

Assessment of Preoperative Anxiety Levels Among Patients Admitted for Surgery in Public Hospitals, Southern Ethiopia

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Abstract

Background: Anxiety before surgery is one of the most challenging aspects of preoperative care. Preoperative anxiety has a number of postoperative complications. There are only a few studies that report on preoperative anxiety in surgical patients in Ethiopia, and their prevalence differs from one study to the next.

Objective: The aim of this study was to assess the level of preoperative anxiety and associated factors among surgical patients admitted at public hospitals in southern Ethiopia.

Methods: From July to August 2022, a facility-based cross-sectional study was conducted among patients admitted to surgical wards at public hospitals. Data collection was conducted using a pretested, structured questionnaire administered by an interviewer. Preoperative anxiety was assessed using the State-Trait Anxiety Inventory scale. The data were coded and entered in Epi Data Version 4.6, then exported to Statistical Package for Social Sciences version 25 for analysis. To describe the study variables, descriptive statistics were used. The associated factors were then identified using bivariate and multivariate logistic regression analyses. Results were declared at a p-value of less than 0.05 based on an adjusted odds ratio with a 95% confidence interval.

Result: A total of 220 patients were enrolled, with a 99.5% response rate. The observed preoperative anxiety level was 57.5% (95%CI: 54.63–62.35). High preoperative anxiety was associated with no formal educational status (AOR: 3.75; 95%CI = 1.36, 10.39), fear of death (AOR = 2.01; 95%CI = 1.09, 3.73), fear of waking up in middle of surgery (AOR = 3.42; 95%CI = 1.19, 9.77), fear of postoperative pain (AOR = 2.56; 95%CI = 1.15, 5.74).

Conclusion: This study found that five out of ten patients scheduled for surgery in public hospitals had high levels of preoperative anxiety. Anxiety levels were associated with factors such as the educational status of respondents, fear of death, fear of waking up in the middle of surgery, and fear of postoperative pain. Preoperative anxiety assessments should be conducted regularly in each hospital, and appropriate anxiety-reducing methods must be implemented.

Keywords

anxiety, associated factors, preoperative, patients, surgical

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Introduction

Anxiety is a term that describes a temporary emotional state. These include feelings of stress, worry, nervousness, melancholy, and increased autonomic nervous system activity. These feelings are often associated with tension and can have both psychological and physical effects (Ebirim & Tobin, 2010). Anxiety is a common preoperative side effect and is accepted as a typical patient response. The “fight-or-flight” response to risk is triggered by fear, which also causes hemodynamic disturbances due to

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vulnerability, parasympathetic activation, and hormonal stimulation (Stamenkovic et al., 2018).

Anxiety has been reported in 10–30% of patients hospitalized for nonsurgical reasons; this rate can reach 60–80% in patients scheduled for surgery, and 5% of nervous patients may be refused surgery (Lee et al., 2016). Preoperative fears have a major impact on the outcome of the surgery. This can lead to high blood pressure, an increased heart rate, and bleeding. Additionally, high levels of preoperative anxiety have been shown to be associated with an increased need for postoperative pain relief (Shives, 2007). The extent to which each patient develops anxiety about their future experiences depends on many factors. These include age, gender, type and extent of the planned operation, previous surgical experience, and personal risk factors in stressful situations (Bansal & Joon, 2019).

According to a Rwandan study, patients with high levels of anxiety have an increased risk of developing hypothermia within the first hour. They are 77 times more likely to be affected within the first two hours than patients with low levels of anxiety (Ryamukuru, 2017).

Preoperative anxiety was widespread among adult patients worldwide, ranging from 11% to 80% (Nigussie et al., 2014), and the prevalence of preoperative anxiety in Ethiopia ranged from 47% to 70.3% (Bedaso & Ayalew, 2019; Nigussie et al., 2014). There are several relevant studies on preoperative anxiety in surgical patients in developing countries, including Ethiopia. Although studies in other areas have shown anxiety in preoperative patients, no previous studies of preoperative anxiety levels have been conducted in the current investigation area. In addition, studies have shown significant differences in incidence. The factors thought to trigger anxiety that have been examined in the studies that have been conducted vary from study to study. Therefore, the aim of this study was to evaluate the prevalence of preoperative anxiety and associated factors in adult patients scheduled for scheduled surgery in public hospitals in southern Ethiopia.

Literature Review

Anxiety before surgery was a common occurrence in adult patients around the world, with prevalence rates ranging from 11% to 80% (Bansal & Joon, 2019). Studies reported from different countries showed that the prevalence of preoperative anxiety was high at 53% in Brazil (Melchior et al., 2018), 63% in Pakistan (Kanwal et al., 2018), 67% in Tunisia (Mellouli et al., 2018), and 72.8% in Rwanda (Ryamukuru, 2017). In Wollo, the prevalence of preoperative anxiety was 48.3% (Wondmieneh, 2020), while in Debre Markos, it was 61% (Mulugeta et al., 2018). Anxiety was twice as likely to develop in medical and surgical patients who had never married, according to an Addis Ababa study (Harsha & Kirubamani, 2019). Female patients are

more likely to experience preoperative anxiety than male patients (Bedaso et al., 2022). Low or no income has been identified as a predictor of preoperative anxiety (Woldegerima et al., 2018). Fear of complications and death is a major factor associated with preoperative anxiety. A cross-sectional study on obstetric patients who underwent cesarean section found that fear of complications (81.4%) and fear of death (60.6%) were the two major factors associated with preoperative anxiety (Ferede et al., 2022). Perceived control is another factor associated with preoperative anxiety. Patients who feel they have little control over their situation are more likely to experience preoperative anxiety (Ji et al., 2022). Anxiety was twice as likely to develop in medical and surgical patients who had never married, according to an Addis Ababa study (Tesfaw et al., 2022). Substance user has a marginally significant association with preoperative anxiety, which is those who have a history of current substance use were nine times more likely to develop preoperative anxiety compared with their counterpart (Bedaso & Ayalew, 2019). Another study showed that current health status, self-perception, and history of smoking were also the risk factors for preoperative anxiety (Nigussie et al., 2014).

The objectives of this study are to determine the level of preoperative anxiety and to identify factors associated with anxiety among admitted patients for surgery in public hospitals, in southern Ethiopia.

Methodology

Study Setting and Design

A facility-based cross-sectional study was conducted in public hospitals in the Hadiya Zone. It is located 232 km from Addis Ababa, the capital of Ethiopia, in the southern part of Ethiopia. There is one comprehensive Specialty Hospital and three primary hospitals. It is located 232 km from Addis Ababa, the capital of Ethiopia, in the southern part of Ethiopia. In these four public hospitals, 380 patients were admitted for surgery (Nigist Eleni Mohammad Comprehensive Specialty Hospital = 200 patients, Shone Hospital = 60 patients, Gimbichu Hospital = 58 patients, and Homacho Hospital = 62 patients). The study was conducted from July to August 2022.

Study Population

All selected patients scheduled for surgery in surgical wards available during the data collection period in public hospitals were the study population. An inclusion criterion was: All adult elective major surgical patients. Exclusion criteria were: Patients who have been diagnosed with psychiatric illness; those on any type of anxiety medication; and critically ill patients who were not sufficiently alert to respond to questions.

Sample Size Determination and Sampling Procedure

The sample size was determined using a single population proportion formula with the following assumptions: a p -value of 47% was taken (Bedaso & Ayalew, 2019), a 95% confidence level, a 5% margin of error, and a 15% non-response rate. The final sample size was 221.

Systematic random sampling was used to select study participants. The sample proportion (K th) was calculated by dividing N/n ($380/221 = 1$) so that every other elective surgery patient was selected for the study until the required sample size was reached. The sample size for each hospital was assigned to individuals using a proportional allocation formula. We included 160 patients from Nigist Eleni Mohammad Comprehensive Specialty Hospital, 58 from Gimbichu Hospital, 60 from Shone Hospital, and 62 from Homecho Hospital.

Data Collection Tool and Procedure

An interviewer-administered, structured, pretested questionnaire was used to collect information from study participants. The instrument was adopted from previously published research (Ferede et al., 2022; Mulugeta et al., 2018; Tesfaw et al., 2022; Wondmieneh, 2020). The tool contains socio-demographic characteristics, previous surgery-related issues, current surgical-related issues, psychological/perception-related conditions, co-morbidity-related conditions, and behavioral factors. A standardized measuring tool of preoperative anxiety, the State-Trait Anxiety Inventory Scale (S-STAI), was used to gather the data (Mulugeta et al., 2018). The scores of STAI range from a minimum of 20 to a maximum score of 80. A score of more than 44 on STAI was taken as significant anxiety, and the patient was categorized as having high anxiety (STAI score >44) while low anxiety (STAI score ≤ 44) (Mulugeta et al., 2018). Different research has shown that the STAI has good reliability (Cronbach's $\alpha = .86$) and validity across different normative groups (Gustafson et al., 2020). The reliability of the questionnaire was assessed (Cronbach's alpha coefficient equal to 0.76). And validity was assessed with content validity. Each patient's data collection took only 25 min and data were collected one day before surgery.

Operational Definitions

Major surgery: any surgical operation that is performed in the major operating room using spinal or general anesthesia. Examples: Cholecystectomy, hemorrhoidectomy, hernia repair, thyroidectomy, orthopedic surgeries, appendectomy, prostatectomy, and colon surgeries (Mulugeta et al., 2018).

Data Quality Control

The questionnaire was primarily drafted in English and then translated into Amharic and Hadiyisa, and then back into

English to ensure consistency. Before the actual data collection period, testing of questionnaires was conducted on 5% of the total samples in public hospitals in the muddy area. Four university nurses were assigned to collect the data and a public health officer to oversee it. The principal investigator conducted a one-day training session for data collectors and supervisors on data collection tools and procedures. The data collectors were asked to check the completeness of the questionnaire immediately after completing it. The supervisor checked the questionnaire daily for completeness and consistency. In addition, the collected data has been encrypted and verified before analysis. The preparation of the manuscript followed the STROBE guideline for a cross-sectional study.

Statistical analysis: After data collection, each data set was checked for completeness using the code provided at the time of data collection. Data were entered using Epi Data version 4.6 and exported to SPSS version 25 for analysis. Descriptive statistics were used to describe the data. Logistic regression analysis was used as the basic analysis method. To measure the relationship between preoperative anxiety and independent variables, odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Independent factors with a $p < .25$ determined by bivariate logistic regression were entered into a multivariate logistic regression model. For significant predictor variables, adjusted odds ratios (AORs) were calculated with a 95% confidence interval, and statistical significance was assumed to be $p < .05$. The Hosmer-Lemeshow test was used to check the suitability of the model for the analysis. The model fit value was 0.15 and was greater than 0.05; therefore, the model was suitable for the analysis.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee under reference number 1300070. An official letter from the Research Ethics Committee has been sent to the Hadiya zone health bureau and relevant authorities for cooperation. A letter of support and approval was then sent to each hospital. The subjects were informed about the purpose of the study. Written informed consent was obtained from participants at the time of data collection confirming their willingness to participate in the study. Those who did not want to participate had the opportunity. Confidentiality was also guaranteed throughout the research process. Confidentiality was maintained by conducting the interview in a separate area. The study was conducted in accordance with the ethical standards of the Declaration of Helsinki.

Results

Sociodemographic Characteristics

Of the 221 participants scheduled for the study, 220 participated, representing a 99.5% response rate. The mean age (\pm SD) of the

Table 1. Distribution of Sociodemographic Characteristics Patients to Assess Level of Preoperative Anxiety and Associated Factors Among Admitted Patients for Surgery in Public Hospitals, Southern Ethiopia, 2022 (N = 220).

Variables	Categories	Frequency	Percentage
Age	18–24 years	25	11.4
	25–34 years	45	20.5
	35–44 years	61	27.7
	>=45 years	89	40.5
Sex	Male	116	52.7
	Female	104	47.3
Marital status	Married	140	63.6
	Never married	46	20.9
	Divorced	18	8.2
	Widowed	16	7.3
Educational status	No formal education	45	20.5
	Primary education	75	34.1
	Secondary education	60	27.3
	Tertiary education	40	18.2
Occupation	Gov't employee	59	26.8
	Merchant	51	23.2
	Farmer	56	25.5
	Daily laborer	27	12.3
	Housewife	27	12.3
Ethnicity	Hadiya	133	60.5
	Kambata	35	15.9
	Silxe	32	14.5
	Gurage	20	9.1
Residence	Urban	140	63.6
	Rural	80	36.4
Religion	Protestant	162	73.6
	Orthodox	36	16.4
	Muslim	22	10.0
Income level	<2000 ETB	46	20.9
	2000–5000 ETB	71	32.3
	>5000 ETB	103	46.8

respondents was 44.12 (\pm 16.312) years. More than half (52.7%) of the study participants were men. Less than two thirds (63.6%) of them were married (Table 1).

Behavioral Factors

According to the study, the majority of participants 192 (87.3%) were nonsmokers, while only a small percentage 16 (7.3%) chewed khats. Additionally, 198 (90%) of the participants did not drink alcohol (Table 2).

Surgery-Related Factors

Over one-third 86 (39.1%) of respondents had undergone urological surgery, with only 12 (5.5%) having undergone major surgery in the past (Table 3).

Table 2. Distribution of Behavioral Factors to Assess Level of Preoperative Anxiety and Associated Factors among Admitted Patients for Surgery in Public Hospitals, Southern Ethiopia, 2022 (N = 220).

Variables	Categories	Frequency	Percentage
Cigarette smoking	Yes	28	12.7
	No	192	87.3
Chat chewing	Yes	16	7.3
	No	204	92.7
Alcohol drinking	Yes	22	10
	No	198	90

Table 3. Distribution of Surgery-Related Factors to Assess Level of Preoperative Anxiety and Associated Factors Among Admitted Patients for Surgery in Public Hospitals, Southern Ethiopia, 2022 (N = 220).

Variables	Categories	Frequency	Percentage
Type of surgery	Urologic	86	39.1
	Gynecologic	46	20.9
	Neurologic	34	15.5
	General surgery	54	24.5
History of previous major operation	Yes	12	5.5
	No	208	94.5
If yes, what type of anesthesia was used?	Local	5	41.6
	General	7	58.4
Was there any anesthesia or surgery-related complication?	Yes	10	83.3
	No	2	16.7
If yes what was the complication	Difficult breathing	3	30
	Delayed recovery	3	30
	Infection	4	40

Psychological-Related Factors

A majority of respondents 114 (51.8%) fear dying, while 118 (53.64%) fear suffering following surgery, over 56 (25%) fear pain during the procedure, and 31 (14.1%) fear being disabled (Table 4).

Comorbidity-Related Conditions

Twenty-three (10.5%) study participants had a history of diabetes and 53 (24.1%) had a history of hypertension (Table 5).

Factors Associated With Preoperative Anxiety

In bivariate analysis, variables, such as age, marital status, educational status, occupation, type of surgery, history of previous

Table 4. Distribution of Surgery-Related Factors to Assess Level of Preoperative Anxiety and Associated Factors Among Admitted Patients for Surgery in Public Hospitals, Southern Ethiopia, 2022 (N = 220).

Variables	Categories	Frequency	Percentage
Fear of death	Yes	114	51.8
	No	106	48.2
Fear of wake up	Yes	97	44.1
	No	123	55.9
Fear of postoperative pain	Yes	118	53.64
	No	102	46.36
Fear of pain during surgery	Yes	56	25.5
	No	164	74.5
Fear of disability	Yes	31	14.1
	No	189	85.9
Fear of medical mistakes	Yes	48	21.8
	No	172	78.2
Fear of dependency	Yes	12	5.5
	No	208	94.5
Fear of cosmetic	Yes	11	5
	No	209	95
Family concern	Yes	8	3.6
	No	212	96.4
Fear of unable to recovery	Yes	11	5
	No	209	95

Table 5. Distribution of Surgery-Related Factors to Assess Level of Preoperative Anxiety and Associated Factors Among Admitted Patients for Surgery in Public Hospitals, Southern Ethiopia, 2022 (N = 220).

Variables	Categories	Frequency	Percentage
History of DM	Yes	23	10.5
	No	197	89.5
History of HTN	Yes	53	24.1
	No	167	75.9
History of cardiac disorders	Yes	15	6.8
	No	205	93.2

major operations, fear of death, fear of waking up in the middle of surgery, fear of postoperative pain, fear of disability, fear of dependency, history of DM, current khat chewing history, and current cigarette smoking history were statistically significant at p -value $<.25$. In multivariable analysis, variables such as the educational status of respondents, fear of death, fear of waking up in the middle of surgery, and fear of postoperative pain were statistically significant factors of level of preoperative anxiety at a p -value $<.05$ (Table 6).

Discussion

The overall prevalence of high preoperative anxiety levels in this study was 57.5% (95%CI: 54.63–62.15), as suggested by the STAI score. The result of this study was higher than other

studies conducted in Wollo with presurgical anxiety of 48.3% (Wondmieneh, 2020) and 53% in Brazil (Melchior et al., 2018). This difference might be due to differences in the socioeconomic status of the respondents and their level of awareness. This means that in the current study, most of the respondents have an educational status of up to primary education, which in turn leads to misinformed high anxiety levels. However, the result was lower than the study conducted in Rwanda with 72.8% anxiety level (Ryamukuru, 2017), 67% in Tunisia, and 63% in Pakistan (Kanwal et al., 2018). This could be due to differences in socioeconomic status, sample size differences, variation in study design, and variation in a measuring instrument.

Preoperative anxiety in patients without formal education was 3.75 times higher than in patients with primary education or 2.72 times higher than in patients with secondary or tertiary education. This finding is supported by studies conducted at Debre Berhan Comprehensive Specialized Hospital in Surgical patients with no education attended 4.1 times. Those who have only completed primary school were 2.43 times more likely to experience preoperative anxiety than those with a diploma and above (Shewangzaw et al., 2022); similarly, this finding is supported by studies conducted in Debre Markos and Felege Hiwot referral hospitals (Mulugeta et al., 2018) which found that less educated people experienced a high level of preoperative anxiety. This might be because a low educational level leads to unnecessary fear, and patients with a low educational level might not easily understand preoperative counseling and cannot easily understand the disease, diagnostic procedures, and possible treatment options, which in turn leads to high anxiety levels. The current study shows patients with fear of death during surgery had a twofold higher level of anxiety than those without fear of death. This is supported by a study conducted in the Yirgalem zonal hospital (Bedaso & Ayalew, 2019). This might be due to the lack of preoperative counseling and psychological support. This leads to pathophysiological responses such as hypertension and dysthymia which in turn lead to high levels of preoperative anxiety (Shewangzaw et al., 2022; Wondmieneh, 2020).

The levels of preoperative anxiety in patients with fear of waking up in the middle of surgery were 3.42 times higher than those in patients without fear of waking up in the middle of surgery. The findings of this study were supported by the systematic review done, which showed that the risks of developing preoperative anxiety among surgical patients were associated with patients' perceived perception of awakening in the middle of surgery being 2.58 times higher than those who were not (Abate et al., 2020). This could be due to those patients who fear awakening in the middle of surgery may experience different levels of stress, which may result in higher levels of anxiety.

Furthermore, the level of preoperative anxiety in patients with fear of postoperative pain was 2.56 times higher than in those without fear of postoperative pain. This finding was supported by a study done at Debre Berhan Comprehensive

Table 6. Factors to Assess Level of Preoperative Anxiety and Associated Factors among Admitted Patients for Surgery in Public Hospitals, Southern Ethiopia, 2022 (N = 220).

Covariates	Categories	Level of anxiety		COR (95%CI)	AOR (95%CI)
		High (No.)	Low (No.)		
Age (years)	18–24	15	10	0.84(0.34, 2.09)	0.58(0.01, 44.48)
	25–34	22	23	0.53(0.26, 1.11)	0.73(0.26, 2.06)
	35–44	33	28	0.66(0.34, 1.29)	0.71(0.32, 1.57)
	>=45	57	32		
Marital status	Married	85	55	0.65(0.33, 1.265)	0.52(0.22, 0.26)
	Never married	23	23	1.02(10.37, 2.78)	0.88(0.27, 2.85)
	Divorced	11	7	0.65(0.23, 1.83)	0.45(0.12, 1.62)
	Widowed	8	8		
Occupation	Gov't employee	29	30		
	Merchant	27	24	0.77(0.31, 1.93)	1.55(0.46, 5.29)
	Farmer	39	17	0.90(0.35, 2.29)	1.39(0.41, 4.72)
	Daily laborer	17	10	1.84(0.71, 4.74)	3.14(0.89, 10.96)
	Housewife	15	12	1.36(0.46, 4.04)	1.86(0.49, 7.10)
Educational status	No formal education	33	12	4.58(1.83, 11.5)	3.75(1.36, 10.39) **
	Primary education	50	25	3.33(1.49, 7.42)	2.72(1.15, 6.47) **
	Secondary education	29	31	1.56(0.69, 3.53)	1.45(0.59, 3.53)
	Tertiary education	15	25		
Type of surgery	Urologic	44	42	0.90(0.46, 1.79)	0.65(0.29, 1.49)
	Gynecologic	30	16	1.62(0.72, 3.63)	1.04(0.39, 2.76)
	Neurologic	24	10	2.07(0.83, 5.15)	1.11(0.37, 3.34)
	General surgery	29	25		
History of previous major operation experience	Yes	9	3	2.29(0.60, 8.69)	0.65(0.11, 4.01)
	No	118	90		
Fear of death	Yes	78	36	2.52(1.46, 4.37)	2.01(1.09, 3.73) **
	No	49	57		
Fear of wake up	Yes	20	7	2.29(0.93, 5.68)	3.42(1.19, 9.77) **
	No	107	86		
Fear of postoperative pain	Yes	47	11	4.38(2.12, 9.04)	2.56(1.15, 5.74) **
	No	80	82		
Fear of disability	Yes	24	7	2.86(1.18, 6.97)	2.05(0.72, 5.84)
	No	103	86		
Fear of medical mistake	Yes	38	10	3.54(1.66, 7.56)	2.14(0.89, 5.13)
	No	89	83		
Fear of dependency	Yes	3	9	0.23(0.06, 0.86)	0.22(0.49, 1.98)
	No	124	84		
History of DM	Yes	18	5	2.91(1.04, 8.14)	2.89(0.94, 8.89)
	No	109	88		
Current chat chewing history	Yes	15	8	2.32(0.72, 7.44)	2.42(0.66, 8.93)
	No	112	127		
Current cigarette smoking history	Yes	21	7	2.43(0.99, 5.99)	1.24(0.39, 3.88)
	No	106	86		

Bold values are to indicate statistically significance.

Specialized Hospital in surgical patients. Patients who excessively fear postoperative pain are 2.35 times more likely to develop preoperative anxiety (Shewangzaw et al., 2022). This is due to the fact that those patients who developed a perceived perception of fear of postoperative pain might think frequently about the procedure. This might result in psychological impact, which leads to higher preoperative anxiety.

According to the study done in the Czech Republic, Israel, Iran, and St. Luke's Catholic Hospital and Nursing College,

Wolisso, finding social and religious support and listening to music as coping mechanisms were found to reduce the odds of preoperative anxiety (Homzová & Zeleníková, 2015; Kushnir et al., 2012; Nasiri et al., 2017; Takele et al., 2020).

Strengths and Limitations of the Study

Using a validated tool. However, the study was based on self-reported information that may be prone to reporting bias.

Implications for Practice

For the majority of patients being hospitalized is a stressful moment and when the news of surgery appears everything will be changed and preoperative anxiety may occur. Preoperative anxiety has adverse effects on surgical outcomes of patients and also health professionals, so healthcare professionals may ensure that patients are aware of the possible dangers and advantages of their surgical treatments and can give more informed consent if they have a better understanding of the patients' anxiety levels. Understanding of the patients' anxiety levels and their effect on the patient's outcome helps the health professional towards improving surgical outcomes.

Conclusion and Recommendation

The findings of this study revealed that five out of ten patients who were scheduled for surgery in public hospitals had a high level of preoperative anxiety. The educational status of respondents, fear of death, fear of waking up in the middle of surgery, and fear of postoperative pain were considered as significantly associated factors of preoperative anxiety among surgical patients in public hospitals.

To decrease the high prevalence of preoperative anxiety, health professionals have to assess patients regularly for anxiety during the preoperative visit. To overcome the problem, regular preoperative counseling, facilitating and adhering to different preoperative anxiety coping mechanisms during the waiting time is very important. The preoperative care should consider the patient's educational status and any fears related to surgery.

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Abbreviations

AOR stands for adjacent odd ratio; CI stands for confidence interval; DM stands for diabetes mellitus; HTN stands for hypertension; STAI stands for Stat Trait Anxiety Inventory, and SPSS stands for Statistical Package for Social Science.

Availability of data and materials

The data that support the findings of this study are available upon reasonable request from the corresponding authors.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval and Consent to Participants

The ethical review board of the College of Health Sciences at Wachemo University approved this study (No. 1300070 for ethical approval). An official letter from the Research Ethics


Committee has been sent to the Hadiya zone health bureau and relevant authorities for cooperation. A letter of support and approval was then sent to each hospital. The subjects were informed about the purpose of the study. Written informed consent was obtained from participants at the time of data collection confirming their willingness to participate in the study. Those who did not want to participate had the opportunity. Confidentiality was also guaranteed throughout the research process. Confidentiality was maintained by conducting the interview in a separate area. It is certified that the study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

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