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Pre-operative anxiety of patients in district hospitals in Ashanti Region, Ghana

Abstract

Objectives: To investigate pre-operative anxiety of patients at district hospitals in Ashanti Region, Ghana.

Method: A descriptive survey was conducted with patients who were being prepared to undergo various surgical operations at ten hospitals. The questionnaire included the Hamilton Anxiety Rating Scale (HAM-A) and questions about factors that may contribute to patients' anxiety prior to surgery.

Results: Most of the 210 respondents reported anxiety with 189 (90%) reporting some anxiety before the surgical operation (20.57/30, ± 10.07), range 0–26). Respondents reported moderate anxious mood (2.14, ± 1.45), tension prior to surgery (2.00, ± 1.35) and insomnia on the day before the procedure (2.00, ± 1.32). It was identified that the type of surgical procedure (3.43, ± 1.36), fear of complications (3.42, ± 1.33) and possible post-operative pain (3.38, ± 1.20) were the most common concerns contributing to pre-operative anxiety. There was a positive association between type of surgery ($p < 0.004$), post-operative pain ($p < 0.005$) and concerns for family ($p < 0.002$) and anxiety.

Conclusion: Most respondents had some level of pre-operative anxiety associated with the type of surgical procedure, possible complications and post-operative pain.

Keywords: patient, pre-operative, pre-operative anxiety, pre-operative information needs, surgery nurse

Introduction

Surgery is a traumatic medical procedure and both psychological and physiological distress have been reported in patients before surgery.^{1,2} Hospital-related anxiety can be caused by the illness, hospitalisation and anaesthesia³; however, pre-operative anxiety is specifically related to surgery.⁴ Pre-operative anxiety is reported to be present in between 11 and 80 per cent of adult patients and can be as high as 94 percent.⁵ Rates of pre-operative anxiety vary with different types of surgical procedure.^{6,4}

Experiencing some anxiety prior to surgery can be healthy,³ but extreme anxiety can lead to cardiovascular disturbances,⁷ such as hypertension and arrhythmias including tachycardia,⁸ which may affect anaesthesia administration.⁷ Extreme pre-operative anxiety can also affect anaesthesia by making venous access difficult, delaying jaw relaxation and causing coughing during induction.⁹ In extreme situations, pre-operative anxiety can cause specific manifestations such as irritability, isolation, nervousness, headache, sweating, vomiting, diarrhoea, tingling chills, hot-flush, tachypnoea, tachycardia and hypertension.¹⁰

Anxiety can also have adverse effects post-operatively such as vomiting, inability to empty the bladder,¹¹ complicated and painful post-operative recovery,¹² as well as affecting patients' perception of post-operative pain which can negatively affect their recovery from anaesthesia.¹³

Several factors can contribute to pre-operative anxiety. In a study to assess pre-operative and post-operative anxiety among elective major surgery patients in a tertiary hospital in Nigeria, patients reported fear of complications (70.6%), concern about their family (54.9%) and fear for one's life (52.9%) as the most common factors contributing to anxiety.⁹ However, many other factors can also contribute to pre-operative anxiety including demographic characteristics, the type of surgery, pre-surgical experiences and lack of information.¹⁴

Higher rates of pre-operative anxiety have been reported among young patients,^{14,15} female patients and people with higher levels of education.¹⁰ Patients undergoing gynaecological surgery have been found to have significantly higher pre-operative anxiety than patients undergoing cardiovascular and urological surgeries.¹⁵ Studies have also found that lack of knowledge of and inexperience with anaesthesia¹⁶ can contribute to pre-operative anxiety, as do fears – of unsuccessful recovery from surgery, intra-operative awareness,^{17,18} injections, post-operative pain and the possibility that medical personnel may cause harm¹⁶ – as well as concerns about unfamiliar environment, lack of control, separation from friends and family and dependency on strangers.¹⁹

Patients with lower levels of anxiety before surgery have less post-operative pain and show evidence of rapid healing of wounds.²⁰ To enable nurses to manage patients' pre-operative anxiety effectively, patients should be provided with appropriate information about the surgical condition, procedures, post-operative care^{21–24} and coping skills.²⁵ It is also important that the level of pre-operative anxiety is determined and the contributing factors identified.¹⁷ However, studies have shown that health care professionals may not always identify patients' concerns prior to surgery.^{26–27} The aim of this study was to determine pre-operative anxiety levels in patients at district hospitals in the Ashanti Region of Ghana and to describe the factors that contribute to this pre-operative anxiety.

Methods

A survey was conducted at ten hospitals located in ten districts in Ashanti Region of Ghana. These hospitals provide medical, surgical and other specialised health services with 261 surgical beds and 12 operating rooms in total. Common surgical procedures performed in these hospitals include herniorrhaphy, appendectomy, hemorrhoidectomy, laparotomy, prostatectomy and caesarean section.

Population and sampling

The target population for this study was all patients booked, admitted and being prepared to undergo various surgical operations at the ten hospitals in August and September 2017. Cluster sampling was used to obtain a sample size of 230 respondents. Ten hospitals were randomly selected from 33

(clusters). Using a prevalence of pre-operative anxiety (39%)¹³ and 95 percent confidence and an error of 0.06,²⁸ a random sample of 230 were calculated and selected proportionate to size from 10 hospitals.²⁹ Inclusion criteria were patients who were booked and being prepared to undergo surgery and exclusion criteria were patients who were undergoing emergency surgical operations.

Instrument

The survey used the Hamilton Anxiety Rating Scale (HAM-A)³⁰ and a 5-point Likert scale of potential concerns. HAM-A is a 14-item scale using a 5-point Likert scale of 0 not present to 4 severe and measures both psychological symptoms of anxiety (e.g. mental agitation and psychological distress) and physiological symptoms of anxiety (e.g. muscle tension and shortness of breath).²⁷ The scale measures the extent to which patients become anxious before undergoing surgical operation by rating patient signs and symptoms relating to six psychological items (anxious mood, tension, fears, insomnia, intellectual difficulty, depressed mood) and eight physiological items (muscular symptoms, sensory symptoms, cardiovascular symptoms, respiratory symptoms, gastrointestinal symptoms, genitourinary symptoms, autonomic symptoms and behaviour at interview). The reliability and validity of HAM-A are well demonstrated,²⁷ and strong internal consistency was shown in this study (Cronbach's alpha = 0.847).

In addition, a 5-point Likert scale was used to rate respondents' concerns. These concerns were identified from a review of the literature,^{8,16–19} and grouped into

three categories – concerns about the operation, concerns about the environment and concerns about the personal impact of the surgery. Concerns about the operation included concern about anaesthesia, the procedure, post-operative pain, potential physical disability, complications, surgical outcomes and risk of death. Concerns about the environment included fear of needles, risk of death or harm from a doctor or nurse and concern about the surgical environment, potential need for blood transfusion and being ‘nil per os’. Concerns about the personal impact of the surgery included concern about how the operation will affect job security, the impact on family and medical expenses. The questions about the concerns that may contribute to pre-operative anxiety also had adequate internal consistency (Cronbach’s alpha = 0.856).

Ethics approval

The study was approved by the ethical committee at University of the Western Cape with permission from Ghana Health Service (GHS) regional director and metropolitan director and the administrators at the ten hospitals.

Data collection

Data was collected from patients who had been admitted to the ward and were being prepared to undergo elective surgery. Data collection was carried out by the researcher and five trained diploma and degree nurses recruited from outside the hospitals who were fluent speakers in English and the local Twi languages. Data collection lasted for a period of two months (1 August 2017 to 29 September 2017). The principal investigator closely supervised and verified the process of data collection.

Data analysis

Data were analysed using the SPSS version 24. Descriptive statistics including mean, frequencies and standard deviation were used to describe the demographic characteristics of the respondents as well as ranking respondents’ information needs. Anxiety was scored and classified with scores below 18 classified as mild anxiety, scores of 18 to 24 classified as mild to moderate, scores of 25 to 30 classified as moderate to severe anxiety and scores over 30 classified as severe anxiety.³⁰ Chi-squared tests were used to establish the relationship between the demographic variables and the extent to which patients become anxious prior to surgical operation. A multiple regression test was used to assess the ability of patient concerns to predict pre-operative anxiety levels.

Results

During the study period, 230 patients were approached to participate in the study. Of these, 218 gave their consent to participate in the study and 210 returned fully completed questionnaires. Reasons for non-completion of the eight remaining questionnaires included cancellation of surgery for the day and/or week and procedures performed without anaesthetic induction.

Demographic details of respondents

The mean age of the respondents was 35.90 years (± 13.50), with the youngest being 13 years and the oldest 90 years. Two thirds of respondents (140, 66.66%) were aged between 26 and 35 years. Just over half of the respondents (123, 58.57%) were females. The dominant ethnic group was Akan with nearly three quarters (150, 71.43%) of the respondents being from this group.

The majority of respondents were Christian (170, 81.00%). Over half of the respondents were married (122, 58.10%) and nearly half (90, 42.90%) had attained a diploma certificate at education level.

The most prominent surgical procedures were abdominal surgery (88, 41.90%) and caesarean section (67, 31.90%). Three quarters of the patients (158, 75.23%) were undergoing a surgical operation for the first time. There were no significant differences between males and females in the sample except for status in the family due to the different roles of mothers and fathers and the different types of surgery by gender. Table 1 summarises respondents’ demographic characteristics.

Pre-operative anxiety

The respondents had an overall anxiety score of 20.57/56 (± 10.07). The average score for psychological symptoms of anxiety (1.9, 0.9 [95% CI 1.7 – 1.98]) was significantly higher than that for physiological symptoms (1.2, 0.8 [95% CI 1.1 – 1.3]), with a similar pattern (no significant difference) for males and females.

Of the respondents, 79 (37.6%) were scored as having mild anxiety, 61 (29.0%) mild to moderate anxiety, 35 (16.7%) moderate to severe anxiety and 35 (16.7%) severe anxiety (Table 2). There were no significant differences between the genders.

Figure 1 shows the ratings of the items of the HAM-A anxiety scale. The highest rated items were the psychological items of anxious mood (2.14, ± 1.45), tension (2.00, ± 1.35) and insomnia on the day before the procedure (2.00, ± 1.32). The lowest rated items were the physiological items of behaviour at interview (1.09, ± 1.22), sensory symptoms (0.96, ± 1.09), and respiratory symptoms (0.90, ± 1.08).

Table 1: Demographic characteristics of respondents

		Male (n = 87)	Female (n = 123)	Total (n = 210)	Test*	p-value**
Age	Under 25	14 (16.1%)	27 (22.0%)	41 (19.5%)	$\chi^2 = 6.0$	0.198
	26–35	38 (43.7%)	45 (36.6%)	83 (39.5%)		
	36–45	13 (14.9%)	28 (22.8%)	41 (19.5%)		
	46–55	11 (12.6%)	16 (13.0%)	27 (12.9%)		
	56 and older	11 (12.6%)	7 (5.7%)	18 (8.6%)		
Religion	Christianity	73 (83.9%)	97 (78.9%)	170 (81.0%)	$\chi^2 = 0.9$	0.608
	Islam	9 (10.3%)	15 (12.2%)	24 (11.4%)		
	Traditionalist	5 (5.7%)	11 (8.9%)	16 (7.6%)		
Ethnic group	Akan	63 (72.4%)	87 (70.7%)	150 (71.4%)	$\chi^2 = 2.9$	0.580
	Ga	6 (6.9%)	10 (8.1%)	16 (7.6%)		
	Ewe	6 (6.9%)	8 (6.5%)	14 (6.7%)		
	Dagomba	3 (3.4%)	10 (8.1%)	13 (6.2%)		
	Other	9 (10.3%)	8 (8.1%)	17 (8.1%)		
Marital status	Not married	43 (49.4%)	45 (36.6%)	88 (41.9%)	$\chi^2 = 3.5$	0.063
	Married	44 (50.6%)	78 (63.4%)	122 (58.1%)		
Education	Primary	1 (1.1%)	7 (5.7%)	8 (3.8%)	$\chi^2 = 3.1$	0.212
	Secondary	46 (52.9%)	66 (53.7%)	112 (53.3%)		
	Tertiary	40 (46.0%)	50 (40.7%)	90 (42.9%)		
Employment	Unemployed	5 (5.7%)	13 (10.6%)	18 (8.6%)	$\chi^2 = 2.3$	0.316
	Civil servant	35 (40.2%)	40 (32.5%)	75 (35.7%)		
	Casual worker	47 (54.0%)	70 (56.9%)	117 (55.7%)		

* *Chi-squared test (or Fisher Exact Test where appropriate).*

** *Significant at $P < 0.05$*

Table 2: Pre-operative anxiety of respondents

Anxiety level	Total (n = 210)	Male (n = 87)	Female (n = 123)	Test	p-value
Mild	79 (37.6%)	37 (42.5%)	42 (34.2%)	$\chi^2 = 3.4$	0.344
Mild to moderate	61 (29.0%)	26 (29.9%)	35 (28.5%)		
Moderate to severe	35 (16.7%)	10 (11.5%)	25 (20.3%)		
Severe	35 (16.7%)	14 (16.1%)	21 (17.1%)		

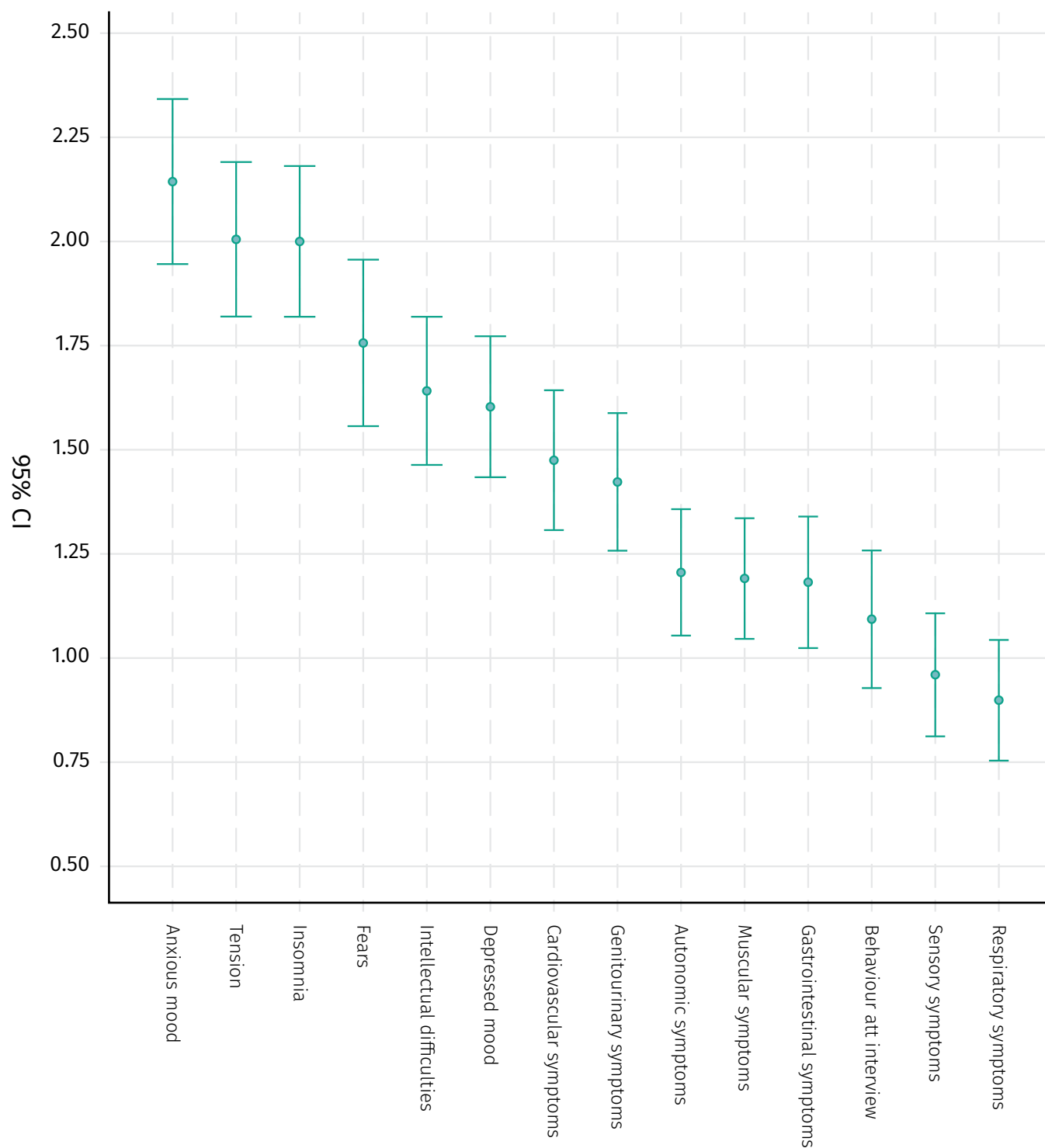


Figure 1: Ratings of the items of the Hamilton Anxiety Rating Scale (HAM-A)

The psychological items were rated significantly higher than the physiological items, except for cardiovascular symptoms (1.48, ± 1.24) and genitourinary symptoms (1.42, ± 1.22).

No significant differences were found between demographic variables for the individual items except for the item of anxious mood which had a significantly higher rating with respondents undergoing a Caesarean section (2.57, 1.42 vs 1.94 1.4, $U=2.98$, $p=.003$).

Key concerns expressed pre-operatively

Figure 2 shows the ratings of patients' pre-operative concerns. The highest rated concerns were related to the operation – the specific surgical procedure (3.43, ± 1.36), possible complications from the procedure (3.42, ± 1.33) and post-operative pain (3.38, ± 1.20). The

lowest rated concerns were concerns about the surgical environment, job security and impact on family. Concerns about the operation were rated significantly higher than concerns about the environment and concerns about personal impact of the surgery except for concern about medical expenses, which was rated significantly higher (2.94, ± 1.57).

Statistically significant differences were found between male and female respondents for concern about complications (female 3.59 vs male 3.17, $U=2.2$, $p=0.028$) and for type of operation (Caesarian section vs other) related to concern about complications (female 3.82 vs male 3.23, $U=3.17$, $p=0.002$). Similarly, respondents undergoing a Caesarian section also had significantly higher concern about potential death (female 3.58 vs male 2.93, $U=3.05$, $p=0.002$).

Associations between concerns and anxiety

Multiple linear logistic regression was performed to assess the impact of a number of factors on the likelihood that respondents would report that they had pre-operative anxiety. The model contained 13 independent variables which were significantly associated with the dependent variable of anxiety score (see Table 3). The 13 variables were concerns about surgical procedure, complications, outcomes of procedure, death, harm, disability, being nil per os, blood transfusion, needles, the surgical environment, impact on family, medical expenses and job security.

The full model containing all predictors was statistically significant ($F(13, N=209) = 7.57$, $p < .001$) indicating that the model was able to predict the anxiety

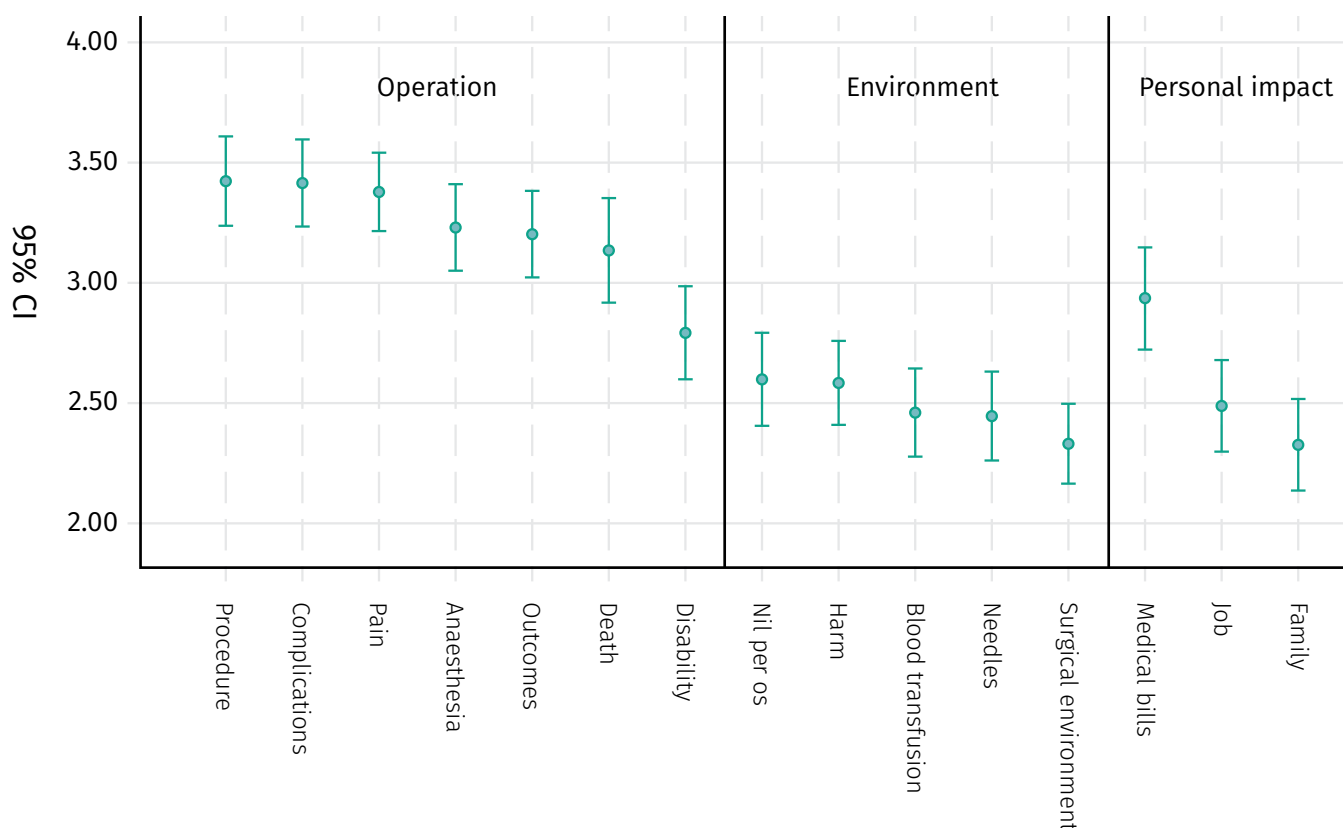


Figure 2: Ratings of respondent concerns

score. The model explained between 58.8 per cent of the variance in anxiety. As shown in Table 3, five of the independent variables made a unique statistically significant contribution to the model – concerns about procedure, surgical outcomes, being nil per os, blood transfusion and impact on family. The strongest predictor of anxiety was concern about impact on family, which had a standardised beta value of 0.245 indicating that 24.5 per cent of variance in anxiety is related to concern about impact on family. This is also related to the role in the family with 93 respondents (44.3%) indicating that they were the mother in the family.

Discussion

The study showed a high overall rate (189, 90%) of 'some' anxiety among patients undergoing various surgical operations with only 21

(10%) reporting no anxiety (score 0–7). This is higher than similar studies conducted in Ethiopia and Brazil³¹ that reported pre-operative anxiety in 61 per cent and 53 per patients respectively. Another study in Ethiopia³² reported the prevalence of pre-operative anxiety as 47 per cent which is low compared to the current study's findings. Concerns about impact on family and post-operative pain were significantly associated with similar results from studies in Brazil and Ethiopia where pre-operative anxiety predictors included gender, occupation and lack of information about surgery (0.02).^{31,32} Findings from the current study were higher than that of the aforementioned ones probably due to the variations in sample size and age differences among the respondents.

In this study, pre-operative anxiety was indicated by anxious mood,

tension and insomnia. Similarly, it was reported in a previous study that patients experience a sensation of tension prior to surgery.³³ Several other studies that support the findings of this study indicate that patients experienced mild to moderate anxiety.^{17,31,34} Additionally, it was discovered that the sleeping pattern of patients changed two nights before undergoing surgery.³⁵ Concerns regarding surgical procedures, possible complications and post-operative pain were the main factors contributing to pre-operative anxiety. Other studies confirmed that the most common concerns contributing to pre-operative anxiety among patients are the fear of post-operative pain, fear of surgical mistakes and unexpected outcomes.¹⁰

Certain manifestations of anxiety, including anxious mood, tension and insomnia prior to surgery,

Table 3: Multiple regression

Variable	Standardised B	T	p-value
(Constant)		5.9	<0.001
Concern about procedure	0.133	2.2	0.032**
Concern about complications	-0.013	-0.2	0.851
Concern about surgical outcomes	0.137	1.8	0.075*
Concern about death	0.105	1.4	0.178
Concern about disability	0.062	0.8	0.399
Concern about harm	-0.002	-0.026	0.979
Concern about being nil per os	0.131	1.9	0.063*
Concern about blood transfusion	0.137	2.0	0.054*
Concern about needles	-0.036	0.5	0.592
Concern about surgical environment	0.051	0.7	0.471
Concern about medical expenses	-0.075	-1.1	0.281
Concern about job security	0.077	1.1	0.295
Concern about impact on family	0.245	3.4	<0.001*

B = beta, T = independent samples t-test

were observed in this study on the day preceding the surgery. Other studies reported similar findings including fear of something (32%) and fear of death (45.1%).^{31,32} The prevalence of these were lower than found in the current study.

Anxious mood (2.14, ± 1.45), tension (2.00, ± 1.35) and insomnia the day before the procedure (2.00, ± 1.32) indicated pre-operative anxiety in this study. Additionally, concerns about the procedure (3.43, ± 1.36), possible complications (3.42, ± 1.33) and post-operative pain (3.38, ± 1.20) were the main factors contributing to pre-operative anxiety. This was similar to studies conducted in Ethiopia which reported fear of post-operative pain in 50.1 per cent of respondents and fear of complications in 76.4 per cent.^{20, 36} This might be due to similarities and differences in demographic characteristics, including age, gender, educational status and the number of times respondents had undergone surgery, between the current study and the aforementioned studies.

Studies have shown that lack of information¹⁴ and lack of knowledge about anaesthesia¹⁶ can contribute to pre-operative anxiety; therefore, providing patients with appropriate information about the surgical condition, procedures, post-operative care^{21–24} and coping skills²⁵ may help to reduce the prevalence of patients' pre-operative anxiety.

Limitations

This study had some limitations in that the study used a self-developed scale for rating respondents' concerns.

Conclusion

In this study, the prevalence of pre-operative anxiety was indicated by anxious mood, tension, insomnia and cardiovascular, genitourinary

and autonomic symptoms prior to surgery. Concerns about the surgical procedure, complications and post-operative pain were found to be the main cause of anxiety. In addition, there was positive linear association between five variables and pre-operative anxiety – concerns about procedure, surgical outcomes, being nil per os, blood transfusion and impact on family – with concern about impact on family being the strongest predictor of anxiety. Pre-operative psychosocial assessment should be incorporated into a routine pre-operative nursing practice and adequate, appropriate information should be provided for surgical patients before surgery.

Declaration of conflicting interests

The authors have declared no competing interests with respect to the research, authorship and publication of this article.

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