

## ORIGINAL ARTICLE

FREQUENCY OF DEPRESSION IN PATIENTS WITH  
CHRONIC HEART FAILURE

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**Abstract:** Heart failure is a prevalent debilitating disease of poor prognosis in which heart cannot fill with or eject the sufficient amount of blood that is required due to structural or functional cardiac disorder. Depression is 4–5 times as common in heart failure (HF) patients as in the general population, and it might confer a higher risk of developing HF and negatively affect prognosis in established HF. **Objective:** To determine the frequency of depression among patients presenting with chronic heart failure. **Methods:** This descriptive cross sectional study was conducted in cardiology department Hayat Abad Medical Complex Peshawar from November 2011 to April 2012. In this study a total of 121 patients were observed by using 13% proportion of depression in heart failure, 95% confidence level and 6% margin of error, under WHO software for sample size determination. **Results:** Mean age was  $55 \pm 1.26$  years. Sixty-eight percent patients were male and 32% were female. Fifteen percent patients had chronic heart failure for less than 1 year, 37% had chronic heart failure for 2–3 years and 48% patients had chronic heart failure for 3–4 years. Seventy percent patients had HADS score  $<11$  and 30% had HADS scored of  $>11$ . Thirty percent patients had depression in chronic heart failure while 70% did not have depression in heart failure. **Conclusion:** Depression is common among CHF patients. Severe depression is more frequent than mild depression.

**Keywords:** Depression, Congestive Heart failure, NYHA, HADS

## INTRODUCTION

Heart failure is a prevalent debilitating disease of poor prognosis in which heart cannot fill with or eject the sufficient amount of blood that is required due to structural or functional cardiac disorder.<sup>1</sup> Heart failure is the underlying reason for 12–15 million office visits and 6.5 million hospital days each year.

Depression is 4–5 times as common in heart failure (HF) patients as in the general population, and it might confer a higher risk of developing HF and negatively affect prognosis in established HF.<sup>2,3</sup> Depressed patients usually present with great impairment of daily activity than that associated with other chronic diseases.<sup>3</sup> There is high prevalence of major depressive disorder and generalised anxiety disorder in cardiac patients. The frequent appearance of a depressive symptomatology, as well as its exacerbating effect on the prognosis of patients with HF, means that its diagnosis should be made without delay and patients with such a significant mental disturbance should undergo a thorough evaluation.<sup>4</sup>

Psychological interventions and pharmacological or non-pharmacological treatment of depression may lead to a substantial decrease in morbidity and perhaps in mortality among patients with heart failure.<sup>3</sup> Frequency of occurrence of depression in patients with heart failure ranges from 13–77.5% irrespective of other contributing factors, such as patient's age, gender, or extent of heart failure.<sup>2,5</sup> Clinical depression can worsen compliance with cardiac medication regimens, and reducing

depression increases medication adherence overall.<sup>6</sup> Depressed patients also adhere less well to other recommendations, including modifying the diet, exercising, stopping smoking, and attending cardiac rehabilitation programs.<sup>7</sup> The meta-analysis by Rutledge *et al* found that the presence of depression in a patient with heart failure predicts worse outcomes in terms of hospital readmission rates, functional status, and walk times. This analysis also found twice the rate of death in heart failure patients with depression compared with heart failure patients without depression.<sup>8</sup>

As mentioned earlier that the presence of depression in a patient with heart failure predicts worse outcomes in terms of hospital readmission rates, functional status, walk time and less adherence to cardiac medications and it is also worth noting that the prevalence of depression in heart failure patients is quite variable, this study was designed to determine the frequency of depression among patients with heart failure in our local population.

## MATERIAL AND METHODS

It was a descriptive cross-sectional study conducted at Department of Cardiology Hayatabad Medical Complex PGMI, Peshawar Pakistan from November 2011 to April 2012. Sample size was 121, using 13% proportion of depression in heart failure, 95% confidence level and 6% margin of error, under WHO software for sample size determination using consecutive (non probability) sampling technique.

All patients with history of chronic heart failure and with documented ejection fraction (EF) <40% on echocardiography, age above 15 years and of any gender were included in the study. Patients known to have clinical depression or treated for depression prior to enrolment in the study; patients whose first degree relative had died within the last 6 months or had any other reason to be depressed; patients with acute coronary syndrome (ST elevation MI, Non-ST elevation MI, Unstable angina), established coronary artery disease and critically ill patient unable to be interviewed; and patients with severe debilitating diseases including malignancies, renal failure and end-stage liver disease were excluded.

The study was conducted after approval of Hospital Ethical Committee. All eligible patients were enrolled in study through OPD or ER department. A written informed consent was obtained. All patients were admitted in the cardiology unit for further evaluation. A detailed history was taken followed by complete examination including blood pressure recording.

All patients included in the study were evaluated for depression on the basis of operational definitions and were managed per ward and unit protocols. All information was recorded on a pre-designed performa.

Data was analysed using SPSS-10. Descriptive statistics were used to describe, organise and summarise data. Mean±SD was calculated for numerical variables like age, Hospital Anxiety and Depression Scale (HADS) score and duration of illness. Frequencies and percentages were calculated for categorical variables like depression and gender. Depression was stratified among the age, gender and duration of illness to see the effect modifiers.

## RESULTS

Among 121 patients 13% patients were in age range 30–40 years, 29% were in 41–50 years, 36% were in 51–60 years, and 22% patients were above 60 years. Mean age was 55±1.26 years. Male patients were 68% while 32% patients were female.

Fifteen percent patients had chronic heart failure since less than 1 year, 37% patients had chronic heart failure since 2–3 years, and 48% patients had chronic heart failure since 3–4 years. Mean duration of chronic heart failure was 3±2.55 years. Seventy percent patients had HADS score <11 while 30% patients scored >11. On the basis of HADS score, 30% patients had depression in chronic heart failure while 70% did not have depression in chronic heart failure. Depression in chronic heart failure was found in 36 patients in whom 2 patients were in age range 30–40 years, 10 patients were in

age range 41–50 years, 18 were in age range 51–60 years and 6 patients were above 60 years of age.

Depression in chronic heart failure was found in 25 male patients while 11 patients were female. Depression in chronic heart failure was found in 36 patients in whom 18 had chronic heart failure since 3–4 years followed by 16 patients having chronic heart failure since 2–3 years and 2 had chronic heart failure since less than 1 year.

## DISCUSSION

Depression is common among the congestive cardiac failure patients, with a female predominance. The severity of depression is directly proportional to the degree of heart failure with severe depression being more frequent than mild depression in patients with higher NYHA Class.

In our study 70% patients had HADS score <11 while 30% patients had HADS score >11. Similar finding were observed in a study conducted in Northern China in 2001. Jiang *et al*<sup>9</sup> screened 374 hospitalised patients with heart failure using the Beck Depression Inventory score and found that 35% had scores of 10 or higher (indicative of at least mild depression). Since emotional disturbance is not typically considered as a disease by many Chinese patients, depressed individuals might not readily present compared to the patients with heart failure only.

Our study shows that incidence of depression was found more in age group 51–60 years followed by age group 41–50 years, and above 60 years. Similar findings were observed in other studies in over 60 years old patients who experienced higher level of depression, which was possibly attributed to the fact that after having lost their previous healthy status, often come along with unpleasant situations unable to change their lives, such as functional impairment and loss of interest for activities.<sup>10,11</sup> Furthermore, the elderly usually suffer from cognitive disorders (poor memory or concentration difficulties) and they find it hard to fully realise that they actually experience depression. Finally, another possible explanation is that even if depression is diagnosed and the elderly are given antidepressant therapy, they still have difficulties to understand, to remember and follow the complex medical advice or receive the drug therapy.<sup>9</sup> Similar findings were observed by Gottlieb *et al*<sup>10</sup> where depression was more frequent in younger than over 65 years old age groups, indicating that these patients being unable to reach their expectations and fulfil their dreams experience depression.

The level of depression is also associated with the duration of the disease since patients who had been diagnosed for more than 1 year experienced

higher level of depression. Given the fact that duration or the severity of the disease exacerbates the physical and emotional symptoms it is understandable why these patients experience depression. An additional factor is that those patients with duration of illness less than a year are still unable or unwilling to accept all the restrictions that the disease imposes on their life, thus experiencing high level of depression. Our study shows that incidence of depression was more in 2–4 years time period of chronic heart failure as most of the patients were recorded in this time period. Previous studies in the West have also reported a higher prevalence of depression in hospitalised heart failure patients. In general population, major depression has been reported to be common in individuals with chronic medical illnesses. In another study, the severity of depression worsened with increasing severity of heart failure, an important consideration when confronting patients with worsening heart failure. These findings are consistent with previous studies.<sup>11,12</sup>

Identification of depression in patients with CHF is important from several aspects of their care. Rutledge *et al*<sup>8</sup> found that the presence of depression in patients with heart failure predicts worse outcomes in terms of hospital readmission rates, functional status, and walk times.<sup>8,11</sup> Gottlieb *et al* found that quality-of-life scores were significantly worse in heart failure patients if they had a diagnosis of depression on the basis of the Beck Depression Index.<sup>10</sup> Mortality rate is higher for patients with both, heart failure and depression in comparison to the patients with heart failure only.<sup>9,13</sup>

We also found that regarding residence, patients who lived in big cities experienced higher level of depression than those living in the countryside. According to the literature, lack of social support in large cities compared to the countryside, is associated with many chronic diseases such as stroke and heart disease, but limited information is available about the effect of social support on depression in patients with heart failure. On the other hand, it has been shown that psychosocial factors, such as stressful everyday living, loss of independence and other situations that the patients can not handle without help or support, may lead to depression.<sup>14</sup> Teasdale JD *et al*<sup>11</sup> and Kraaij V *et al*<sup>12</sup> who studied patients with heart failure, concluded that social isolation is a significant factor in mortality, regardless of age, physical ability and treatment of depression. Severity of the disease is another factor that plays a significant role for the level of depression among these patients. Participants at the 2<sup>nd</sup> and 3<sup>rd</sup> stage of heart failure were more depressed compared to those at 1<sup>st</sup> stage. It is well established that as the stage of the disease deteriorates, the physical

symptoms are such that impose limitations on the daily activities of the patients or restrict patients from work or activities that they previously enjoyed. Furthermore, due to the exacerbation of the disease patients are unable to maintain relationships and functional roles as before the onset of the disease. The inability to fulfil their role (social, professional, family) may be one of the contributing factors for the development of depression. Other most common risk factors that need to be taken into account at the assessment of depression are the loss of autonomy and self-esteem, the distorted picture of themselves and the uncertainty about the future. Consequently, patients with severe heart failure or with poor physical health often refuse to follow rehabilitation programs.<sup>15</sup>

## LIMITATIONS

Our study has several limitations. Perhaps the most important one is a relatively smaller sample size. We were also unable to adjust for confounders in our analysis. The study design limits its application to hospitalised patients only. It is possible that optimally controlled CHF patients living in community may have lower prevalence of depression. We were also unable to address the impact of depression on clinical outcomes.

## CONCLUSION

This study highlights the high prevalence of depression in CHF patients and does provide a basis for future studies to learn about the impact of depression on morbidity and mortality.

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