



PREOPERATIVE ANXIETY ASSESSMENT AMONG PATIENTS UNDERGOING CORONARY ARTERY BYPASS GRAFTING (CABG) PROCEDURE IN PUBLIC SECTOR HOSPITALS: A CROSS-SECTIONAL STUDY FROM PESHAWAR

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Abstract: Background: Coronary artery bypass graft surgery is a crucial treatment for people with coronary artery disease, relieving angina and improving their quality of life. Anxiety is a common reaction to stressful situations, including those anticipating surgery.

Objectives: To assess preoperative anxiety among patients undergoing coronary artery bypass grafting surgery and to determine the association between preoperative anxiety and demographic variables among the CABG surgery patients undergoing CABG procedure in public sector hospitals of Peshawar, Khyber Pakhtunkhwa, Pakistan.

Methods: This descriptive cross-sectional study consisting of 120 patients undergoing coronary artery bypass graft surgery were included in the study using a non-probability universal sampling technique in public sector hospitals of Peshawar including Hayatabad Medical Complex and Peshawar Institute of Cardiology, Peshawar. Permission was granted from the review boards of the university and hospital administration of the concerned hospitals. The data was collected using a validated questionnaire such as state anxiety inventory. Among the study participants, questionnaires were distributed and got 120 complete questionnaires. No incomplete questionnaires were obtained. The data were entered into SPSS (Version-22) and descriptive and inferential statistics were performed.

Results: The study enrolled 120 patients. Among the study participants, 51.67% had low socioeconomic level, 33.33% were Illiterate, 50% were employed, 45% of the participants have the age from 46-59 years. Among the study participants, 5.00% had low anxiety, 91.67% had medium anxiety and 3.33% had high anxiety level. The study showed there was a significant association between education level (P-value=0.022), employment status (P-value=0.001), age (P-value=0.016) and preoperative anxiety level. The study also showed there was a no significant association between income level (P-value=0.226) and preoperative anxiety level. **Conclusion:** The prevalence of preoperative anxiety is moderate to high among patients undergoing CABG procedure in public sector hospitals of Peshawar. Education level, employment status and age were significantly associated with preoperative anxiety level. It is crucial to identify preoperative anxiety in patients undergoing CABG surgery because it enables nurses and other medical professionals to create suitable and successful interventions.

Keywords: Preoperative period; Anxiety; Coronary artery bypass grafting; Public sector hospitals; Patients.

INTRODUCTION

Cardiovascular diseases is one of the leading causes of morbidity and mortality in the world.¹Coronary heart disease(CHD) is a disorder or blockage of heart blood flow, which is caused by coronary atherosclerosis, which result in pain and inflammation.²The most common surgical procedure for these conditions is coronary artery bypass grafting (CABG), which helps restore blood flow to the coronary arteries and enhancing circulation to the heart muscular layer.³About 400,000 CABG procedures are performed worldwide making it the most common cardiac surgery procedure globally.⁴An average incidence rate of 62 per 100,000 inhabitants in Western European countries.⁵Research has shown that more than 515,000 coronary artery bypass surgeries are performed annually in the United States and 17,000 in Australia.⁶The chance of Cardiovascular diseases (CVD) and the chance of having a CABG are strongly associated with psychological factors; discomfort at work and home, as well as low socioeconomic position, enhance the chance of CVD and mental illnesses.

⁷The preoperative mental state of the individuals undergoing surgical management is extremely useful.⁸Despite its benefits, CABG may be associated with various postoperative complications. Reported rates include atrial fibrillation (approximately 30%), vasoplegic syndrome (20.3%), renal dysfunction (21.3%), stroke (5%), mediastinitis (5%), pulmonary hypertension (2%), and mortality between 1% and 2%.⁹Study show that the positive results of the CABG procedure are affected by many factors, including the patient's psychological status, measured by the level of depression and anxiety (D&A).¹⁰Patient who is waiting for their cardiac surgery, often feel and experience stress about their surgery, which can be referred to as preoperative anxiety which affect patient mental wellbeing and also cause somatic complications after surgery. There complications include enhancing time of recovery period, enhance pain feelings, alter hemodynamic parameter, increase death rate and decreasing patient satisfaction after surgery.¹¹Also patient with CABG face significant physical and psychological stress due to separation from family, poor sleep during treatment and poor explanation linked to treatment from nursing staff.

¹²Complications that occur during hospitalization as a result of CABG surgery significantly enhance the overall cost of treatment, increase the patient's hospital stay, and demand additional healthcare personnel.¹³In case of surgery, patient face anxiety due to a number of reasons such as lack of ability to wake up from anesthesia, severe pain, deterioration of body integrity, permanent disability, infection, prolong stay in the ICU, strain from caregiver side,

and possibility of death. Furthermore, factors such as adjusting to the hospital environment, concerns about social and economic conditions, and other factors like privacy affect level of anxiety encountered by patients.¹⁴Waiting for heart surgery, hospitalization, fear of death, knowing a person who has died of the same disease in the past, and generally fear of the unknown cause anxiety in the patient. Anxiety can reduce wound healing, increase the infection risk, alter the immune response, and lead to electrolyte and fluid imbalances, and changes in sleep patterns. These factors may prolong hospital stays and delayed discharge. Studies conducted in the European region showed that the prevalence of preoperative anxiety among surgical patients varied from 27 to 80%. Studies conducted in India revealed that the prevalence of preoperative anxiety varied from 47% to 70.3% while the prevalence of preoperative anxiety in Pakistan ranged from 62 to 97%.¹⁵

Currently, Pakistan has a greater incidence of CAD and CABG operations than other countries throughout the world. Pre-operative anxiety is a significant concern for people undergoing CABG operations. Although there have been some previously published studies on the measurement of preoperative anxiety in CABG surgery from various nations, there is a study gap since it does not exist in the local context of Khyber Pakhtunkhwa, Pakistan. There is insufficient literature, and none of the studies have been conducted in Peshawar, KPK, Pakistan. Because the Pakistani population is extensively represented throughout the world, the results of this study will provide the scientific community with new insights into preoperative anxiety among patients undergoing CABG surgery. This study would provide baseline data for future researchers, policymakers, and health care professionals, particularly nurses, to develop and implement consistent treatment and interventions to alleviate pre-operative anxiety in patients undergoing CABG procedures.

Nurses who care for patients undergoing CABG surgery in the preoperative phase frequently observe the enormous anxiety, fear, and stress that many of their patients feel. Information on how these patients experience anxiety prior to CABG surgery is vital in order to plan some useful therapies that can be implemented and may help patients reduce their anxiety levels, potentially leading to a speedier recovery. The study's findings will also give nurses and health professionals with new evidence about pre-operative anxiety to help them develop health care policies and execute appropriate interventions.

OBJECTIVES

The first objective was to assess preoperative anxiety

among patients undergoing coronary artery bypass grafting surgery and the second objective was to determine the association between preoperative anxiety and demographic variables among the CABG surgery patients undergoing CABG procedure in public sector hospitals of Peshawar, Khyber Pakhtunkhwa, Pakistan.

METHODS

This descriptive cross-sectional study was carried out at Peshawar Institute of Cardiology (PIC) and Hayatabad Medical Complex (HMC), Peshawar, Pakistan. Due to small number and limited availability of patients, a non-probability universal sampling technique was used to assess the level of preoperative anxiety among patients undergoing Coronary Artery Bypass Grafting (CABG) procedure in HMC and PIC, Peshawar. As we had used universal sampling, so the total sample size for our study was 120. Adult patients (e.g. age ≥ 18 years) undergoing elective CABG surgery for the 1st time, Able to understand and communicate in Urdu, English, Pashto or local language and those Providing informed consent were included in the study.

Patients undergoing Emergency CABG procedure, with known or diagnosed psychiatric disorders, undergoing combined procedures or re-operation and patients who are not willing to participate were excluded from the study. Patients admitted to cardiovascular surgery wards were screened for inclusion criteria and confirmed eligible. The study was conducted in two public sector hospitals and data was obtained one day before surgery. The study follows the principles outlined in the Declaration of Helsinki. Proper permission was granted from Ethical Review Committee of Khyber Medical University Peshawar. Official consent was obtained from the hospital director of HMC and PIC Peshawar. Before data collection began, respondents were given a brief introduction to the research's goal. The study was explained to be completely risk-free.

Participants were allowed to choose whether or not to participate in the study. They were informed that they might reject to participate with no loss or advantage. They might also withdraw from the research at any time without being forced. They could also refuse to answer part or all of the questions if they did not feel comfortable with them. The research information and objective were fully communicated to participants prior to obtaining their written and voluntary permission. Following agreement, written consent was obtained from the respondents. The participants' privacy and confidentiality were respected throughout the data collection process. Participants were informed that their information would be kept confidential.

The indicated study was conducted in accordance with all ethical norms and standards. The instrument we had used for data collection comprised of two parts. Part A included the items used to collect socio-demographic characteristics such as age group, employment status, education level and income level. Part B included state anxiety inventory, which is most commonly used to evaluate anxiety. Also it is the most popular instrument for assessing anxiety. The following items are associated with state anxiety: "I am tense; I am worried" and "I feel calm; I feel secure." Also it is a structured, validated, reliable and adoptive questionnaire.

It was a reliable 20 item self reported assessment questionnaire with a Cronbach Alpha=0.80. Participants in the study rated the strength of their anxious sensations on a four-point Likert scale to assess their current state of anxiety: where 1 = not at all; 2 = somewhat; 3 = moderately so, and 4 = very much so. The patients' answers were added up for a total score of 20 to 80, with higher scores indicating higher feelings of anxiety. Anxiety scores are classed into three categories as low anxiety (20-39), medium anxiety (40-59), and high anxiety (60-80).¹⁶The investigator accessed patients' admittance records from the cardiovascular surgery wards, as well as information from the ward in charge.

A tranquil setting was provided one day before to surgery. All participants were informed about the study's purpose and given a subject information sheet. Patients provided written informed consent and completed a questionnaire on socio-demographics and the State Anxiety Inventory. Patients completed the data collecting tool in the cardiovascular surgery ward. The chief investigator collected clinical data from chosen study participants. Clinical variables were obtained from patients' case records. Participants filled out the data collecting form in an average of 10-15 minutes. In total, 120 persons were approached to participate in the study, and all were enrolled in the study. All 120 patients completed pre-operative data collecting forms.

All data were collected in person, therefore there were no missing values. Data was analyzed statistically with the help of Statistical Package for the Social Sciences (SPSS for windows version 22). The study data was analyzed using both descriptive and inferential statistics. The patient's socio-demographic characteristics and preoperative anxiety levels were reported using frequency and percentages. A statistically most appropriate Fisher exact test was applied to determine the association between categorical variables like sociodemographic variables including Age categories, income level, educational status and employment status with preoperative anxiety level of patients. Tables were used to

summarize the results.

RESULTS

Out of 120 patients, 6.67% of the participants have age from 18-30 years, 30% have age from 31-45 years, 45% have age from 46-59 years and 18.33% have age equal to or greater than 60 years. 51.67% had low socioeconomic level, 15.00% had fair socioeconomic level, 13.33% had average socioeconomic level and 20.00% had good socioeconomic level. 33.33% were Illiterate, 16.67% were Matriculate, 20.00% were of Intermediate level and 30.00% were of Graduate level. 50% were employed and 50% were unemployed (Table I). Among the study participants, 5.00% had low anxiety, 91.67% had medium anxiety and 3.33% had high anxiety level (Table II). There was a significant association of education level(P-value=0.022), employment status(P-value=0.001) and age(P-value=0.016) with preoperative anxiety level. There was a no significant association of income level(P-value=0.226) with preoperative anxiety level (Table III).

TABLE I: DEMOGRAPHIC BASED DISTRIBUTION (N = 120)

Variables		Frequency n (%)
Age Category	18-30	8(6.7%)
	31-45	36(30%)
	46-59	54(45%)
	≥60	22(18%)
Educational Status	Illiterate	40(33.3%)
	Matric	20(16.7%)
	Intermediate	24(20%)
	Graduate	36(30%)
Employment Status	Employed	60(50%)
	Unemployed	60(50%)
Income Level	Low Socioeconomic Level	62(51.7%)
	Fair Socioeconomic Level	18(15%)
	Average Socioeconomic Level	16(13.3%)
	Good Socioeconomic Level	24(20%)

TABLE II: MAGNITUDE OF PREOPERATIVE ANXIETY AMONG PATIENTS

Item	Low	Medium	High
Preoperative anxiety level	6(5%)	110(91.7%)	4(3.3%)
Frequency n (%)			

TABLE III: ASSOCIATION OF PREOPERATIVE ANXIETY WITH SOCIO-DEMOGRAPHIC VARIABLES

Variables	Low n (%)	Medium n (%)	High n (%)	P-value
Age Category				0.016
18-30	2 (1.7%)	6 (5%)	0 (0%)	
31-45	0 (0%)	34 (28.3%)	2 (1.7%)	
46-59	4 (3.3%)	50 (41.7%)	0 (0%)	
≥60	0 (0%)	20 (1.7%)	2 (16.7%)	
Educational Status				0.022
Illiterate	4 (3.3%)	32 (26.7%)	4 (3.3%)	

Matric	0 (0%)	20 (16.7%)	0 (0%)	
Intermediate	2 (1.7%)	22 (18.3%)	0 (0%)	
Graduate	0 (0%)	36 (30%)	0 (0%)	
Employment Status				0.001
Employed	0 (0%)	60 (50%)	0 (0%)	
Unemployed	6 (5%)	50 (91.7%)	4 (3.3%)	
Income Level				0.266
Low Socioeconomic Level	6 (5%)	52 (43.3%)	4 (3.3%)	
Fair Socioeconomic Level	0 (0%)	18 (15%)	0 (0%)	
Average Socioeconomic Level	0 (0%)	16 (13.3%)	0 (0%)	
Good Socioeconomic Level	0 (0%)	24 (21.8%)	0 (0%)	

DISCUSSION

Preoperative anxiety is a common psychological problem among patients who are waiting for major surgeries, particularly cardiac surgeries such as coronary artery bypass graft (CABG) surgery. According to our study, only 5.00% had low, 3.33% had severe, and 91.67% had moderate preoperative anxiety. These results indicate the widespread prevalence of this psychological problem and are in line with worldwide data demonstrating that moderate anxiety predominates in CABG patients prior to surgery. For example, A study conducted in Malaysia by Zaini et al. showed that that 10.1% of the patients experienced mild, 0.6% had severe and 89.3% had moderate preoperative anxiety.¹⁷ The results of this study are in line with our study.

A study conducted by Ali N. N. at Karachi showed that 35% of the patients experienced mild, 32% had severe and 18% had moderate preoperative anxiety.¹⁶ The results of this study do not match with our study. The study found that assessing preoperative anxiety among patients undergoing CABG procedure is crucial. In our study, Income level had no significant association with preoperative anxiety, while age, employment status, and education level showed significant association with it. Higher educational attainment and anxiety levels were shown to be significantly associated ($p = 0.022$). This is consistent with data from other contexts showing that education affects patients' psychological reactions prior to surgery.

Patients with specific sociodemographic characteristics, such as education level, were more likely to have moderate anxiety in the Malaysian context, with tertiary-educated people exhibiting unique anxiety patterns.¹⁷ These results imply that health literacy and sickness perception are influenced by educational standing, which may then influence how people feel about surgery. Patients with higher

levels of education may be more aware of the risks associated with surgery, which may cause them to worry more, but patients with lower levels of education may not grasp the implications of surgery, which could have a different effect on anxiety. Preoperative anxiety was also significantly associated with age ($p = 0.016$). This result is consistent with a number of worldwide research that have shown that preoperative discomfort is more common in older patients. Participants in the aforementioned Malaysian study who were between the ages of 60 and 74 had higher levels of anxiety than younger patients.¹⁷ In the same way, studies across a range of demographics has demonstrated that anxiety is influenced by age due to factors such perceived diminished resilience in older persons, comorbid disorders, and fear of complications. However, other earlier studies in cardiac surgical settings found no statistically significant correlation between age and moderate anxiety groups, underscoring population and environment diversity.¹⁸

In our study, anxiety levels had a significant association with employment status ($p = 0.001$). Preoperative anxiety may be increased in people who were unemployed due to weakened social roles, financial instability, or a lack of coping mechanisms. The general surgical literature frequently demonstrates that unemployment and job uncertainty contribute to increased anxiety prior to surgery due to concerns about postoperative capacity to return to work and financial obligations, despite the lack of published evidence on this particular association in CABG populations. Contrary to some research where socioeconomic position affected anxiety severity, income level did not substantially associate with preoperative anxiety ($p = 0.226$) in our study. A Jordanian study showed that among CABG patients, preoperative anxiety and depressed symptoms independently predicted postoperative delirium and prolonged hospital stays.¹⁹ Furthermore, compared

to patients with mild anxiety, those with moderate to severe anxiety experienced increased postoperative pain and used significantly more analgesics, according to a prospective cohort study.

18 These results highlight the clinical significance of early detection and treatment of anxiety. The majority of patients in the study reported greater anxiety prior to surgery, highlighting the need for assistance for those after CABG surgery. Pre-operative intervention is crucial as patients with higher anxiety levels are more likely to remain anxious during hospitalization and recovery.

THE IMPLICATIONS FOR CLINICAL PRACTICE

Identifying pre-operative anxiety in CABG surgery patients is crucial for healthcare professionals and nurses to design effective therapies. Evaluating pre-operative anxiety is crucial for reducing emotional strain and concern among patients before major cardiac surgery. It promotes speedier healing and lowers medical costs by preventing post-surgery complications. Our study recommends routinely evaluating preoperative anxiety levels before surgery, as well as exploring the impact of preoperative anxiety on postoperative recovery in CABG patients. Additional research is needed to improve surgical outcomes and promote speedier recovery for patients. New therapies should also be developed. Effective interventions for reducing pre-operative anxiety should be investigated in randomized controlled trials.

LIMITATIONS

Some of the study's limitations are notable. The study focused on a small number of individuals who had CABG surgery. This study's findings may not be representative of the larger group of CABG patients. Furthermore, no postoperative anxiety assessment was conducted, limiting the ability to analyze the relationship between pre and postoperative anxiety.

CONCLUSION

Our study found that patients receiving CABG surgery face significant preoperative anxiety. By emphasizing the burden of preoperative anxiety in a public-sector setting, where psychological support systems are frequently scarce, this study considerably adds to local and regional evidence. Evaluating pre-operative anxiety in patients undergoing CABG surgery is crucial for nurses to offer effective care. Addressing anxiety prior to surgery is crucial for providing effective intervention and avoiding negative outcomes. To improve postoperative outcomes for patients, it is recommended to analyze pre-operative anxiety and create therapies to reduce it. Implement routine pre-operative assessments, anxiety screening, and therapy for at risk individuals to improve the quality of life and long-term prognosis for patients

undergoing CABG surgery.

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