## Original article

# Depressive disorders before and after coronary artery bypass graft

**Zinat De Laila,[1] Md Ashfaq Arif,[2] Farzana Rahman,[3] Shahana Parveen,[4] Mohammad Waliul Hasnat Sajib,[5] SM Yasir Arafat[6]**

[1]Assistant Professor of Psychiatry, National Institute of Mental Health (NIMH), Dhaka, Bangladesh; [2]Assistant Professor, Department of Vascular Surgery, Rajshahi Medical College, Rajshahi, Bangladesh; [3]Assistant Professor of Psychiatry, NIMH, Dhaka, Bangladesh; [4]Assistant Professor of Psychiatry, NIMH, Dhaka, Bangladesh; [5]Assistant Professor, Department of Psychiatry, Shaheed M Monsur Ali Medical College, Sirajganj, Bangladesh; [6]Assistant Professor, Department of Psychiatry, CARe Medical College, Dhaka, Bangladesh.

**Article info**

| | | |
|---|---|---|
| Received | : | 05 May 2018 |
| Accepted | : | 15 Sep 2018 |
| Number of tabs | : | 02 |
| Number of figs | : | 01 |
| Number of refs | : | 15 |

**Correspondence**
Zinat De Laila
Mobile: +8801712540807
E-mail: zinatdelaila2@gmail.com

**Summary**

Chronic diseases had numerous psychiatric consequences where depression was the prime concern. Coronary artery bypass graft (CABG) surgery strongly affected mental health of patients. Current study was aimed at assessing proportion and quantifying severity of depressive disorders among patients before and after CABG. This longitudinal study was conducted in the department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, during the period July 2014 to June 2015. A total of 104 patients were interviewed purposively after getting informed written consent with the semi-structured questionnaire, structured clinical interview for the DSM IV Axis I disorders clinician version (SCID I CV) and Bangla version of depression anxiety stress scale 21 (DASS 21). The results showed that proportion and severity of depressive disorders was significantly increased after CABG surgery than before surgery. Before CABG, 49% of patients were suffering from depressive disorders and after CABG, depressive disorders were found in 68.3% patients. Severity scoring before CABG revealed 6.7% were severe, 17.3% were moderate and 25% were mild. On the contrary, after CABG severity scoring revealed 15.4% were severe, 33.7% were moderate and 19.2% were mild. Severity of depressive disorders was significantly increased after CABG (p=0.002). Depressive disorders were prevalent among patients with coronary artery disease (CAD) undergoing CABG surgery. Broad based multi centered long-term longitudinal study could be carried out to draw inferences. Strong Consultation-liaison psychiatric services should be needed to provide proper treatment for depressive disorders of patients undergoing CABG.

**Bang J Psychiatry 2019;33(1): 7-10**

### Introduction

Coronary heart disease (CHD) is a major cause of death as well as a global health problem reaching epidemic in both developed and developing countries.[1] In Bangladesh prevalence of coronary artery disease (CAD) has been reported to be 0.33% to 19.6% in different studies.[2] Coronary artery bypass graft (CABG) Surgery is a surgical procedure performed to relieve angina pectoris, dyspnea and to reduce the risk of death from CAD. Although the overall results of CABG surgery have improved, revascularization of the heart is still associated with a risk of perioperative and postoperative morbidity and mortality.[3] Depression has been found as a significant comorbidity among cardiac patients across its the spectrum.[4] Research suggests that anxiety is frequently co-morbid with depression among patients with CAD.[5] Symptoms of anxiety and depression are common psychological disturbances among patients with CAD, including those undergoing CABG surgery.[5,6] Depression commonly afflicts patients with cardiovascular disease like CHD and contributes poor psychiatric, functional and cardiovascular outcomes.[4] Despite treatment for the relief of symptoms from CAD, CABG surgery patients with depressive symptoms have more cardiac morbidity and fatal cardiac events.[7] Quality of life (QOL) outcomes have become a major focus for CABG surgery, a common and effective treatment for CAD. Both preoperative depressive symptoms and postoperative depressive symptoms seen associated with poorer QOL six months after cardiac surgery.[8]

Bangladesh has been shifting the diseases burden from communicable to non-communicable diseases where CHD is an important contributor.[2] However; psychiatric comorbidities among sufferers of chronic diseases have been poorly studied in the country. Majority of the patients with CAD in Bangladesh are under attended about their psychiatric aspect. These circumstances have influenced the researcher to conduct a research that was aimed at assessing proportion and quantifying

severity of Depressive Disorders among patients undergoing CABG and 2 months after CABG. This study could influence the clinicians to make early diagnosis and to start early management in clinical setting and during cardiac rehabilitation. Overall, this may help to reduce the burden of life of the patient.

**Materials and methods**

It was a longitudinal study conducted in the department of psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, during the period from July 2014 to June 2015. Total 104 cases were taken from departments of cardiac surgery of BSMMU (n=33) and national institute of cardiovascular diseases (NICVD) (n=71), Dhaka, Bangladesh. Purposive and consecutive sampling technique was followed. Adult patients of either sex scheduled for CABG surgery were included in the study. Patients who were mute, stuporous, non-communicable with cognitive impairment, emergency CABG, redo CABG were excluded. The patients were informed about the purpose of the study and ethical issues. Then after taking the written consent, data collection procedure was initiated by the researchers maintaining best possible ways to ensure privacy of the patients. Data were collected through face to face interview using the semi-structured questionnaire regarding socio-demographic and illness related variables. After that the clinical diagnosis was confirmed by using structured clinical interview for the DSM IV axis I disorders clinician version (SCID I CV) and severity of depression was assessed by Bangla version of depression anxiety stress scale 21 (DASS 21). The statistical tests used to analyze the data were chi-square test, Fisher's exact test and paired student's t Test. Data analysis was performed by statistical package for social sciences (SPSS) version 16 and data were presented through frequency distribution with tables and graphs.

**Results**

The result showed that, the mean age of the respondents was 53 (SD±5.7) years with the range between 28 and 67 years. Most (45.5%) of the respondents were from 21-30 years of age. Among the respondents, majority were male (91.3%), married (94.2%) and Muslims (85.6%). Most of them were businessmen (33.7%) and studied up to secondary level (34.6%) (Table 1).

Frequency and percentage of depressive disorders was significantly increased after CABG surgery (68.3% versus 49.0%, p=0.005) although depressive disorders were also high before CABG surgery (Figure 1).

Frequency and percentage of moderate and severe depressive disorders were significantly increased after CABG surgery than before surgery (33.7 % versus 17.3% and 15.4% versus 6.7% respectively, p=0.002) (Table 2).

**Table 1: Distribution of demographic variables among the respondents (n=104)**

| Variable | Frequency | Percentage |
|---|---|---|
| **Age in years** | | |
| 28-37 | 2 | 1.9 |
| 38-47 | 26 | 25 |
| 48-57 | 46 | 44.2 |
| 58-67 | 30 | 28.8 |
| **Sex** | | |
| Male | 95 | 91.3 |
| Female | 9 | 8.7 |
| **Educational status** | | |
| Illiterate | 12 | 11.5 |
| Primary | 32 | 30.8 |
| Secondary | 36 | 34.6 |
| HSC | 15 | 14.4 |
| Graduate | 9 | 8.7 |
| **Occupation** | | |
| Cultivation | 25 | 24 |
| Service | 23 | 22.1 |
| Business | 35 | 33.7 |
| Housewife | 7 | 6.7 |
| Others | 14 | 13.5 |
| **Habitat** | | |
| Urban | 36 | 34.6 |
| Rural | 68 | 65.4 |
| **Religion** | | |
| Islam | 89 | 85.6 |
| Hindu | 13 | 12.5 |
| Christian | 1 | 1 |
| Buddhist | 1 | 1 |
| **Marital Status** | | |
| Married | 98 | 94.2 |
| Widow, divorced, separated | 6 | 5.8 |
| **Total** | 104 | 100 |

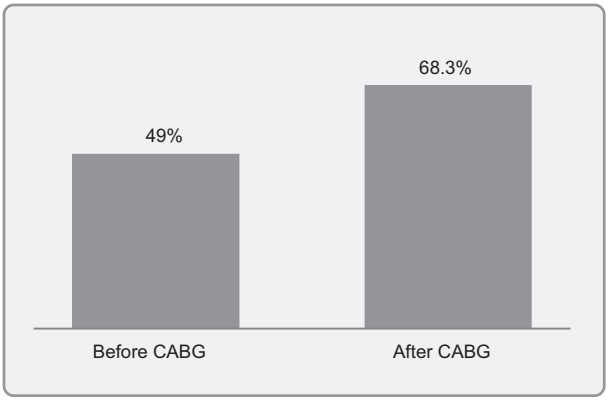


**Figure 1: Distribution of depressive disorders among respondents before and after CABG surgery (n=104)**

**Table 2: Comparison of severity of depressive disorders before and after CABG surgery (n=104)**

| Severity of depressive disorders | Before CABG Frequency (%) | After CABG Frequency (%) | p value |
|---|---|---|---|
| Normal | 53 (51.0%) | 33 (31.7%) | 0.002 |
| Mild | 26 (25.0%) | 20 (19.2%) | |
| Moderate | 18 (17.3%) | 35 (33.7%) | |
| Severe | 7 (6.7%) | 16 (15.4%) | |
| Total | 104 (100.0%) | 104 (100.0%) | |

## Discussion

Among the psychiatric morbidities in the CABG patients, depression had been found as one of the prime comorbidities. Current study was aimed to see the depressive disorders among CABG patients. In this study frequency and percentage of depressive disorders was found significantly increased after CABG Surgery. Frequency and percentage of moderate and severe depressive disorders were also significantly increased after CABG Surgery than before CABG Surgery. Previous studies reported that new depressive symptoms over the course of recovery from surgery and showed clinically relevant depressive symptoms which was not present at the time of surgery was 13% at one month follow up and 9% at twelve months follow up after surgery which was consistent with the study.[9,10]

In this study Proportion of depressive disorders was increased after CABG surgery than before surgery (68.3% and 49%) and difference was significant (p=0.005). In one study in 1997 found that the prevalence rate of depression was 47% preoperatively and 61% postoperatively which was consistent with this study.[11] Another study showed that undergoing CABG 28.1% patients had elevated symptoms of depression before surgery and 48% experienced significant mood disturbance 6 months after surgery which was consistent with the present study.[7]

CABG Surgery was a widely used interventional method for the relief of CAD symptoms and improvements in surgical management had significantly reduced mortality rates. Nevertheless, undergoing CABG surgery remained a significant life event, with an important psycho-emotional impact on patients and their families. Elevated level of depression and anxiety were reported in 25% to 30% of CABG patients before surgery.[12] In up to 20% of the patients these elevated preoperative mood states persisted after surgery, with potentially adverse effects on quality of life.[13] This finding could be correlated with the finding of the current study.

Severity scoring before CABG revealed 7 cases (6.7%) were severe, 18 cases (17.3%) were moderate and 26 cases (25%) were mild. On the contrary, after CABG revealed 16 cases (15.4%) were severe, 35 cases (33.7%) were moderate and 20 cases (19.2%) were mild. In this study severity of depressive disorders significantly increased 2 months after CABG than before surgery (p=0.002). A study carried out and showed preoperative mild, moderate, severe and extremely severe depression was 2.7%, 6.8%, 2.7% and 3.4% but post operatively showed increased to 7.5%, 7.5%.2.4% and 0.7% respectively and this was consistent with this study.[14,15] Several limitations could be considered in the current study such as samples were taken only from two tertiary care hospital of capital city, samples were taken purposively and confounding variables were not adjusted. Moreover, the study revealed high prevalence of depression even before CABG surgery which could not be explained. Further researches should be aimed to include a larger sample size selected from a larger number of different cardiac and multi-disciplinary hospitals of different parts of the country.

## Conclusion

Proportion and severity of depressive disorders was significantly increased after CABG surgery than before surgery. Broad based multi centered long-term longitudinal study could be carried out to draw inferences. Strong consultation-liaison psychiatric services were needed to provide proper treatment for depressive disorders of patients undergoing CABG. As lack of awareness, patients and family members suffered a lot, sufferings of the patients and family members could be relieved by early detection and proper treatment of depressive disorders. So, during follow up, it was important to address this issue when patients came to cardiologist so that, proper management plan could be made in collaboration with a psychiatrist.

## References

1. Chaturvedi V, Bhargava B. Health care delivery for coronary heart disease in India—Where are we headed? Am Heart Hosp J 2007;5(1):32-7.
2. Islam A, Mohibullah A, Paul T. Cardiovascular Disease in Bangladesh: A Review. BHJ 2017;31(2):80-9.
3. Anna H, Madeleine N, Benjamin B, Richard S. Outcome of coronary artery bypass graft surgery. Vase Health Risk Manag 2006;2(4):477-84.
4. Celano CM, Huffman JC. Depression and cardiac disease: a review. Cardiol Rev 2011;19(3):130-42.

5. Bankier B, Januzzi JL, Littman AB. The high prevalence of multiple psychiatric disorders in stable outpatients with coronary heart disease. Psychosom Med 2004;66(5):645-50.

6. Pignay-Demaria V, Lespérance F, Demaria RG, Frasure-Smith N, Perrault LP. Depression and anxiety and outcomes of coronary artery bypass surgery. Ann Thorac Surg 2003;75(1):314-21.

7. Burg MM, Benedetto MC, Soufer R. Depressive symptoms and mortality two years after coronary artery bypass graft surgery (CABG) in men. Psychosom Med 2003;65(4):508-10.

8. Goyal TM, Idler EL, Krause TJ, Contrada RJ. Quality of life following cardiac surgery: impact of the severity and course of depressive symptoms. Psychosom Med 2005;67(5):759-65.

9. Peterson JC, Charlson ME, Williams-Russo P, Krieger KH, Pirraglia PA, Meyers BS, et al. New postoperative depressive symptoms and long-term cardiac outcomes after coronary artery bypass surgery. Am J Geriatr Psychiatry 2002;10(2):192-8.

10. McKhann GM, Borowicz LM, Goldsborough MA, Enger C, Selnes OA. Depression and cognitive decline after coronary artery bypass grafting. Lancet 1997;349(9061):1282-4.

11. Gardner FV, Worwood EV. Psychological effects of cardiac surgery: a review of the literature. J R Soc Health 1997;117(4):245-9.

12. Pirraglia PA, Peterson JC, Williams-Russo P, Gorkin L, Charlson ME. Depressive symptomatology in coronary artery bypass graft surgery patients. Int J Geriatr Psychiatry 1999;14(8):668-80.

13. Vingerhoets G. Perioperative anxiety and depression in open-heart surgery. Psychosomatics 1998;39(1):30-7.

14. Borowicz L, Royall R, Grega M, Selnes O, Lyketsos C, McKhann G. Depression and Cardiac Morbidity 5 years after Coronary Artery Bypass Surgery. Psychosomatics 2002;43:464-71.

15. Andrew MJ, Baker RA, Kneebone AC, Knight JL. Mood state as a predictor of neuropsychological deficits following cardiac surgery. J Psychosom Res 2000;48(6):537-46.