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Research Article

Preoperative Anxiety and its Associated Factors among Patients Waiting Elective Surgery in St. Luke's Catholic Hospital and Nursing College, Woliso, Oromia, Ethiopia, 2018

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Abstract

Introduction: Hospitalization and surgery are critical negative life events that lead to significant experience of preoperative anxiety in patients, surgical experience that increases post-operative complication. However, there is a paucity of studies on preoperative anxiety and its associated factors among patients waiting elective surgery. The aim of this study was to assess the prevalence and its associated factors of preoperative anxiety among patients waiting surgery in St. Luke's Catholic hospital, Woliso, Ethiopia, 2018.

Methods: An institutional based cross-sectional study was conducted from March 13 to May 12, 2018 using systematic random technique in St. Luke's Catholic Hospital and Nursing College. From 237 patients scheduled for surgery data collected by structured interview questionnaires prepared based on pre-operative intrusive thoughts inventory measurement scale. The data was entered by Epi Info 7 and analyzed by SPSS version 20.0 descriptive statistics and binary logistic regression analysis was fitted to identify predictors. For the variables $P < 0.2$ at variable analysis was entered to multivariable analysis and Interpretation was made based on the 95% confidence Interval, $P < 0.05$ was used to show strength of the association.

Result: The overall prevalence of high preoperative anxiety was found to be 56.12%. Study participants female in sex (AOR 3.30, 95% CI 1.30, 8.34), Orthopaedics surgery (AOR 4.24, 95% CI 1.23, 14.05), Not having information (AOR 2.48, 95% CI 1.11, 5.56), postponement of surgery (AOR 5.53, 95% CI 1.28, 23.91) and Not music listening (AOR 3.41, 95% CI 1.45, 7.98) were associated with preoperative anxiety.

Conclusion: The result of this study showed that preoperative anxiety among patients waiting elective surgery was found to be high and revealed possible independent associated factors. Regular preoperative patient assessments, education, minimize surgery postponed and encourage coping mechanisms of the patient in hospital are strongly recommended for preoperative anxiety.

Keywords: *Preoperative Anxiety; Patients Waiting Surgery; St. Luke's Hospital*

Introduction

Hospitalization and surgery are critical negative life events that lead to the experience significant patients with anxiety [1-3].

The majority of patients awaiting surgery perceive the day of operation as life threatening event that has never happened and experience preoperative anxiety [2,6,7]. Studies indicated that heart rate and systolic blood pressure have risen higher in patients with anxiety than in patients without anxiety after entering operating room. The study conducted in Korea and Rwanda found that patients with a high anxiety level have 2.17 times higher risk of hypothermia during the first hour and 1.77 fold higher risk of hypothermia during the first 2 hours than patients with a low anxiety level [4,11,12].

For patients without anxiety and patients with anxiety who were undergone total knee replacement were significantly hospitalized more days compared to patients without anxiety with median length of hospital stay of 3.5 days and 3.4 days respectively, the authors also showed that the rate of complications was higher in patients with preoperative anxiety at 29% than in patients without those disorders at 15.5% [12,13,16].

Preoperative education and psychological support to patients by nurses have been mentioned to be among the most effective interventions to decrease the anxiety level. The study conducted in Jimma university indicated that when a nurse is providing an education and psychological support, the patient gets an opportunity to express his/her thoughts, feelings and their expectations which increase the patient's confidence in the surgical team [2] and the research from Gondar university recommended that appropriate anxiety reducing methods should be introduced in Ethiopia hospitals [17].

The study conducted in Rwanda indicated that the incidence of clinical significance of preoperative anxiety was 72.8% in surgical patients [12]. In Nigeria, the prevalence of preoperative anxiety in adult patients were 51% [1]. It has been documented that in hospitalized patients with nonsurgical reasons 10% to 30% was presented with anxiety, this incidence of anxiety may rise up to 60%-80% in patients waiting for surgery and 5% of the anxious patients may be refused to surgery [15]. The study conducted in Jimma university specialized hospital the prevalence preoperative anxiety was 70.3% [2] and the study conducted in Gondar university compressive specialized shown that 59.6% of preoperative anxiety prevalence was [17].

The study conducted in Pakistan found that age is contributing factor for predicting preoperative anxiety and preoperative anxiety level decreased with age increased [16]. Contrary to those studies found that the anxiety levels increased with the age, the old patients presented the higher level of anxiety than young patients, this finding was in line with the results of study conducted by Basaki that showed that patients who were aged more than 35 years old expressed more anxiety than young patients [8,26]. Marital status has been identified by some of the researchers as the factor affecting preoperative anxiety. The study conducted by Fathi found that widowed or divorced female experienced more anxiety while single and married patients experienced lower preoperative anxiety. This study also showed that high education levels and income rate and better social support were significantly correlated with lower preoperative anxiety [8,26]. For instance female, young and highly educated patient groups are known to experience preoperative anxiety more frequently [27-30].

Provision of information was reported to be associated with low preoperative anxiety. This is supported by Turkey surgeons who found that explanation of the surgery performed reduce preoperative anxiety 72.3% and the researcher who called Aust reported that from Germany 63.7% of the patients believed that information would aid them to cope with their anxiety [33,34]. In addition the study found that anxiety and postoperative complications were reduced in patients undergoing cardiac surgery due to preoperative education delivered by nurses and the patients gaining information from anaesthetists were less anxious than patients receiving information other than anaesthetist [19,35,36]. Reported that postponement was the most common reason for anxiety and reported postponement among the factors associated with anxiety [9]. The prevalence of high state-anxiety were associated with high preoperative anxiety more years in school, medium surgery, history of cancer and negative perception of the future [37].

Factors analysis of the brief COPE scored higher searching support, acceptance, changing perspective and problem solving associated measures of psychology support and reducing anxiety [39]. In other study conducted in Israel coping with preoperative anxiety in caesarean section, they found that listening to favourite music immediately before a caesarean section is effective for reducing anxiety. The

findings showed that the women listened to their favourite music before caesarean section reported an increase in positive emotion and decrease in negative emotion and perceived the situation less threatening compared to women who did not listen to the music [40,41]. The researchers showed perioperative music a relaxing environment can assist in the reduction of physiological parameters to decrease anxiety inexpensive, easy to administer and satisfier of most people intervention to decrease anxiety [42-48].

Study in China by Guo, East and Arthur found that preoperative education is effective in reducing the levels of anxiety and found that an empathic patient-centered approach significantly reduces the anxiety, improves surgical recovery and wound healing and raises the satisfaction of the patient with the quality of the information provided [49,50]. Support from family, friends and health care providers and anxiolytic or antidepressant medications can help with relieving severe anxiety but the medications are associated with risks of potential side effects, dependence and withdrawal [49]. Regarding correlation of religiosity and anxiety the results showed that there was a reverse correlation between them [36,51,52].

Methods

Study design, setting and population

The study was conducted at St. Luke's Catholic hospital and Nurses College in Woliso town the capital of South West Shewa zone of Oromia at a distance of 114 km from Addis Ababa with a total of 48,700 populations according to Ethiopian census 2007. St. Luke's Catholic hospital and nurses collage (SLCHNC) was built and opened in 2000 by the Italian non-governmental organization (NGO), Doctors with Africa and Colleagues Universities Aspirants Medicines Missionaries (CUAMM).

Institutional based cross-sectional study design was conducted from March 13, 2018 to May 12, 2018. All adult patients who were waiting elective surgery at SLCHNC during the study. All adult patients admitted for surgery in SLCHCN during the study period.

The study was included all patients 18 and above years according to American Society of Anaesthesiology (ASA) who can sign consent for surgery independently, able to comprehend and can communicate.

A formula for estimation of single population proportion was used to calculate the sample size for both specific objectives and the large sample size were used in this study. Since there was previous study done on preoperative anxiety at university of Gondar Specialized, North West, Ethiopia [17].

Assumption 1: As study conducted at university of Gondar Specialized Hospital (UGSH) reported the prevalence of preoperative anxiety was 59.6% [17], calculation was done using the assumption of proportion (p) of surgical patients facing anxiety 59.6%, with 95% CI, 5% marginal error (where n is minimum sample size, Z is value of standard normal variable at 95% confidence interval, p is maximum expected proportion which is 59.6% and d is marginal error Which is≈ 370.

Assumption 2: According to study conducted in university of Gondar the main factors that affect significantly preoperative anxiety were calculated by Epi Info Stat Calc by using CI 95%, power 80% and ratio (unexposed to exposed 1:1) and presented in the following table.

We used the larger number 370 and then correction formula was used as the number of patients scheduled for surgery is < 10,000. Annual report of the hospital showed that in 2017 a total of 8,363 surgeries were conducted. From this total surgery 3120 adult patients were admitted and undergone elective surgery in the year of 2017. But the total number of elective surgery performed in March and April, 2017 for 544 adult patients.

nf =n/1+(n/N)

=370/1+ (370/544)

≈220

Factors		Proportion	Sample size
Age (in years)	18 - 30 Exposed	75.6	78
	31 - 45 Exposed	67.2	140
	≥ 60 Unexposed	42.3	
Annual income	No income exposed	70.9	132
	< 3781 Exposed	70.1	140
	≥ 3781 Unexposed	45.5	
Fear of death	Exposed	77.1	100
	Unexposed	48.1	
Family issue	Exposed	76.6	94
	Unexposed	46.5	
Dependency	Exposed	70.7	126
	Unexposed	44.7	
Disability	Exposed	69.6	366
	Unexposed	54.9	

Table 1: *Sample size calculation depends on main factors by Epi Info Stat Calc.*

Where N = (Patients ≥ 18 years for whom surgery was performed relatively in similar months with my data collection period March to May 2017 in SLCHCN). Then considering 10% for non-response rate (individuals), the final sample size is 241.

Sampling procedures

The study participants are divided into different wards/strata according to the surgical specialties (general surgery, Orthopaedics, Obstetrics, gynaecology, ophthalmology). Study participants were allocated to each strata/ward proportionally using formula Ni × nf/N. Then systematic sampling technique was used to determine the sample in each ward. Individuals was chosen at regular intervals of their admission order by using the following formula

k = N/n = 544/241 ≈ 2. Therefore, study subjects were selected every two patients until the sampled population was filled.

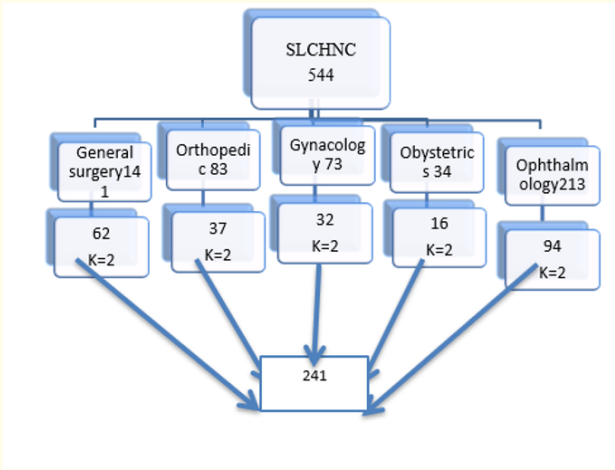

Figure 1: *Schematic presentation of sampling procedure to select study participants from SLCHNC, 2018.*

Variables of the study

Dependent variable: Pre-operative anxiety.

Independent variables

- Socio demographic variables: Age, Sex, Residence, Marital status, Religion, Level of education, Monthly income, Occupation, Family condition.
- Current health conditions of the patient: Current surgery type, Postponement of surgery, Anaesthesia type, Information about surgery, Time wait for surgery.
- Previous health condition of the patient: Chronic illness, Hospital admission, Surgery.
- Coping mechanism: Searching support, Self-blame, Change perspective/ Humor, Praying or meditate, Acceptance, Not-finalized activity, Changing perspective, Music listen, Medication use, Solving problem.

Data collection instrument

Data collection tools on preoperative anxiety was adapted and modified from validated questionnaire used on other study done in Rwanda, Italy and England [12,39,56]. The questions and statements was grouped and arranged according to the particular objectives. Prevalence of anxiety and information about surgery and anaesthesia was assessed with PITI measurement Scale.

Preoperative Intrusive Thought Inventory (PITI) is 20 items questionnaires for measurement of preoperative state anxiety with high validity and reliability. The PITI has 4 points Likert scale ranging through "not at all" with 0 points, "some of the time" with 1 point, "often" with 2 points and "most of the time" with 3 point [12,56]. The highest score of the scale is 60 points and the lowest score is 0, the author of the tool reported that 15 or more score on PITI-20 scale reliably detects the patients with high preoperative anxiety while participants scored less than fifteen [15] was ranked as low preoperative anxiety [56].

Data collection technique and procedures

Data was collected the night before surgery by three trained diploma nurses and one degree nurse supervisor recruited from Jimma University Specialized hospital who are fluent speaker of Afan Oromo and Amharic through face to face interview method. Informed consents were filled after the patient accepts to participate in study. The trained data collectors were collected the data using a structured interviewer administered Afan Oromo and Amharic version questionnaire. Supervisor and principal investigator was closely supervised the process of data collection and verifies. Data was collected until the sample size was filled.

Data quality control

To ensure the quality of data, training was given to data collectors and supervisor on the content, objective, relevance of the study, confidentiality of information, respondent right and informed consent. The formulated questionnaire was pre tested to check for validity using 5%(12 patients) of the total sample size in Ambo general hospital which is outside of the study populations a week prior to the actual data collection to assess the validity of the questionnaire by trained data collector to check for clarity of questions, ambiguity, arrangement of questions order and options for the questions and skipping pattern accordingly. The research questionnaire translated into Amharic and Afan Oromo then back to English to check the consistency and reliability. Cronbach's alpha scale result was 77.6%. All questioners were checked during the data collection period by the supervisor and principal investigator on daily basis to see its completeness. The data entered by Epi info to minimize error during entry and cleaned thoroughly.

Data processing and analysis

Data was entered into Epi Info 7, appropriate coding and editing was performed and the analysis was done using SPSS for windows version software package 20.0. The completed questionnaires were checked for inconsistencies and missed values. Incomplete questi-

onnaires which cannot use for measure preoperative anxiety was excluded from the data analysis. Binary logistic regression analyses were used to identify the association between independent and outcome variables. The variables that are found with P < 0.2 at bivariable analysis were entered to multivariable analysis and those variables with p-value less than 0.05 were considered statically significant. The strength of the association was assessed using odds ratio by using 95% Confidence interval and level of significance 5%. Descriptive statistics was considered and results were summarized using tables, charts and figures.

Ethical considerations

Ethical clearance letter was initially obtained from University of Gondar College of medicine and public health school of nursing research Ethical Committee. Then written letter was submitted to SLCHCN chief executive organization (CEO) for permission. For participants written informed consent for participation in the study was obtained. Study participants were briefed about the study by stating the main objective and any unclear points related to the study before the interview begun.

In addition, confidentiality of the information was assured and privacy of the study participants was respected and kept as well.

Results

Socio-demographic characteristics

A total of 237 patients were enrolled in the study with a response rate of 98.34%. Out of the total respondents 136 (57.4%) were females. The mean (+SD) age of the respondents were 45.72 ± 14.88 years with range of 18 - 75 years.

Variables	Categories	Frequency	Percent
Age of respondents	18 - 30	42	17.7
	31 - 45	85	35.9
	46 - 60	62	26.2
	> 60	48	20.3
Sex of respondents	Male	101	42.6
	Female	136	57.4
Resident of the respondents	Rural	150	63.3
	Urban	87	36.7
Marital status of respondents	Single	24	10.1
	Married	168	70.9
	Divorced	14	5.9
	Cohabiting	12	5.1
	Widow	19	8.0
Ethnicity of respondents	Oromo	172	72.6
	Amhara	20	8.4
	Gurage	31	13.1
	Others (Kabena)	14	5.9
Religion of the respondents	Orthodox Christian	114	48.1
	Protestant Christian	64	27.0
	Catholic Christian	7	3.0
	Muslim	42	17.7
	Waaqeffanna	10	4.2

Education status of the respondents	Not attended formal education	131	55.3
	Primary education	59	24.9
	Secondary education	27	11.4
	College and university education	20	8.4
Occupation of the respondents	Farmer	78	32.9
	Private sector employed	13	5.5
	House wife	69	29.1
	Government employed	10	4.2
	Merchant	35	14.8
	Student	15	6.3
	Non occupation	17	7.2
Income of the respondents	< 3781	175	73.8
	>= 3781	62	26.2

Table 2: *Socio-demographic characteristics of the respondents (n = 237) in Oromia South West Shewa, Woliso St. Catholic Hospital and Nurses college, 2018.*

Current health condition of the respondents and Personal past history of respondents

Out of the total number of respondents 92 (38.8%) waited ophthalmology surgery, 61 (25.7%) waited for general surgery, 36 (15.2%) waited for orthopaedic surgery, 32 (13.5%) waited for gynaecology and 16 (6.8%) waited for obstetric surgery.

Concerning past history of the respondent's chronic disease 176 (74.3%) of the total participants reported no and 61 (25.7%) of them reported had history of chronic disease. Regarding to previous admission 190 (80.2%) no history of admission and 47 (19.8%) had admission history. The majority of participants 222 (93.7%) no history previous surgery and only 15 (6.3%) had history of surgery before (Figure 2).

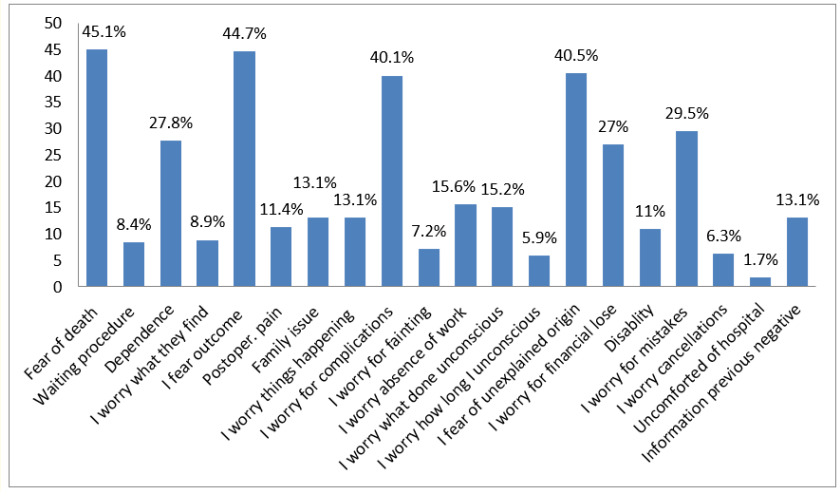

Figure 2: *The frequency of each preoperative anxiety causes by PITI measurements scale in Oromia, Woliso St. Catholic Hospital and Nurses College, 2018.*

The above bar graph represents descriptive statistics of preoperative anxiety frequency of each cause. In this study, the main cause was fear of death (45.1%) and uncomforted hospital environment (1.7%), was the least cause of preoperative anxiety.

Prevalence of preoperative anxiety

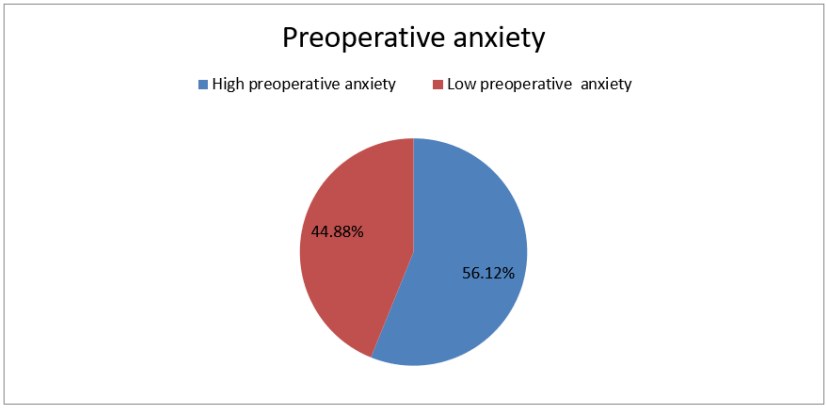

Figure 3: *The prevalence of preoperative anxiety in Oromia, south west Shewa, Woliso St. Catholic Hospital and Nurses College, 2018.*

Coping mechanism of respondents

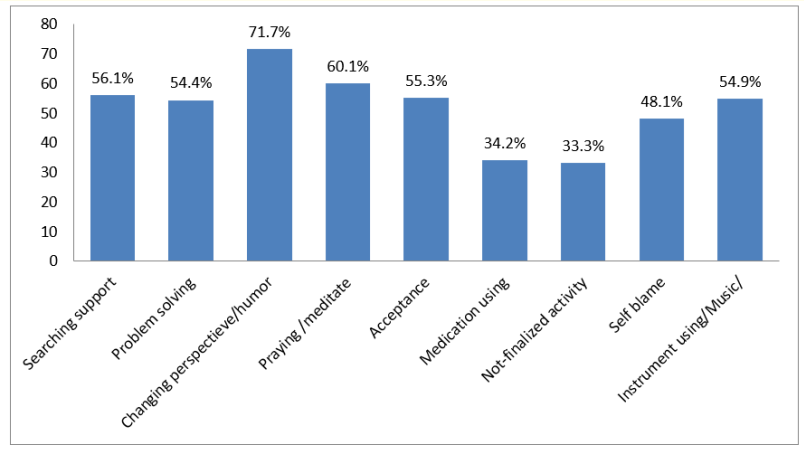

Figure 4: *The coping mechanism used by the respondents for preoperative anxiety in St. Luke's Catholic Hospital, Woliso, Central Ethiopia, 2018.*

The most common strategy mentioned by patient in reducing preoperative anxiety were planning for change perspective (71.7%) and medication using (33.3%) were the least used as coping mechanism.

Associated factors with preoperative anxiety

Binary logistic regression was applied for each independent variable. The variables that are found with P < 0.2 at bivariable analysis were entered to multivariable analysis. In multivariable analysis study participants whose sex was female, Orthopaedics surgery, not having information about surgery, postponement of surgery, not planning searching support, not praying and not used music listen were significantly associated with preoperative anxiety (see table below).

Variables	Preoperative anxiety		Odd ratio		P-value
	High n (%)	Low n (%)	COR (95% CI)	AOR (95% CI)	
Sex					
Female	87 (64.0%)	49 (36.0%)	2.12 (1.25,3.59)	3.30 (1.30,8.3)	0.012
Male	46 (45.5%)	55 (54.5%)	1*	1**	
Age (Years)					
18 - 30	28 (66.7%)	14 (61.2%)	2.57 (1.09,6.7)	0.60 (0.07,5.09)	
31 - 45	52 (61.2%)	33 (38.8%)	2.03 (0.99,4.15)	0.31 (0.07,1.33)	
46 - 60	32 (51.6%)	30 (48.4%)	1.37 (0.64,2.92)	0.45 (0.14,1.38)	
>60	21 (43.8%)	27 (56.2%)	1*	1***	
Marital status					
Single	14 (58.3%)	10 (41.7%)	1	1	
Married	98 (58.3%)	70 (41.7%)	1.00 (0.42,2.38)	3.98 (0.55,2.900)	
Divorced	7 (50.0%)	7 (50.0%)	0.71 (0.19,2.69)	4.43 (0.38,51.89)	
Cohabiting	7 (53.85%)	6 (46.15%)	0.83 (0.33,6.08)	1.02 (0.12,8.69)	
Widow	6 (31.6%)	13 (68.4%)	0.33 (0.93, 1.16)	1.61 (0.14,1.83)	
Education status					
Illiterate	74 (56.5%)	57 (43.5%)	1.06 (0.41,2.73)	0.79 (0.06,11.68)	
Primary education.	27 (45.8%)	32 (54.2%)	0.69 (0.25,1.91)	0.37 (0.03,4.42)	
Secondary education	21 (77.8%)	6 (22.2%)	2.86 (0.81,10.14)	3.08 (0.2,32.68)	
College and above	11 (55.0%)	9 (45.0%)	1*	1***	
Occupational status					
Farmer	36 (46.2%)	42 (53.8%)	1*	1***	
Private sector	7 (53.8%)	6 (46.2%)	1.36 (0.42,4.42)	1.13 (0.19,6.86)	
House wife	45 (65.2%)	24 (34.8%)	2.19 (1.12,4.25)	1.41 (0.44,4.45)	
Government	4 (40.0%)	6 (60.0%)	0.78 (0.20,2.97)	0.99 (0.05,19.73)	
Merchant	22 (62.9%)	13 (37.1%)	1.97 (0.87,4.47)	3.38 (0.85,13.34)	
Student	9 (60.0%)	6 (40.0%)	1.75 (0.94,10.95)	3.95 (0.28,5.609)	
No occupation	8 (47.0%)	9 (52.94%)	1.04 (0.36,2.97)	0.94 (0.22,4.03)	

Table 3: *Factors associated with preoperative anxiety in binary logistic regression analyses bivariable and multivariable results in St. Luke's hospital, Woliso, Oromia, Central Ethiopia, 2018.*

** Significant from bivariable analysis.*

***Significant from multivariable analysis.*

****Significant in bivariable analysis and failed to appear in the final multivariable.*

Variables	Preoperative anxiety		Odd Ratio		P-value
	High n (%)	Low n (%)	COR (95 %CI)	AOR (95% CI)	
Types of surgery					
General	36 (41.0%)	25 (59.0%)	2.34 (1.11,4.14)	2.52 (0.85,7.50)	
Orthopaedics	23 (63.9%)	13 (36.1%)	2.88 (1.19,5.84)	4.07 (1.21,13.63)	0.023
Gynaecology	25 (78.1%)	7 (21.9%)	5.81 (2.08,13.53)	2.07 (0.45,9.56)	
Obstetrics	11 (68.75%)	5 (31.25%)	3.58 (1.33, 14.89)	3.33 (0.59,18.61)	
Ophtalmology	35 (38.04%)	57 (61.96%)	1*	1**	
Waiting time					
<=3 days	99 (53.2%)	87 (46.8%)	1	1	
>3 days	34 (66.7%)	17 (33.3%)	1.76 (0.92,3.36)	1.41 (0.58,3.39)	
Type of anaesthetic technique					
Local	14 (51.9%)	13 (48.1%)	1	1	
General	41 (67.2%)	20 (32.8%)	1.90 (0.75,4.81)	1.01 (0.22,4.67)	
No information	78 (52.3%)	71 (47.7%)	1.02 (0.45,2.34)	0.73 (0.18,2.93)	
Information about surgery					
Yes	87 (50.9%)	84 (49.1%)	1*	1**	
No	46 (69.7%)	20 (30.3%)	2.22 (1.21,4.06)	2.48 (1.11,5.56)	0.027
Postponement of surgery					
Yes	19 (76.0%)	6 (24.0%)	5.23 (1.94,22.96)	5.53 (1.28,23.91)	
No	80 (37.74%)	132 (62.26%)	1*	1**	0.022
Hospital admission history					
Yes	22 (46.8%)	25 (53.2%)	1	1	
No	111 (58.4%)	79 (41.6%)	1.56 (0.84,3.03)	1.26 (0.53,3.00)	

Table 4: *Factors associated with preoperative anxiety in binary logistic regression analyses bivariable and multivariable results in St. Luke's hospital, Woliso, Oromia, Central Ethiopia, 2018.*

**Significant from bivariable analysis.*

***Significant from multivariable analysis.*

****Significant in bivariable analysis and failed to appear in the final multivariable.*

Variables	Preoperative Anxiety		Odd ratio		P-value
	High n (%)	Low n (%)	COR (CI)	AOR (CI)	
Change perspective					
Yes	106 (62.4%)	64 (37.6%)	2.45 (1.38,4.38)	2.13 (0.90,5.04)	
No	27 (40.3%)	40 (59.7%)	1*	1***	
Searching support					
Yes	60 (45.1%)	73 (54.9%)	1*	1**	0.000
No	73 (70.2%)	31 (29.8%)	2.86 (1.6,4.92)	4.50 (1.99,10.19)	
Acceptance					
Yes	82 (62.6%)	49 (37.4%)	1.80 (1.07,3.03)	2.27 (1.08,4.80)	
No	51 (48.1%)	55 (51.9%)	1*	1***	
Religion					
Yes	43 (45.3%)	52 (54.7%)	1*	1***	0.008
No	90 (63.4%)	52 (36.6%)	2.09 (1.23,3.55)	2.96 (1.33,6.62)	
Self-blame					
Yes	72 (63.2%)	42 (36.8%)	1.74 (1.04,2.23)	3.42 (0.46,8.04)	
No	61 (49.6%)	62 (50.4%)	1*	1***	
Music					
Yes	72 (55.4%)	58 (44.6%)	1*	1**	0.005
No	61 (57.0%)	46 (43.0%)	1.07 (0.64,1.79)	3.41 (1.45,7.98)	

Table 5: *Factors associated with preoperative anxiety in binary logistic regression analyses bivariable and multivariable results in St. Luke's hospital, Woliso, Oromia, Central Ethiopia, 2018.*

**Significant from bivariable analysis.*

***Significant from multivariable analysis.*

****Significant in bivariable analysis and failed to appear in the final multivariable.*

Discussion

The prevalence of preoperative anxiety was found to be 56.12%. The finding of this study when compared with other finding is lower than the studies conducted in Jimma 70.3%, Rwanda 72.8%, Pakistan 62% and Pune 63.2% [2,12,20,21]. The reason might be due to the hospital is supported by different non-government organization which facilitate the services of hospital and might be the previous studies conducted in teaching hospitals which complex for patient service because of overcrowded. In addition to this might be study period made the difference of the prevalence between the current study and the previous studies. This finding is in line with a studies conducted in university of Gondar 59.6% and Nigeria 51% [1,17]. But it was higher compared with researches conducted in Turkey 38.75%, Spain 37% and England 40.7% [5,16,18]. The possible reason of this variation might be due to the fact that Japan, Turkey, Spain and England are relatively developed country than Ethiopia.

In current study odd of having preoperative anxiety among female patients 3.30 times higher than male patients (AOR 3.30, CI 1.30, 8.34, P-value 0.012). This finding is in agreement with the study conducted in Gondar, Pakistan, Sri Lankan, India, Turkey, Czech Republic

and Taiwan [9,17,21,24,27-30]. The possible justification might be due to fluctuations in oestrogen and progesterone levels [57]. In addition to this types of surgery gynaecology and obstetrics which may makes more exposed for anxiety females patients than males [26,27]. In contrary to current study, study conducted in Jimma, Taiwan and France reject a significant association between sex and preoperative anxiety [2,28,58].

Regarding with the type of surgery, those patients who were waiting for orthopedic surgery significantly associated with preoperative anxiety. It revealed that odd of experiencing preoperative anxiety among patients waited for orthopedics surgery was 4.07 times higher than patient awaited ophthalmology surgery (AOR 4.07, CI 1.21, 13.63), P = 0.023). The finding of the current study is also supported by a study conducted in Rwanda, Pakistan, Turkey and Czech Republic found that types of surgery associated with preoperative anxiety [9,12,21,26]. The possible explanation for this might be many of orthopedic surgery cases due to result of traumatic injuries and the patients may still have the post traumatic distress in addition to this the orthopedic procedure itself with fearful instruments and healing process takes long time which could be increase the preoperative anxiety of the patients [12]. In contrary to current finding some studies concluded that the type of surgery was not significant association with preoperative anxiety [28].

The postponement of surgery was significant association with preoperative anxiety. The odd of having preoperative anxiety among patients cancelled their schedule of surgery was 5.53 times higher than those who were not cancelled their schedule (AOR 5.53, CI 1.28, 23.91, P- value 0.022). The finding of the current study is also supported by a study conducted in South Eastern Nigeria [22], Czech Republic [9] and Vietnam [38]. The possible justification is related to fear not getting enough attention from health care providers [22] and the other possible justification might be due to increase cost, duration and unimproved disease condition [21].

Information provision of surgery was significantly associated with preoperative anxiety. The odd of having preoperative anxiety among patients who had no information about surgery was 2.48 times higher than those who had information (AOR 2.48, CI 1.11, 5.56, P = 0.027). This finding is in agreement with the study conducted in Jimma [2], Gondar [17] and study conducted by Maheshwari [19] explained that lack of understanding on clarification or lack of information more important factor influencing the preoperative anxiety levels. Different modalities of information provision and patient education minimize the preoperative anxiety which is supported by study conducted in China [49], Pakistan [7], Singapore general hospital [59] and India teaching hospital [20]. There was an inverse correlation between preoperative anxiety and preoperative information provision supported by study conducted in Lebanon [60] and England [35]. This may indicate that having information before surgery plays a great role in reduction of preoperative anxiety.

As coping mechanism of the patient planning searching advice was reduce the preoperative anxiety. Patients who were not searching support 4.50 times odd of having preoperative anxiety compared with those who were searching support (AOR 4.50, CI 1.99, 10.19, P = 0.000). The finding of the current study is also supported by a study conducted in Turkey and Germany the patients believed that information would aid them to cope with their anxiety [33,34]. Study conducted in China found that preoperative education is effective in reducing the levels of anxiety and found that an empathic patient-centered approach significantly reduces the anxiety, improves surgical recovery, wound healing and raises the satisfaction of the patient with the quality of the information provided [49,50]. Psychological support and tailored information are provided to the patient and the patient's questions are addressed in a calm, supportive confident manner within an atmosphere of privacy care, concern with a non-judgmental respectful attitude.

In current study result those who were not using religion as their coping mechanism 2.96 times likelihood of having preoperative anxiety compared to those who using coping mechanism their religion (AOR 2.96, CI 1.33, 6.62, P =0.008). This finding is in agreement with the study conducted in Pakistan [7] and a study by Amy Lee Ai [51] showed that religiosity and preoperative anxiety the results show that there was reverse correlation between them. A study conducted in Iran random clinical trial researches done on effects of religious practices on anxiety discovered activities such as prayer meditations and zikr (Islamic prayer poetries) can help in reducing level of anxiety as a complementary treatment [36]. The meta-analysis conducted in Brazil showed significant association effects of religiosity was with higher level of self-esteem and subjective well-being [52].

In contrary to current study, study conducted in Jimma and Iran did not found religion as a predictor for preoperative anxiety but they reported that religious beliefs are mentioned by patients as anxiety coping mechanisms in surgical patients [2,41,61]. Furthermore, other studies are investigating religious and spiritual interventions as a complimentary treatment in health care [62].

The findings of my study suggest that practice of preoperative music listening can reduce patient preoperative anxiety levels. The patients not used music as coping mechanism 3.41 times odd of having preoperative anxiety than patients used music ((AOR 3.41, (CI 1.45,7.98) P = 0.005)). This is supported study conducted in Czech Republic [9], Iran [41] and Australia [44]. This finding is in agreement with the study conducted in Israel coping with preoperative anxiety in caesarean section, they found that listening to favourite music immediately before a caesarean section is effective for reducing preoperative anxiety [40].

Conclusion

The result of this study showed that preoperative anxiety among patients who were waiting elective surgery was found to be high and revealed possible independent associated factors. Regular preoperative patient assessments, education regarding to operation process, minimize surgery postponed as much as possible and encourage coping mechanisms of the patient change perspective, searching support, praying and music listening method in hospital are strongly recommended for preoperative anxiety.

Recommendation

We recommended extending strategy to conduct preoperative education and counselling for ensuring health care of preoperative patients. Since the patients highly accepted praying according to their religion as coping mechanism, the hospital better to encourage the religious leaders those who are coming to the hospital for taking time with patients.

The health care providers nurses, surgeons and anaesthetists

Patients need to be assessed regularly for preoperative anxiety during the preoperative visit. To incorporate preoperative anxiety assessment in routine assessment of patients waited for surgery, to put in considerations the sex and types of surgery in providing preoperative nursing care, to assess the need of information for each patient in order to provide patient specific information and tailored towards patients need. And minimize the cancelation of surgery schedule as much as possible and to take preoperative anxiety nursing diagnosis as the priority for patient awaiting surgery. Preoperative anxiety coping mechanism of the patient such as change perspective, searching support, prayer and music using of the patient better to encourage that may decrease preoperative anxiety levels.

The researchers are recommended to conduct another study that estimates the predisposing factors of preoperative anxiety to patients who waited for orthopaedics surgery and female patients.

Availability of Data and Materials

The spreadsheet data supporting the findings of this work is available at the hands of the corresponding authors.

Ethics Statement

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the declaration and its later amendments or comparable ethical standards. Before the commencement of the study, ethical approval was secured from the Gondar Ethical Review Board. Written informed consent was obtained from all individual participants included in the study.

Consent for Publication

The purpose of the study was explained to the study participants at the time of data collection and verbal consent was secured from each participant before the start of data collection. Confidentiality was ensured by not including names or other identifiers in the data collection tool. The right of the participants to refuse participation or not to answer any of the questions was respected.

Conflict of Interests

All authors declared that they have no conflict of interests. Gondar University covered only the survey cost for this study and there is no any funding organization.

Authors' Contribution

Getachew Takele, Berhanu Boru and Daniel Ayelegne conceived and designed the protocol. Getachew Takele, contributed on data analysis and checked the draft. Abiru Neme and Getachew Takele prepared manuscript. All authors read and approved the final paper.

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Bibliography

1. Akinsulore A., *et al*. "Assessment of preoperative and postoperative anxiety among elective major surgery patients in a tertiary hospital in Nigeria". *Middle East Journal of Anesthesiology* 23.2 (2015): 235-245.
2. Nigussie S., *et al*. "Predictors of preoperative anxiety among surgical patients in Jimma University Specialized Teaching Hospital, South Western Ethiopia". *BMC Surgery* 14.1 (2014): 67.
3. Pinar G., *et al*. "The efficacy of preopoerative instruction in reducing anxiety following gyneoncological surgery: a case control study". *World Journal of Surgical Oncology* 9.1 (2011): 38.
4. Kim W-S., *et al*. "Availability of preoperative anxiety scale as a predictive factor for hemodynamic changes during induction of anesthesia". *Korean Journal of Anesthesiology* 58.4 (2010): 328-333.
5. Hernandez PJ., *et al*. "Visual analogue scale for anxiety and Amsterdam preoperative anxiety scale provide a simple and reliable measurement of preoperative anxiety in patients undergoing cardiac surgery". *International Cardiovascular Research Journal* 9.1 (2015): 1-6.
6. Kim K., *et al*. "Anxiety provocation and measurement using virtual reality in patients with obsessive-compulsive disorder". *Cyber Psychology and Behavior* 11.6 (2008): 637-641.
7. Jawaid M., *et al*. "Preoperative anxiety before elective surgery". *Neurosciences* 12.2 (2007): 145-148.
8. Fathi M., *et al*. "Preoperative anxiety in candidates for heart surgery". *Iranian Journal of Psychiatry and Behavioral Sciences* 8.2 (2014): 90-96.
9. Homzová P and Zeleníková R. "Measuring preoperative anxiety in patients undergoing elective surgery in Czech Republic". *Education* 6.4 (2015): 321-326.
10. Vaughn F., *et al*. "Does preoperative anxiety level predict postoperative pain?". *AORN Journal* 85.3 (2007): 589-594.
11. Tanaka M., *et al*. "International consensus guidelines 2012 for the management of IPMN and MCN of the pancreas". *Pancreatology* 12.3 (2012): 183-197.
12. Ryamukuru and David. "Assessment of preoperative anxiety for patients awaiting surgery at UTHK". University of Rwanda (2017).

13. Rasouli MR., *et al*. "Direct cost and complications associated with total joint arthroplasty in patients with preoperative anxiety and depression". *The Journal of Arthroplasty* 31.2 (2016): 533-536.

14. Pokharel K., *et al*. "Nepalese patients' anxiety and concerns before surgery". *Journal of Clinical Anesthesia* 23.5 (2011): 372-378.

15. Gürsoy A., *et al*. "Preoperative Stress: An Operating Room Nurse Intervention Assessment". *Journal of Peri Anesthesia Nursing* 31.6 (2016): 495-503.

16. Ali A., *et al*. "The effect of preoperative anxiety on postoperative analgesia and anesthesia recovery in patients undergoing laparascopic cholecystectomy". *Journal of Anesthesia* 28.2 (2014): 222-227.

17. Melkie TBYB., *et al*. "Prevalence and factors associated with preoperative anxiety among elective surgical patients at University of Gondar Hospital. Gondar, North west Ethiopia, 2017. A cross- sectional study". *International Journal of Surgery Open* 10 (2018): 21-29.

18. Axford J., *et al*. "Prevalence of anxiety and depression in osteoarthritis: use of the Hospital Anxiety and Depression Scale as a screening tool". *Clinical Rheumatology* 29.11 (2010): 1277-1283.

19. Maheshwari D and Ismail S. "Preoperative anxiety in patients selecting either general or regional anesthesia for elective cesarean section". *Journal of Anaesthesiology, Clinical Pharmacology* 31.2 (2015): 196-200.

20. Nikumb VB., *et al*. "Impact of doctor-patient communication on preoperative anxiety: Study at industrial township, Pimpri, Pune". *Industrial Psychiatry Journal* 18.1 (2009): 19-21.

21. Jafar MF and Khan FA. "Frequency of preoperative anxiety in Pakistani surgical patients". *Journal of the Pakistan Medical Association* 59.6 (2009): 359-363.

22. Ebirim L and M Tobin. "Factors responsible for pre-operative anxiety in elective surgical patients at a university teaching hospital: a pilot study". *The Internet Journal of Anesthesiology* 29.2 (2010): 1-6.

23. Mcmurray A., *et al*. "General surgical patients' perspectives of the adequacy and appropriateness of discharge planning to facilitate health decision-making at home". *Journal of Clinical Nursing* 16.9 (2007): 1602-1609.

24. Masood Z., *et al*. "Preoperative anxiety in female patients: the issue needs to be addressed". *Khyber Medical University Journal* 1.2 (2009): 38-41.

25. Garcia-Miguel F., *et al*. "Preoperative assessment". *The Lancet* 362.9397 (2003): 1749-1757.

26. Basak F., *et al*. "Prediction of anxiety and depression in general surgery inpatients: A prospective cohort study of 200 consecutive patients". *International Journal of Surgery* 23 (2015): 18-22.

27. Erkilic E., *et al*. "Factors associated with preoperative anxiety levels of Turkish surgical patients: from a single center in Ankara". *Patient Preference and Adherence* 11 (2017): 291-296.

28. Matthias AT and Samarasekera DN. "Preoperative anxiety in surgical patients-experience of a single unit". *Acta Anaesthesiologica Taiwanica* 50.1 (2012): 3-6.

29. Mitchell M. "Influence of gender and anaesthesia type on day surgery anxiety". *Journal of Advanced Nursing* 68.5 (2012): 1014-1025.

30. Bansal T and Joon A. "A comparative study to assess preoperative anxiety in obstetric patients undergoing elective or emergency cesarean section". *Anaesthesia, Pain and Intensive Care* 21.1 (2017): 25-30.

31. Bosc C., *et al*. "Evaluation of Preoperative Anxiety in Patients Undergoing Oculoplastic and Strabismus Surgery A Prospective Study". *Investigative Ophthalmology and Visual Science* 56.7 (2015): 4734.

32. Berth H., *et al*. "The Amsterdam Preoperative Anxiety and Information Scale (APAIS)-the first trial of a German version". *GMS Psycho-Social Medicine* (2007): 4.

33. Lee J-S., *et al*. "Preoperative anxiety about spinal surgery under general anesthesia". *European Spine Journal* 25.3 (2016): 698-707.

34. Aust H., *et al*. "Coping strategies in anxious surgical patients". *BMC Health Services Research* 16.1 (2016): 250.

35. Jlala H., *et al*. "Effect of preoperative multimedia information on perioperative anxiety in patients undergoing procedures under regional anaesthesia". *British Journal of Anaesthesia* 104.3 (2010): 369-374.

36. Beiranvand S., *et al*. "The effects of religion and spirituality on postoperative pain, hemodynamic functioning and anxiety after cesarean section". *Acta Medica Iranica* 52.12 (2014): 909-915.

37. Carr E., *et al*. "Patterns and frequency of anxiety in women undergoing gynaecological surgery". *Journal of Clinical Nursing* 15.3 (2006): 341-352.

38. Cao Do C., *et al*. "Factors related to Preoperative Anxiety among Patients undergoing Abdominal Surgery in Phu Tho Province General Hospital, Vietnam". *Thai Pharmaceutical and Health Science Journal* 8.4 (2013): 155-162.

39. Pozzi G., *et al*. "Coping strategies in a sample of anxiety patients: factorial analysis and associations with psychopathology". *Brain and Behavior* 5.8 (2015): e00351.

40. Kushnir J., *et al*. "Coping with preoperative anxiety in cesarean section: physiological, cognitive, and emotional effects of listening to favorite music". *Birth* 39.2 (2012): 121-127.

41. Nasiri M., *et al*. "The effect of an islamic praise (zikr) on postoperative anxiety of patients undergoing coronary artery bypasses graft surgery: a randomized clinical trial on iranian shia muslims". *Research in Cardiovascular Medicine* (2016).

42. Johnson B., *et al*. "Perioperative music or headsets to decrease anxiety". *Journal of PeriAnesthesia Nursing* 27.3 (2012): 146-154.

43. Evans D. "The effectiveness of music as an intervention for hospital patients: a systematic review". *Journal of Advanced Nursing* 37.1 (2002): 8-18.

44. Cooke M., *et al*. "The effect of music on preoperative anxiety in day surgery". *Journal of Advanced Nursing* 52.1 (2005): 47-55.

45. McCann ME and Kain ZN. "The management of preoperative anxiety in children: an update". *Anesthesia and Analgesia* 93.1 (2001): 98-105.

46. Davis-Evans C. "Alleviating anxiety and preventing panic attacks in the surgical patient". *AORN Journal* 97.3 (2013): 354-364.

47. Bailey L. "Strategies for decreasing patient anxiety in the perioperative setting". *AORN Journal* 92.4 (2010): 445-460.

48. Moradipanah F., *et al*. "Effect of music on anxiety, stress, and depression levels in patients undergoing coronary angiography". *Eastern Mediterranean Health Journal* 15.3 (2009): 639-647.

49. Guo P., *et al*. "A preoperative education intervention to reduce anxiety and improve recovery among Chinese cardiac patients: a randomized controlled trial". *International Journal of Nursing Studies* 49.2 (2012): 129-137.

50. Pereira L., *et al*. "Preoperative anxiety in ambulatory surgery: The impact of an empathic patient-centered approach on psychological and clinical outcomes". *Patient Education and Counseling* 99.5 (2016): 733-738.

51. Ai AL., *et al*. "The influence of prayer coping on mental health among cardiac surgery patients: the role of optimism and acute distress". *Journal of Health Psychology* 12.4 (2007): 580-596.

52. Hosseini M., *et al*. "The effect of a preoperative spiritual/religious intervention on anxiety in Shia Muslim patients undergoing coronary artery bypass graft surgery: a randomized controlled trial". *Journal of Holistic Nursing* 31.3 (2013): 164-172.

53. Kalkhoran MA and Karimollahi M. "Religiousness and preoperative anxiety: a correlational study". *Annals of General Psychiatry* 6.1 (2007): 17.

54. Majtyka K. "Relationship Between Trait Anxiety, State Anxiety and Awareness in Processing of Threat". (2015).

55. Burssa D., *et al*. "Safe surgery for all: early lessons from implementing a national government-driven surgical plan in Ethiopia". *World Journal of Surgery* 41.12 (2017): 3038-3045.

56. Crockett J., *et al*. "The development and validation of the Pre-operative Intrusive Thoughts Inventory (PITI)". *Anaesthesia* 62.7 (2007): 683-689.

57. Forlani M., *et al*. "Anxiety symptoms in 74+ community-dwelling elderly: associations with physical morbidity, depression and alcohol consumption". *PLOS One* 9.2 (2014): e89859.

58. Boker A., *et al*. "The Amsterdam preoperative anxiety and information scale provides a simple and reliable measure of preoperative anxiety". *Canadian Journal of Anesthesia* 49.8 (2002): 792-798.

59. Lim L., *et al*. "Doctor–patient communication, knowledge, and question prompt lists in reducing preoperative anxiety–A randomized control study". *Asian Journal of Surgery* 34.4 (2011): 175-180.

60. Deyirmenjian M., *et al*. "Preoperative patient education for open-heart patients: a source of anxiety?". *Patient Education and Counseling* 62.1 (2006): 111-117.

61. Ai AL., *et al*. "Psychosocial mediation of religious coping styles: A study of short-term psychological distress following cardiac surgery". *Personality and Social Psychology Bulletin* 33.6 (2007): 867-882.

62. Gonçalves JP., *et al*. "Religious and spiritual interventions in mental health care: a systematic review and meta-analysis of randomized controlled clinical trials". *Psychological Medicine* 45.14 (2015): 2937-294.

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