# Level of Depression in Patients Admitted with Chronic Heart Failure

Depression in Patients with Heart Diseases

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## ABSTRACT

**Objective:** Heart failure (HF) is a chronic disease usually associated with psychological issues especially anxiety/depression despite of medical treatments. Aim of our research data study was the estimation of level of depression among admitted CHF patients in Nishtar Hospital and to find an association of various clinical parameters with depression

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was conducted at the Cardiology Department of Nishtar Medical College and Hospital Multan from March 2016 to August 2016

**Materials and Methods:** 400 patients with systolic HF were divide according to the NYHA heart failure classification system. The level of depression was assessed by using Beck's Depression Inventory questionnaire. The patients with a previous history of major depressive disease, psychological diseases, or chronic other severe ailments were excluded. To assess the relationship between variables the chi square test was applied to data.

**Results:** 76 patients in group B of depression were hypertensive and in group A of depression 85 were hypertensive with p=0.04 that is significant i.e. p<0.05. The high depression of group B was much more common in heart failure group B with 53 people having severe depression and 96 group A CHF patients had mild depression with p=0.05 that is statistically significant. Similarly, 94 mildly depressed people were in joint family system of group J and 56 severely depressed patients were in group S with p=0.03 that is highly significant.

**Conclusion:** Depression is very common among CHF patients who are living alone or with spouse only. And severe depression level is more common than mild/moderate depression at higher NYHA classes of CHF.

**Key Words:** Depression, heart failure, CHF, NYHA

## INTRODUCTION

The holistic approach of medicine considers all three aspects human being i.e. body, mind and spirit[1]. Nearly every medical illness follow bio-psycho-social model. The influence of age, sex and ethnicity on the depression in patients with heart failure is well understood in the past[2]. The cardiac diseases, taking the form of pandemic, are continuously on the rise in Pakistan region[3]. The increasing incidence of cardiac diseases is due to modernization of ifestyle which primarily involve the near to complete absence of physical activity and therefore the number of cardiac patients and, hence, CHF patients are increasing rapidly. Medical advancements has led us to effective management options for Congestive cardiac failure and the associated complications for minimum admissions in the hospital[4].

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However, the psychological issues are not addressed properly especially in cardiology departments. CHF, as with other debilitating diseases, is the number 1 cause of elderly admissions in the USA and is almost same in other parts of the world. It is accompanied by psycho-social stress whether at home or in hospital settings[5].

Among CHF patients admitted to hospital, depression may be a considered as a contributing factor to repeated hospital visits, associated complications and worsening of cardiac failure symptoms[6]. This assessment is from western countries and limited data is available in Pakistan especially Punjab. Considering the large population and the increasing prevalence of cardiovascular diseases in Pakistan. Therefore, estimating the depression in CHF patients is of great significance. The main focus of this study was to asses level of depression in HF patients .

## MATERIALS AND METHODS

Data was collected at the Cardiology Department of Nishtar Hospital Multan, Punjab, Pakistan over a period of 6 months from March 2016 to August 2016. A total of 400 adult patients were studied in this study. All the participants were aged between 18 and 80 years both male and female. Patients with age less than 40 were classed into group A and those with age greater than 40 were classed in group B. The patients with systolic CHF were recruited. Systolic HF was defined as

ejection fraction (EF) <35% on echocardiogram and for minimum duration of 6 months. Patients were clinically examined and divided according to NYHA heart failure Classification (Classes I to IV). The classes I and II were grouped into a larger group A and classes III and IV were grouped into larger group B.

Family status of single and joint family also considered for this study. The patients living alone or with spouse only (without children) are considered alone and grouped into S while those living with children or relatives were considered to be in joint family system and grouped into J. Patients with a previous history of major depressive disease, chronic diseases including cancer, acute or chronic kidney failure, end-stage hepatic disease (cirrhosis) and CCF secondary to thyroid disease or a history of myocardial infarction in the past 6 months were excluded from the study.

A standardized questionnaire was designed with the collaboration of cardiologists and psychologist and the research was conducted at Nishtar Hospital Multan. Informed consent was taken verbally from the patients and the questionnaire was given at the time of discharge. On questionnaire details of demographics, (BDI) scale, symptoms, family support system, living status, personal routine habits and any remarkable past medical, psychological or significant surgical issues. BDI is one of the widely used tool calculator for the measurement of depression comprising of 21 special questions. The standard URDU version of BDI was used.

The illiterate people were helped by their attendants or staff nurses. The BDI scoring can classify the patients into many degrees of depression[7]. A BDI score ≥10 but ≤16 indicate mild mood disturbance and ≥17 but ≤20 indicates borderline clinical depression and both of them are classed into group A i.e. from 10 to 20. Similarly the following three 21-30 was considered as moderate depression, and 31-40 as severe depression and patients with score more than 40 was considered extreme depression and classed into major group B. The people having no depression are those with less than 10 BDI score are psychologically normal[8]. Social factors like family relationing bonds were considered during this research. Various personal habits like tobacco intake in the form of smoking, naswaar, beera or huqqa were also entered. Tobacco intake was defined as history of half pack-year or more cigarette smoke or tobacco intake equivalent to that in previous five years.

Data analysis was done by using SPSS version 20. The frequencies values and central tendency measures were calculated. Chi-squared test were usedfor comparison of the data. The P-value of <0.05 was considered as statistically significant as per standard.

# RESULTS

There were 310 male and 90 female in this study who fulfilled the inclusion criteria (Table 1). Those included

in age group A were 18.5% (n=74) and in group B were 81.5% (n=326). Hypertension was in 61% (n=244) of all patients and absent in 39% (n=156). Diabetes mellitus was present in 45.5% (n=182 out of 400). Regarding smoking status, males were predominantly smokers and total 53.5% (n=213) smokers were entered in this study. The people included in age group A were 18.5% (n=74) and remaining 81.5% (n=326) were classed into group B.

**Table No.1; Demographic variables of total population.**

| Demographics of Patient | | TOTAL (n=400) | Total Percentage (%) |
|---|---|---|---|
| Gender | Male | 310 | 22.5 |
| | Female | 90 | 77.5 |
| Hypertension | Yes | 244 | 61 |
| | No | 156 | 39 |
| Diabetes Mellitus | Yes | 182 | 45.5 |
| | No | 218 | 54.5 |
| Smoking | Yes | 213 | 53.3 |
| | No | 187 | 46.7 |
| *Age group | Group A | 74 | 18.5 |
| | Group B | 326 | 81.5 |

**\*Patients with age less than 40 were classed into group A and those with age greater than 40 were classed in group B.**

There were n=259 patients with depression class A and B out of 400 total patients. There were 114 male and 36 female patients in class A of depression and 85 male and 24 female patients in class B of depression (p=0.76) which is statistically insignificant. The mild depression of group A was much more common in elderly people of group B(p=0.25) which is greater than 0.05 and is statistically insignificant. Similarly, 84 smokers were included in group A of depression and those included in group B depression were 52. There were 66 non-smokers in group A of depression and 57 non-smokers in group B depression (p=0.20) which is statistically insignificant. The mild depression of group A was more common in 64 people with diabetes and group B depression was present in 55 diabetics (p=0.25) which is insignificant.

On the other hand, the 76 patients in group B of depression were hypertensive and in group A of depression 85 were hypertensive with p=0.04 that is significant i.e. p<0.05. The high depression of group B was much more common in heart failure group B with 53 people having severe depression and 96 group A CHF patients had mild depression with p=0.05 that is statistically significant.

Similarly, 94 mildly depressed people were in joint family system of group J and 56 severely depressed patients were in group S with p=0.03 that is highly significant.

**Table No.2; Clinical assessment and risk factors profile of Depressive patients.**

| Factors | | Depre-ssion | Depre-ssion | P-Value |
|---|---|---|---|---|
| | | Group A | Group B | |
| Diabetes mellitus | Yes | 64 | 55 | 0.25 |
| | No | 86 | 54 | |
| Hypertension | Yes | 85 | 76 | *0.04 |
| | No | 65 | 33 | |
| Smoking | Yes | 84 | 52 | 0.20 |
| | No | 66 | 57 | |
| Gender | Male | 114 | 85 | 0.76 |
| | Female | 36 | 24 | |
| Age group | Group A | 23 | 23 | 0.25 |
| | Group B | 127 | 86 | |
| NYHA | Group A | 96 | 56 | *0.05 |
| | Group B | 54 | 53 | |
| Family status | Single S | 56 | 56 | *0.03 |
| | Joint J | 94 | 53 | |

**Mild mood disturbance and borderline clinical depression are classed into group A with 10 to 20 BDI. Similarly, 21-30 = Moderate depression, 31-40 = Severe depression and over 40 = Extreme depression, are classed into depression group B.**
**NYHA Classification (Classes I to IV). The classes I and II were grouped into A and classes III and IV were grouped into B.**
**The patients living alone or with spouse only (without children) are considered single and grouped into S while those living with parents, siblings or children are considered to be in joint family system and grouped into J.**

# DISCUSSION

Most of the hospital admitted HF patients were suffering from both mild and severe depression. There was intricate relationship between the depression and heart failure with respect to their epidemiology, optimal approach and patho physiological aspects[9]. Severity of depression was more associated with low Left Ventricular Ejection Fraction i.e. <35%. The higher degree of CHF as indicated by the NYHA. There was a study in China in 2001 in which Jiang et al worked on 374 hospital admitted patients with CCF using the BDI score and observed that 35% of admitted pts. Had BDI score of 10 or more which indicates of at least mild level of depression[10]. And the depressive patients with CHF were much more hospitalized than normal CHF patients[11].

As we know that emotional issues and disturbance is not usually dealt as a disease by majority of patients, therefore, individuals with depression may not usually present to psychiatric helping services and they prefer eastern treatments like hakeem, spiritual tx, dumdaroodetc in this regard. So apparent difference in rate of prevalence in our research and the other studies may show variations in health care provdance patterns

other than the intrinsic symptom and their pattern.
There are many studies stating that increased degree of depression is directly proportional to the degree of illness. Our study also strengthened this point in accordance with a study by Fulop G published in 2003 on the topic of Congestive heart failure and depression in older adults[12].

Recognition of level of depression in patients with CCF is also vital from various aspects. In a study, Rutledge et al observed that the presence of level of depression in heart failure patients predicts poor results in repeated hospitalization. They also anticipated the functional status and walk times of the patients[13,14]. Similarly, Gottlieb et al concluded that scoring of quality-of-life worsens statistically significant in pts. with heart failure if they were diagnosed depressive on BDI scale system[8]. Rate of mortality is increased for patients having CCF and depression both as compared to the patients with heart failure only[15,16].

In another study, Tabish Hussain et al found that depression among CHF patients was more common in patients living alone as compared to patients living in joint family system and it was statistically significant with p<0.034[17]. Almost ¼th of heart patients with major depression were diagnosed to be depressed. Half of them get management of depression.[18] Level of depression usually can't be diagnosed or treated in heart patients and depression may be diagnosed as symptomatic only of CHF.[19,20]

This research data has many limitations. Important one is small sample size. Due to our study design, generalization of our observations was limited to only in hospital admitted patients with CCF. There is a possibility that medically better managed patients with heart failure in community may have variable level of prevalence of depression. This was one time study and, therefore, we could not address apply the affects of depression on the outcomes of patients. Outcome of study shows higher frequency of depression in heart failure patients ,more commonly in singles and provides a base for further future researches and to find impact of depression on various factors which were not considered in our research.

# CONCLUSION

Depression is more among heart failure patients with specific predilection to people living single and severity is related directly to the degree of chronic heart failure patients. Severe depression is more common than mild in patients with higher NYHA Class.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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