Original Article

Effects of Peri-Operative Nurse Pre-Visit on Anxiety Level of Surgical Patients in University College Hospital, Ibadan, Nigeria: A Quasi-Experimental Study

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Abstract

Background: The pre-operative period is usually a stressful event for scheduled surgical patients which tends to trigger physiological, psychological and emotional responses to a potentially stressful situation. It is, therefore, a vital nursing responsibility in the pre-operative phase to inform the surgical patient of the procedure, pain control, and post-surgical procedure to allay anxiety and achieve optimal management goals through surgical pre-visit.

Aim: The study was conducted to assess the effect of peri-operative nurse pre-visit on the anxiety level of surgical patients

Methodology: A quasi-experimental pre-test post-test design was adopted for this study. A total of 128 participants (experimental=64, control=64) were recruited into the study. The data was obtained using a semi-structured questionnaire and the State Trait Anxiety Inventory Scale. The intervention consisted of an educational intervention in the form of a written and verbal pre-visit interaction module. The data was entered into the Statistical Package for Social Science (SPSS) version 23. The hypothesis was tested using independent t-test at $p< 0.05$.

Result: Participants in the intervention and control groups were similar in their socio-demographic characteristics at baseline ($p > 0.05$**).** Also, the preoperative anxiety levels of the two groups did not differ significantly at baseline ($p > 0.05$**).** , Fear of the unknown was the primary cause of preoperative anxiety (85.9% in the experimental group and 89.1% in the control group). Post-operatively, all patients in the experimental group (100%) only exhibited mild anxiety, compared to 90.6% of patients in the control group, ($p < 0.05$).

Conclusion: The pre-operative nursing visit had a significant effect on anxiety, thus improving the overall surgical outcome of the patients. There is a need to incorporate this aspect of nursing care into the peri operative care protocol in all hospitals.

Keywords: Effect, Peri-operative nurse, Pre-visit, Anxiety, State trait Anxiety Inventory Scale

Introduction

Minor and major illnesses, including injuries, malignancies, and some cardiovascular diseases, are often managed with surgical interventions (Ali *et al*, 2020) and risks associated with surgery include pain, bleeding, specific rates of morbidity and death (Stamenkovic et al., 2018). It is described as a traumatic process that can cause patients to have unwanted pre and post-operative effects (Msoma *et al.*, 2023). Although there have been advances in scientific and medical technology over the years (Althobiti *et al.*, 2020), patients scheduled for surgical interventions have tension and anxiety linked to possible negative outcomes such as permanent disability, physiological incapacitation, surgical discomfort, delayed

anaesthesia recovery and fear of death (Althobiti *et al.*, 2020).

Physiological responses to anxiety include tachycardia, increased blood pressure, tachypnea, diaphoresis, nausea, emesis, insomnia, headache and muscle rigidity (Wondmieneh, 2020). Mental capacity symptoms include rumination, forgetfulness, difficulty focusing, and incapacity to react to outside stimuli (Wondmieneh, 2020). A surgical patient's anxiety level reaches its peak when the patient arrives for scheduled surgery (Akhlaghi *et al.*, 2020). The patient's age, sex, prior surgical experience, degree of education, propensity for preoperative anxiety and past medical history, also not excluding socioeconomic factors, determine the pre-operative anxiety level (Khalili *et al.,* 2020). Furthermore, insufficient cognition of the surgical procedure, fear of the unfavourable unexpected surgical outcome, the fright of the unknown or dying, deprivation of control of everyday life, loss of work, separation from family, and being in an unfamiliar place contribute to anxiety before surgery (Khalili et al., 2020). Thus, pre-operative nursing care must focus on reducing anxiety through establishing educational intervention, administering required medication and providing non-pharmacological intervention (Lily *et al.,* 2018).

Pre-operative nursing visits have been found to reduce post-operative pain and anxiety (Lee *et al*, 2018), increase patient's confidence in the surgical team, alleviate fear about the surgical environment, allow patients to express their concerns and fear about surgery and help in recovery after surgery and allows for individualized care (Aydal *et al.,* 2023). Pre-operative enlightenment methods include verbal, written document, and audio-visual education such as video, optical disc and cyberspace(Aydal *et a*l., 2023).

There is currently little research on how nurse-led pre-visits affect surgery patients' pain and anxiety levels, despite some studies in both developed and developing nations looking at pre-surgical anxiety and mediating factors (Aydal et al., 2023). The applicability of the aforementioned research to underdeveloped nations is limited by contextual differences, even though few investigations were carried out in developed nations (Nnabuenyi et al, 2020). The purpose of this study was to evaluate the impact of nurses' pre-operative visits on anxiety of surgical patients at University College Hospital in Ibadan, Nigeria.

Methodology

Study design: This study adopted a pre-test post-test quasi-experimental design with two groups of surgical patients which were the experimental group and the control group. While the general ward nurse and other surgical team members (surgeons and anaesthetists) informed the control group, the peri-operative nurse in the operating room gave the intervention group a structured assessment and preoperative instruction.

Study Settings: The University College Hospital's surgical wards in Ibadan, Oyo State, served as the site of the study. It was established in 1957 by an Act of Parliament, in August 1952. It is located between Agodi Gate and the Oyo State Secretariat and is governed by the Ibadan North Local Government.

Participants: Participants who fulfilled the following inclusion requirements and were admitted to the University College Hospital's surgical wards in Ibadan were chosen for the study (i) Participants must be at least eighteen years old, able to communicate in both English and Yoruba, have no learning or reading disabilities, have been admitted at least twenty-four hours before the procedure, have had elective surgery using a general, spinal, or combined spinal epidural, be clinically stable, and have signed an informed consent form. Those who needed to be admitted to an intensive care unit following surgery, those having minor or emergency procedures, and those who were unconscious were excluded. The researcher used a purposive sampling technique to select six adult surgical wards. Then a paper balloting method was to randomize the wards either to the control or experimental group. All surgical patients who satisfied the study's inclusion requirements were chosen for the ward using a simple random sample approach.

Sample size: The formula that used a comparison of means as a research parameter was used to determine the sample size. According to Zhuo *et al.,* (2022), whose

standard deviation was 2.16 and the mean difference was 1.3 A total of 128 respondents (Experimental=64, 64=control group). The study data collection was between 10th April,2024 to 8th July,2024.

Procedure for Data Collection: The data collection was in three phases.

Phase 1: The UI/UCH ethical review board granted formal consent. Before data collection, three research assistants were trained on how to obtain data using questionnaire, also to score the state trait anxiety inventory scale and categorise the level of anxiety according to the cumulative score obtained from surgical patients before and after surgery. This training lasted four days.

Following an explanation of the research study, the patients provided signed consent. Pre-test (0_1) The day before surgery, the experimental and control groups' pre-operative anxiety levels were measured using the State Anxiety Trait Inventory Scale.

Phase 2: For 15-20 minutes, the experimental group received individual preoperative instruction that included breathing, coughing, leg movements, and a demonstration of raising the hand (mastectomy). After determining the patient's pre-score, the pre-visit interaction module was used to provide organized instruction. The patient was then given pamphlets explaining the module. In plain and understandable language, the pre-operative interaction module contained information about the surgical team, the type of surgery, the position, the time, the length of the procedure, the operating room setting, the length of the post-anaesthesia care unit, pain, the presence of a drain (if any), analgesia, mobilization time, feeding, and post-operative exercises during the postoperative period. The control group received standard pre-operative care.

Phase 3: Post-test 1 (0_1). The state anxiety inventory was used to measure the anxiety level 24 hours post-surgery.

Every facet of data collection, cleaning, entry, and analysis was done by the researcher herself. The patient's pre-visit was conducted by the researcher, who also educated the intervention group members. The research assistants participated in gathering data from the control groups and helped verify that the questionnaires were complete.

Data Collection tools: Two data collection tools was used namely; A semi-structured questionnaire

Pre-operative teaching module: The semi-structured questionnaire had three sections:

Section A: Socio-demographic information and clinical characteristics. This had eight items which were both open-ended and closed-ended questions. The questions addressed personal characteristics of the respondents, duration of illness and presence of co-morbidities. This was developed by the researchers from literature.

Section B: Factors influencing anxiety. Items under this section addressed factors influencing anxiety and consisted of 10 items which were closed-ended questions. Patients were required to tick 'Yes or No'. This was also developed by the researchers from literature search.

Section C: State Trait Anxiety Inventory: Spielberger et al. developed the State Anxiety Inventory in 1970. The Likert scale has four points. It consists of 20 questions with the following scores: not at all (score of 1), somewhat (score of 2), moderately so (score of 3), and very much (score of 4).

The state anxiety inventory was scored as follows: The factors ranged from not at all to very much so, and each state anxiety scale was assigned a score between 1 and 4. The state anxiety score ranges from a minimum of 20 to a high of 80. The score was calculated as follows: 20–35 = mild anxiety. 36–50 = Moderate anxiety 51–65 = High levels of anxiety 66 to 80 = Severe anxiety. The pre-visit guide and the desired instrument were translated into Yoruba to guarantee reliability. The English and Yoruba versions were administered to 12 patients booked for surgery and admitted in surgical wards of Ring Road Specialist Hospital- a hospital which was not included in the study setting. The English State Trait Anxiety tool had a Cronbach Alpha of 0.694 and Yoruba version of State Trait Anxiety Tool had Cronbach Alpha value of 0.854

The second instrument which is the preoperative teaching module. This teaching module was developed by Lobo's (2016) study on the impact of pre-operative

education on postoperative outcomes in selected hospitals and adapted for this study. Its use has not been found in Nigeria, though similar contents are being discussed pre-operatively. This served as a preoperative teaching guide which was developed for surgical patients in the hospital. The preoperative teaching guide comprises information regarding preoperative, intra and post-operative procedures and post-operative exercises with demonstration. For 15-20 minutes, the experimental group received an educational intervention in the form of a written and verbal pre-visit interaction module. Patients' concerns were addressed and they were reassured, but not in a misleading way. After determining the patient's pre-score, the pre-visit interaction module was used to provide organized instruction. The patient was then given pamphlets explaining the module.

Statistical Analysis: Version 23 of the Statistical Package Social Sciences (SPSS) was used for data entry. . The patient's socio-demographic characteristics across study groups were analyzed using frequency, percentages and mean. The anxiety level was assessed using the State-Trait Anxiety Inventory, which has scores ranging from 1 to 4 and variables ranging from "not at all" to "very much so." A frequency and percentage table were created by adding together all of the scores for the experimental and control groups separately. The scores were categorized as follows: 20–35 = mild anxiety, 36–50 = moderate anxiety, 51–65 = severe anxiety, and 65–80 = intense anxiety and were presented in a frequency and percentage table.

Factors contributing to anxiety containing 10 items with 'Yes and No' options were presented in a frequency table.

Also, an independent t-test was used to compare the mean value that was obtained between both groups.

Ethical Consideration: Ethical approval was obtained from the University of Ibadan/University College Hospital (UI/UCH) ethical review committee with approval number UI/EC/24/0180. Written informed consent was obtained from all participants.

Results

The majority of participants were between the ages of 28 and 37 (28.1%, 18.8%), with the experimental group's mean age being 43.0±15.8 and the control group's being 43.7±15.4. In both the intervention and control groups, the majority of study participants were female (59.4%, 48.4%), had a bachelor's degree (60.9%, 53.1%), and were married (73.4%, 65.6%, respectively). Most patients underwent general anaesthesia. There were no co-morbidities (54.7%, 57.8%). Socio-demographic characteristics did not differ for the two groups ($p > 0.05$).

Pre-operative anxiety of surgical patients in the experimental and control group.

Figure 1 depicts that the participants in experiment group 17(26.6%), 39(60.9%), 7(10.9%) and 1(1.6%) had mild, moderate, severe and extreme anxiety at the pre-visit stage (pre-operatively) while participants in control 15(23.4%), 45(70.3%), 3(4.7%) and 1(1.6%) respectively had mild, moderate, severe and extreme anxiety.

Factors contributing to anxiety.

Table 2 shows that the individuals' dread of the unknown was the most prevalent factor impacting anxiety in both the experimental and control groups (85.9% and 89.1% respectively). Among the causes impacting their anxiety, the majority of participants in experimental group 49 (76.6%) and control group 54 (84.4%) feared for their lives, whereas 47 (73.4%) and 49 (76.6%) in the experimental group and the control group, respectively, feared complications. Nonetheless, the smallest proportion of participants in experimental group 14 (21.9%) and control group 20 (31.3%) related medical personnel's harm had an impact on their anxiety.

Level of anxiety post-operatively among both groups

Table 3 shows that all 64 participants in the experiment group (100.0%) had only mild anxiety at the post-visit, whereas the participants in the control group 58 (90.6%) and 6 (9.4%) experienced mild and moderate anxiety, respectively.

The distribution of anxiety levels in the experimental and control groups at the post-visit stage was statistically significant (p=0.012).

An independent t-test was used to compare the anxiety levels of the two groups in Table 4. The mean anxiety score in the pre-visit stage did not differ statistically significantly between the experiment group [41.1±8.9] and the control group [41.1±7.5] (p=0.983). At the post-visit stage, however, there was a statistically significant difference in the mean anxiety score between the experiment group [22.7±2.8] and the control group [27.0±5.9] (p=0.0001). Since the p-value is less than 0.05 and the post-operative p-value is 0.0001, the null hypothesis which holds that there is no significant difference between the intervention and control groups is rejected.

Table 1: Distribution of Socio demographic Characteristics of the participants

Variables	`Experimental group f(%)(n=64)`	Control group f(%)(n=64)	χ^2	p-value
Age (in years)				
18-27	10(15.6)	11(17.2)		
28-37	18(28.1)	12(18.8)		
38-47	15(23.4)	14(21.9)	5.060	0.409
48-57	5(7.8)	13(20.3)		
58-67	10(15.6)	8(12.5)		
>67	6(9.4)	6(9.4)		
Gender				
Male	26(40.6)	33(51.6)	1.541	0.215
Female	38(59.4)	31(48.4)		
Marital Status				
Single	10(15.6)	13(20.3)		
Married	47(73.4)	42(65.6)	0.926	0.819
Separated	3(4.7)	4(6.3)		
Widowed	4(6.3)	5(7.8)		
Educational Qualification				
None	5(7.8)	7(10.9)		
Primary	2(3.1)	3 (4.7)	0.981	0.806
Secondary	18(28.1)	20(31.3)		
Tertiary`	39(60.9)	34 (53.1)		
Presence of co-morbidity				
None	35(54.7)	37(57.8)		
Anaemia	0(0)	4(6.3)		
Diabetes mellitus	11(17.2)	10(15.6)	7.037	0.218

Hypertension	9(14.1)	6(9.4)		
Respiratory	1(1.6)	3(4.7)		
Others*	8(12.5)	4(6.3)		
Type of Anesthesia				
General	43(68.3)	51(79.7)		
Spinal	19(30.2)	13(20.3)	2.798	0.247
CSE	1(1.6)	0(0)		

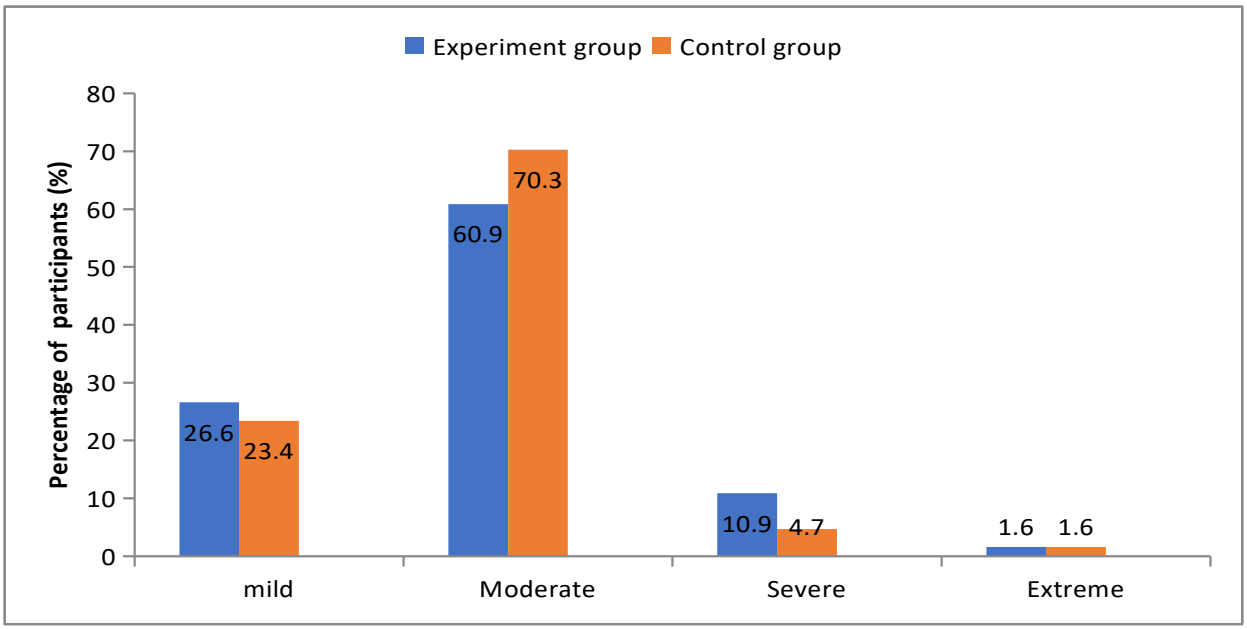

Figure 1: Pre-operative anxiety level of both groups

Table 2: Factors influencing anxiety of the study participants

Variables		Experimental group f(%)(n=64)	Control group f(%)(n=64)	χ^2	p-value
Fear of complication	Yes	47(73.4)	49(76.6)	0.167	0.683
	No	17(26.6)	15(23.4)		
Fear for one's life	Yes	49(76.6)	54(84.4)	1.243	0.265
	No	15(23.4)	10(15.6)		
Fear of unknown	Yes	55(85.9)	57(89.1)	0.286	0.593
	No	9(14.1)	7(10.9)		
Harm from med workers	Yes	14(21.9)	20(31.3)	1.442	0.230
	No	50(78.1)	44(68.8)		

Table 3: Post operative anxiety between experimental and control group.

Variables	Experimental group f(%)(n=64)	Control group f(%)(n=64)	χ^2	p-value
Mild	64(100%)	58(90.6%)	6.295	0.012
Moderate	0	6(9.4%)		

Table 4: Comparison of anxiety score between the experimental and control groups pre and post-intervention.

Period	Statistics	Experimental	Control	t-test	p-value
Pre op anxiety	Mean ±SD	41.1±8.9	41.1±7.5	0.022	0.983
	Range	23.0-66.0	23.0-68.0		
Post op anxiety	Mean ±SD	22.7±2.8	27.0±5.9	5.171	0.0001
	Range	21.0-34.0	21.0-50.0		

Discussion

According to the current study, low anxiety was present in 26.6% of the experimental group, moderate anxiety in 60.9% and excessive anxiety in 1.6% of the group, while mild, moderate and extreme anxiety was present in 23.4%, 70.3% and 1.6% of the control group, respectively. According to the study's findings, there was no difference in the participants' pre-operative anxiety levels based on how they answered the questions. Hatami et al's (2021)study on the impact of pre-operative nursing visits on anxiety revealed that both the intervention and control groups had moderate anxiety (55.8%, 57.7%), which is comparable to the findings of Ali et al.'s (2020) study on the effect of preoperative education on patient outcome, which found that 44% of patients had moderate anxiety and 23% had mild anxiety.

This study is different from Subedi et al., (2019), who found that 2.7% of participants experienced moderate anxiety and 90.54% had very low anxiety. 48.6% of patients in a tertiary care hospital experienced mild anxiety, according to a study by SreeRanjani et al., (2023) on the prevalence of preoperative anxiety. This was because most respondents had undergone surgery before, thus they were comfortable with it. According to a study by Nnabuenyi et al., (2022) on the effect of pre-visits on obstetrics and gynaecology patients at the University of Port Harcourt in Nigeria, the majority of patients experienced mild anxiety and significantly lower levels of moderate anxiety.

This study's pre-operative anxiety mean score was moderate, with both the experimental and control groups scoring 41.1. This is comparable to a study by Cengel et al., (2023), which found that the experimental and control groups' pre-operative anxiety mean values were 42.38 and 42.21, respectively.

According to this study, anxiety in both the experimental and control groups was influenced by a fear of the unknown, which was experienced by over half of the respondents. This resulted from a failure to anticipate what would happen during the peri-operative period. However, because they stated that they are in the hands of specialists because they are at the top tier of health care, the smallest percentage of participants in both groups reported that their worry was impacted by injury from medical professionals.

The results of this investigation align with those of a cross-sectional study by Wondemieneh (2020), which found that a greater proportion of participants were afraid of the unknown, and a study by Subedi et al., (2019), which found that 89% of participants were afraid of the unknown, followed by the

dread of pain. This conclusion contrasts with a study by Mulugenta (2018), which found that post-operative pain and fear of complications accounted for 50.1% and 52.4% of respondents' anxiety, respectively. In contrast to the current study, a study by Kanwal et al. (2018) found that the greatest percentage of anxiety was caused by the worry of surgery being postponed, while Kefelegn et al., (2023) found that the primary cause of anxiety was fear of dying. The current study's findings stem from a lack of understanding of peri-operative events.

There was a significant difference between the two groups, with the intervention group scoring lower than the control group. The mean operative level of both groups was significantly low, with a mean value of mild anxiety.

This is due to the support from both the medical team and family who provide physical and psychological assurance to both groups post-operatively and the research setting is a culturally and relatively friendly place also the factor which caused the anxiety, the surgery had been done.

Findings from this conform to Aydal et al., (2022) whose study result had mild anxiety post-operatively but not as low as the present study with a mean value of 31.16 but differs from Arpag et al (2023) in which experimental and control groups had moderate anxiety with a mean score of 41.81 and 48.93 respectively and Cengel's study (2022) shows the mean value of experimental and control groups as 41.58 and 44.62 respectively.

The independent t-test for variables was used to test the relationship that there was a statistically significant difference in the mean score of anxiety between the experiment and control group at the post-visit stage. The null hypothesis which states that there is no significant difference in the intervention and control group is rejected. This finding is expected because pre-knowledge of what to experience lowers anxiety post-operatively. This was demonstrated in a study by Eslami et al., (2020).

Conclusion: According to the study's findings, the majority of surgical patients in both groups experienced moderate anxiety prior to surgery, and this anxiety was linked to a fear of the unknown. Excessive pre-operative anxiety is considered to be a sign of an overly elevated perception and obsession with the risk of surgery. This study shows that although surgery patients receive proper treatment, the physiological aspects of the care process are not taken into account. According to this study, pre-operative nurse visits significantly reduce surgery patients' anxiety, aid in better pain management because anxiety exacerbates pain and vice versa, and improve surgical results for the patient. Therefore, in order to improve patient care and the pleasure of patients and their families, all surgical patients must have a pre-operative visit.

Implication for Nursing Education

This study will also be useful in the aspect of nursing education as it will aid its update in the curriculum such as inculcating other methods of educating patients during pre-visits which could be video-based, written rather than verbal. It will also allow regular in-service training/education on peri-operative nurse pre visit for personnel in service. Therefore, translating to an optimal peri-operative care to surgical patients

Limitation

- Since this study was conducted at a single location, its conclusions cannot be extrapolated to other locations.
- Various forms of elective surgery were used in the study. A similar study should be carried out with patients who had the same elective surgical case because the discrepancy in results could be caused by different surgeries.

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