

# Factors Responsible For Pre-Operative Anxiety In Elective Surgical Patients At A University Teaching Hospital: A Pilot Study.

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## Abstract

Background Anxiety is common in surgical patients during the preoperative period. High levels of preoperative anxiety have unfavorable effects on induction and maintenance of anaesthesia as well as on the recovery from anaesthesia and surgery. The incidence of preoperative anxiety for surgical patients in the Niger Delta region is not known, Objective To determine the factors responsible for preoperative anxiety in surgical patients at the University of Port Harcourt Teaching Hospital, its level and how they can be minimized. Method All eligible adult patients admitted for elective surgical procedures within a six-month study period completed a questionnaire on the evening preceding their surgical operations. They were 125 in number. The questionnaire contained a list of items from which the patients selected the anxieties they had. The volunteers assessed the level of their anxieties using the visual analogue scale. Frequency tables were generated for causes of preoperative anxiety, gender, age, educational levels and surgical exposures of the participants. Chi square test was used where appropriate to find out significant difference between two groups. Results About 90 percent of the participants had one or more anxieties in the preoperative period. Possibility of having the surgical procedure postponed was responsible for preoperative anxiety in the highest number (87) of the volunteers while the least number (10) of them were concerned about postoperative nausea and vomiting. A higher percentage of females than males had preoperative anxiety but this was not statistically significant. Only previous surgical treatment was associated with significantly lower levels of preoperative anxiety ( $p < .05$ ). Conclusion The incidence of preoperative anxiety in our surgical population is fairly high. Fear of possible postponement of surgery was the most common anxiety found in this study. Reasons for postponement of elective surgical procedures should be studied. This and other causes of preoperative anxiety for surgical patients should be minimized. Further study of this subject with a larger sample size is suggested.

## INTRODUCTION

Preoperative anxiety is described as an unpleasant state of uneasiness or tension that is secondary to a patient being concerned about a disease, hospitalization, anesthesia and surgery, or the unknown (1). Preoperative anxiety and stress are common in patients awaiting surgical procedures (2). Anxious patients require higher doses of anaesthetic induction agents and postoperative analgesic drug (3,4). The most important single reason for pre-medicating patients before surgery is to reduce anxiety because if anxiety is sufficiently marked, it causes all the signs of sympathetic stimulation and stress. The heart rate and systolic pressure rise, the skin is pale and often sweaty, and the veins are characteristically constricted. There may be ventricular ectopic beats or in extreme circumstances ventricular fibrillation (5). Greater distress or anxiety prior to surgery is associated with a slower and more complicated

postoperative recovery (6).

The incidence of preoperative anxiety has been estimated to vary from 11 to 80% in the adult (4). The incidence of preoperative anxiety among surgical patients in the Niger Delta region is not known.

Anxieties of postoperative nausea or pain, intra-operative awareness, waiting for operation, loss of control during anaesthesia and venous cannulation are common in the preoperative period (2). To reduce the incidence and intensity of anxiety among preoperative patients there is a need to identify the associated factors which can be modified. Determining the reasons and factors influencing preoperative fear and anxiety in the local population may help clinicians in the management of patients. Proper management of fear and anxiety by anesthesiologists may provide better preoperative assessment, less pharmacological

premedication, smoother induction and may be even better outcome(7).

The aim of this study was to determine the factors responsible for preoperative anxiety in the surgical patients at the University of Port Harcourt Teaching Hospital using the visual analogue scale, the incidence and level of this problem and how they may be reduced.

## PATIENTS AND METHOD

This study was conducted in the surgical wards of the University of Port-Harcourt Teaching Hospital in a city with a population of about three million. It was a cross-sectional study carried out over a six month period (August 2010-January 2011). After institutional research ethics committee approval, all adult elective surgical patients who satisfied the inclusion criteria for the study and consented were recruited. They were 125 in number and they were requested to complete a questionnaire before pre-anaesthetic assessment on the evening before surgery. The questionnaire was administered face to face to each one of the volunteers by the same anaesthetist. Its contents were basic demography followed by a list of 16 questions relating to anxiety. The participants were asked to select different factors responsible for their anxiety from this list. The level of patients' anxiety was assessed with the visual analogue scale (VAS) (8). It consists of a 100 mm straight line. Left side of this line is marked as "No anxiety" and "0" while extreme right of the line is marked as "maximum anxiety" and "100". For each of the 16 questions, the surgical patients were requested to assess their own anxiety and make a corresponding mark on the anxiety line accordingly. Each participant was in addition requested to make a single assessment of average personal level of anxiety. A score of at least 45mm on the VAS which has been found to correlate with a score of 44 on the State Version of the State Trait Anxiety Inventory (S-STAI)(9) was taken as significant anxiety. The 17<sup>th</sup> item on the questionnaire was a request that the respondents state any other issues about which they were worried. Those included in the study were adult ASA 1 and 2 admitted patients (age between 15 -80 years) undergoing various elective surgeries who were sufficiently alert mentally to be able to respond to questions. Patients with fever, known psychiatric illness and those on any type of anxiolytic medication were excluded from the study. In addition procedures like cardiothoracic surgery, surgery for malignancies and extensive bowel resection were excluded. Frequency tables were generated for factors causing anxiety,

gender, age, level of education and previous exposure to surgery. In addition mean values and standard deviation were calculated for the VAS scores. Chi square test was used to determine the statistical significance between anxiety and gender/age/educational level and previous surgical treatment. Level of significance was taken as  $p < 0.05$ .

## RESULTS

One hundred and twenty five surgical patients participated in the study. Fifty nine of them were males while 66 were female.

**Figure 1**

Table 1 Factors responsible for preoperative anxiety

Possibilities causing anxiety	Number anxious	percentage	mean VAS Score (mm)
Having surgery postponed	87	69.6	61 ±19.3
Harm from mistake during surgery	80	64	55±19.7
Insufficient attention from care givers	79	63.2	48 ±19.6
Not waking up after surgery	73	58.4	46±18.5
Intra-operative analgesia not long enough	72	57.6	37±12.7
Inadequate post-operative analgesia	71	56.8	44 ±20.3
Ineffective intra-operative analgesia	70	56	42 ±14.8
Unsuccessful surgical operation	67	53.6	43±18.7
Financial loss due to hospitalization	43	34.4	52±24.1
Nakedness on the operating table	31	24.8	55±23.1
Unfamiliar surroundings	31	24.8	46±19.0
Complications from anaesthetic drugs	29	23.2	55±24.0
Hospital smells and noises	24	19.2	42 ±20.4
Inability to pay hospital bill	22	17.6	50±28.3
Blood transfusion	14	11.4	40±14.1
Post-operative nausea and vomiting	10	8.0	38 ±13.0

**Figure 2**

Table 2 Gender and pre-operative anxiety

Gender	Number	Number anxious	Difference significant or not
Male	59	16 (27.1%)	not statistically
Female	66	27 (40.9%)	significant $p > 0.05$
Total	125	43	

**Figure 3**

Table 3 Age and pre-operative anxiety

Age group (years)	Number	Number anxious	Difference	Significant or not
15-24	20	9 (45%)	not statistically	
25-34	51	22 (43.1%)	significant	p >0.05
35-44	37	12 (32.4%)		
≥45	17	0		
Total	125	43		

**Figure 4**

Table 4 Educational levels and preoperative anxiety

Educational level	Number	Number anxious	Difference	significant or not
No formal education	2	0		
Primary	20	6 (30%)	Not statistically significant	P>0.05
Secondary	40	13 (32.5%)		
Tertiary	63	24(38.1%)		
Total	125	43		

**Figure 5**

Table 5 Previous surgical treatment and preoperative anxiety

Previous surgery	Number	Number anxious	Difference	significant or not
Yes	68	17 (25%)	Statistically significant	P<0.05
No	57	26 (45.6%)		
Total	125	43		

The respondents expressed varying degrees of worries about the items on which they were questioned. The most common reason for worry was the possibility of surgery being postponed (69.6%), followed by fear that mistakes may be made during the surgical operation resulting in harm to the patient (64%). Fear of not receiving enough attention from care givers(63.2%), was the third most common reason for worry amongst the respondents. Fear of ‘‘not waking up’’ after surgery (58.4%) was the fourth on the list of most common anxieties in our surgical population. The respondents were least worried about having post-operative nausea and vomiting (8%). About 9.6% of the respondents indicated that they were not worried about any of the items listed on the questionnaire. Thus 90.4% of the respondents were anxious about one or more of the items listed. One hundred and ten(88%) of the participants in this study volunteered no cause of anxiety other than the sixteen items listed on the questionnaire and 11 of the fifteen who did were anxious about being conveyed on a trolley ‘like a dead person’ from the wards to the operating rooms instead of

being allowed to walk. When a VAS score of 45 mm and above is taken to indicate the presence of significant preoperative anxiety, only 16 (27.1%) of the 59 male participants in this study and 27 (40.9%) of the female participants were significantly anxious. But the gender difference was not statistically significant. Whereas the percentage of participants with significant anxiety in the various age groups decreased with increasing age, the difference between the 15-24 years age group and 25-34 years age group was not significant. The difference between the 25-34 years and 35-44years age groups was also not significant. None of the volunteers aged 45 years and above had significant preoperative anxiety. Whereas the percentage of volunteers that were significantly anxious increased with educational levels, the difference between those with primary level of education and those with secondary level or between those with secondary level of education and those with tertiary level was not significant. About 45.6% of the volunteers without previous surgical exposures and 25% of those with previous surgical treatment were found to be anxious and the difference between them was statistically significant. Whereas 113 (90.4%) of the participants expressed worry about one or more of the items listed on the questionnaire, only 43 (34.4%) of them had significant anxiety as shown by a VAS score of 45mm or more.

**DISCUSSION**

Patients awaiting surgical procedures have various reasons for their preoperative anxiety (2). Pre-operative anxiety may be objectively evaluated by different methods. Mostly used questionnaires are: ‘‘Amsterdam Preoperative Anxiety Information scale (APAIS)’’, Spielberger’s State-Trait Anxiety Inventory (STAI-State) (10), hospital anxiety and depression scale (HADS)’’ and 100mm visual analogue scale (VAS)’’(11). The VAS was used in this study because it is a simple, short, quick and easy test to explain to the patient as well as reliable for measurement of pre-operative anxiety (12). The possibility of having the surgical operation postponed was the most common preoperative worry expressed by respondents in this study. A study at a University Teaching Hospital in Nigeria has shown that about 23% of elective surgical cases are cancelled or rescheduled for various reasons (13). In the United Kingdom, 8% of scheduled elective operations are cancelled nationally within 24 hours of surgery (14). Our elective surgical patients were most worried about the possibility of having their surgical procedures postponed probably because of the fairly high incidence of postponement of cases on the

scheduled day of surgery and also because planned operations that are cancelled are known to cause emotional trauma to the patients as well as their families (15).

Fear of harmful mistakes being made during the surgical procedure which was the second most common cause of anxiety in our study could be as a result of lack of knowledge or information which would have increased the level of trust the surgical patients had in their care givers. Donald I (16), a surgeon who later was a surgical patient, thereafter became ‘‘convinced as never before that the more a patient knows what to expect and the more he understands what the doctors are trying to do the better’’. Better doctor-patient communication which involves information sharing about the surgical procedure, patient satisfaction, attention to queries by the patient and trust in the physician has been associated with lower anxiety levels (17,18).

Sanjuan et al (19), found from their own studies that most of their respondents had fear of not waking up after surgery while the study of McGaw et al (20), showed that fear of ‘death on the operating table’ was the most common cause of pre-operative anxiety. But this was the fourth most common cause of anxiety in our study, ranking just below the fear of the respondents, that they might not receive adequate attention from their care givers. Post-operative nausea and vomiting was ranked as number six out of ten causes of preoperative anxiety in the study of kindler et al (8). The finding that it was the least common cause of preoperative anxiety in our study was unexpected because postoperative nausea and vomiting has been identified as a common postoperative complication in adult Nigerians with an incidence of 32.2% for postoperative nausea and 20.1% for postoperative vomiting (21).

Previous surgical treatment was found in this study to be associated with a lower incidence of preoperative anxiety. This was in conformity with results of previous studies (8,9). The percentage of participants that were found to be anxious in this study was more in females than in males, but this was not statistically significant. Some studies have shown that females experience more preoperative anxiety than males (8,10), whereas other workers found that gender was not a determinant of preoperative anxiety (22,23). Further studies on this subject with a larger sample size is suggested. The proportion of participants with preoperative anxiety in this study appeared to increase with increasing level of education and decrease with increasing age, but this also was not statistically significant.

Majority of the respondents volunteered no cause of anxiety other than those they were specifically questioned about. But most of those who had other anxieties, expressed their worry about being carried on a trolley ‘‘as a dead person’’ from the wards to the operating rooms. Better doctor-patient communication (17), may reduce or eliminate this cause of patient anxiety in the pre-operative period. Cancellation or postponement of planned surgical operations increases theatre costs and decreases the efficiency (24). Although the reasons for cancellation of operations may vary in different hospitals, most of them have been found to be preventable (13). An audit of the causes of cancellation of planned surgical procedures in our various hospitals is suggested so as to minimize the frequency and adverse effects of this action.

## **CONCLUSION**

The incidence of preoperative anxiety in this study with the VAS is 34.4%. However, 90.4% of the study participants admitted that they had one or more anxieties. The most common reason for pre-operative anxiety in our surgical patients is the possibility of having their surgical operations postponed. Reasons for postponement of elective surgical procedures should be examined so as to ensure a minimal rate of postponement of such surgical procedures. Adequate explanation of peri-operative events should be given to the surgical patients during the pre-operative visit to enable them know what to expect and understand what the doctors are trying to do. Further studies on this subject with a larger sample size, employing Spielberger’s state trait anxiety inventory in addition to VAS is needed to clarify the relationship between preoperative anxiety and gender, age and educational levels in our surgical population.

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