

## Study of Anxiety as Co-morbidity in patients with Ischemic Heart Disease.

Dr.Vishnu Vardhan Gandikota<sup>1</sup>MD (Psychiatry), Dr.Rufus Ephraim Yelamanchi<sup>2</sup> MD (Psychiatry) Dr.Nageswara Rao Nallapaneni<sup>3</sup> MD (Psychiatry)

1. (Assistant Professor, Department Of Psychiatry, Sri Venkateswara Medical College, Tirupathi, AP)
  - 2.(Assistant Professor, Department Of Psychiatry, SVS Medical College, Mahabub Nagar, Telangana)]
  - 3.(Professor & HOD, Department of Psychiatry, Sri Venkateswara Medical College, Tirupathi, AP)
- Corresponding Author Dr.Rufus Ephraim Yelamanchi

---

**Abstract: Background:** Cardiovascular diseases have become the leading cause of morbidity and mortality in India. Psychological factors are strongly associated with IHD, changing of which is known to have a positive influence on recovery. Negative affective states like anxiety and depression can have an impact on the pathogenesis of the physical disease. Understanding the psychosocial components post-IHD becomes very important for secondary prevention of IHD.

**Aim and Objectives:** To study anxiety as a co-morbidity in Ischemic Heart Disease patients

**Material and Methods:** Cross-sectional observational study at a tertiary care centre with institutional ethics committee approval

**Results:** Anxiety is found to be a significant comorbid condition in IHD and is found to influence the course of illness and overall prognosis

**Conclusion:** Psychiatric morbidity is prevalent in individuals suffering from IHD, among which anxiety disorders contribute a significant proportion

**Keywords:** Ischemic Heart Disease, Anxiety Disorders

---

Date of Submission: 06-08-2019

Date of Acceptance: 22-08-2019

---

### I. Introduction

Psychological factors are strongly associated with IHD, changing of which is known to have a positive influence on recovery. The most common emotional consequences related to IHD include stress, depression, anxiety, impaired interpersonal and social relationships. Negative affective states like anxiety and depression can have an impact on the pathogenesis of the physical disease. Which, in turn, has a direct effect on the biological process that could result in an increased risk of illness in the end. Type A personality traits like hostility, aggression and extroversion have been confirmed as predisposing factors for coronary events. Angiographic data suggest that more extensive atherosclerosis is seen in patients with type A personality<sup>[1]</sup>, confounding issues limit the interpretation. Several studies have identified psychological problems as aetiology for the risk of developing IHD. Increased IHD risk associated with depression was reported in elders (age  $\geq$  65 years) who were free of IHD at baseline.

Although recent attention has focused on the role of psychosocial factors in the acute precipitation of myocardial infarction and sudden cardiac death, psychosocial factors may also contribute to the early development of atherosclerosis<sup>[2]</sup>. Stronger epidemiologic studies have linked psychosocial factors such as bereavement, loss of job, and depression with hard end points such as myocardial infarction and sudden death<sup>[3]</sup>. One study which followed 1592 men and women for five years reported that the personality trait of submissiveness, a marker for type B behavior, was protective against nonfatal and total myocardial infarction, particularly in women (relative risk 0.59 and 0.69, respectively)<sup>[4]</sup>.

### II. Material And Methods

This prospective observational study was carried out in patients of Department of Psychiatry and Department of Cardiology at S.V.R.Ruia Hospital, Tirupathi, Andhra Pradesh from October 2015 to September 2016. A total of 130 adult subjects (both male and females) of aged  $\geq$  18 years participated in this study.

**Study Design:** Cross-Sectional, Observational study

**Study Location:** A tertiary care teaching hospital in the department of Psychiatry, at S.V.R.Ruia Hospital, Tirupathi, Andhra Pradesh.

**Study subjects:**

The sample comprised patients with Ischemic Heart Disease. The following diagnoses are included under the heading of Ischemic Heart Disease:

1. Myocardial infarction with ST-segment elevation,
2. Myocardial infarction without ST-segment elevation,
3. Chronic stable angina, and
4. Unstable angina.

**Study Duration:** From October 2015 to September 2016

**Sample size:** 130 patients.

**Subjects & selection method::** Individuals admitted in Department of cardiology with Ischemic Heart Disease

**Objectives**

1. To assess the socio-demographic data, clinical factors, among patients with IHD having psychiatric morbidity
2. To assess the severity of anxiety among patients with IHD.

**Inclusion criteria:**

1. All patients in the age group of 35-85 yrs, as the peak incidence of ischemic heart disease (IHD), is found to be in this age group.
2. Both Genders
3. Those patients giving consent to participate after ruling out Dementia with Mini-Mental Status Examination screening

**Exclusion criteria:**

1. Known past psychiatric illness
2. Patients who were not giving consent.
3. Patients who meet criteria for substance dependence in the past year.
4. Pregnant women
5. Patients with genetic disorders
6. Physically inactive.

**Tools for assessment:**

1. Mini-Mental Status Examination (MMSE)
2. Semi-structured Proforma for assessing socio-demographic data.
3. ICD-10 Research Diagnostic Criteria
4. Hamilton rating scale for anxiety (HAM-A)

**Procedure Methodology:**

After the clearance from the institutional ethical committee and from the department of cardiology, patients who were diagnosed with ischemic heart disease were identified and constituted the study population. After obtaining written informed consent from each of the concerned patient's demographic details and history of psychiatric illness were noted as per the structured proforma

- Level of cognition was assessed using the Mini-Mental Status Examination
- After Clinical interview, ICD-10 Research Diagnostic Criteria was used for confirmation of psychiatric diagnosis
- Hamilton Anxiety Rating Scale (HAM-A) was used to provide an indication of anxiety and a guide to the evaluation of treatment.

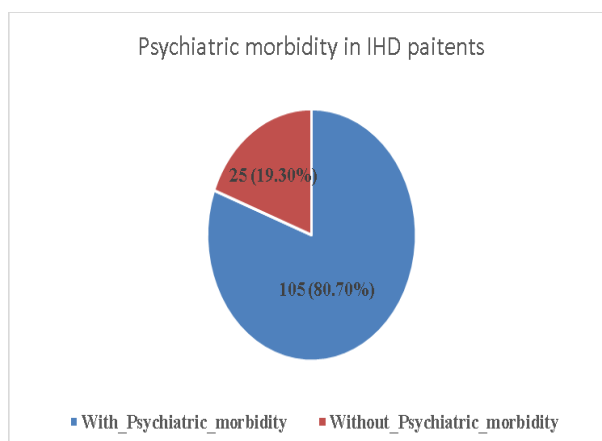
**Statistical analysis:**

Data were analyzed using software Epi info developed by the United States of America Centers for Disease Control. Comparison of categorical data was made using Chi-square test. Demographic & clinical variables were given in frequencies with their percentage. Incidence was given in proportion with 95% confidence interval. All statistical analysis was carried out at 5% level of significance, and p-value <0.05 was considered as significant.

### III. Results

**Table 1:** Comparison of patients of IHD with and without psychiatric morbidity

Patients with psychiatric morbidity (%)	Patients without psychiatric morbidity (%)	Total
105 (80.7)	25 (19.3)	130



**Table 2 :** Distribution of diagnosis according to ICD-10 Research Diagnostic Criteria

Diagnosis	No. of patients (%)
Major depressive episode	72 (55.3)
Manic episode	0
Hypomanic episode	0
Bipolar I	0
Bipolar II	0
Bipolar NOS	0
Panic disorder	15 (11.5)
Agoraphobia	8 (6.2)
Social anxiety disorder	0
Obsessive compulsive disorder	0
Post traumatic stress disorder	10 (7.6)
Anorexia nervosa	0
Bulimia nervosa	0

**Table 3:** Psychiatric morbidity in patients with IHD in relation to age:

Age group	Psychiatric morbidity	No psychiatric morbidity
35-40	2 (1.5)	1 (0.7)
41-50	18 (13.8)	6 (4.6)
51-60	34 (26.1)	11 (8.4)
61-70	41 (31.5)	6 (4.6)
71-80	10 (7.6)	2 (1.5)

**Table 4:** Psychiatric morbidity in patients with IHD in relation to gender

Gender	Psychiatric morbidity (%)	No morbidity (%)
Male	90 (69.2)	25(19.2)
Female	15 (11.5)	0

**Table 5:** Psychiatric morbidity in patients with IHD in relation to Occupation

Occupation	Psychiatric morbidity (%)	No morbidity (%)
Unemployed	26 (20)	3 (2.3)
Professionals	10 (7.6)	5 (3.8)
Business	15 (11.5)	6 (4.6)
Farmers	14 (10.8)	3 (2.3)
Skilled	13 (10)	4 (3.3)
Clerks	7 (5.4)	2 (1.5)
Retired	20 (15.4)	2 (1.5)

**Table 6:** Psychiatric morbidity in patients with IHD in relation to family type

Type of family	Psychiatric morbidity (%)	No morbidity (%)
Nuclear	77 (59.2)	21 (16.1)
Joint	28 (21.5)	4 (3.2)

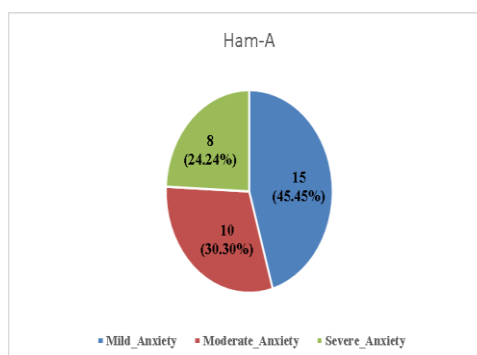
**Table 7:** Marital status -wise prevalence of psychiatric morbidity in patients with IHD

Marital status	Psychiatric Morbidity (%)	No morbidity (%)
Married	86 (66.1)	24 (18.5)
Single	19 (14.6)	1 (0.8)

**Table 8:** Distribution of Anxiety patients based on HAM-A scale:

No. Of patients with anxiety	Mild (%)	Moderate (%)	Severe (%)
33	15 (45.45)	10 (30.30)	8 (24.24)

$\chi^2 = 3.545$ ;  $df = 2$ ;  $P = 0.830$



#### IV. Discussion

The study was conducted in a tertiary care hospital, in the department of Cardiology in association with Department of Psychiatry. Patients who were stabilised and shifted to the ward after three or four days of admission were interviewed using Mini-Mental Status Examination (MMSE) to rule out cognitive deficits. A total of 130 subjects were included in the final study. These patients were assessed by clinical interview and diagnosed according to ICD-10 Research Diagnostic Criteria. Among these patients, 105 (87.5%) were found to be having psychiatric morbidity.

In the present study, post-traumatic stress disorder, panic disorder, and agoraphobia were grouped under anxiety disorders and were analysed. Jeenger[5] et al. reported 40% of IHD patients to suffer from depression and 35% from anxiety symptoms. Akhtar[6] et al. reported a prevalence of both anxiety and depression in 50% of patients post IHD. However, the current study contrasts from the investigations of Martin[7] et al. and Kessler[8] et al. who have reported depression in only 10 to 16% of post-IHD people. These findings are in accordance with Sarkar et al., who reported anxiety and depressive symptoms in 48.5% and 25.2% of Indian patients.

Among the different age groups, the prevalence of psychiatric morbidity was highest among the age groups of 61-70 years with 41(31.5%) followed by 34(26.1%) patients of 51-60 yrs age group. The prevalence among the age group of 35-40 years was 2 (1.5%) and in the age group of 41-50 years was 18(13.8%). Anxiety disorders were noticed to be significantly higher in patients above 70 years when compared with patients of 41-70yr age groups.

In the present study, unemployed patients 26 (20%) followed by retired patients, 15.4% had more psychiatric morbidity while it was observed to be lower in the working-class people. This may be due to the reason that unemployed and retired people may feel insecure economically, and they may be dependant on their family members. People who were economically self-sufficient had less psychiatric morbidity.

Among the study population, 77 (59.2%) of patients from the nuclear family had psychiatric morbidity compared to 28 (21.5%) patients from a joint family. A total of 25(19.3%) patients did not have psychiatric morbidity. Similarly, Agarwal et al., and Dutta [9] et al, showed that patients from nuclear families are significantly associated with psychiatric morbidity.

In the present study, 86 (66.1%) of the married patients and 19(14.6%) of the single patients had psychiatric morbidity, while 24 (18.5%) of the married patients did not have any morbidity. Possible factors include absence of spousal support, financial burden, marital status, the emotional quality of the spouse relationship and long standing marital stressors as studied by Waltz M(10). On the contrary, Hu and Goldman[11], and Hemstrom have consistently demonstrated that married people enjoy a health advantage over

unmarried persons. According to Idler and Angel [89], married people report better self-assessed health, have lower rates of long-term illness, and live longer than their unmarried counterparts.

Of the 33 patients with anxiety, based on the score obtained from HAM-A scale, 15 (45.5%) had mild anxiety, 10 (30.30%) had moderate anxiety, and 8 (24.24%) had severe anxiety. Similar results were seen in a study done by Sarkar et al, and Akhtar[6] et al, who reported anxiety in 48.5% and 50% of the patients with IHD.

## V. Conclusions

- Patients with ischemic heart disease (IHD) are at an increased risk of psychiatric morbidity.
- Anxiety disorders are the second most common psychiatric comorbidity after the depression in patients with IHD
- Prevalence of anxiety disorders was more common in the middle age group with IHD.
- Patients with both diabetes mellitus and hypertension had more depressive symptoms than anxiety disorders.

## References

- [1]. Krantz DS, Schaeffer MA, Davia JE, et al. Extent of coronary atherosclerosis, type A behavior, and cardiovascular response to social interaction. *Psychophysiology* 1981; 18:654.
- [2]. Rozanski A, Blumenthal JA, Kaplan J. Impact of psychological factors on the pathogenesis of cardiovascular disease and implications for therapy. *Circulation* 1999; 99:2192.
- [3]. Theorell T, Lind E, Floderus B. The relationship of disturbing life-changes and emotions to the development of myocardial infarction and other serious diseases. *Int J Epidemiol* 1975; 4:281.
- [4]. Whiteman MC, Deary IJ, Lee AJ, Fowkes FG. Submissiveness and protection from coronary heart disease in the general population: Edinburgh Artery Study. *Lancet* 1997; 350:541.
- [5]. Jeenger, J., Wadhwa, S., Mathur, D.M. (2014) Prevalence of depression and anxiety symptoms in first attack myocardial infarction patients of mewar region: a cross sectional study. *International Journal of Current Research and Review*, 6:79-85.
- [6]. Akhtar, M.S., Malik, S.B., Ahmed, M.M. (2004) Symptoms of depression and anxiety in post-myocardial infarction patients. *J Coll Physicians Surg Pak*. 2004 Oct;14(10):615-8.
- [7]. Martin CR, Lewin RJ, Thompson DR. A confirmatory factor analysis of the Hospital Anxiety and Depression Scale in coronary care patients following acute myocardial infarction. *Psychiatry Res*. 2003;120:85-94.
- [8]. Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, et al.; National Comorbidity Survey Replication. The epidemiology of major depressive disorder: Results from the National Comorbidity Survey Replication (NCS-R). *JAMA*. 2003;289:3095-105.
- [9]. Dutta H, Ghosh S, Dutta DJ. A follow-up study on Post myocardial infarction depression in a tertiary healthcare centre of Assam. *Open J Psychiatry Allied Sci*. 2016;7:75-9.
- [10]. Waltz M. Marital context and post-infarction quality of life: is it social support or something more?. *Social science & medicine*. 1986 Dec 31;22(8):791-805.
- [11]. Zalsman G, Huang YY, Oquendo MA, Burke AK, Hu XZ, Brent DA, Ellis SP, Goldman D, Mann JJ. Association of a triallelic serotonin transporter gene promoter region (5-HTTLPR) polymorphism with stressful life events and severity of depression. *American Journal of Psychiatry*. 2006 Sep; 163(9):1588-93.

Dr.Rufus Ephraim Yelamanchi. "Study of Anxiety as Co-morbidity in patients with Ischemic Heart Disease." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 8, 2019, pp 10-14.