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PREVALENCE OF DEPRESSION AND ANXIETY IN CORONARY ARTERY BYPASS GRAFTING PATIENTS: A SYSTEMATIC REVIEW.

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ABSTRACT:

Coronary Artery disease is a leading cause of death worldwide and one of the commonest interventional surgeries for that is Coronary artery Bypass Angioplasty (CABG). The aim of the study was to check for the prevalence of anxiety and depression in patients undergoing CABG, pre and post surgery . The inclusion and exclusion criteria were stated and 50 studies were screened. Out of these, 2 studies fulfilled the inclusion criteria and were chosen to be.a part of the review. On reviewing the studies it was found that 30% and 40% of CABG surgery patients experience depression and anxiety disorders at rates significantly higher than prevalent in community samples. Anxiety and depression directly affect the quality of life of the patients and cause worsening of outcomes. Even pre operative anxiety is shown to affect the post surgical outcomes in such patients. Thus, it is seen that anxiety and depression are very much prevalent pre and post surgery, the post surgical outcomes are affected by anxiety and depression, anxiety and depression are also affecting the patient's quality of life, which can be mitigated by proper intervention.

INTRODUCTION:

Coronary artery disease is the most common cause of morbidity and mortality in India with an estimated 408,000 CABG surgery procedures with acute in-hospital morbidity events, such as stroke, myocardial infarction and renal failure.

PREVALENCE OF DEPRESSION AND ANXIETYIN CABG PATIENTS

Depression is characterized by persistently depressed mood or loss of interest in activities, causing significant impairment in daily life. Studies have reported that there is a prevalence of 15% to 20% unipolar depression among CABG surgery patients. Comparatively, the point prevalence among the general population is 5% to 9% for females and 2% to 3% among males suggesting CABG surgery patients have higher prevalence of depression than community samples. (46)

Anxiety is defined to be Intense, excessive and persistent worry and fear about everyday situations. In anxiety, fast heart rate, rapid breathing, sweating and feeling tired may occur. Studies have shown that anxiety tends to be particularly high for CABG patients while on the waiting list with an unknown surgery date. Fear of dying before, rather than during surgery, has been highlighted as a pervasive and anxious preoccupation. Anxiety also manifests as an autonomic symptom that can exacerbate CAD symptoms. Studies also state that after surgery, there is likelihood of anxiety decreasing to pre-operative levels, the severity of anxiety does not necessarily remit to below sub-clinical levels and may warrant intervention. (46)

Anxiety and depression can worsen the symptoms of any postoperative event as also they can harm the patient preoperatively. This will eventually affect the person's day to day activities and finally his quality of life, especially in the postoperative period. This will result in participation restriction of the patient and if not treated on timely basis, will cause further complications in his life. The prevalence of anxiety and depression in CABG needs to be found out so that a particular treatment protocol can be developed for the patients , in which the patients will be screened and treated for depression and anxiety .At present, multiple treatment options are available for treating anxiety and depression like relaxation techniques, music therapy, cognitive behavioral therapy etc. If timely intervention is taken, then the quality of life of these patients can be improved and eventually it will help in reducing the mortality rate also.

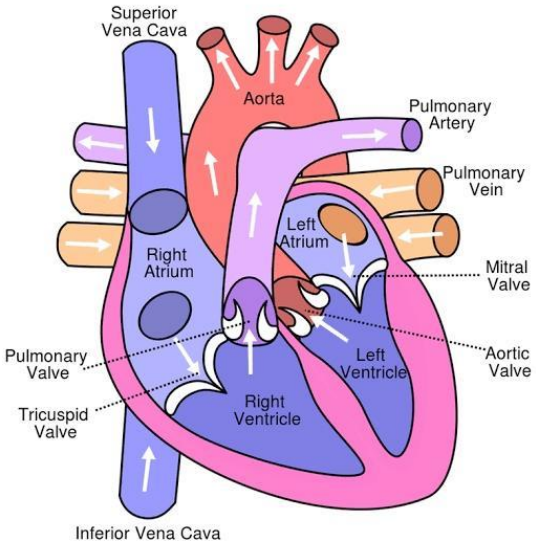
SOME SCALES FOR MEASURING ANXIETY AND DEPRESSION

1. Anxiety Scale (S-Anxiety) evaluates the current state of anxiety, asking how respondents feel "right now,"
2. The Trait Anxiety Scale (T-Anxiety) evaluates relatively stable aspects of "anxiety proneness," including general state.
3. GAD-7 scale is self-reported questionnaire for screening and severity measuring of generalized anxiety disorder.
4. The Hamilton Anxiety Rating Scale (HAM-A) is a psychological questionnaire used by clinicians to rate the severity of a patient's anxiety. ... The scale consists of 14 items
5. Zung Self-Rating Anxiety Scale (SAS) the "Anxiety Index" score can then be used on scale to determine the clinical interpretation of one's level of anxiety.
6. Beck Anxiety Inventory (BAI),is a 21-question multiple-choice self-report inventory that is used for measuring the severity of anxiety.
7. The Beck Depression Inventory (BDI) is widely used which contains 21 self-report questions.
8. The centre for epidemiologic studies depression scale (CES-D) contains 20 self report questions.
9. Hamilton rating scales for depression (HDRS, HRSD or HAM-D) , measures depression in individual contacting 28 items.
10. EQ-5D is a measure of self-reported health outcomes. dimensions including : mobility, self care, usual activities, pain/discomfort, and anxiety/depression
11. MARDS (Montgomery–Åsberg Depression Rating Scale) is a ten-item diagnostic questionnaire to measure severity of depression.
12. The Geriatric Depression Scale (GDS) is specifically designed to screen and measure depression in older adults.(53,54)

ANATOMY

- The heart is a muscular organ located within the thoracic cavity, medially between the lungs in the space known as the mediastinum.
- The heart measures around 300g in males and 250g in females.
- It is a pericardial sac, is a double-walled sac covering the heart and the roots of the great vessels.

- Blood enters the heart through two large veins, the inferior and superior vena cava, emptying oxygen-poor blood from the body into the right atrium. As the atrium contracts, blood flows from right atrium into your right ventricle through the open tricuspid valve.



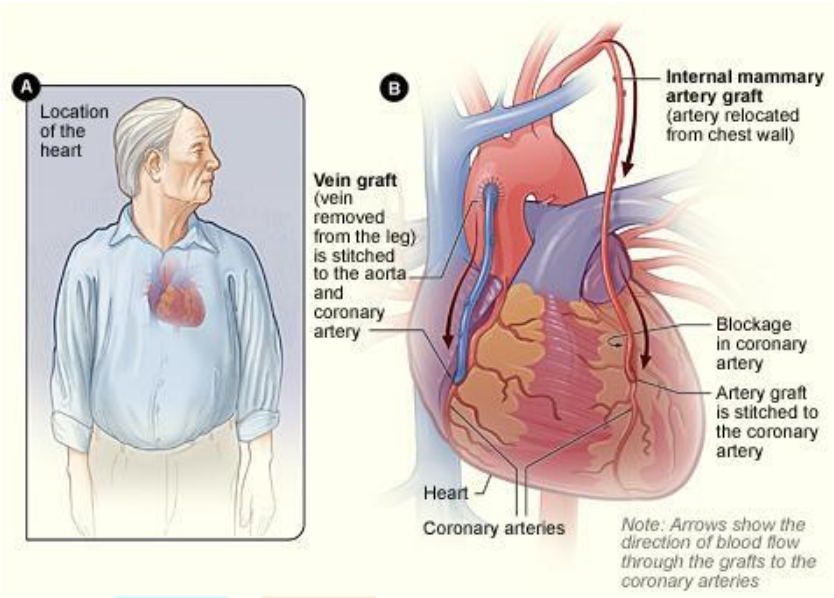
FEATURES OF HEART

- The heart has four chambers, atrioventricular groove, is along the line where the right atrium and the right ventricle meet.
- The heart has 4 valves: The mitral valve and tricuspid valve, which control blood flow from the atria to the ventricles. The aortic valve and pulmonary valve, which control blood flow out of the ventricles.
- Circulatory system makes up cardiovascular system. Heart works as a pump that pushes blood to the organs, tissues, and cells of your body. Blood delivers oxygen and nutrients to every cell and removes the carbon dioxide and waste products made by those cells.

CONDUCTION SYSTEM OF HEART

- Left: Normal excitation originates in the sinoatrial (SA) node then propagates through both atria. The atrial depolarization spreads to the atrioventricular (AV) node, and passes through the bundle of His to the bundle branches/Purkinje fibers.(51)

CORONARY ARTERY BYPASS GRAFTING



- Coronary artery bypass grafting (CABG) is used to treat people who have severe coronary heart disease (CHD) that could lead to a heart attack. CABG also may be used to treat people who have heart damage following a heart attack but still have blocked arteries.
- Coronary artery bypass surgery is done when at least one major artery needs to be bypassed. During the surgery, the chest bone is opened to access the heart.
- Medicines are given to stop the heart, and a heart-lung bypass machine is used to keep blood and oxygen moving throughout the body during surgery. This allows the surgeon to operate on a still heart. After surgery, blood flow to the heart is restored. Usually, the heart starts beating again on its own. In some cases, mild electric shocks are used to restart the heart.(52)
- To date, only three studies have examined the combined effects of depression and anxiety symptoms in CABG patients to assess the relative importance of these mood disorders on recovery. However, there have been mixed findings. The first found pre-operative depression symptoms, but not anxiety symptoms, to predict poor health related quality of life in 193 participants followed up six months after surgery (Tully et al. 2009). The second one included 158 CABG patients and found pre-operative
- Anxiety disorder, but not major depression, predicted major adverse cardiovascular and cerebrovascular events (Tully et al. 2015). The third found post-operative anxiety, but not depression symptoms, to predict major adverse events and mortality up to four years following surgery in a sample of 180 CABG patients (Sze´kely et al. 2007). Therefore, it is not yet clear to what extent anxiety symptoms predict cardiac morbidity and mortality over and above depression symptoms or vice versa.(18)

ASSESSMENT

PATIENTS NAME: AGE/SEX:

UNIT: DOA:

DIAGNOSIS:

RESIDENTIAL ADDRESS:

OCCUPATION:

CHIEF COMPLAINTS:

HOPI:

DAILY ACTIVITY PROFILE:

- STAYS ON WHICH FLOOR:
- NO.OF STEPS:
- NATURE OF ACTIVITY AT HOME:
- DISTANCE OF MARKET OR WORKING PLACE FROM HOME
- MODE OF TRAVEL:

JOB:

- STANDING: Hrs/Min
- WALKING: Hrs/min/distance
- LIFTING OF WEIGHT: No/Yes……Kgs

Occasionally (less than 1 hr)

Frequently (1-3hr)

Major demands (more than 3 hr)

COUGH: *Dry/Productive/Mucous*

Amount of Expectoration:

Postural Variation:

Diurnal Variation:

Seasonal Variation:

DYASPNEA: GRADE

CHEST PAIN:

ANY OTHER ASSOCIATED SYMPTOMS:

ONSET:

MEDICAL HISTORY:

PAST SURGICAL HISTORY:

SOCIAL HISTORY:

PERSONAL HISTORY:

- Bladder/bowel:
- Sleep:
- Appetite:

RISK FACTORS:

- Smoking:
- Tobacco/Gutkha Chewing:
- Alcohol:
- Type A Personality
- Hypercholesterolemia
- Sedentary Lifestyle:
- Diabetes Mellitus/Hypertension:
- Family History:
- Diet:
- Use OfChullah For Cooking:

ON OBESERVATION:

- General condition:
- Use of accessory muscle:
- Flaring of nostrils:
- Cyanosis:
- Clubbing:
- Pallor:
- Oedema:
- Icterus:
- Condition of skin:
- Sputum: colour:

Smell:

Amount:

Type:

ON INSPECTION:

- Shape of chest:
- Chest expansion:
- In drawing of intercostal:
- Paradoxical breathing:
- Hoovers sign:
- Precordium:
- Posture:

ON PALPATION:

- Chest expansion:
- Apex beat:
- Peripheral pulsations:
- Trail's sign:

ON EXAMINATION:

- Heart rate:
- Respiratory rate:
- Blood pressure:
- Spo2
- Height:
- Weight:
- BMI:
- Waist hip ratio:
- Inspiratory to expiratory ratio:

CHEST EXPANSION:

- Level of axilla:
- Level of xiphisternum:
- 2"above umbilicus:

- **SCAR EXAMINATION:**
- Length:
- Width:
- Healed:
- Adherent:
- Presence of ICD Scar:
- Presence of Mediastinal Drain Scar:

ON AUSCULATATION:

- Crepitation:
- Rhonchi:
- Bronchial Breath Sounds:
- Plural Rub:

Exercise tolerance testing (6 minute walk test)

Medications before the test (time and dose):

Supplemental oxygen during the test: no/yes L/min Type:

Dyspnoea at rest (on VAS):

parameters	At rest	Immediate post ex.	After 1 min	After 3min	After 6min	After 9 min
HR						
RR						
BP						
RPE						
FATIGUE						
PEFR						
SPO2						

Stopped or paused before 6 minutes? No/yes: reason:

Number of pauses:

Other symptoms at the end of exercise: angina, dizziness, leg or calf pain

Number of laps:

Total distance walked in 6 minutes:

Predicted distance:

Percent predicted:

Current medications:

Investigations:

Blood examination:

X ray:

PFT reports:

	Pre bonchodilator	Post bronchodilator
FVC		
FEV1		
FEV1/FVC		

CT scan thorax:

ECG:

Coronary angiography:

Stress testing:

2D echocardiography

AIMS AND OBJECTIVES OF THE STUDY

- To find out the prevalence of anxiety and depression in Coronary Artery Bypass grafting patients, pre and post surgery.

REVIEW OF LITERATURE

1. Dharmender Kumar Nehra, Nov RattanSharma. Efficacy of MBSR program in treating depression, anxiety and perceived stress in coronary heart disease patients Journal of positive psychology 2012.3(1), 91. The purpose of the study was to examine potential psychological health benefits of participating in a brief (5-week) mindfulness-based stress reduction (brief MBSR) program integrated into an academic course. Participants were 119 undergraduate students (treatment: n = 72; control: n = 47) enrolled in elective academic courses on addictive behaviors, between January 2010 and May 2012.This study employed a quasi-experimental pretest/posttest design comparing changes in psychological health between brief MBSR treatment and parallel control groups. Baseline and follow-up data were collected synchronously across semesters for both groups Analysis of covariance revealed significant improvements in psychological health, measured by mindfulness (Philadelphia Mindfulness Scale: $p \leq .001$; Kentucky Inventory of Mindfulness Scale: $p \leq .001$) and self-compassion (Self-compassion Scale: $p \leq .001$), among brief MBSR participants compared with the parallel control cohort. Brief MBSR programs can improve psychological health; however, longer MBSR programs may be needed to improve psychological distress, such as trait anxiety.

2. Leah K Bauer, Mario A Caro, Effects of depression and anxiety improvement on adherence to medication and health behaviors in recently hospitalized cardiac patients. The American journal of cardiology 109 (9), 1266-1271, 2012. This study assessed the association between improvements in depression/anxiety and self-reported adherence to health behaviors in depressed cardiac patients in the 6 months after cardiac hospitalization. Data were analyzed from depressed patients on inpatient cardiac units who were hospitalized for acute coronary syndrome, heart failure, or arrhythmia and enrolled in a randomized trial of collaborative care depression management (n = 134 in primary analysis). Measurements of depression (Patient Health Questionnaire-9), anxiety (Hospital Anxiety and Depression Scale, Anxiety subscale), and adherence to secondary prevention behaviors (Medical Outcomes Study-Specific Adherence Scale items) were obtained at baseline, 6 weeks 12 weeks, and 6 months assessed by linear regression after accounting for the effects of multiple relevant covariates. At all time points improvement in the Patient Health Questionnaire-9 was significantly and independently associated with self-reported adherence to medications and secondary prevention behaviors. In contrast, improvement in the Hospital Anxiety and Depression Scale, Anxiety subscale was associated with improved adherence only at 6 weeks. In conclusion, in a cohort of depressed cardiac patients, improvement in depression was consistently and independently associated with superior self-reported

adherence to medications and secondary prevention behaviors across a 6-month span, whereas improvement in anxiety was not.

3. Yesim YamanAktas, Discharge Education Intervention to Reduce Anxiety and Depression in Cardiac Surgery Patients. Journal of PeriAnesthesia Nursing, 2019. This study aimed to determine possible effects of a discharge education intervention on anxiety and depression among cardiac surgery patients. Thirty-three patients were placed in standard care group and 33 into standard care plus discharge education group. Patients in the discharge education group were provided an individual training from the first day of the hospital admission until the day of the discharge. The standard care group received usual discharge instructions. The Hospital Anxiety and Depression Scale—anxiety subscale scores were not significantly different between patients in the discharge and standard care groups (group: $F = 1.58$; $P > .05$). There was a significant difference for depression, indicating that the discharge education group had significantly lower depression than the standard care group (group: $F = 19.23$; $P < .01$). Findings supported that the discharge education intervention reduced depression in cardiac surgery patients.

4. BKorbmacher, S Ulbrich, Perioperative and long-term development of anxiety and depression in CABG patients. The Thoracic and cardiovascular surgeon 61 (08), 676-681, 2013 this study on CABG patients provided data for future preoperative and postoperative psychotherapeutic interventions. Compared with the standard population, anxiety scores (AS) were preoperatively elevated in 39.3% of the patients. Early and late after surgery, AS had decreased to 34.4% (not significant [n.s.]) and 28.9% ($p < 0.01$).Before surgery, depression scores (DS) were elevated in 20.7%. Early and late after surgery, DS further increased to 24.0% (n.s.) and 28.0% (n.s.).Remarkably high AS and elevated DS late postoperatively require psychotherapeutic support even after seemingly successful CABG.

5. SaeideHeidari, The effect of music on anxiety and cardiovascular indices in patients undergoing CABG. Nursing and midwifery studies 4 (4), 2015. This study aimed to investigate the effect of music therapy on anxiety and cardiovascular indices in patients undergoing CABG. In this randomized controlled trial, 60 patients hospitalized in the cardiovascular surgical intensive care unit In the experimental group, patients received 30 minutes of light music, whereas in the control group, patients had 30 minutes of rest in bed. The cardiovascular indices and anxiety were measured immediately before, immediately after and half an hour after the study. Data were analyzed using the chi-square test and repeated measures analysis of variance.Compared to the immediately before intervention, the mean anxiety scores immediately after and 30 minutesafter the intervention were significantly lower in the experimental group ($P< 0.037$) .Music therapy is effective in decreasing anxiety among patients undergoing CABG. Music can effectively be used as a non-pharmacological method to manage anxiety after CABG.

6. Angela Rao, Robert, The prevalence and impact of depression and anxiety in cardiac rehabilitation. European Journal of Preventive Cardiology 2019. 27 (5), 478-489. The purpose of this study was to determine the prevalence, correlates and predictors of depression and anxiety in cardiac rehabilitation this was a retrospective cohort study of 5908 patients entering cardiac rehabilitation program. Variables included demographics, diagnoses, cardiovascular risk factors,

medication use, participation rates, health status Moderate depression, anxiety or stress symptoms were prevalent in 18%, 28% and 13% of adults entering cardiac rehabilitation programmes, respectively. Adults with moderate depression (24% vs 13%), anxiety (32% vs 23%) or stress (18% vs 10%) symptoms were significantly less likely to adhere to cardiac rehabilitation compared with those with normal-mild symptoms ($p < 0.001$).concluded that Monitoring depression and anxiety symptoms on entry and during cardiac rehabilitation can assist to improve adherence and may identify the need for additional psychological health support.

7. Heather Tulloch, Adam Heenan. Depression and anxiety screening and triage protocol for cardiac rehabilitation programs. Journal of cardiopulmonary rehabilitation and prevention 38 (3), 159-162, 2018. The purpose of the study was to suggest routine screening for anxiety and depression in cardiac rehabilitation. Consecutive patients entering CR in our setting completed the (HADS). As per our Screening and Triage protocol for Anxiety and Depression (STAD), patients with high scores (≥16) were referred to a clinical psychologist those with lowscore (<8 for depression and <11 for anxiety) received information about community resources. Patients with moderate scores were reassessed 4 weeks later before triaging to psychosocial services. Total of 1504 patients (76% men) completed the HADS at intake; 287 (19%) had elevated depression and/or anxiety scores. Of these, 43 (15%) were referred to psychology services and 244 (85%) patients were referred for HADS readministration at 4 weeks. cardiac patients experience symptoms of depression and anxiety. The STAD protocol using the HADS was an efficient method to screen for anxiety and depression and appropriately utilize psychosocial treatment resources in the cardiac rehabilitation setting.

8. Lydia Poole .Pre-surgical depression and anxiety and recovery following coronary artery bypass graft surgery. Journal of behavioral medicine 40 (2), 249-258, 2017.Study aimed to explore the combined contribution of pre-surgical depression and anxiety symptoms for recovery folfollowing CABG using data from 251 participants. Participants were assessed prior to surgery for depression and anxiety symptoms. Major adverse cardiac events (MACE) were monitored on. The study uses data collected in the Adjustment and Recovery after Cardiac Surgery (ARCS) Study .Participants included in these analyses are the 251 CABG surgery patients (mean age: 67.91 ± 8.85 years, 13.1 % females) who provided complete data and who were recruited from a pre-surgery assessment. After controlling for covariates, baseline depression symptoms, but not anxiety, were associated with greater odds of having an emergency admission (OR 1.088, CI 1.010–1.171, p = 0.027) and greater hazard of death/MACE (HR 1.137, CI 1.042–1.240, p = 0.004). These findings point to different pathways linking mood symptoms with recovery after CABG surgery.

9. SeyyedTayyebMoradian, Comparison of hospital anxiety and depression among patients with coronary artery disease based on proposed treatment. Iranian journal of critical care nursing 4 (2), 97-102, 2011. Study has been conduced to compare anxiety and depression among patients with coronary artery disease based on proposed treatment. Anxiety and depression were compared through a standardized hospital anxiety and depression questionnaire (HADS) in 300 patients, in need of drug therapy, percutaneous coronary angioplasty (PCI), or coronary artery bypass graft (CABG), admitted to male cardiac unit . Data wereanalysed using ANOVA, Kruskal-Wallis, and chisquare.Results found was Incidence of depression was higher in patient's candidate for CABG than the other two groups. And conduced that

regarding high prevalence of anxiety and depression among patients with coronary heart disease and its negative impact on treatment outcome, appropriate screening and therapeutic approaches have to be applied for this group of patients.

10. Tam K Dao, Nagy A Youssef, Randomized controlled trial of brief cognitive behavioral intervention for depression and anxiety symptoms preoperatively in patients undergoing CABG. The Journal of thoracic and cardiovascular surgery 142 (3), e109-e115, 2011. The goal of this study was to examine the feasibility, acceptability, and efficacy of a brief, tailored cognitive–behavioral intervention for patients with symptoms of preoperative depression or anxiety before undergoing CABG. Patients were randomly assigned to receive treatment as usual (TAU) or a cognitive behavioral therapy (CBT) intervention called Managing Anxiety and Depression using Education and Skills (MADES). A total of 100 subjects were randomized into the study. Depression, anxiety, and quality of life were assessed with mixed-model repeated measures analyses.result Overall, the intervention was feasible, and patients had a positive impression of the MADES. Patients in the TAU group stayed longer in the hospital than did those in the MADES group (7.9 days ± 2.6 vs 9.2 days ± 3.5; P = .049). Depressive symptoms increased at time of hospital discharge for the TAU group, whereas the MADES group had a decrease in depressive symptoms at the time of discharge. However, the MADES group had greater improvements than did the TAU group. This study concluded that brief, tailored CBT targeting preoperative depression and anxiety is both feasible and acceptable for patients undergoing CABG surgery.

11. GrigoreTinicaMitu, Psychological evaluation by using the Hamilton depression and anxiety rating scales in CABG patients undergoing cardiovascular rehabilitation. Romanian Journal of Cardiology| Vol 30 (1), 2020. The aim of this prospective study was to evaluate the role of cardiac rehabilitation in improving psycho-emotional risk scores. 100 patients aged 40-80 years old, who followed rehabilitation in the Cardiovascular Rehabilitation Clinic. The mean age of the patients under study was 65.70±9.91 year's .The results were in the first phase of the cardiovascular rehabilitation program, the mean values were: 16 points for HAM-D, and 25 points on HAM-A scale. By comparing the Phase I and Phase III results, the median HAM-D score improved more than 50%, and HAM-A about 36%($p< 0.05$). The study concluded the role of early rehabilitation after CABG surgery and the HAM-D and HAM-A scores improvement, emphasizing the importance of including psycho-emotional status assessment in the management of the patient who benefited from cardiac surgery.

12. Anne V.C .Psychometric properties of the Danish Hospital Anxiety and Depression Scale in patients with cardiac disease. Health and Quality of Life Outcomes 18 (1), 9, 2020. The aim was to evaluate the psychometric properties of HADS in a large sample of Danish patients with cardiac diseases. The DenHeart study was designed as a national cross-sectional survey including the HADS, SF-12 and HeartQoL and combined with data from national registers. Psychometric evaluation included analyses of floor and ceiling effects, structural validity using both exploratory and confirmatory factor analysis and hypotheses testing of convergent and divergent validity by relating the HADS scores to the SF-12 and HeartQoL. Internal consistency reliability was evaluated by Cronbach's alpha, and differential item functioning by gender was examined using ordinal logistic regression. A total of 12,806 patients (response rate 51%) answered the HADS. Exploratory factor analysis supported the original two-factor structure of the HADS, while

confirmatory factor analysis supported a three-factor structure consisting of the original depression subscale and two anxiety subscales. The present study concluded that the evidence of convergent validity and high internal consistency for both HADS outcomes in a large sample of Danish patients with cardiac disease.

13. Anna Falk, Depressive and/or anxiety scoring instruments used as screening tools for predicting postoperative delirium after cardiac surgery. Intensive and Critical Care Nursing, 102851, 2020. The aim was to evaluate if screening tools for depression can be used to predict postoperative delirium after cardiac surgery. This was a prospective population-based pilot study including 26 patients between 23 and 80 years of age undergoing cardiac surgery .The day before surgery the participants filled out the depression screening instruments Hospital Anxiety and Depression Scale and Patient Health Questionnaire. After discharge the patient charts were examined for documentation of symptoms of delirium. Five (20%) patients screened positive regarding depression using the Hospital Anxiety and Depression Scale and 7 patients (27%) screened positive using The Patient Health Questionnaire. Four (22%) patients showed symptoms of postoperative delirium. no difference was found between the questionnaires PHQ-9 and HADS regarding identifying depressive symptoms. Concluded that post-operative delirium, to a certain extent, can be detected by reading the patient́s charts postoperative

14. Shujaat Ali Khan, Assessment of anxiety and depression in hospitalized cardiac patients. Tropical Journal of Pharmaceutical Research 15 (11), 2483-2488, 2016. Purpose was to assess the level of anxiety and depression in hospitalized cardiac patients. The study was conducted on hospitalized cardiac patients. This study involved 400 diagnosed hospitalized cardiac patients and another 400 participants without cardiac disease as control group. The anxiety and depression level in hospitalized cardiac patient's was 79.5 %(318), compared with 68.25 %(273) of the control group. Female patients were also more prone to depression than male patients. Psychological suffering was 1.80 times more in the hospitalized cardiac patients (OR= 1.804, 95% CI= 1.308-2.488, p= 0.0001). The results showed that gender was the leading factor in the occurrence of co-morbidities such as depression and anxiety.it wasConcluded that Depression symptoms are more common among hospitalized patients than in those without cardiac disease. 1

15. Phillip J Tully, Depression, anxiety and major adverse cardiovascular and cerebrovascular events in patients following CABG.Heart failure reviews 21 (1), 49-63, 2016 .this study was to examine the association between theoretical conceptualisations of depression and anxiety with MACCE at the diagnostic and symptom dimension level. Before coronary artery bypass graft (CABG) surgery, patients (N = 158; 20.9 % female) underwent a structured clinical interview to determine caseness for depression and anxiety disorders. Patients also completed the self-report Mood and Anxiety Symptom Questionnaire, measuring anhedonia, anxious arousal and general distress/negative affect symptom dimensions. The result was of total after covariate adjustment, generalized anxiety disorder was associated with MACCE (hazard ratio [HR] = 2.79, 95 % confidence interval [CI] 1.00-7.80, p = 0.049). The distress disorders were not significantly associated with MACCE risk .Concluded that generalized anxiety disorder was significantly associated with MACCE at follow-up after CABG surgery. The findings encourage further research pertaining to generalized anxiety disorder, and theoretical conceptualizations of depression, general distress and anxiety in persons undergoing CABG surgery.

16. HenndyGinting, Validating the Beck Depression Inventory-II in general population and coronary heart disease patients. International Journal of Clinical and Health Psychology 13 (3), 235-242, 2013. This study assesses the validity and determines the cut-off point for the Beck Depression Inventory-II (the BDI-II). BDI-II (the Indo BDI-II) was administered to 720 healthy individuals from the general population, 215 Coronary Heart Disease (CHD) patients, and 102 depressed patients. Confirmatory factor analysis indicated factorial similarity across the three samples. There was a highly significant difference in the Indo BDI-II scores between depressed patients and non-depressed participants. Internal consistency and re-test reliability of the Indo BDI-II were acceptable. The receiver operating characteristic (ROC) curve indicated that the cut-off point of the Indo BDI-II for a mild severity of depression. Concluded that the Indo BDI-II is a valid measure of depression, both general population and in CHD patients.

17. Jae-Min Kim, Impact of depression at early and late phases following acute coronary syndrome on long-term cardiac outcomes.Journal of affective disorders 260, 592-596, 2020. Study investigated associations of depressive disorder within 2 weeks (early) and at 1 year (late) after ACS with major adverse cardiac event (MACE). In 757 ACS patients were evaluated for depressive disorder at the two time-points, year follow-up for MACE was conducted. MACE incidence was significantly higher in patients with depressive disorder at early or late phase of ACS than those without, regardless of status at the other time point; however, highest incidence was found following depression at both time points. Depression evaluation thus needs consideration both early and late post-ACS.

18. Mitali Solanki.Effectiveness of Preoperative Orientation Programme on Level of Anxiety among patients undergoing CABG. International Journal of Advances in Nursing Management 8 (1), 9-11, 2020. Study was to assess the effectiveness of preoperative orientation programme on level of anxiety among patients undergoing CABG. The research approach selected for the study was quantitative research approach and pre-experimental research-one group pre-test post-test design. Total 40 samples were selected from preoperative settings based on non-probability purposive sampling. The researcher used structured interview schedule and Hamilton anxiety test for data collection regarding demographic variables and pre-test. The collected data were analyzed by using inferential statistical method. T-test was used to evaluate the effectiveness of preoperative orientation programme on level of anxiety among patients undergoing CABG. It revealed that the mean score of pretest was 25.68 and posttest was 15.68. The Mean difference was 10. The obtained‘t’ value 17.66. Henes it was highly significant $p<0.05$ level. Hence their findings of the study revealed that the Preoperative Orientation Programme was effective in reducing the level of anxiety among patients undergoing CABG.

19. AR Rahmani .The effect of implementing education intervention based on self- care behaviours on self -efficacy of patients undergoing CABG. Nursing and Midwifery, Urmia University of Medical Sciences 17 (10), 840-849, 2020. The aim of this study was to determine the effect of implementing educational intervention based on self-care behaviors on self- efficacy in CABG patients. In this semi-experimental study, 56 patients undergoing coronary artery bypass graft surgery who were eligible for inclusion in the study, were randomly divided into two groups: educational intervention (based on self-care n=28) and control (routine care, n=28). The researcher taught self-care behaviors during eight sessions of 30 minutes every other day, and provided an educational pamphlet during discharge for them.

The control group only received the routine care. Data collection tools included the Demographic characteristics and Chronic Disease Self-Efficacy Scale But after implementing educational intervention based on self-care behaviors, the mean score of self-efficacy in the intervention group (175/07 ± 42/49) was significantly higher than the control group (130/44 ± 9/65), ($p<0.001$).Concluded that implementing educational intervention based on self-care behaviors can help improve the self-efficacy of patients undergoing cabg.

20. Veronica K W L. Effect of preoperative education intervention on patient and family satisfaction level in icu and measures of perioperative patients anxiety and depression. BMJ Quality & Safety, 2020. This study was to assess the effect of a preoperative multifaceted education intervention on patient. Single-centre, two-armed, parallel, superiority, randomised controlled trial. 100 elective coronary artery bypass grafting±valve surgery patients and their family members. Preoperative education comprising of a video and ICU tour in addition to standard care (treatment), versus standard care (control). Patient and family satisfaction levels with ICU using validated PS-ICU23 and FS-ICU24 questionnaires (0–100), respectively; change in perioperative anxiety and depression scores between 1 day pre surgery and 3 days post surgery. Among 100 (50 treatment, 50 control) patients and 98 (49 treatment, 49 control) family members, 94 (48 treatment, 46 control) patients and 94 (47 treatment, 47 control) family members completed the trial. Concluded that providing comprehensive preoperative information about ICU to elective cardiac surgical patients improved patient and family satisfaction levels and may decrease patients' anxiety levels.

METHODS AND METHODOLOGY

SEARCH METHOD

- A search of articles for this study was done on PubMed control, Medline, online journal, google scholar the search strategy being: "Prevalence of depression and Anxiety in Coronary Artery Bypass grafting patients "and keywords including prevalence of depression , anxiety, coronary artery bypass grafting, cardiac surgery patients.

INCLUSION CRITERIA

Studies having :

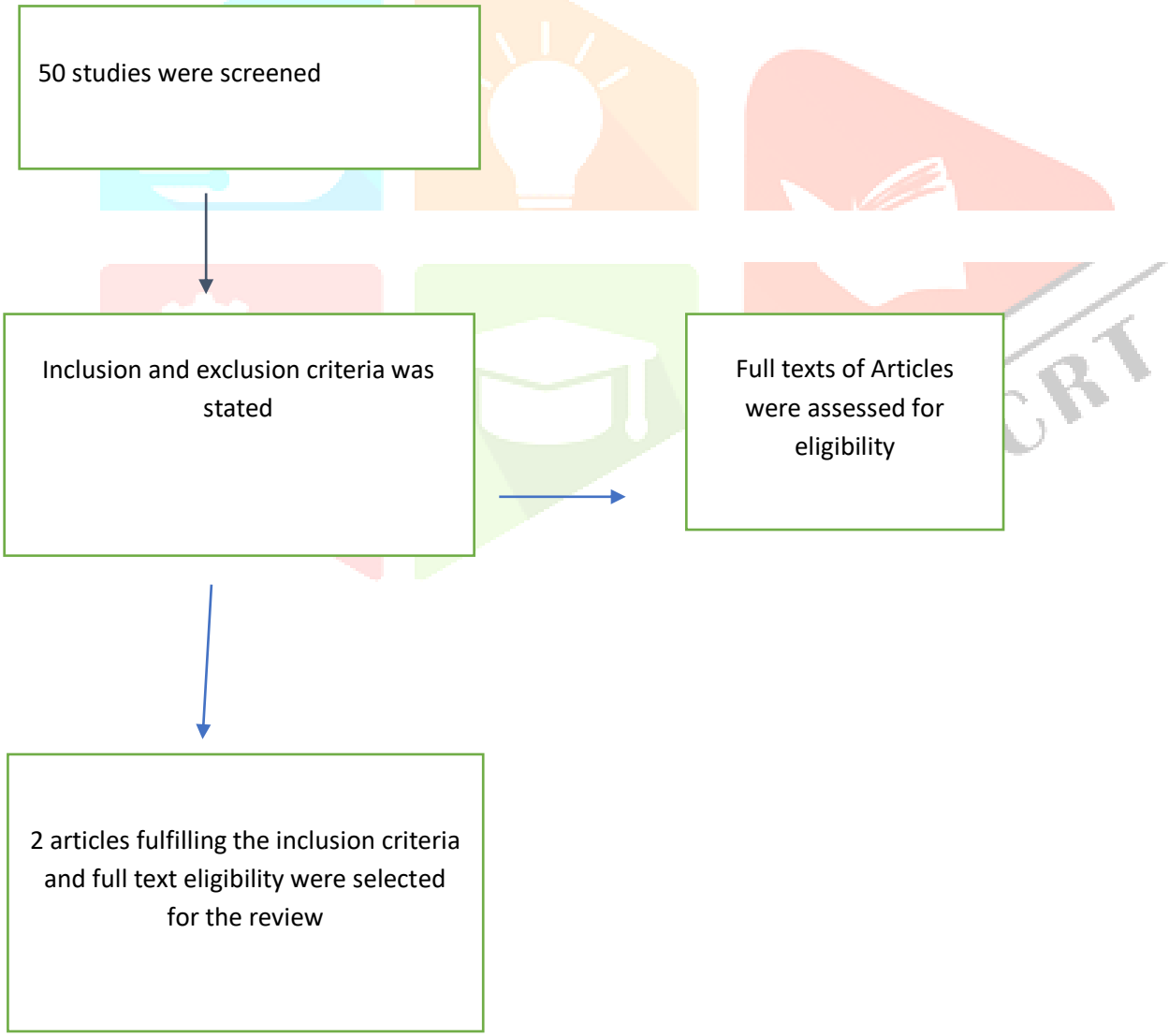
- Men and women over 18 were included.
- Coronary artery bypass grafting patients were included in this study.
- Articles included were published in last 10 years and the articles are taken from randomized control trial, cohort study, prospective study, retrospective study.
- Presurgery and post-surgery patients depressed cardiac patients in the 6 months and long years after cardiac hospitalization were included.

EXCLUSION CRITERIA

- Studies before 2010 were excluded in this study.
- Studies having patients with Psychiatric pathology, and below 18 yrs. population was excluded in this study.
- Studies having Patients with history of other surgical procedures apart from CABG were excluded.

METHODOLOGY

- A total of 50 articles were taken for this study out of which articles were screened for inclusion and exclusion criteria.
- 50 studies (RCTs, systematic reviews, Cohort studies) were screened.
- After screening for full text eligibility and inclusion and exclusion criteria, only 2 studies were found to fulfill the criteria and were included in this review.



RESULTS

1. **Pre-surgical depression and anxiety and recovery following coronary artery bypass graft surgery (2017)**;Effects of depression and anxiety on surgical recovery in a sample of patients undergoing first-time, elective CABG in which Depression and anxiety were entered simultaneously into models in order to ascertain the effect of depression over and above anxiety (and vice versa) on predicting recovery. It showed that pre-operative anxiety predicted the self-reported outcomes, sensory pain and physical symptoms 12 months after surgery, while pre-operative depression predicted the objective outcomes, emergency department admission and death/MACE in the years after surgery. Results show that greater anxiety symptoms were associated with greater post-operative pain after controlling for covariates. Baseline depression was not a significant predictor in this model. The model accounted for8.5 % of variance in sensory pain. Greater anxiety symptoms were associated with greater physical symptoms after controlling for covariates. Baseline depression was not a significant predictor in this model after controlling for chronic illness burden and EuroSCORE,a 1-point increment on the BDI was associated with an 8.8 %increase in the risk of having an emergency department admission. Anxiety symptoms were not significantly associated with increased risk of emergency department admissions.

2. **Depression after CABG (2013);** This study included analyzing the distribution of the BDI in zero-six times , it was noted increased six months after revascularization in the frequency of individuals with mild depressive symptoms at time (29.82%) and moderate depressive symptoms (score 17 to 29), seven (12.28%) before and 10 (17.54%) after. In the categories of individuals with minimal depressive symptoms, it was observed a high prevalence of depressive symptoms among those assessed. There was a reduction in the prevalence rates of depression symptoms after six months of myocardial revascularization without, however, any statistically significant association. Men seem to have the worst scores of depression (BDI) and there was an association between the improvement of quality of life scores and depressive symptoms.

Study CABG (First, Elective, Emergency)	Design, Sample	Depression and anxiety Screening instrument	Timing of assessment	Main results
Lydia P.et al (2017) First time, Elective CABG	Cohort study 251	Baseline BDI score Baseline HADS-anxiety score Chronic illness burden EuroSCORE	The baseline assessment took place on average 30 days before patients' surgery and included measures of depression and anxiety symptoms and demographic measures completed by postal questionnaire. The follow-up assessment of self-reported outcomes, i.e. pain and symptom reporting, took place on average 397 days after CABG also by postal questionnaire.	Greater pre-CABG anxiety symptoms were associated with poorer self-reported out- comes 12 months after surgery, including greater pain and physical symptoms. On the other hand, greater pre-CABG depression symptoms were associated with the objective clinical outcomes: death and emergency department admissions in the years following surgery.

Joana K et al (2013), Isolated CABG	Prospective analytical cohort study, 57	SF-36 to assess quality of life, and the Beck Depression Inventory	Preoperatively and six months.	There was a high prevalence of elevated Beck depression inventory scores, lowest scores of depressive symptoms among men and association between the improvement of quality of life scores and Beck depression inventory.

CONCLUSION

Results show that greater anxiety symptoms were associated with greater post-operative pain after controlling for covariates.30% and 40% of CABG surgery patients experience depression and anxiety disorders at rates significantly higher than prevalent in community samples. Pre-operative anxiety predicted the self-reported outcomes, sensory pain and physical symptoms 12 months after surgery, while pre-operative depression predicted the objective outcomes, emergency department admission and death/MACE in the years after surgery. There was a reduction in the prevalence rates of depression symptoms after six months of. It is commonly hoped that psychosocial intervention might mitigate the deleterious impact of depression and anxiety upon subsequent morbidity and mortality

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