

Original Article

Depression Status and Related Factors in Patients with Heart Failure

Atefeh Ghanbari, Ph.D.,¹ Fatemeh Moaddab, M.S.,^{1*}
Arsalan Salari, M.D.,² Ehsan Kazem Nezhad Leyli, Ph.D.³

ABSTRACT

Background: Among patients with heart failure, patients with depressive symptoms 2-3 times higher than in patients without symptoms of depression are at increased risk of mortality. The aim of this study was to determine depression status and related factors in patients with heart failure in 2012-13.

Methods: In this descriptive cross-sectional study, 239 patients with heart failure who referred to Dr. Heshmat hospital in Rasht in 2012-13 were assessed. Data were collected using the Cardiac Depression Scale, Charlson Comorbidity Index, and NYHA classification system. Data were analyzed with SPSS using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (Kolmogorov–Smirnov test for normal distribution of data, correlation chi-square, *t*-test, and logistic regression).

Results: The results showed that 138 (57.7%) patients had depressive symptoms. In the logistic regression analysis, only education and supplementary insurance as a significant predictor of cognitive status were identified, which indicated that the patients with supplementary insurance and higher education levels were more likely to maintain an optimal cognitive function.

Conclusions: Since more than half of the subjects had depressive symptoms, we recommend that depressive symptoms be assessed and care plans be planned based on it. (*Iranian Heart Journal 2015; 16(3): 22-27*)

Keywords: ■ Depression ■ Patients ■ Heart failure

¹ Department of Nursing, Social Determinant of Health Research Center, Guilan University of Medical Sciences, Rasht, I.R. Iran.

² Department of Cardiology, Guilan Interventional Cardiovascular Research Center, Heshmat Hospital, Guilan University of Medical Sciences, Rasht, I.R. Iran.

³ Department of Biostatistics, Social Determinant of Health Research Center, Guilan University of Medical Sciences, Rasht, I.R. Iran.

* Corresponding Author: Fatemeh Moaddab, M.S.

E-mail: f.moaddab89@gmail.com

Tel: 013-33520149

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Although in the last 2 decades, significant advances have been made in heart failure treatment, the outbreak of heart failure is soaring, such that around 15,000,000 people are suffering from it worldwide.¹ Heart failure has been recognized as the common destination of all heart disorders.² According to the estimations conducted in the U.S., about 1% of people over 50 years old and 10% of the elderly over 80 are afflicted by heart failure.³⁻⁵ This disease is one of the main causes behind death and disability. Indeed, despite widespread treatment improvements, high death rates and complications have been seen in the population suffering from this disease.⁶

One of the factors resulting in weaker outcomes in heart failure sufferers is depression.⁷ Depression can increase the risk behind cardiovascular disease in healthy people and its adverse outcomes in cardiovascular patients.⁸ Depression is a common emotional and psychological disease and negatively impacts enjoyment of life, influences social relations, disturbs sleep and appetite, and begets mood and emotional disorders.⁹ Negative emotions such as depression seem to be very common among cardiac patients compared with healthy individuals.¹⁰ Depression symptoms are a predictor of increased death rates in heart failure patients. Among heart failure sufferers, patients with depression symptoms are 2-3 times more exposed to risk and rehospitalization than patients without such signs.¹¹ Also these patients significantly report more severe symptoms, weaker social and physical function, and lower life quality.^{6,7,12} This issue also results in prolonged treatment, costly health care, early disability, and economic burden on individuals and health care system of society.^{8,13,14} The results obtained from various studies have reported heart patients' depression outbreak as 16-65%.¹³

One of the most frequent depression symptoms is psychological problems, compelling patients to refer to psychiatrists,

psychologists, and other mental health specialists. However, it often goes undiagnosed — especially when there are physical signs. The undiagnosed depression disorder may put off the physical disease recovery and aggravate its prognosis.¹⁵ Depression whether of disorder or symptomatic type not getting into disorder limit increases the mortality and morbidity of cardiovascular events twice.¹⁴ Previous research indicates that appropriately recognizing and treating depression promotes the patient's life quality and decreases disability.⁹ Heart failure patients are exposed to psychological-mental problems, and ignoring their psychological reactions and stresses can extend their disease. We sought to determine the depression status and related socio-demographic factors in heart failure patients referring to Dr. Heshmat Hospital.

METHODS

This analytical cross-sectional research recruited heart failure patients referring to Dr. Heshmat Hospital, in the Iranian city of Rasht, in 2012-13. This hospital is the only specialized referral center in Guilan Province. The study samples were recruited based on the statistical sample size formula as 239 subjects and the sampling was done via gradual sampling. The inclusion criteria were comprised of heart failure diagnosis verified by the specialist; heart function disorder based on echocardiography reports; ejection fraction $\geq 25\%$; New York Heart Association (NYHA) functional classes I, II, and III; and age ≥ 45 years. The exclusion criteria consisted of neurological problems recorded in the patient's medical files, not having mental stability (based on the medical record), speaking disability in Farsi, and hearing and vision disorders.

This study was approved by the Ethics Committee of Research Deputyship in Guilan University of Medical Sciences. Written informed consent was obtained from all the participants at the beginning of the study. All

the participants were informed of voluntary nature of participation and were assured about confidentiality of their personal information. The data were collected using a questionnaire including 2 parts: the first part comprised questions on sociodemographic and related to the disease data and the second part contained the Cardiac Depression Scale (CDS) to assess depression status. The CDS questionnaire comprises 26 questions in 7 dimensions (sleep disorder, not enjoying, lacking confidence or instability, mood, perception, hopelessness, and inactivity). In this study according to the studies conducted in this area,^{16, 17} a cutoff point of 90 was considered. The minimum score was 26 and the maximum score 182. Higher scores implied more severe depression.¹⁶ The content validity index of the tool was determined as ≥ 0.83 . In addition, to define its scientific reliability, its Cronbach's alpha was achieved at 0.86.

All the data were gathered by the researcher through interviewing the patients and reviewing their medical records. The data were collected and analyzed using descriptive statistics (frequency, percentage, and mean and standard deviation) and analytical statistics (Kolmogorov–Smirnov test to determine data normal distribution, chi-square correlation, Fisher exact test, and Mann–Whitney U test) in Statistical Package for the Social Sciences (SPSS), version 19, with a confidence interval of 95% and test power of 90%. A P value < 0.05 was considered significant.

RESULTS

The study population was at a mean age of 59.04 ± 9.91 years. The majority of the subjects were male (68.6%) and married (89.5%), with the least reading and writing skills (69.5%). In addition, 34.7% of the participants were self-employed, 99.2% had health insurance, and 63.6% had 1-2 hospitalizations. Also, 39.7% of the patients were in the NYHA functional class I. The mean monthly income was 4.05 ± 3.70

(100,000) tomans. The mean disease duration was 3.92 ± 5.82 years. The mean depression score was 96.832 ± 2.64 out of a possible score of 182. Out of the 239 subjects, 138 (57.7%) had depression symptoms and 101 (42.3%) had no symptoms of depression. Analyzing the relationship between depression status and sociodemographic characteristics and related disease factors, gender ($P < 0.003$), marital status ($P < 0.03$), education level ($P < 0.001$), employment status ($P < 0.001$), number of hospitalization ($P < 0.04$), and the NYHA functional class ($P < 0.001$) revealed significant statistical relationships — such that women, unmarried patients, those with lower education levels, housewives, those with 3-4 hospitalizations, and those with functional class III suffered from higher depression, while no significant statistical relationships were found between age, monthly income, insurance, and disease duration and depression status (Table 1).

DISCUSSION

Based on the present research, the majority of the subjects had depression (57.7%). In this respect, the results of 3 studies by Cameron et al.^{16, 18, 19} conducted by using the CDS tool implied that respectively, 53%, 73%, and 62% of the subjects had depression symptoms. The results of a study by Moser et al.¹⁰ aiming to compare the prevalence of anxiety, depression, and hostility among 3 clinically diverse elderly cardiac patient cohorts and a reference group of healthy elders using multiple affect adjective checklist indicated that 63% of the heart failure patients had depression symptoms. In fact the heart-failure group manifested the greatest percentage of patients with depressive symptoms ($P = 0.001$). In a research by Chung et al.¹¹ comparing event-free survival between 4 groups of patients with heart failure stratified by depressive symptoms and perceived social support using the Beck tool suggested that 32% of the patients clinically had remarkable

depression symptoms. Also, a study by Kato et al.²⁰ aiming to evaluate adherence, identify associated factors, and clarify the impact of previous heart failure hospitalizations on adherence in outpatients with heart failure using the CES-D tool denoted that 25.9% of the sufferers had depression symptoms. In the researcher's mind, the high prevalence of depression in these patients can be justified regarding the effect of the drug taken such as beta-blockers, the disease being chronic, and its negative outcomes and effects on daily activities and — generally speaking — quality of life. The researcher believes that the reason behind the different percentages of depression symptoms may be due to the application of various tools to study depression. Furthermore, the studies using the CDS tool employed diverse cutoff points. For instance, the applied cutoff in the research by Cameroon et al.²¹ was 84 but in the current study, considering the tool validation paper, it was 90. Another reason for the difference may be because in the present study the data were gathered subjectively and by referring to the statements of the patients. If this variable had been analyzed more objectively and during a long-term follow-up, absolutely different results could have been obtained.

Concerning the relationship between depression status and sociodemographic characteristics and related disease factors in this study, the variables of gender, marital status, education level, employment status, number of hospitalization and NYHA functional class suggested a significant relationship with depression status. In this regard, Gottlieb et al.,²² seeking to define the influence of age, gender, and race on the prevalence of depression in heart failure patients, reported a significant relationship between depression and age (P=0.05) and gender (P=0.04) but there was no significant relationship between depression and race. In addition, the study results by Moradian et al.⁸ displayed a significant relationship between age and hospitalization record and depression in patients with coronary artery disease. The research by Ghaleiha et al.²³ also demonstrated a significant relationship between depression and the gender of patients with acute coronary syndrome.

The results of the present study suggested that women, unmarried persons, individuals with lower education levels, and housewives were exposed to higher risk of depression.

Table 1. Correlation between demographic variables and depression status

Variables		Having Depression Symptoms		P Value
		Yes 138 (57.7%)	No 101 (42.3%)	
Gender	Female	54 (72)	21 (28)	0.003*
	Male	84 (51.2)	80 (48.8)	
Age mean (SD)		59.15 (1.01)	58.89 (9/74)	0.99***
Marital status	Married	118 (55.1)	96 (44.9)	0.03**
	Single (including single, widowed, and divorced)	20 (80)	5 (20)	
Education level	Can read and write	108 (65.1)	58 (34.9)	0.001*
	Under diploma	11 (64.7)	6 (35.3)	
	Diploma and higher	19 (33.9)	37 (66.1)	
Employment status	Clerk- retired	22 (37.29)	37 (62.71)	0.001*
	Employed- jobless	14 (48.27)	15 (51.73)	
	self-employed	52 (62.7)	31 (37.3)	
	Housewife	50 (73.5)	18 (26.5)	
Income mean (SD)		3.94 (3.75)	4.21 (3.65)	0.23***
Having insurance	Yes	135 (57.4)	100 (42.6)	0.44**
	No	3 (75)	1 (25)	
Disease duration Mean (SD)		4.23 (5.96)	3.49 (5.63)	0.26***
Number of hospitalization	0	14 (53.8)	12 (46.2)	0.04*
	1-2	80 (52.6)	72 (47.4)	
	3-4	31 (77.5)	9 (22.5)	
	5 & more	13 (61.9)	8 (38.1)	
New York Heart Association functional class	Class I	39 (41.1)	56 (58.9)	0.001*
	Class II	36 (63.2)	21 (36.8)	
	Class III	63 (72.4)	24 (27.6)	

*Chi-square, **Fisher exact test, ***Mann-Whitney U

CONCLUSIONS

Given that depression can be a factor in increasing adverse cardiac outcomes in cardiovascular patients, it seems advisable that it be paid due attention in cardiovascular patients in diverse settings such as hospitals and clinics.

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Conflict of Interest

There are no conflicts of interest.

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