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EDUCATION AND INTERGROUP VARIATION AMONG PRE-SURGICAL PATIENTS EXHIBITING TOMOPHOBIA IN PUBLIC HOSPITALS OF ENUGU STATE, NIGERIA

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ABSTRACT

This paper investigated the relationship between education and intergroup variations among pre-surgical patients exhibiting anxiety/fear using three public hospitals in Enugu state as study areas. A cross-sectional survey and a total population of 890 members of medical staff and pre-surgical patients found in the hospitals were adopted for the inquiry. A sample of 270 respondents using Guilford and Flruchter (1973) for sample size determination, and tables, percentages and SPSS version 20.0 tools of analysis were also adopted. The results of analysis reveal that there is no relationship between education and tomophobia, and that there is also no relationship between the levels of education and the prevalence of variations among pre-surgical patients exhibiting tomophobia. Since tomophobia is inevitable and highly dangerous in surgery, the paper recommends the compulsory introduction of pre-operative counselling and the employment of professional psychotherapists and counselors.

Keywords: ***education, tomophobia, surgery, patients, intergroup variation, Enugu state***

Introduction

Hospitalization and surgery are two phenomena that are rarely inevitable in human life but generate fear and provoke anxiety in over 92% of potential patients (Erkilic, Kesimci, Soykut et al, 2017; Chen S, et al, 2015; Jafar and Khan, 2009;Aghamohammadi and Karimollahi, 2007). Anxiety is a term generated from phobia, which in Greek is called phobos, refers to "an irrational, intense and persistent sensation of fear in relation to specific situations, activities, objects or individuals" (Obidigbo & Onyekuru, 2022). Anxiety is defined as a feeling of tension, uneasiness, nervousness, fear and high autonomic activity with varying degree of intensity (Obidigbo & Onyekuru, 2021). This is more prevalent among patients without previous surgical experiences (Kim, Bycon, Sona, and Lee, 2010) while the temerity depends on type of surgery (Maranets et al, 1999; Cevik, 2018; Obidigbo and Onyekuru, 2021, 2023).

It is evident in the literature that experiences of previous surgical patients, age, gender, type and extent of the proposed surgery, exposure, standard of healthcare and hospital infrastructures, mitigate tomophobia (Obidigbo et al 2021, 2023). Also noted are anticipated pains, possibility of surgery being postponed, "not waking up" after surgery or possible death, are the common fear awaiting surgical patients (Cervik, 2018, Obidigbo 2022). There are also the fear of post-operative nausea and vomiting, risk of infection/exposure to disease like HIV, waiting time of surgery, concern about family and care, deformation or harm from doctor/nurse mistake (Obidigbo op cit). Moreover, personal previous surgical experience, and personal susceptibility to stressful situations are primary factors that led to such fear and anxiety (Cevik, 2018; Saini and Dayal, 2016; Hernández-Palazón et al, 2015; Nigussie Belachew and Wolancho, 2014; Ping, Linda, Antony, 2012; Ebirim and Tobin, 2010).

Most of these surgical patients do perceive the day of surgery as the biggest and the most dreaded day in their lives. (Obidigbo, 2022, Cervik 2018). This pre-surgical fear and/or anxiety, which are professionally known as tomophobia, determines the degree of success of every surgery in history (Yilmaz, Sezer, Gürler, and Bekar, 2011; Goebel, Kaup, Mehdorn, 2011; Jafar, Khan, 2009). Tomophobia as conceptualized here is medically defined as fear of surgery (Salmon 2000; Yana 2021). Surgical patients and surgery tend to generate specific emotional, cognitive, and physiological responses of a patient (Balasubramaniyan, Rayapati, Puttiah et al., 2016; Sigdel, 2015).In some cases surgical patients do prefer to defer or even refuse/avoid planned surgery due to fear and/or anxiety (Ping, Linda, and Antony, 2012; Yilmaz, Sezer, Gürler, and Bekar, 2011; Foggitt, 2001; Maranets and Kain, 2000).It can and do lead to hypertension, increase heartbeat rate, bleeding, and cognitive impairment. These may also be characterised by impaired thinking, decision making, perception and concentration (Allen, Carr, Barrett et al, 2002; Woldegerima, Fitwi, Yimer, and Hailekiros, 2018).It is also documented that the activation of metabolic and hormonal systems because of anxiety leads to increases in secretions, gastric acidity, motility of the gastrointestinal system and levels of catecholamines, which undermines effective anaesthesia and surgery, and causes longer stay in the hospital after surgery (Boeke, Marko, and Benno, 1992; Domar, Laura, and Myra, 1989 Obidigbo et al, 2021)).

Consequently, a lot of strategies have being evolved to manage and reduce pre-operative anxiety or tomophobia prior to actual surgery. These strategies included pharmacological interventions and non-pharmacological interventions that involve education and/or information, communication, and stress reduction (Frazier, Moser, Daley, McKinley, Riegel, Garvin, An, 2003; Shuldham, 1999; Norred, 2000, Obidigbo 2022). Among all, education and/or preoperative counselling, which provide information on the nature, procedure, cares, and provision of patients' interest management and the expected role of the patient toward successful surgery and recovery, have proved to be effective in reducing anxiety, the length of stay, and have better compliance during the process (Akkamahadevi and Subramanian, 2016; Kiecolt-Glaser, Page, & Marucha, 1998). However, they seem to exert different levels of influence or impact in reducing tomophobia.

Specifically, this inquiry is poised to find answers to the following questions:

1. Is there any significant difference between formal education and the manifestation of Tomophobia among pre-surgical patients in public hospitals of Enugu State, Nigeria?
2. Has the level of formal education contributed to the prevalence of intergroup variation among pre-surgical patients exhibiting Tomophobia in public hospitals of Enugu State, Nigeria?

Significance of the Study

Empirically, the findings and recommendations of the study will assist or provide useful guide to different groups and professionals working to safe human life in different hospitals on the need to provide different counselling templates for educated and none or semi educated pre-surgical patients. Therefore, the study is significant to the extent that it highlights hindering power of illiteracy and/or lack of information on excellence and successful surgery outcomes in hospitals. It further highlights the usefulness of Psychologists, Counsellors and Psychotherapists in the hospital system. These will prompt stakeholders in the Medicare to evolve policies, programmes and projects that will elevate pre-surgical education and the inevitable employment of Psychologists, Counsellors and Psychotherapists to complement the roles and activities of medical professionals in handling surgical patients.

Theoretically, the study is relevant to the extent that it tends to add to existing literature concerning the impact of education on the emergence, prevalence and variations of tomophobia among surgical patients. Its findings shall, therefore, complement existing literature and serve a source of data for further research in the field by researchers and students.

Review of Literature

The concept of anxiety

The literature is flawed with conceptualisations of anxiety, however, each of them tends to express views that we consider primary or central to the definition of the concept.For instance, Gross (2010) defined it as a form of human emotion that is characterized by negative affect with symptomatic tension and apprehension about the unknown and/or the future due to perceived danger. On his part, Smith (2008) conceptualized anxiety as a feeling of dread-fear without specific object that is detected when people manifest unease, exhibit worrying looks, anxiousness, fidgeting, high rate of heart palpitation, and muscle tension. Anxiety, therefore, is an involuntary and emotional reaction to the threat of the unknown such as, surgical failure, loss of personal identity, loss of control, possible death, strange environment, and life threatening episodes (Pritchard, 2009; Brown, Mason, Spokane et al., 2009).

With the full appreciation of the various typologies of categories of anxiety as demonstrated by Hayes (2010), Gross (2010), Janis (2009), Hampton (2006) among others, it is evident from the literature that nine types of anxiety exist, namely:

i. Realistic anxiety: This type occurs when there is potential danger from the external environment.
ii. Moralistic anxiety: This refers to anxiety generated by immoral behaviours and unethical conduct that prompts the ego to warn the individual of possible retaliation from the superego, which is normally the conscience of the individual (Janis, 2009).
iii. Neurotic anxiety: This is a kind of anxiety that originates unconsciously and it is mal adaptive in nature.
iv. Acute anxiety: This is an emotional state involving subjective feelings of dread, and apprehension. The individual here may report fear of sudden death, loss of sanity or control.
v. Chronic anxiety: This type of anxiety is preceded by good, strength, health and vigour and associated with a lifelong pattern of easy fatigability to do hard work, tension, nervousness, and fear (Gross, 2010).
vi. Trait anxiety: This refers to a person's permanent way of reacting to arousing situation and seems to be a trait or character that a person brings to each event in life (Spilberger, 1995).
vii. State anxiety: This refers to the present state of the individual with regard to the current situation one is experiencing. We differ in our perception of threats or sense of issues and situations that are being threatened.
viii. Free-floating anxiety: This is a diffuse and chronic sense of uneasiness that is not directed to any situation (APA 2020).It is a type of anxiety that is generalized, pervasive, persistent, and does not clearly related to any specific object or situation. However, it is accompanied by a sense of impending doom (Coon, 2000).
ix. Basic Anxiety: This refers to all pervading feeling of being alone and helpless in a hostile world, which is always caused by one's culture (Gross, 2010).

The Concept of Surgery

Surgery is the branch of medical practice that treats injuries, diseases and deformities by surgical removal or correction of deformity. It often involves re-adjustment of organs and tissues. It can also employs cutting, suturing or physically changing body tissues and organs. Surgery which is also literally called operation is a procedure carried out with a view of removing or repairing a part of the body or to find out whether disease is present (Obidigbo, 2022). The methods are to treat diseases and correct deformities or abnormalities through operative procedures. (Bansal and Joon 2017) The aim of surgery is ameliorating suffering and pains, prolonging life, and provides diagnostic education and care (Obidigbo & Onyekuru 2020, Ebirim, 2010). Any patient booked for surgery is called a pre-surgical patient.

Onyekuru and Okonkwo (2018) classified surgeries according to their purposes and aims into diagnosis, prevention, ablation, reconstruction, transplantation, and palliative care surgery. However, they noted that these forms of surgeries can be re-classified in line with the part of the body where they are being carried out as Cardiac surgery (heart surgery), Gastrointestinal surgery (Digestive track surgery), and Orthopedic surgery (bone/muscle surgery).However, when classified by degree of urgency, they include emergency surgery i.e. a surgery that must be done as soon as possible to save the person's life; elective surgery i.e. a surgery that must be done at some point for the sake of the person's on-going health challenges; major surgery i.e. a surgery that has high risk of mortality; minor surgery i.e. surgery that has low risk of complications and fast recovery time; open surgery i.e. surgery that make use of large incision to access the internal; keyhole surgery i.e. surgery where several small cuts (incisions) instead of one large one are made; and microsurgery i.e. delicate surgery carried out on very small body structures (Cevik, 2018, Obidigbo & Onyekuru, 2023).

The Concept of Pre-surgical Anxiety

The fears and anxieties sustained by patients during surgery is known as pre-surgical anxiety (Janis, 2009, Obidigbo 2022). This anxiety manifests with unpleasant symptoms that interfere with people's ability to relax before, during, and after surgery. Such symptoms include irregular heartbeat, excessive sweating, nausea, and nervous stomach (Obidigbo & Onyekuru 2023). Also noted were pounding and/or racing heart, shortness of breath, sleep problems, and speedy pulse. As noted above, the roots of pre-surgical anxiety are possible surgical experiences such as death, pains, financial burdens, surgical outcomes, secondary infections or illnesses, surgical mistakes, post-surgery scars, adverse lifestyle impact, post-surgical pain, losing mobility or independence, disfigurement, lowered self-esteem, long recovery, being unable to wake afterward, and being awake during surgery (Bradt, Dileo & Shim, 2013; Bansal & Joon, 2017). Obidigbo and Onyekuru (2018 / 2023) and Obidigbo (2020, 2022) have also noted the damaging events of surgical anxiety on Nigerian population.

The literature, however, outlined ways of handling or curing pre-surgical anxiety as preoperative patient counselling or tours, accurate and thorough information about the operation, relaxation therapy, cognitive behavioural therapy, acupressure, auricular acupuncture, permitting family members to be present before the operation (Obidigbo, Obi-Nwosu & Nweke, 2023). Administration of anti-anxiety medication such as benzodiazepines or melatonin, play Music; improved nurse-patient relationships, and preoperative visit from the anaesthesiologist are also important and useful (Pritchard, 2009; Agarwai et al., 2009). Obidigbo (2018, 2019, 2022) had outline the benefit of counselling and other clinical interventions in the management of surgical anxiety. Thus, it becomes imperative that education holds the key to pre-surgical anxiety or tomophobia treatment.

Education and Surgical Anxiety

The literature tends to expose contradictory results on the impact or effect of education in the manifestation of pre-surgical anxiety. A study by Cevik (2018) noted above and Ortiza, Wang, Elaydab, and Tolpinca (2013)observed that education level is not a determinant factor in the manifestation of preoperative anxiety levels. This finding was collaborated by that of Onyekuru & Okonkwo, (2018) and Ortiza, Wang, Elaydab and Tolphica (2013). In their study of 356 cardiac patients that placed 188 patients under experiment and other 168 as control group, it was observed that there were no significant differences seen in the groups in the main outcomes namely anxiety (P=0•09) and pain (P=0•48), or in depression (P=0•62) and wellbeing ('worn out' P=0•11; 'tense and uptight' P=0•29). This shows that surgical awareness education do not impact on anxiety levels difference.

On the contrary, the study by Bansal and Joon (2017), which assessed and compared preoperative anxiety in obstetric patients undergoing elective or emergency caesarean section observed a statistically highly significant relationship between higher education level and higher manifestation of tomophobia. Similarly, Bernardo, Henker, and O'conner (2000) study of 424 pre-surgical patients observed that educational background significantly interacted with gender to influence the level of anxiety among patients going for surgery. They revealed that educated women had significantly higher anxiety than did men according to both the State Trait Anxiety Inventory (42 ± 12.9 vs. 37.7 ± 12.5, p = .001) and the Brief symptom inventory (0.83 ± 0.97 vs. 0.71, p = 0.02).

Similar result was obtained by Asilioglu and Celik (2004) in their study of patients undergoing open heart surgery to the fact that those who received preoperative education will have low score of anxiety as compared to those who have not got the education preoperatively. Accordingly, it appears that even the most modest attention to the emotional needs of patients in medical crisis through information provision has important effects on their level of anxiety (Salmon 2000, Schmid et al 2009).It must be noted here that Asilioglu and Celik and other scholars here are concerned with pre-operative counselling and anxiety.

Similarly, the study by Kalliyath, Korula, Mathew, Abraham, and Isac (2019) that examined if preoperative education with a hand-out about spinal anaesthesia can reduce anxiety and postoperative pain in patients undergoing CS observed that planned preoperative education and hand-out with details about spinal anaesthesia can have a significant impact on reducing the preoperative anxiety and the postoperative pain in patients undergoing elective CS under spinal anaesthesia.

The study by Yilmaz, Sezer, Gürler, and Bekar (2011), which was carried out in Turkey observed that pre-surgical patients with a high level of education estimates the risk of surgery more accurately and exhibit lesser tomophobia than others while those with low levels of education fear the unknown and therefore have higher levels of anxiety. Similar study was obtained in the last 3 years by Onyekuru and Okonkwo (2018) at Imo State General Hospital, Owerri. Similarly, the studies conducted by McMurray, Johnson, Wallis, Patterson, and Griffiths (2007) and Pinar, Kurt, and Gungor (2011) observed that there was significant correlation between the level of surgery awareness education and preoperative anxiety among patients.

It is therefore clear from the review of literature that previous studies are concerned more with surgical awareness education given to patients and not the general education people receive outside surgery, which this project is interrogating. Very little attention that found expression in the works of Cevik (2018) and Ortiza,

Wang, Elaydab, and Tolpinca (2013) studied the scenario. However, it must be observed that their studies were carried out in alien socio-cultural setting and geographical space. The present study attempts to fill these gaps.

Methodology

Research Design: Questionnaire method was employed in collecting data for the study.

Area of the Study

The area of the study is Enugu, the capital of Enugu state. Enugu, the capital of Enugu State shares the same boundary with Imo State, Anambra State, Ebonyi State and Abia state, This Study was specifically carried out at the University of Nigerian Teaching Hospital (UNTH) Enugu, the National Orthopaedic Hospital Enugu (NOHE), and Enugu State University of Science and Technology (ESUT) Teaching Hospital, Parklane Enugu.

Population of the Study

All the surgical patients admitted in UNTH, NOHE, and ESUT Teaching Hospital – Parklane within the period of investigation, and all medical personnel employed by the three hospitals mostly Doctors/Surgeons, Nurses, Pharmacists, and Anaesthetists constitute the population of the study. According to records in the personnel unit of the hospitals under study and that of surgical wards, the population of the study is 890. Details of the population are as follows:

Table 1: Population of Study from UNTH, NOHE, and ESUTH

S/N	Hospital	Doctors	Nurses	Pharm.	Anaest hetists	Patients	Total
1	UNTH Enugu	58	153	10	15	162	**398**
2	NOH, Enugu	36	131	8	36	65	**276**
3.	ESUT Parklane	25	78	14	10	89	**216**
	Total	**119**	**362**	**32**	**61**	**316**	**890**

Sample and Sampling technique

The sample size for this work was 276 subjects. The sample size was determined using Flruchter (1973) formula for estimating sample size, which is:

$$\frac{N}{1+\mu 2N}$$

Where: N is the size of the population, μ is alpha = 0.05. Therefore,

$$\text{Study Sample} = \frac{890}{1 + 0.05^2 \times 890}$$

$$= \frac{890}{1 + 0.0025 \times 890}$$

$$= \frac{890}{1 + 2.225}$$

$$= \frac{890}{3.225} = 275.97, \text{ which is approximately } 276.$$

The sample size is 276. This number is divided equally among the three hospitals so that from each of the hospitals, a total of 92 respondents were chosen.

Sampling technique

Random sampling was the sampling technique usually used in the research to identify the particular respondents to research questions.

Instrument of Data Collection

A self made research questionnaire was used in data collection and analysis

The researcher's designed structured questionnaire was used to collect data. The structured questionnaire has two sections, namely: Section A and Section B. Section A deals with respondents' socio-demographic factors while section B contains statements/questions designed to elicit responses that were analysed for the purpose of testing the hypotheses. The questions were organized on a five likert-like options format of Strongly Agree = 5 points; Agree = 4 points; Undecided = 3 points; Disagree = 2 points; Strongly Disagree =1 point. The questionnaires were administered with the aid of Chief Matron and one of the Resident Doctors in each of the hospitals.

Validity and reliability of the Instrument: The instrument was validated using face validity method. To this end 6 evaluators comprising of 2 psychologists, 2 medical doctors and 2 Nurses validated the instrument. All the items in the questionnaire were exposed to face validity from the evaluators. Any item that fall below 80% acceptance by the evaluators was discarded. Further, the reliability of the questionnaire was ascertained by using test re-test method wherein 20 copies of the questionnaires were administered to similar respondents at Nnamdi Azikiwe University Teaching Hospital Nnewi in Anambra state. After an interval of three weeks, the questionnaires were re-administered to the same respondents. The two set of responses obtained from the test

re-test method were correlated using the Pearson Product Moment Correlation (r) and a co-efficient reliability of 0.95 was obtained. This shows that the instrument is reliable for data collection.

Data Presentation and Analysis

Table 2: Respondents' Socio-Demographic data:

Hospital	No	Gender		Age in years			Education level			Category		
		Male	Fem.	18-37yr	38-57yr	58& above	None/ Primary	O/L	Post-secondary	Doctors	Nurses	Patients
UNTH	90	37	53	25	38	27	2	32	56	12	28	50
NOHE	90	48	42	29	40	21	-	30	60	15	30	45
ESUTH	90	34	56	21	55	14	5	21	64	11	29	50
Total	**270**	**119**	**151**	**75**	**133**	**62**	**7**	**83**	**180**	**38**	**87**	**145**

An analysis of table 2 above reveals that 119 respondents representing 44.1% are males while 151 respondents i.e. 55.9% are females. In addition, 27.8% of the respondents fall within 18 and 37 years, 133 respondents i.e. 49.3% fall within the age bracket of 38 and 57 years, while 62 respondents i.e. 22.9% fall within 58 years and above. Further, 2.6% i.e. 7 of the respondents have not acquired Ordinary Level certificate, 30.7% i.e. 83 respondents obtained secondary education, while 66.7% representing 180 respondents acquired advanced/higher education. These respondents are classified into three, namely: 38 Doctors i.e. 14.1%, 87 Nurses i.e. 32.2%, and 145 surgical patients i.e. 53.7%. These statistics shows that the research is gender sensitive, and has informed respondents that possesses the ability to give reliable and valid responses to our questions.

Question 1: Is there any a significant relationship between formal education and the manifestation of Tomophobia among pre-surgical patients in public hospitals of Enugu State, Nigeria?

Table 3: Results of SPSS Analyses of responses to questions

N	Research questions	Grand Mean	Standard Deviation	Stand. Error	Tests of Between-Subjects Effects	Sig.	Pair wise Comparisons
1	Normal school education exposed you to the knowledge of health matters and their associated hazards	2.73	.775	.101	618.002	.002	@ 95% confidence Interval, no adjustments
2	When you were booked for surgery, fear, apprehension, and/or stress griped you.	4.44	.945	.058	240.296	.006	@ 95% confidence Interval, no adjustments
3	You suffered pre-surgical anxiety because of your ignorance or because you are educated	2.30	.918	.056	226.652	.000	@ 95% confidence Interval, no adjustments
4	You suffered pre-surgical anxiety because of your personal knowledge of the environment, previous experiences, processes and unknown outcome	2.02	1.245	.076	416.907	.002	@ 95% confidence Interval, no adjustments

The SPSS Univeriate analysis of responses to question 1 in table 3 reveals that normal school education did not expose the respondents to the knowledge of health matters and their associated hazards. A grand mean of 2.73 representing 'Disagreed' in our likert scale and whose sig. difference of .002 confidence intervals were not subject of modification according to pair wise comparism analysis led to this conclusion.

However, results of analysis of responses to question 2 in the same table 3, which sought to find out if the respondents experienced fear, apprehension, and/or stress when they were booked for operations reveals a total grand mean of4.44 which, represents 'Agreed' in our Likert scale and a standard deviation of .945 whose insignificance difference of .006 is not subject of modification.

Further, the results of SPSS analysis of responses to question 3 in table 3 interrogating whether the respondents suffered pre-surgical anxiety because of ignorance or because education reveals a grand mean of 2.30, which represents 'Disagreed' in our Likert scale with no sig. difference of .000, which leads to no adjustment of the opinion.

Similar negative results were observed in the analysis to question 4 in table 3, which sought to find out if the respondents suffered pre-surgical anxiety because of their personal knowledge of the environment, previous experiences, processes and unknown outcome. A grand mean of 2.02 obtained after the analysis and which represents 'Disagreed' in the Likert scale measure with no sig. difference of .002 and no adjustment of opinion, led to this conclusion. It is therefore evident from the above results of analysis that formal education did not in any form contribute to the prevalence of pre-surgical anxiety in public hospitals of Enugu state.

Question 2: Has the level of formal education contributed to the prevalence of intergroup variation among pre-surgical patients exhibiting Tomophobia in public hospitals of Enugu State, Nigeria?

Table 4: Analysis of Responses to questions on the level of anxiety

Level of education	No	Reasons for pre-surgical anxiety										Degree of anxiety					
		Fear of outcome		Fear of mistake		Fear of procedures		Fear of pains		Fear of loneliness		Low		moderate		High	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
None/ Primary	7	2	28.6	1	14.3	nil	nil	4	57.1	nil	nil	nil	nil	2	28.5	5	62.5
O/L or Secondary	83	27	32.5	12	14.6	2	2.4	42	50.6	nil	nil	11	13.3	26	31.3	46	55.4
Post-secondary	180	39	21.7	26	14.4	14	7.8	91	50.6	10	5.6	27	15.0	54	30.0	99	55.0
Total	**270**	**68**	**25.2**	**39**	**14.5**	**16**	**5.9**	**137**	**50.7**	**10**	**3.7**	**38**	**14.1**	**82**	**30.4**	**150**	**55.5**

An analysis of table 4 above reveals not only the primary factors that caused of pre-surgical anxiety and/or fears among the respondents but equally revealed each of those factors seem to have the same level of influence on the respondents irrespective of their level of education. For instance fear of the outcome necessitated tomophobic exuberances in 28.6%, 32.5%, and 21.7% of the varying categories of educational level, fear of mistake (14.3%, 14.6, and 14.4%), and fears of pains (57.1%, 50.6% and 50.6%). Therefore, respondents' level of educational attainment did not contribute substantially to the manifestation of tomophobia or its reduction among pre-surgical patients in Enugu state public hospitals.

The above observation was further consolidated by the results of analysis in the same table 4, which reveals that the different categories of educational attainment by the respondents did not contribute to or do not have any relationship with intergroup variations in the level of manifestation of pre-surgical anxiety/fears. For instance, in spite of differences in their level of education, the percentages of the level of manifestation of tomophobia among them are almost the same. It shows that low (13.3% and 15.0%), Moderate (28.5%, 31.3%, and 30.0%), and High (62.5%, 55.4%, and 55.0%). Therefore, the level of formal education has not contributed to the prevalence of intergroup variation among pre-surgical patients exhibiting Tomophobia in public hospitals of Enugu State, Nigeria

Discussion

One of the key finding made by this investigation through the analysis of data is that general education in Nigeria do not equip its holder with relevant healthcare information such as surgical issues. Thus, majority of the respondents are ignorant of the mechanisms or dynamics of surgery before they were booked for surgery.

Another key finding made by the investigation is that in spite of one's level of educational attainment, all surgery patients suffer pre-surgical anxiety and/ or fear. Thus, this is no significant relationship between education as general knowledge acquisition and the exhibition of fear or anxiety among surgical patients. This collaborates earlier finding made by Cevik (2018) and Ortiza, Wang, Elaydab, and Tolpinca (2013) to the effect that there is no relationship between education and tomophobia as against the relational findings made by Bansal and Joon (2017). The findings made by Bradt, Dilieo and Shim (2013) and Akhani, Mendpara, and Palan (2014) demonstrated that even those who acquired medical and medical related education such as doctors, nurses, pharmacists, and medical laboratory scientists are exposed to and do manifest pre-surgical anxiety and fear. The implication of this finding for healthcare practice and public policy is that pre-surgical counselling, which is a strong instrument for reducing tomophobia (Asilioglu & Celik, 2004; Pinar, Kurt, and Gungor, 2011) must be a compulsory exercise before any surgery can take place.

Finally, this inquiry observes also that there is no relationship between the levels of education acquired by patients with the prevalence of intergroup variation among pre-surgical patients exhibiting Tomophobia in public hospitals of Enugu State, Nigeria. The degree of pre-surgical anxiety recorded by the respondents for all the three levels of education adopted for this study are almost the same. There, the level of education may only be relevant in entrenching different degrees of understanding, assimilating, and implementing pre-surgical counselling education and guidelines depending on the language and method adopted by the counsellor.

Therefore, attention should be focused on constructing a standard counselling template that is couched in different languages and methods of delivering them, and in the appointment of professionals to handle the pre-counselling education.

Summary and Recommendations

Education generally provides knowledge that lifts one out of undesired state of life and as such is considered a veritable instrument for eliminating inevitable fear and anxiety among patients preparing for surgery. However, analysis of data generated in this inquiry demonstrates that both have no relationship even when such education has medical characterisation. Not only that education generally has not relationship with the prevalence of pre-surgical anxiety, different levels of education have no relationship also with intergroup variations in the manifestation of tomophobia and different levels of its manifestations in patients. Consequently, all pre-surgical patients are potential candidates for pre-operative counselling, which has been proved to have strong neutralising effect on the anxiety and fear.

Consequently, this paper recommends the compulsory introduction of pre-surgical counselling a pre-treatment or surgery procedure in all healthcare institutions whether public or private to handle the rising tides of anxiety and fears among patients. Secondly, the employment of professional psychologists, counsellors, and psychotherapists should be made one of the pre-conditions for approving hospitals particularly surgical units or theatre.

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