Prevalence Of Depression & Anxiety In Post Myocardial Infarction Patients Attending A Tertiary Care Hospital: A Cross-Sectional Study

Jayakumar A[1], M. Karthikeyan[2*], Nandhan Sushanth J[3]

[1,2,3]Department of Psychiatry, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Puducherry

Abstract

Background: *Coronary heart disease (CHD) remains the leading cause of mortality worldwide, with myocardial infarction (MI) representing its most severe manifestation. Although advances in acute cardiac care have improved survival, psychological sequelae such as depression and anxiety significantly impact quality of life and recovery. These psychiatric morbidities remain under-recognized in India, where the burden of ischemic heart disease is rapidly increasing. Hence, we aimed to estimate the prevalence of anxiety and depression among post-MI patients attending a tertiary care hospital and to correlate lifestyle and demographic factors with mental health outcomes.*

Methods: *A cross-sectional study was carried out in a hospital over a period of 18 months. Using convenience sampling, 117 individuals with a history of MI ≥6 months were gathered. Excluded were those having a history of psychiatric disease, concomitant endocrine problems, or recent MI. The Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), WHOQOL-BREF, and a semi-structured proforma were used to gather data.*

Results: *The study population's mean age was 58.6 years, and 74% of the participants were men. Anxiety was present in 38.5% of patients, but depression affected 56.4%. Significant predictors included lifestyle factors: alcohol use was linked to depression (χ^2 = 14.31, p < 0.001) and smoking to anxiety (χ^2 = 4.65, p = 0.03). In every WHOQOL-BREF domain, patients with psychiatric illness reported substantially poorer quality of life scores.*

Conclusion: *This study demonstrates a high prevalence of anxiety and depression among post-MI patients, influenced by modifiable lifestyle factors. Routine screening, early psychiatric intervention, and integration of psychosocial support into cardiac rehabilitation programs are essential for holistic post-MI care in India.*

Key words: *Myocardial infarction, Depression, Anxiety, Psychiatric morbidity, Smoking, Alcohol*

INTRODUCTION:

Nearly one-third of all fatalities worldwide are caused by coronary heart disease (CHD), which continues to dominate the global burden of non-communicable diseases.[1] Myocardial infarction (MI), one of its most severe symptoms, is frequently referred to as a "silent killer" due to its abrupt onset, high death rate, and long-lasting consequences. Survival has significantly increased due to advancements in acute cardiac care, including pharmaceutical treatments and percutaneous coronary interventions.[2] However, since psychological aftereffects like anxiety and depression often impact long-term health and well-being, survival alone does not ensure complete recovery.

Poorer medication adherence, more readmissions to the hospital, a higher risk of recurrent heart attacks, and even death have all been linked to depression in post-MI patients.[3] Conversely, anxiety shows up as excessive worry, fear of recurrence, worry and social withdrawal, which not only diminishes quality of life but also reduces compliance with rehabilitation programs.[4] Despite their profound impact, these psychiatric morbidities remain under-recognized in routine cardiac care, particularly in low- and middle-income countries.

The prevalence of ischemic heart disease is quickly increasing in India as a result of lifestyle changes, urbanization, and socioeconomic inequality.[5] However, there is still little mental health screening in cardiology practice. According to studies, between one-third and half of patients who have had a MI may suffer from anxiety or depression; nevertheless, these disorders are frequently disregarded in favour of more obvious physical issues.[6,7] Therefore, determining the frequency of certain illnesses and the part that contributing factors play is essential for providing holistic care.

The current study was conducted in light of this in order to determine the prevalence of anxiety and depression among post-MI patients who are admitted to a tertiary care hospital and to investigate the ways in which demographic traits and lifestyle choices (such as drinking and smoking) affect these mental health outcomes. By addressing these objectives, the study seeks to provide region-specific evidence that underscores the importance of integrating psychosocial support into routine post-MI care in India.

MATERIALS AND METHODS:

After receiving approval from the Institutional Ethics Committee, this hospital-based cross-sectional study was carried out over the course of 18 months in the psychiatry and cardiology outpatient departments of a tertiary care hospital in Puducherry (IEC No: Ref No:170/SVMCH/IEC-Cert/Nov.24). Convenience sampling was used to enroll study participants, who were cardiology outpatient department (OPD) patients with a documented history of myocardial infarction (MI). Patients who were 18 years of age or older, had experienced MI at least six months before enrolling, and had completed more than the eighth grade were included. The study excluded patients having a personal or family history of psychiatric disease, medically unstable situations, sensory or neurological impairments, comorbidities such diabetes or thyroid problems, or recent MI (less than six months).

The sample size was calculated using the formula $N=Z2pq/d2N$ based on a prevalence of 34.6% from John et al. (2013), with a 95% confidence interval and a 9% margin of error.[8] After accounting for a 10% non-response rate, the final sample size was determined to be 117 patients. Data were collected using a semi-structured proforma to record sociodemographic details, clinical history, and lifestyle factors such as smoking and alcohol use, along with cardiac interventions received.

Standardized tools were used to evaluate psychological conditions. The WHOQOL-BREF questionnaire, which measures four domains of physical, psychological, social, and environmental health was used to evaluate quality of life.[8,9,10] The Hamilton Anxiety Rating Scale (HAM-A), a 14-item clinician-rated tool that scores psychological and somatic symptoms, was used to measure anxiety, and the 17-item Hamilton Depression Rating Scale (HAM-D) was used to measure depression.

All participants provided written informed consent, confidentiality was maintained, ethical guidelines were closely followed, and patients with clinically significant depression or anxiety were referred to the Psychiatry OPD for additional assessment and care. Microsoft Excel was used for data entry, while SPSS version 25.0 was used for statistical analysis. Descriptive statistics such as mean, standard deviation, and percentages were used to summarize sociodemographic and clinical characteristics. Associations between psychiatric morbidity and lifestyle or demographic factors were tested using the Chi-square test, and a p-value of less than 0.05 was considered statistically significant.

RESULTS:

A total of 117 post-myocardial infarction (post-MI) patients were included in the study. The majority of participants were in the age group of 51–60 years (57%), followed by 61–70 years (21%) and 71–80 years (15%), while only 7% were aged 40 years or below. Males constituted nearly three-fourths of the study population, reflecting the gender distribution typically observed in cardiac patients.(Table 1)

Assessment using the Hamilton Anxiety Rating Scale (HAM-A) revealed that 38.5% (45/117) of patients had clinically significant anxiety, with most cases in the mild to moderate category, 6.8% reported having extreme anxiety, whereas 6.8% reported mild to moderate anxiety. According to the Hamilton Depression Rating Scale (HAM-D), 56.4% (66/117) of patients suffered from depression, with mild depression accounting for 28%, moderate depression for 19%, and severe depression for 9%. Therefore, among the study participants, depression was more common than anxiety.(Table 2)

There was a considerable correlation between lifestyle factors and mental health morbidity. Anxiety and smoking were strongly correlated ($\chi2 = 4.65$, $p = 0.03$), with smokers exhibiting higher anxiety levels than non-smokers. Regular drinkers were more likely to have moderate to severe depression, and alcohol consumption was also strongly linked to depression ($\chi^2 = 14.31$, $p < 0.001$). Psychological outcomes were also influenced by age and gender; although these correlations did not achieve statistical significance, depression was more common in males and those aged 51 to 60.(Table 3)

Table 1: Sociodemographic characteristics of the study population (N = 117)

Variable	Category	Frequency (n)	Percentage (%)
Age group (years)	≤40	8	6.8
	41–50	8	6.8
	51–60	67	57.3

	61–70	25	21.4
	71–80	9	7.7
Gender	Male	87	74.4
	Female	30	25.6
Smoking history	Present	66	56.4
	Absent	51	43.6
Alcohol use	Present	53	45.3
	Absent	64	54.7

Table 2: Prevalence of Anxiety and Depression in the study population

Psychiatric Morbidity	Category	Frequency (n)	Percentage (%)
Anxiety (HAM-A)	None	72	61.5
	Mild to Moderate	37	31.6
	Severe	8	6.9
Depression (HAM-D)	None	51	43.6
	Mild	33	28.2
	Moderate	22	18.8
	Severe	11	9.4

Table 3: Association of Smoking and Alcohol Use with Psychiatric Morbidity

Factor	Category	Anxiety Present n (%)	Anxiety Absent n (%)	χ^2 (p-value)	Depression Present n (%)	Depression Absent n (%)	χ^2 (p-value)
Smoking	Yes	32 (48.5)	34 (51.5)	4.65 (0.03*)	38 (57.6)	28 (42.4)	0.21 (0.64)
	No	13 (25.5)	38 (74.5)		28 (54.9)	23 (45.1)	
Alcohol use	Yes	19 (35.8)	34 (64.2)	0.08 (0.77)	42 (79.2)	11 (20.8)	14.31 (<0.001*)
	No	26 (40.6)	38 (59.4)		24 (37.5)	40 (62.5)	

DISCUSSION:

The present study assessed the prevalence of anxiety and depression among post-myocardial infarction (MI) patients attending a tertiary care hospital and examined their association with lifestyle and demographic factors. Our findings revealed that 38.5% of patients had anxiety and 56.4% had depression, with smoking significantly linked to anxiety and alcohol consumption strongly associated with depression. These results highlight the substantial burden of psychiatric morbidity in post-MI patients and underscore the need for integrating psychological screening into cardiac care.[11,12]

The prevalence rates found in this investigation are consistent with previous findings. Perhaps as a result of societal variations and underreporting in previous research, Thombs et al. reported a 31% prevalence of depression among MI survivors, which is marginally lower than our finding of 56.4%.[13] While our depression rates were slightly higher, Gupta et al.'s study from 2022 in India reported that 42% of post-MI patients had depression and 36% had anxiety.[14] Given that our study did not include comorbidities like diabetes and thyroid problems, which can also have an impact on mood disorders, this discrepancy might be the result of differences in the study's methodology, environment, or patient population.

The association of smoking with anxiety in our study is supported by evidence showing that nicotine dependence exacerbates psychological stress, particularly in cardiac patients.[15,16] Similarly, the strong correlation between alcohol use and depression observed here mirrors global findings that alcohol abuse worsens post-MI recovery and is associated with higher rates of major depressive disorder.[17,18] These findings highlight the dual role of lifestyle habits in both cardiac and psychiatric morbidity, suggesting that comprehensive rehabilitation must address behavioural risk factors.

Attention should also be paid to trends in age and gender. The age group of 51–60 years old had the highest prevalence of depression in our study, which is in line with data from Lichtman et al. (2014), who found that middle-aged patients frequently struggle with financial, professional, and familial responsibilities, which exacerbates the psychological effects of MI.[19] Although most Western research indicate a higher frequency of depression among women after MI our sample showed a male predominance in both cardiac disease and psychiatric morbidity, which is consistent with Indian demographic trends.[20,21] Cultural variables and health-seeking behaviour may be the cause of these discrepancies.

Importantly, the observed psychiatric morbidity had profound implications for quality of life. Patients with anxiety and depression scored lower across physical, psychological, social, and environmental domains of WHOQOL-BREF, a finding echoed by international studies. Depression not only reduces treatment adherence but also increases the risk of recurrent ischemic events, thus worsening prognosis.[22,23] This underscores the necessity of early psychiatric intervention as part of comprehensive post-MI care.

Strengths and Limitations:

Strength of this study lies in its use of validated screening tools (HAM-A, HAM-D, and WHOQOL-BREF) and its focus on lifestyle correlates of psychiatric morbidity which are modifiable risk factors. However, limitations include its cross-sectional design, which precludes causal inference, and reliance on a single Tertiary Care Center, which may limit generalizability. Exclusion of patients with comorbid diabetes or thyroid disorders, while methodologically justified, may underestimate the overall burden of psychiatric morbidity in cardiac patients.

CONCLUSION:

The study highlights that mental health evaluation is an essential yet often neglected component of post-MI care. While advances in acute cardiac management have improved survival, long-term outcomes are compromised if psychological needs remain unaddressed. Our findings point toward the importance of incorporating structured psychiatric assessment, counselling, and lifestyle interventions into cardiac rehabilitation programs. Future research should explore longitudinal outcomes and the effectiveness of integrated psychosocial interventions in improving both mental well-being and cardiovascular prognosis.

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