication management, and emotional readiness [16].

Post-operative Phase

Post-operative data was collected a day after the surgery to access the impact of preoperative assessment round on the anxiety level and postoperative pain in surgical patients.

Pilot test

Twelve patients receiving general surgery at Sobi Specialist Hospital in Ilorin, Kwara State, participated in a pilot study using the data gathering instruments. The researcher did this pilot test to see if the data collecting methods were applicable, to find any questions that were confusing or ambiguous, and to estimate the time needed to complete each questionnaire. After analyzing the pilot test results, it was discovered that 10% of the questions required revisions to better suit the patients' comprehension.

METHOD OF DATA ANALYSIS

A master Excel document including all of the data was created, and SPSS statistical software (version 25.0) was then used to analyze it. Key outcome factors, preoperative assessment parameters, and demographic information were compiled using descriptive statistics. Paired t-tests were used to assess the anxiety levels before and after the parametric data analysis. The quality of the preoperative evaluation was a major predictor of total patient satisfaction, which was predicted using logistic regression analysis. To investigate the connections between important factors, perioperative nursing evaluation rounds on anxiety and complications, correlation analysis was performed.

ETHICAL CONSIDERATIONS

The purpose of the study project was explained in an introduction letter acquired from the Department of Nursing Sciences, Faculty of Clinical Sciences, University of Ilorin, with ethical permission number UERC/ASN/2025/3252 ethics-based approval. The ethical review committee of Kwara State University Teaching Hospital, Ilorin, granted permission to administer the structured questionnaire to the respondents on May 21, 2022, with ethical clearance number KWASUTH/IRC/246/VOL.II/57. The data gathering was explicitly authorized by other layers of the setting. The following social sciences research ethics served as a guidance for the study's data gathering process:

Confidentiality: No names were recorded, and all data gathered for this study was assigned code numbers. No identify will be used in any publications or reports resulting from this research, and this will not be connected in any kind to the caregivers chosen for this study. Translation of the local language protocol to facilitate communication: For ease of communication, the questionnaires were prepared in simple English. Field assistants from the study area were hired to speak with respondents in their native tongue, particularly for those who were illiterate in the English used to prepare the questionnaire.

Non-maleficence to participants: During the questionnaire and interview processes, participants in this study won't suffer any damage. Voluntariness: Caregivers' involvement in this study is completely optional. The study participants

are free to leave at any moment. Each patient received a verbal explanation of the study's purpose before their signed agreement was obtained.

RESULTS

Study findings

Demographic Characteristics of Participants

From the table 1.1 bellow, demographic data reveal that most participants were female (68.0%). A majority had secondary or tertiary education, and employment status was evenly split among employed, retired, and unemployed individuals. Most surgeries fell under the "others" category, with only a small number being hernia or acute abdominal procedures. Slightly more than half of the participants had prior surgical experience. The majority of the patients were between 31-50 years old (57%).

Pre-Intervention Anxiety Levels

From the table 1.2 bellow, the preoperative anxiety was notably high, with more than 63% of patients reporting they were either very or extremely anxious before surgery. This supports the rationale for introducing anxiety-reducing interventions.

Preoperative Education characteristics

From the table 1.3 bellow, the most common type of preoperative education was one-on-one education with a healthcare provider and information pamphlet (34.8%), followed by structured instruction, with Video being the least. All who received preoperative education rated the quality and clarity highly.

Post-operation Anxiety Levels

From the table 1.4 bellow, the anxiety levels showed a modest decline following the intervention. Still, more than half of the participants (53.3%) remained very or extremely anxious, which is believed to be among the control group, that is, those who do not receive the education.

Comparison of Postoperative Anxiety (Control vs. Treatment Group)

From the table 1.5 bellow, the treatment group had slightly lower postoperative anxiety (mean difference = 1.09), the difference was statistically significant ($p < 0.05$). This suggests that the educational intervention was able to produce significant differences across groups.

Distribution of pain levels at different period post-surgery

From the table 1.6 bellow, it reflects how patients perceived pain levels changed over time following elective surgery and offers insights into the trajectory of recovery and the effectiveness of perioperative nursing interventions such as education and assessment rounds.

For day 1, the majority of patients (93.3%) reported experiencing moderate to severe pain, while only a small minority (6.5%) reported mild or no pain, suggesting that initial postoperative pain was intense, as expected, due to the immediate impact of surgical trauma.

Between day 6-8, there was a marked improvement in pain levels, as severe pain level dropped dramatically to 4.3% and mild and moderate pain dominated (43.5% and 53.2% respectively). The shift suggests that postoperative recovery and pain control efforts were effective by this stage.

Between day 12–15, a notable proportion (25.0%) of patients became pain-free, and an additional 47.8% reported only mild pain. Also, no patients reported severe pain at this stage. Only 27.2% still experienced moderate pain, indicating that recovery was well underway for most patients.

The findings affirm that perioperative education though it may not eliminate pain plays a role in improving patients' coping mechanisms, setting expectations, and promoting a smoother recovery.

Chi square test was conducted to examine the association between preoperative education and pain levels at day 6-8 and day 12-15.
Day 6-8: χ^2 (2, N = 46) = 2.97, $p < 0.05$.
Day 12-15: χ^2 (2, N = 46) = 2.47, $p < 0.01$.
The results indicate that a significant association between preoperative education and lower pain levels at day 6-8 and Day 12-15.

DISCUSSION OF FINDINGS

The finding shows that preoperative anxiety was notably high, with more than 63% of patients reporting they were either very or extremely anxious before surgery. This supports the rationale for introducing anxiety-reducing interventions. This assesses the level of preoperative anxiety in patients undergoing elective surgeries at Kwara State University Teaching Hospital, Ilorin in both treatment and control groups.

This showed that anxiety levels showed a modest decline following the intervention. Still, more than half of the participants (53.3%) remained very or extremely anxious, which is believed to be among the control group, that is, those who do not receive the education. This assesses the level of postoperative anxiety in patients who have undergone elective surgeries at Kwara State University Teaching Hospital, Ilorin in both treatment and control groups.

Lastly, this reflects how patients' perceived pain levels changed over time following elective surgery and offers insights into the trajectory of recovery and the effectiveness of perioperative nursing interventions such as education and assessment rounds which assess the level of postoperative complications in patients who have undergone elective surgeries at Kwara State University Teaching Hospital, Ilorin in both treatment and control groups.

CONCLUSION

The study provides evidence for the positive impact of preoperative education on patient outcomes in surgical settings. The study showed that patients who received education felt more informed, reported lower anxiety, and demonstrated faster improvement in pain levels. These findings emphasize the need for structured nursing interventions as part of routine preoperative care to optimize patient recovery. The study also shows that personalized approaches to patient education, considering individual differences, will make it more effective.

RECOMMENDATIONS

Based on the findings from this study, the following recommendations were made:

1. Institutionalize Preoperative Education: Hospitals should incorporate structured education sessions as standard practice in surgical wards.
2. Nursing Involvement: Nurses should be actively involved in delivering preoperative assessments and education, using multiple formats such as one-on-one sessions, pamphlets, and multimedia.
3. Monitor and Follow-Up: Pain and anxiety levels should be monitored from admission through discharge to personalize care, ensure proper monitoring, and evaluate intervention success.
4. Training for Healthcare Providers: Regular training sessions should be conducted for nurses and other healthcare providers who are involved in preoperative education. The sessions should emphasize effective communication strategies, adult learning principles, and techniques for addressing patient anxiety.
5. Surgical procedure success: The study has also shown that effective preoperative education is key in the success of surgical procedures; hence, a need to pay more attention to make preoperative education more effective.

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CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Demographic Characteristics of Participants

Variable	Categories	Frequency	Percentage (%)
Gender	Male	32	32.0
	Female	68	68.0
Total		**92**	**100**
Age Group	15–30 years	21	22.8
	31–50 years	57	62.0
	51–70 years	4	4.3
	71 + years	10	10.9
Total		**92**	**100**
Education Level	None	2	2.2
	Primary	9	9.8
	Secondary	37	40.2
	Tertiary	44	47.8
Total		**92**	**100**
Employment Status	Employed	32	34.8
	Retired	30	32.6
	Unemployed	30	32.6
Total		**92**	**100**
Type of Surgery	Hernia	2	2.2
	Acute Abdominal	2	2.2
	Others	88	95.7
Total		**92**	**100**
Previous Surgery History	Yes	51	55.4
	No	41	45.6
Total		**92**	**100**

Pre-Intervention Anxiety Levels

Preoperative anxiety scores were categorized on a Likert scale from 1 (Not at all anxious) to 5 (Extremely anxious).

Anxiety Level	Frequency	Percentage (%)
Slightly Anxious	12	13.0
Moderately Anxious	22	23.9
Very Anxious	24	26.1
Extremely Anxious	34	37.0
Total	**92**	**100**

Preoperative Education characteristics

The study group, which makes up half of the participants (N = 46) were given preoperative education.

Characteristics	Category	Frequency	Percentage (%)
Type of Pre-education	Information Pamphlets	16	34.8
	One-on-one	16	34.8
	Structured Instructions	11	23.9
	Videos	3	6.5
Total		**46**	**100**
Pre-op Education Reduced Anxiety	Yes	46	50.0
Clarity of Information	Clear	11	24
	Very Clear	35	76
Total		**46**	**100**
Rate of Preoperative Education	Good	14	30.4
	Excellent	32	69.6
Total		**46**	**100**

Post-operation Anxiety Levels

Anxiety Level	Frequency	Percentage (%)
Slightly Anxious	18	19.6
Moderately Anxious	25	27.2
Very Anxious	26	28.3
Extremely Anxious	23	25.0
Total	**92**	**100**

Comparison of Anxiety Levels Before and After Intervention (Paired T-Test)

Variable	Pre-Mean	Post-Mean	t-value	p-value
Anxiety Score	4.28	3.54	4.715	0.000

Comparison of Postoperative Anxiety (Control vs. Treatment Group)

To confirm the efficiency of the pre-operative education, a comparison test was done between the Control and Study groups.

Group	N	Mean Anxiety	Std. Deviation	p-value
Control	46	4.63	1.062	
Treatment	46	3.54	1.089	0.03

Association Between Postoperative Anxiety and Pain

A correlation analysis was done to investigate if there is a correlation between postoperative anxiety and pain felt on Day 1 after surgery.

Variables	Spearman's rho	p-value
Postoperative Anxiety & Pain	0.098	0.354

Distribution of pain levels at different period post-surgery

Time Point	No pain (%)	Mild Pain (%)	Moderate Pain (%)	Severe Pain (%)
Day 1	4.3	2.2	42.2	51.1
Day 6-8	0.0	43.5	53.2	4.3
Day 12-15	25.0	47.8	27.2	0.0