

FEAR BEFORE BYPASS: A CROSS-SECTIONAL STUDY OF PREOPERATIVE ANXIETY AMONG CABG PATIENTS

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Abstract

**Background:** Coronary artery disease is the leading cause of death worldwide. There are many surgical regimens to treat such disease but CABG is preferred if angioplasty is failed or the disease effected more than 50% of coronary arteries. Such patients are very anxious regarding CABG due to many factors which can increase the disease process and hospital stay after surgery. They need proper psychological support to reduce their anxiety.

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**Objective:** The study was aim to examine Preoperative Anxiety Levels in Patients Undergoing Coronary Artery Bypass Grafting at Lady Reading Hospital, Peshawar, KPK

**Method:** Cross-sectional study design was used to evaluate the level of anxiety among CABG patients.

**Results:** Total of 56 patients were included in the study in which 35 were male while 21 were female. Among all 40 were married, 8 were divorced and 8 were unmarried. Mean age of study participants was  $43.88 \pm 10.92$  years. In the final analysis, 39.3% subjects showed sever pre-operative anxiety, 23.2% had moderate anxiety, mild anxiety was noted in 21.4% participants and only 16.1% partaker revealed no anxiety before the procedure.

**Conclusion:** Patients undergoing CABG are mostly anxious about surgery. Proper psychological support should be applied to reduce their preoperative anxiety and to decrease in their hospital stay and post-operative complication.

## INTRODUCTION

### 1.1: Chapter overview:

In this chapter, a detail will provide regarding the coronary artery surgery, its complications, and preoperative anxiety among these patients and uses of non-pharmacological techniques to reduce their anxiety level.

### 1.2: Introduction:

Coronary artery disease (CAD) is the leading cause of morbidity and-mortality worldwide (Verulava et al. 2021). According to the American heart association cardiovascular diseases caused 24.3 million deaths in the United States in 2016. The study also found that heart diseases including CAD are the first major cause of death worldwide (Verulava et al. 2021,

Jarmoszewicz et al. 2020). Moreover, the annual death rate related to CAD is 31. 8% worldwide (Jarmoszewicz et al. 2020). According to another study, the CAD affected sixteen million people in 2019 at USA. This study also reported that CAD count for 46% deaths in Iran (Hernández-Palazón et al. 2018). Majority of studies have found that coronary artery bypass grafting (CABG) is the most common intervention for managing CAD worldwide (Jarmoszewicz et al. 2020, Prado-Olivares et al. 2019, Hernández-Palazón et al. 2018). Few studies also reported that majority of patients are anxious before going for surgery in the hospital (Verulava et al. 2021, Prado-Olivares et al. 2019, Hernández-Palazón et al. 2018). According to the American Psychological Association (APA), anxiety is typically characterized by tension, anxious thoughts, and physical changes (APA 2019). The most common sign and symptoms of preoperative anxiety is stress, restlessness, fatigue, problem in concentration, muscle tension and discomfort (Guzelhan et al. 2018, Erthurk et al. 2019). There are many factors that could cause anxiety in these patients but some studies elaborated that having no or little knowledge about surgery, long waiting for surgery, post anesthetic complications, and rude behaviors of the staff members, fear of death, fear of unexpected outcome, remembering people died of the same disease in the past are the common factors that lead to an anxiety in these patients (Thanusayan 2020, Açikel 2019). One of the study found that pre-operative anxiety is the most common problem of these patients who are going for CABG as compared to other surgeries. Furthermore, preoperative anxiety is associated with increase post-operative death rate (Farooqui et al. 2020). Another study reported that level of anxiety ranges from 75% to 80% in cardiovascular patients (Niknejad et al. 2019). Another similar study concluded that about 50% of patients had preoperative anxiety (Farooqui et al. 2020) Similar findings were reported by others that the prevalence of pre-operative anxiety is about 20.2% in

United States, 27% to 80% in Europe, 47% to 70.3% in India and 62% to 97% in Pakistan respectively (Thanusayan 2020, Farooqui et al. 2020, Verulava et al. 2021). Another study findings also revealed that preoperative anxiety are associated with many others complications in the post-operative stage such as; post-surgical lesion, atrial fibrillation, increase use of health services, increase mortality and morbidity, acute myocardial infarction, increase hospital stay, decrease patient satisfaction, poor quality of life and distress among patients (Farooqui et al. 2020, Erthurk et al. 2019). In addition, another study explained that patients with high level of preoperative anxiety have more pain and delirium after surgery as compared to patients with low level anxiety in the pre-operative stage (Farid et al. 2020, Ali et al. 2021). Sever anxiety release high level of catecholamine, adrenocortical hormones, prolactin, cortisol, and prostaglandin that result physiological and psychological functions disruption in human body (Açikel 2019). Similar findings revealed by (Guzelhan et al. 2018), anxiety have a negative effects on body and can decrease tissue repair and improvement. Another study reported that 42% patients had preoperative anxiety and 74% patients have reported that they had no prior information/teaching regarding the CABG surgery. Moreover, it explained that patient did not received enough training, psychological support and prior information or teaching about surgery that leads to high level of stress and anxiety (Guzelhan et al. 2018). An addition, two studies showed that preoperative anxiety and post-operative pain was s higher in women than men (Chandrababu et al. 2019, Wang et all. 2022). A randomizes control trail study explored that preoperative orientation tour to the patients can reduce the anxiety level and its complications (Açikel 2019). Moreover, two experimental studies also stated that deep breathing relaxation techniques and individualized education programs can also reduce the anxiety level before surgery and pain level after surgery

(Rodrigues et al. 2018, Farquhar et al. 2018). Another experimental study elaborated that the use of educational programs for reducing preoperative anxiety is very beneficial for patients before undergoing for major surgeries to decrease level of anxiety and its complication (Aust et al. 2018, Yilmaz & Bulut 2020) One more study declared that non pharmacological interventions such as counselling and other anxiety reducing techniques can reduce the anxiety level of preoperative patients (Milisen et al. 2020).

In the above discussion, it has been concluded that more than half the patients have reported preoperative anxiety and its complications after the major surgery like CABG. Therefore, this study aims to know about the preoperative anxiety among patients who are undergoing for CABG, design proper management to reduce their anxiety level to avoid post-operative complications and improve patient's health and their speedy recovery.

### 1.3: Aim of the study:

The study aim to examine Preoperative Anxiety Levels in Patients Undergoing Coronary Artery Bypass Grafting at Lady Reading Hospital, Peshawar, KPK

### 1.4: Significance of the study:

The study will examine the preoperative level of anxiety among CABG patients on the basis of which the hospital management and nurses could plan some non-pharmacological interventions to reduce the patient's anxiety and its complications. Moreover, the study will also provide a base for some experimental studies.

### 1.5: Research question:

What are the factors contributing to preoperative anxiety in patients undergoing Coronary Artery Bypass Grafting at Lady Reading Hospital, Peshawar, KPK, and how do these anxiety levels impact the overall surgical experience and outcomes?

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1: Chapter overview:

In this chapter a detail is provided about the level of anxiety present in patients going for CABG surgeries in previous published research study throughout the world. Furthermore, this chapter highlights the most recent studies related to our topic and the methods and scales used in these studies.

#### 2.2: literature review:

A study conducted in Australia in 2021 to determine the level of anxiety among patients undergoing CABG. They included 46 patients in which 27 were female and 19 male. The Beck Depression Inventory (BDI) scale was used to assess the anxiety level. Mean age of the study participants was  $51.62 \pm 11.0$  years. The study showed that 46% of patients had low level anxiety, 20% have mild anxiety, 8% have moderate anxiety and only 26% patients have high level anxiety. Additionally, the study elaborated that female patients have higher anxiety than male, and patients with history of previous surgery and tobacco use showed higher level anxiety than other (Verulava et al. 2021).

Another cross sectional study was accompanied in Poland in 2020 to show the preoperative anxiety level of patients waiting for CABG. They included 127 patients in

which 34 were female and 83 male. The mean age of study participants was  $64.48 \pm 10.13$  years. The study concluded that patients have high level of anxiety before surgery. Furthermore, the study determined that female patients have higher anxiety than male. Moreover, the study showed that patients have negative perception about disease and also have higher depressive symptoms. In the last the study recommended that these patients needs best psycho-educational interventions to reduce their anxiety and depression level (Jarmoszewicz et al. 2020).

A prospective study was directed in Spain in 2017 to elaborate the preoperative anxiety level in patients going for cardiovascular surgeries. They included 200 patients from a single hospital in Spain. They used verbal analog scale (VAS-A), Amsterdam Preoperative Anxiety and Information Scale (APAIS) scale for data collection. The study showed that 28% patients had higher anxiety on both scales. The mean score on APAIS was  $11.4 \pm 4.3$  and mean score on VAS-A scale was  $48 \pm 21$  respectively. Furthermore, the study identify that patients with CABG, have no previous anesthetic experience and any pre hospitalization for surgery showed higher anxiety (Hernández-Palazón et al. 2018).

An analytical cross sectional study was steered in Spain in 2019 to examine the level of anxiety among patient admitted in a hospital for CABG. They included 60 people in which 35 were female and 25 male with the average age of 63 years and mostly were married. They used specifically the subscale of state anxiety (STAI-S) to measure the level of anxiety. After analysis, 43.3% patients had high anxiety, 40% had moderate anxiety and 16.7% had low preoperative anxiety (Prado-Olivares et al. 2019).

A case-control study was conducted in Switzerland in 2020 to observe the anxiety level in patients going for CABG along with the provision of some psychological intervention to reduce their anxiety. They included 30 patients in two equal groups; case and control.

They used Hamilton Anxiety Rating Scale (HAM-A) to measure anxiety level. Psychological interventions were given to case group while control group was remained untreated with psychological intervention. After the result, there was clear reduction in anxiety level in case group whereas the anxiety level of control group was same. Finally, they concluded that psychological interventions can reduce the anxiety level and should be used for every patients going for surgery (Thanusayan 2020).

Another cross sectional study was directed in India in 2020 to highlight the level of anxiety among patients undergoing CABG. They used Hospital Anxiety and Depression Scale (HADS) scale for the assessment of anxiety level. After the final analysis 64.4% patients were found to have anxiety and 70% have depression. Moreover, the study elaborated that patients with physical inactivity have high level of anxiety and poor quality of life (Farooqui et al. 2020).

A randomize control trail study was conducted in 2019 in Iran to evaluate the effects of orientation tour on the reduction of anxiety level of patients going for CABG. They included 70 patients in two equal group; intervention group and control group. They used State-Trait Anxiety Inventory (STAI) scale to magnitude the anxiety level. The result of data revealed that patients were mostly anxious about the surgery in both groups. After the intervention to one group, the anxiety level was lowered than the control group. So, it was concluded in the study that tour intervention is effective tool to reduce the anxiety of patients (Niknejad et al. 2019).

Another prospective study was done in Turkey in 2019 to evaluate the anxiety level in pre and post CABG patients. About 65 patients were included in the study. Data were collected before and after CABG to check the difference in between. Beck's Depression Inventory (BDI) and Beck's Anxiety Inventory (BAI) tests were used to diagnosed anxiety and its

symptoms. In the last, the study revealed that anxiety level was higher after CABG than anxiety level before surgery. The study suggested that proper intervention is needed for these patients to improve their health and quality of life (Açikel 2019).

One more cross-sectional study was accompanied in turkey in 2018 to determine difference in anxiety level between male and female patients with CABG. They included 137 patients in which 96 were male and 41 female. The mean age of study participants was  $66.1 \pm 6.0$  years. Among all, 44.5% patients were noted to have anxiety. The anxiety level of female patients was higher than male. In the last, the study suggested that female patients need more psychological interventions than male (Guzelhan et al. 2018).

A quasi-experimental study was conducted in 2018 to evaluate the effects of individualize education on post-operative anxiety and pain in CABG patients. They included 109 patients in the study and State-Trait Anxiety Inventory (STAI) was used as a study tool. Data were collected a day before and after surgery and psychological interventions were given accordingly. The average age of study subjects was 59.62 years and mostly was male. The result showed that there was significant difference in the anxiety level after surgery in those patients to which interventions were given (Erthurk et al. 2019).

An analytical cross sectional study was done in Brazil in 2018 to evaluate the correlation between anxiety and depression with post-operative complication like, hemodynamic instability, infection, nausea, vomiting, agitation, hyperglycemia, pain and even death. They also used Hospital Anxiety and Depression Scale for data collection. They included 75 patients in their study in which mostly were male. Anxiety level was higher in female than male. In the result, it was concluded that those patients who have high level of anxiety and depression had more post-operative complication than those with lower anxiety and depression level (Rodrigues et al. 2018).

A cross-sectional study was steered in Armed Forces Institute of Cardiology/National Institute of Heart Diseases (AFIC/NIHD) Rawalpindi, in 2019 to evaluate the preoperative anxiety and the effects of video assisted instruction on reducing the preoperative anxiety among CABG patients. They included 150 subjects in which 118 were male while 32 were female. They also used Amsterdam Preoperative Anxiety and Information Scale (APAIS) for data collection. The mean age of study subjects was  $53.75 \pm 14.6$  years. In the result, it was concluded that video assisted instruction to alleviating the preoperative anxiety was more effective than alone verbal instruction (Farid et al. 2020).

## Methodology

### Study design:

This research project was conducted at public tertiary care hospitals in Peshawar from September (2025) to November (2025). The research design used for this study is a quantitative cross-sectional design

### Population and Setting:

The population of this study was preoperative CABG patients at Lady Reading Hospital Peshawar KPK.

### Sampling Technique:

Preoperative patients were selected by using convenient sampling technique.

**Sample Size:**

Sample size was calculated by Raosoft software. Population size was 65, 5% with margin of error and 10% Non-response rate. The calculated sample size was 56. The total population was selected by considering the previous three months record of CABG patients.

**Inclusion Criteria:**

Preoperative adult patients undergoing CABG surgery were included in the study.

**Exclusion Criteria:**

Unconscious patients

Patients on ventilator

Mentally retarded

**Data Collection Tool:**

A well-organized questionnaire adopted from (Amsterdam Preoperative Anxiety and Information Scale, APAIS) was used for data collection. Beside biographic information the questionnaire consisted of six questions about preoperative anxiety in patients. Each question has five answers starting from 1 (not at all anxiety) to 5 (extreme anxiety). In the final analysis, total score of less than six was considered no anxiety, total score from 7 to 12 was measured mild anxiety, moderate anxiety was count for score 13 to 18, total score from 19 to 24 was recognized high moderate anxiety and sever anxiety was calculated for score 25 and above.

**Ethical Consideration:**

Approval for the data collection was taken from the Director Nursing Lady Reading Hospital. An informed consent was presented and explained to each participant for his/her agreement as a participant. Anonymity was guaranteed to all the participants. The whole data was kept confidential and only primary data collectors and supervisors' had access.

**Data Analysis:**

Data have been analyzed by using SPSS version 26. In descriptive statistics, frequencies and percentages have been calculated for nominal and ordinal data; whereas, mean and standard deviation have been calculated for continuous variables.

**CHAPTER 4****DATA ANALYSIS/ RESULTS****4.1: Chapter overview:**

In this chapter, a detail is provided regarding data analysis done through SPSS version 26. Moreover, means and standard deviation calculated for continues data, frequencies and percentages designed for nominal and ordinal data is presented in detail for each variable and demographic data.

**4.2: Data analysis:**

Data analysis was done through SPSS version 26. Frequencies and percentages were calculated for nominal and ordinal data and means and standard deviations were measured for continues data.

### 4.3: Gender distribution:

In the current study a total of 56 participants have participated in which 35 (62.5%) were male while 21 (37.5%) were female. Their gender distribution of the study is shown in figure 1 below.

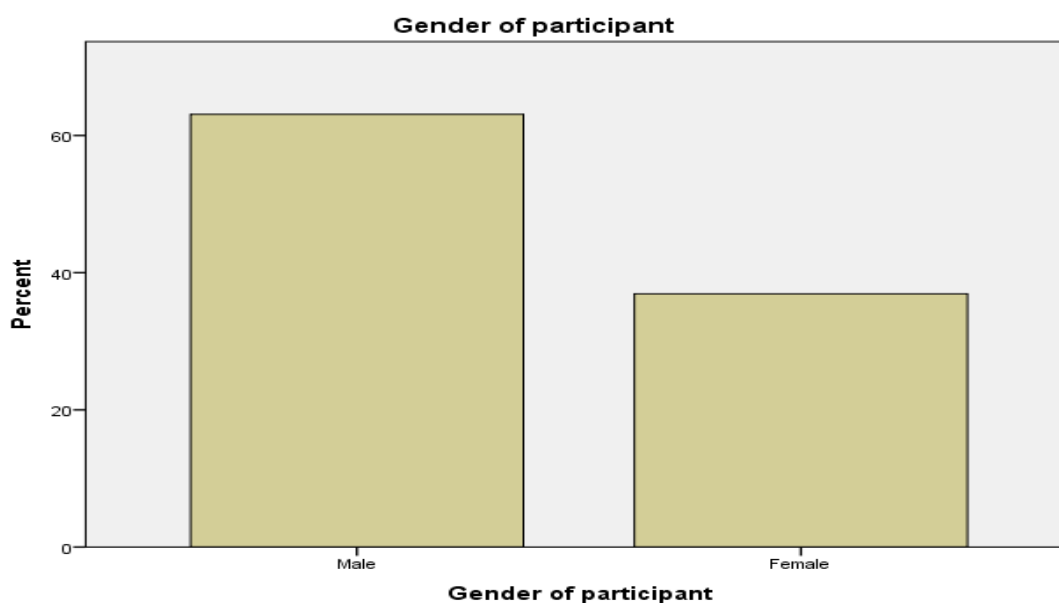


Figure 1: Gender distribution

### 4.4: Marital status of subjects:

According to the marital status of the current study subjects, 40 participants were married, 8 were unmarried and the number of divorced subjects was also 8. Table 1 showed the marital status of participants.

Table 1: Marital status of respondents

|               | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------|-----------|---------|---------------|--------------------|
| Valid Married | 40        | 71.4%   | 71.4%         | 71.4%              |
| Unmarried     | 8         | 14.3%   | 14.3%         | 85.7%              |
| Divorced      | 8         | 14.3%   | 14.3%         | 100.0%             |
| Total         | 56        | 100.0%  | 100.0%        |                    |

4.5: Age of study subjects:

The mean age of the present study subjects was 43.88 years with the standard deviation of 1.92. The minimum age was 39 years and maximum of 62 years. Table 2 shows the age of study partakers.

Table 2: Age of respondent

|          | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------|-----------|---------|---------------|--------------------|
| Valid 35 | 3         | 5.4     | 5.4%          | 5.4%               |
| 36       | 5         | 8.9     | 8.9%          | 14.3%              |
| 37       | 9         | 16.1    | 16.1%         | 30.4%              |
| 38       | 5         | 8.9     | 8.9%          | 39.3%              |
| 39       | 3         | 5.4     | 5.4%          | 44.6%              |
| 41       | 8         | 14.3    | 14.3%         | 58.9%              |
| 45       | 9         | 16.1    | 16.1%         | 75.0%              |
| 48       | 9         | 16.1    | 16.1%         | 91.1%              |
| 62       | 5         | 8.9     | 8.9%          | 100.0%             |
| Total    | 56        | 100.0   | 100.0%        |                    |

4.6: Education level of patients:

The education level of subjects were 36.9% uneducated, 26.2% primary, 20.0% secondary, 9.2% bachelor, and 7.7% higher (Figure-2).

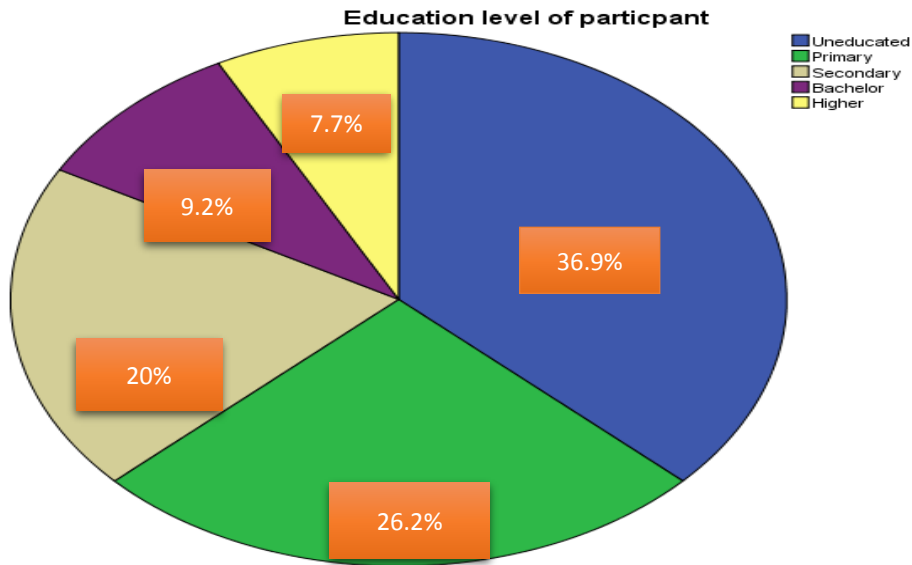


Figure-2 showing education level of patients

#### 4.6: Level of pre-operative anxiety of CABG patients

After the final analysis of data it was concluded that 39.3% subjects had sever pre-operative anxiety, 23.2% had moderate anxiety, mild anxiety was noted in 21.4% participants and only 16.1% partaker showed no anxiety before the procedure. Figure 3 shows the preoperative anxiety among subjects.

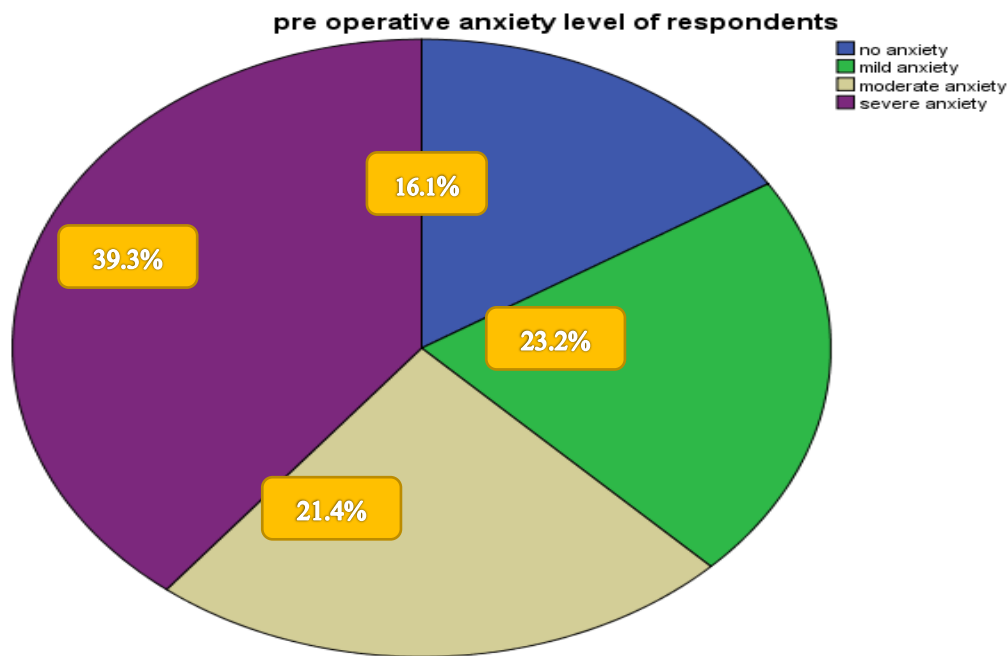


Figure 3: Level of preoperative anxiety among study subjects.

## CHAPTER 5

### DISCUSSION

Different data bases were thoroughly searched regarding studies about the preoperative anxiety among CABG patients worldwide. Many studies results were consistent to the current study and very few were inconsistent in some points.

As a study was conducted by Hernández-Palazón et al. 2018 in Spain proposed a similar result to the current study and stated that CABG patients had higher anxiety before surgery. Another study also projected the parallel result to the present study accompanied by Prado-Olivares et al. 2019 in 2019 and presented that 43.3% patients had high anxiety, 40% had moderate anxiety and 16.7% had low preoperative anxiety. One more alike result was declared by a cross sectional study done by Farooqui et al. 2020 in India and

elaborated that 64.4% patients undergoing CABG have preoperative anxiety. A randomized control trial study was steered by Niknejad et al. 2019 in Iran presented matching result to the current study and concluded that patients before CABG were mostly anxious about surgery. Another identical result was appeared in a cross sectional study about the use of video assisted instruction to reduce the preoperative anxiety among CABG patients. The study was directed by Farid et al. 2020 in Pakistan and identified that most of the CABG patients had preoperative anxiety.

A study conducted by Açikel 2019 in Turkey revealed inconsistent result to the present study and indicated that patients with CABG have low pre-operative anxiety. The difference in results may be due different scale used for data collection or may be due to the pre-operative psychological intervention given to these patients. One more unlike result to the present study was confirmed by a study done by Guzelhan et al, 2018 and identified that most of the CABG patients had no anxiety while fewer patients had anxiety before surgery.

## CONCLUSION

Preoperative anxiety is common in almost all patients undergoing CABG surgery. Preoperative anxiety can increase hospital stay and post-operative pain in patients. Moreover, these patients need some psychological intervention to reduce their anxiety. In the last, nurse can play an important role in giving psychological support to these patients because nurses are more involved with patients than other medical professionals.

## RECOMMENDATIONS

The study recommended that clinical psychologist and train nurses or doctors should be involved in the treatment of patients undergoing surgery for giving psychological support and to reduce their anxiety level.

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