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# Assessment of the Impact of Myocardial Infarction on Mental Health



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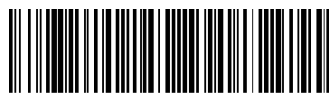
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## ABSTRACT

This study was aimed to assess the impact of Myocardial Infarction (MI) on mental health for randomly selected 100 patients of ESIC Model Hospital Premises, Rajaji Nagar, Bengaluru. In the present study, the authors present the available test and questionnaires to assess depression and anxiety in patients with cardiovascular disease mainly MI.



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## INTRODUCTION

Myocardial infarction (MI) is a term used for an event of a heart attack which is due to the formation of plaques in the interior walls of the arteries resulting in reduced blood flow to the heart and injuring heart muscles because of lack of oxygen supply(1). Depression among patients with myocardial infarction (MI) is prevalent and associated with adverse quality of life and prognosis. Despite recommendations from some national organizations to screen for depression, it is unclear whether treatment of depression in patients with MI is associated with better outcomes. We aimed to determine whether the prognosis of patients with treated versus untreated depression differs (2). Depression after acute myocardial infarction has been associated with fatal and non-fatal cardiovascular events, adverse health status outcomes, and costs (3,4). Similar to the physical health state of a patient, mental health is also an important factor in the proper social functioning of the patient. Myocardial infarction is a serious health condition and is frequently followed by various mental health problems such as depression, anxiety, and low mental health status. The Patient Health Questionnaire-9 (PHQ-9) is a diagnostic tool for assessing mental health after an episode of a cardiac event. This questionnaire is a self-administered diagnostic instrument for common mental disorders and is easy to administer. This is a depression module, which allots scores for each of the nine DSM-IV criteria starting with "0" (not at all) to "3" (nearly every day). It has been validated for use in primary care (5). The PHQ-9 is mainly used to monitor the severity of depression and the response of the patient to the treatment. It can be used to make a tentative diagnosis of depression in at-risk populations, for example, those with coronary heart disease or after stroke. This study uses to find out the relationship between post-MI depression, including both outpatient care and hospital readmissions.

## METHODOLOGY

**Study Site:** The study was conducted in the out-patient clinic and inpatient wards of the Department of Cardiology in ESIC-MH-SJICS&RC, which is a 500 bedded multispecialty tertiary care teaching hospital in Bengaluru. The certificate of ethical clearance number is 532/L/11/12/Ethics/ESICMC&PGIMSR/Estt.Vol.III.

**Sample Size:** Total of 100 patients visiting the out-patient (OP) clinic and those admitted to the in-patient (IP) wards of the department of cardiology, satisfying the inclusion and exclusion criteria during the data collection period were included in the study. Inclusion criteria which

considered are such as 1. Patients aged 18 years and above. 2. Patients attending OP and admitted to the IP of the cardiology department of ESIC- MHSJICSR. 3. Patients with a confirmation of the diagnosis of Myocardial Infarction 4. Patients who were in the first follow up after Acute Myocardial Infarction 5. Patients with different cardiac and non-cardiac comorbidities, lead to Myocardial Infarction. Exclusion criteria include 1. Pregnant women. 2. Congenital heart disease patients 3. Not interested patients. 4. Comatose and unconscious patients.

### **Study Tools:**

**Case Report Form:** Data was collected by using a self-designed data collection form which consists of details like age, sex, lab data, disease condition, history of the illness, drug therapy and other relevant information.

**Patient Health Questionnaire-9 (PHQ-9):** This is a diagnostic tool for mental health disorder followed by a cardiac event. This questionnaire is a self-administered diagnostic instrument for common mental disorders and is easy to administer. This is a depression module, which allots scores for each of the nine DSM-IV criteria starting with "0" (not at all) to "3" (nearly every day). It has been validated for use in primary care. The PHQ-9 is mainly used to monitor the severity of depression and the response of the patient to the treatment. It can be used to make a tentative diagnosis of depression in at-risk populations, those with coronary heart disease or after stroke. The Patient Health Questionnaire (PHQ-9) can then be used when screening for depression, which has 61% sensitivity and 94% specificity in adults (6,7). The questionnaire is shown in table 1.

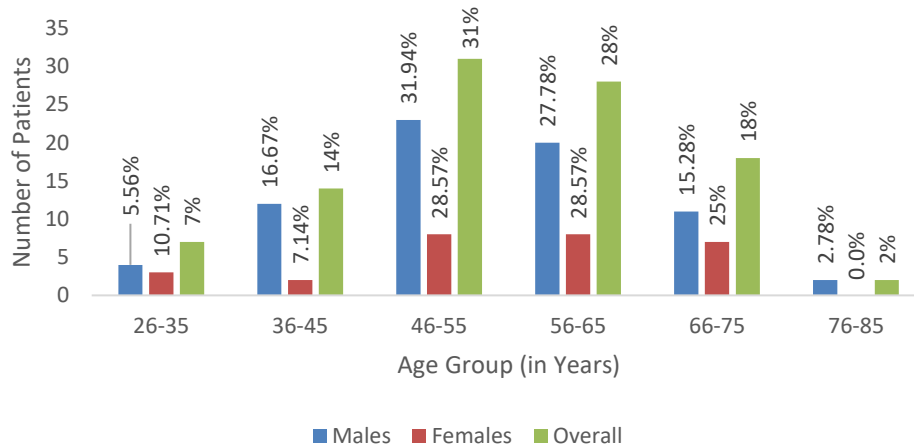
**Table 1: Questionnaire (PHQ-9)**

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use “√” to indicate your answer)	Not at All	Several Days	More than Half the Days	Nearly Every Day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself, or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite, being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
<b>FOR OFFICE CODING</b> _____ + _____ + _____ + _____ = <b>Total Score:</b> _____				

**RESULTS**

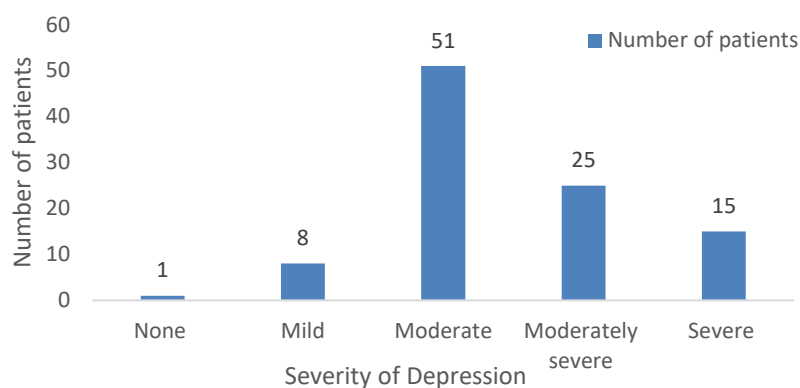
The present study, conducted over three months from January to March 2018, included 100 patients attending the outpatient clinics and admitted to inpatient wards of the Department of Cardiology in ESIC-MH-SJICS & RC, Bengaluru. Majority of the patients included in the study were males (72.00%). Most of the patients included in the study belonged to the 46-55

years age group (31.00%), followed by the 56-65 years age group (28.00%). The distribution was similar between the genders as well as the majority of the male patients (31.94%) belonged to the 46-55 years age group. The detailed distribution of patients included in the study is presented in figure 1.



**Figure 1: Distribution of Patients by Age Group and Gender**

Chronic illnesses like MI may cause depression in patients. The PHQ-9 questionnaire was used in the present study to analyze the incidence of depression among the study patients. Analysis of the scores shows that the majority of the populations (51%) were suffering from moderate depression, followed by 25% of the population suffering from moderately severe depression. Severe depression was seen in 15% of the patients, while 1% of the patients weren't suffering from depression, as shown in Figure2. Relating the age group and the emotional health state of the patient population found that the emotional health state of the patients belonging to age group 76-85 years was higher as compared to patients belonging to age group 56-65 years who had the least emotional health status. The detailed distribution of relation between age group and emotional health status is presented in table 2.



**Figure 2: Distribution of Patients by Their Mental Health Status**

**Table 2: Distribution of Patients by the Relation of Age Group and Depression Severity**

Age Group	CCI Category	Mild Depression	Moderate Depression	Moderately Severe Depression	Sever Depression	Overall
						N
26-35	Mild	0	6	0	1	7
	Moderate	0	0	0	0	
	Sever	0	0	0	0	
36-45	Mild	1	5	2	3	13
	Moderate	0	1	1	0	
	Sever	0	0	0	0	
46-55	Mild	1	7	4	1	31
	Moderate	1	9	0	5	
	Sever	1	0	2	0	
56-65	Mild	0	2	0	0	28
	Moderate	3	6	9	2	
	Sever	0	5	0	1	
66-75	Mild	0	0	0	0	18
	Moderate	1	5	5	0	
	Sever	0	4	0	3	
76-85	Mild	0	0	0	0	2
	Moderate	0	0	0	0	
	Sever	0	0	2	0	

**DISCUSSION**

This study evaluated the mental health of the patient. The PHQ-9 questionnaire was used for this and it was observed that 76% had moderate to moderately severe depression and 9% of the population had mild to none. The study exhibited a relation between age group and depression were, majority of the patients (51.61%) belonging to the age group 46-55 years were moderately depressed. Being a burden or not able to support the family or productivity loss

may be the reasons for the above. The 10-year mortality estimated from the charlson comorbidity index (CCI) results shows that over 16% of the patients belonging to the 46-55 years, age group had severe depression (classified using PHQ) and was at moderate 10-year mortality risk. The major factors that play an important role in the management of the quality of life of a patient with MI in this study were presence of comorbid conditions like diabetes mellitus, hypertension, etc., and complications associated with the disease like problems related to mobility, self-care etc. along with loss of productivity and decline in physical, mental and emotional health state.

## CONCLUSION:

The quality of life of the patient was a combined assessment of the emotional, physical and social health of the patient. Any kind of cardiac instabilities can have a marked impact on them and thus affecting the quality of life of the patient. Monitoring of the emotional and mental health state of the patient using PHQ-9 questionnaires has substantial predictive power over the assessment of the quality of life of the patients.

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