Pak **Heart J**

THE DETERMINATION OF DEPRESSION AND ANXIETY LEVEL IN INDIVIDUALS WITH CHRONIC HEART FAILURE

Pelin İlhan[1], Sıdıka Oğuz[1]

1 Institute of Health Science Marmara University, Turkey

Address for Correspondence:
Pelin İlhan
Institute of Health Science Marmara University, Turkey
Emails: pelinilhan.54@hotmail.com

Contribution
PI conceived the idea and designed the study. Data collection and manuscript writing was done by PI and SO. All the authors contributed equally to the submitted manuscript.

All authors declare no conflict of interest.

This article may be cited as: İlhan P, Oğuz S. The Determination of Depression and Anxiety Level in Individuals with Chronic Heart Failure. Pak Heart J 2021;54(01):51–57. https://doi.org/10.47144/phj.v54i1.2065

ABSTRACT

Objective: This study was planned to assess the depression and anxiety level in individuals with Chronic Heart Failure (CHF).

Methodology: A cross sectional study was conducted in a training and research hospital in Istanbul. The population of the study consisted of patients with CHF who stayed in the cardiology and internal medicine clinics between the months of March and June 2017. One hundred consecutive patients of CHF were included in the study. The "Hospital Anxiety and Depression Scale" (HAD) was used to assess the anxiety and depression level of the patients and other demographic and exploratory variables data was collected on a questionnaire.

Results: The anxiety and depression was found in 62% and 84%, CHF patients respectively. The anxiety levels were found to be high in the individuals with no social insurance, females, primary school graduates and housewives. Also, the depression levels of the cases whose duration of disease was longer were found to be high. The anxiety levels were found to be high in the individuals with DM, with NYHA class 3-4, using diuretic and performing salt restrictions. There was no statistically significant difference between both subscales in patients with hypertension, using beta blockers or anticoagulants, and exercising.

Conclusion: In our study both anxiety and depression are found to be common in patients with CHF.

Keywords: chronic heart failure, anxiety, depression

INTRODUCTION

Heart failure is defined by European Society of Cardiology as a clinical syndrome characterised by symptoms (e.g. difficulty in breathing, ankle swelling and fatigue) that may be accompanied by signs like jugular venous pressure, pulmonary crackles, increased heart rate.[1] According to the study called HAPPY conducted by the Turkish Cardiology Association, the rate of heart failure in Turkish people over the age of 35 was 2.9%.[2] The prevalence of HF varies from 1% to 14% based on available data from Europe and the USA, with estimates in the range of 1–3% when all adults are included, regardless of age.[3]

It is known that depression is observed in approximately one third of heart failure patients in studies conducted. It is a known fact that this rate is much higher than the general population. Anxiety too is highly prevalent in this population.[4-9]

Depression and anxiety are common in patients with heart failure and couldn't be recognized completely. In order to diagnose and recover these disorders and develop effective treatments, new researches and studies are needed.[10]

Due to limited researches and studies in Turkey the present study was designed to assess the level of anxiety and depression in patients with CHF, we believed this study would make a contribution to Nursing Science and be a reference and base for new studies.

METHODOLOGY

This descriptive cross-sectional study was conducted in Prof. Dr. Cemil Taşcıoğlu City Hospital in İstanbul between the months of March and June 2017. The study had patients with CHF from cardiology and internal medicine clinics. In the power analysis performed, 100 patients were found to be sufficient for the study.

Patients included in the study were those over the age of 18, diagnosed cases of ischemic or valvular heart failure, who had no communication problems, consenting patients and non-pregnant. Patients with recent loss of a family member, known case of anxiety or depression, jobless individuals. Anxiety and depression were assessed on HADS and other data of demographics and explanatory variables was collected and noted in a questionnaire. The questionnaire included 18 questions in order to identify individuals with CHF.

Hospital Anxiety and Depression Scale was developed by Zigmond and Snaith in order to determine the risk and level of anxiety and depression. It was translated to Turkish and validated by Aydemir. The scale consists of total 14 items; 7 are related to depression symptoms and the remaining 7 are related to anxiety. The answers are 4-point Likert-Type and each point has a score of between 0-3. The scale threshold was found to be 10 for anxiety subscale, and 7 for depression subscale. The minimum score for both subscales is zero and maximum score is 21. Scores between 0-7 show no disorder, between 8-10 show low level of disorder, between 11-14 show medium level of disorder and between 15-21 show serious level of disorder.[11]

In this study, the Cronbach-a coefficient for the HAD anxiety subscale was found to be 0.799, for HAD depression subscale 0.649, and for HAD scale 0.748 was found.

During the evaluation of the study data, descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, and maximum) were used. Conformity of the quantitative data to a normal distribution was tested by using Kolmogorov-Smirnov, Shapiro-Wilk test, and the graphical assessments. During the evaluation parameters with normal distribution for the comparison of qualitative data were evaluated using One-way ANOVA and Tukey HSD test, Student's t-test. Pearson Correlation Analyze was used to determine the relation between variables. The results were evaluated at a significance level of $p<0.05$.

The study was explained to each patient and their verbal and written consent was obtained. The ethical approval was obtained from Marmara University Institute of Health Science Ethics Committee (date-number of approvals: 06.03.2017-78) In order to use HAD scale, written permission was obtained from Ömer Aydemir. In order to collect data, written permission was obtained from İstanbul General

Secretariat of the Association of Public Hospitals (97175836-771). This study was in line with the Declaration of Helsinki.

RESULTS

Patient's demographic and clinical characteristics are summarized in Table 1. The age of the participants ranged from 23 to 87 years old (mean= 60.72; SD=15.16). %56 of the participants were male, which is the majority, 79% were married, 45% were primary school graduates, 39% were retired, 84% have health coverage and 52% have more income than expense. It was found that 77% of the patients have chronic disorder. 30% of these patients were NYHA class I. The drugs used by our patients are shown in table 1. The most frequently used drugs were oral anticoagulants.

Table 1: Demographic and Clinical Characteristics Data (N=100)

Demographic	%
Gender	
Male	56
Female	44
Marital status	
Married	79
Single	21
Education level	
Illiterate	13
Literate	7
Primary school graduate	45
Secondary school graduate	17
High school graduate	10
Bachelor's degree and above	8
Occupation	
Housewife	39
Retired	39
Government official	8
Worker	7
Other	7
Income level	
Less income then expense	45
Equal income and expense	52
More income then expense	3
Having diseases other than CHF	
Yes	77
No	23
Smoking or usege of alcohol	
Yes	46
No	54
***Comorbidities**	
Hypertension	65
Diabetes	54
COPD	18
Asthma	12
Other	23
NHYA Classification	
Class I	30
Class II	53
Class III	15
Class IV	2
***Medications**	
Anticoagulant	58
Beta Blockers	57
Diuretics	35
Other	17

** More than one option was marked*
COPD: Chronic Obstructive Pulmonary Disease; NHYA: New York Heart Association Primary school: first 5 years of education Secondary school: following 3 years after primary school.

Scores for anxiety from the Hospital Anxiety and Depression Subscale of the patients range from 2 to 20. For Depression Subscale, scores range from 1 to 17. When the patients scores from the scale were evaluated according to the threshold; it was found that 62% of the patients got scores above threshold in the anxiety subscale and 84% of the patient got scores above threshold in the depression subscale (Table 2).

It was detected that there was a positive statistically significant relationship between the age of patients and their HAD-Depression scale scores ($p<0.01$, r:.267). While there was no statistically significant relationship detected between anxiety scores and marital status and having a child ($p>0.05$); there was a statistically significant relationship between anxiety and gender, level of education, occupation and social security ($p<0.01$).

Mean of HAD Anxiety score of females and the ones who do not have social insurance have been found statistically high (p<0.05).

According to Post Hoc Tukey HSD test which was performed to determine the statistically significant difference among education levels, the mean of HAD anxiety score of primary school graduates is significantly higher than secondary school graduates (p:.048; p<.05) There were no statistically significant associations between anxiety level and patients studying in other education levels according to HAD Anxiety scores (p>0.05).

Similarly, the Post Hoc Tukey HSD test which was done in order to find the significant difference among occupational groups, showed us the mean of HAD anxiety scores of housewives is significantly higher than retired ones (p:0.020; p<0.05). There was no statistically significant relationship detected in regards to HAD Anxiety scores among other education levels (p>0.05) (Table 3).

There was a statistically significant positive correlation between the heart failure period's duration and HAD depression scale scores. In the present study, positive statistically significant relationship between number of patients that would apply to the hospital and their HAD- Anxiety scale scores were found.

The anxiety levels were found to be high in the individuals with DM, with NYHA class 3-4, using diuretic and performing salt restrictions(p<.01). There was no statistically significant difference between both subscales in patients with hypertension, using betablockers or anticoagulants, and exercising (Table 4).

Table 2. Scores of the Hospital Anxiety and Depression Scale (N=100)

HAD		%	Mean±SD	Min-Max
HAD-A	Below threshold (0-10 Scores)	38	11.56±4.19	2-20
	Above threshold (11-21Scores)	62		
HAD-D	Below threshold (0-7 Scores)	16	10.24±2.97	1-17
	Above threshold (8-21 Scores)	84		

Table 3. Evaluation of HAD Scale Scores According to Patients General Characteristics

General Characteristics		HAD Scale		
		HAD-Anxiety	HAD-Depression	Post Hoc Tukey
		Mean±SD	Mean±SD	HSD
Age (year)	**r**	0.023	**0.267**	
	p	0.821	**0.007****	
Gender	**Female**	12.64±4.31	10.11±3.03	
	Male	10.71±3.92	10.34±2.95	
	^{t}p	**0.022***	0.708	
Marital Status	**Married**	11.52±4.05	10.30±2.73	
	Single	11.71±4.77	10.00±3.81	
	^{t}p	0,850	0.415; 0.679	
Having a Child	**Yes**	11.45±4.10	10.38±2.79	
	No	12.00±4.59	9.70±3.64	
	^{t}p	0.602	0.366	
Education Level	**Under Primary^{a}**	12.35±4.17	10.90±3.24	
	Primary School^{b}	12.42±3.76	10.47±2.23	bxc
	Secondary School^{c}	9.47±4.05	10.06±2.86	p=.048
	High School^{d}	10.50±4.73	9.11±4.13	
	^{F}p	**0.043***	0.274	
Profession distrubition	**Retired**	10.23±3.77	10.33±2.89	
	Housewife	12.87±4.28	10.38±2.91	
	Other	11.59±4.15	9.82±3.32	
	^{F}p	**0.19***	0.754	
Social Insurance	**Yes**	11.07±4.24	10.11±3.16	
	No	14.13±2.80	10.94±1.53	

	[t]p	**0.007****	0.308	

*tr: Pearson Correlation Analyze t. Student t Test F: One-Way ANOVA *p<.05 **p<.01*

Table 4. Evaluation of HAD Scale Scores according to patients' other characteristics

Other Characteristics		HAD Scale		
		HAD-Anxiety	HAD-Depression	Post Hoc Tukey
		Mean±SD	Mean±SD	HSD
Heart Failure (year)	**r**	0.039	**0.277**	
	p	0.703	**0.005****	
Number of patients that got registered to the hospital	**r**	**0.208**	0.038	
	p	**0.038***	0.710	
DM (n=77)	**Yes**	13.12±3.82	10.40±3.16	
	No	10.43±4.10	10.12±2.85	
	[t]**p**	**0.001****	0.639	
HT (n=77)	**Yes**	11.80±4.37	10.16±2.68	
	No	11.32±4.02	10.32±3.27	
	[t]**p**	0.569	0.789	
NYHA	**Class 1[a]**	9.43±3.74	10.23±3.68	c x a,b
	Class 2[b]	12.25±3.84	10.11±2.81	p=.007
	Class 3/4[c]	13.18±4.72	10.65±2.03	p=.007
	[F]**p**	**0.002****	0.815	
Usage of Diuretic Drugs	**Yes**	13.46±4.15	10.57±2.80	
	No	10.54±3.87	10.06±3.07	
	[t] **p**	**0.001****	0.416	
Usage of Beta Blocker	**Yes**	11.74±4.29	10.47±3.13	
	No	11.33±4.08	9.93±2.75	
	[t] **p**	0.629	0.368	
Usage of Anticoagulan	**Yes**	11.79±4.22	9.95±2.71	
	No	11.24±4.17	10.64±3.29	
	[t] **p**	0.516	0.251	
Exercise	**Yes**	10.75±4.33	9.25±3.73	
	No	11.82±4.14	10.55±2.64	
	[t] **p**	0.279	0.061	
	Yes	12.47±4.18	10.24±2.50	
Salt restrictions	**No**	10.24±3.87	10.24±3.58	
	[t] **p**	**0.008****	0.991	

*r: Pearson Correlation Analyze t. Student t Test F: One Way ANOVA *p<.05 **p<.001*

DISCUSSION

The study results demonstrated that the majority of the patients had anxiety (62%) and depression (84%) (Table2). The results of the study done by Evangelista and his friends on 241 patients showed that 40% of the participants had anxiety and 20% were in depression.[12] In another study conducted by Haworth and his friends the anxiety and depression rates were 18.4% and 28.6% respectively.[13] The main reason for this may be that the average age of our patients is higher than the other studies.

In this study, there was a statistically significant relationship between the gender and anxiety levels. Women's anxiety levels are higher than men's (Table 3). Similar to our study results, other two studies showed that levels of anxiety in women are higher than those in men.[14-16] In a literature review, contrary to our study, two different studies were found which showed no significant difference between gender and anxiety.[17,18]

In our study, a positive correlation was found between the patients' ages and HAD depression scores (Table 3). In a study by Yıldırım et al. that included 71 patients with heart failure, a positive correlation was found between depression and

patient ages. The results of our study are similar to those of Yıldırım.[19] In a study done by Gottlieb et al. that included 155 patients with heart failure, it was found that depression was more common in young patients than in the elderly.[20] The results of our study are different than those of the work of Gottlieb et al.

In our study CHF patients along with diabetes had high anxiety levels (Table 4). The study on patients with heart failure carried out by Haworth and et al. showed that comorbid problems such as diabetes and angina had significant impact on anxiety.[13] In the study of Gustad and et al, conducted on patients with heart failure, patients with chronic diseases were examined. According to the results of their study, anxiety symptoms were seen in patients with heart failure and diabetes.[21]

Anxiety level increased as the number of hospital admissions increased in the last six months (Table 4). Similarly, the study of Sönmez and Oğuz about the relationship between hospitalization of patients with CHF and dietary compliance showed that 66.3% of the patients were readmitted to the hospital two to three times.[22]

CONCLUSION

The study showed that the anxiety and depression are common in patients with CHF. Therefore, it is recommended to pay attention to anxiety and depression levels in women with CHF, without social security, with low education level, with NYHA class 3-4. It is also recommended to determine the HAD scale anxiety and depression levels by healthcare professionals.

DISCLAIMER:

This article was presented as a poster presentation at the International Meeting on Education and Research in Health Sciences (IMER-HS) Sultanahmet–Istanbul November 3-5, 2017.

REFERENCES

1. Ponikowski P, Voors AA, Anker SD, Bueno H, Cleland JG, Coats AJ, et al. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. Eur Heart J. 2016;37(27):2129-200.
2. Değertekin M, Erol Ç, Ergene O, Tokgözoğlu L, Aksoy M, Erol MK, et al. Heart Failure Prevalence and Predictors in Turkey: HAPPY Study. Arch Turk Soc Cardiol.2012;40(4):298-308.
3. 3.Dunlay SM, Roger VL, Redfield MM. Epidemiology of heart failure with preserved ejection fraction. Nat Rev Cardiol. 2017;14(10):591-602.
4. 4.Sullivan M, Levy WC, Russo JE, Spertus JA. Depression and health status in patients with advanced heart failure: a prospective study in tertiary care. J Card Fail. 2004;10:390–6.
5. Rutledge T, Reis VA, Linke SE, Greenberg BH, Mills PJ. Depression in heart failure a meta-analytic review of prevalence, intervention effects, and associations with clinical outcomes. J Am Coll Cardiol. 2006; 48:1527–37.
6. Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, et al. The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). JAMA. 2003; 289:3095–105.
7. Major Depression Among Adults. [Accessed 11/22/2016, 2016] avaialable at: http://www.nimh.nih.gov/health/statistics/prevalence/major-depression-among-adults.shtml
8. Müller-Tasch T, Frankenstein L, Holzapfel N, Schellberg D, Löwe B, Nelles M, et al. Panic disorder in patients with chronic heart failure. J Psychosom Res. 2008; 64:299–303.
9. Easton K, Coventry P, Lovell K, Carter LA, Deaton C. Prevalence and measurement of anxiety in samples of patients with heart failure: meta-analysis. J Cardiovasc Nurs. 2016; 31:367-79.
10. Celano MC, Villegas AC, Albanese AM, Gaggin HK, Huffman JC. Depression and Anxiety in Heart Failure: A review. Harv Rev Psychiatry. 2018;26(4):175-184.
11. Aydemir Ö. Reliability and Validity of the Turkish version of Hospital Anxiety and Depression Scale. Türk Psik Derg. 1997;8:280-7.
12. Evangelısta LS, Ter-Galstanyan A, Moughrabı S. Anxiety and Depression in Ethnic Minorities with Chronic Heart Failure. J Card Fail. 2009;15(7):572-9
13. Haworth JE, Moniz-Cook E, Clark AL, Wang M, Waddington R, Cleland JGF. Prevalence and Predictors of Anxiety and Depression in a Sample of Chronic Heart Failure Patients with Left Ventricular Systolic Dysfunction. Eur J Heart Fail. 2005;7:803-8.

14. Johensan JB, Pedersen SS, Spindler H, Andersen K, Nielsen JC, Mortensen PT. Symptomatic heart failure is the most important clinical correlate of impaired quality of life, anxiety, and depression in implantable cardioverter-defibrillator patients: a single-centre, cross-sectional study in 610 patients. Europace. 2008;10(5):545-51.
15. Cirelli MA, Lacerda MS, Lopes CT, de Lima Lopes J, de Barros ALBL. Correlations between stress, anxiety and depression and sociodemographic and clinical characteristics among outpatients with heart failure. Arch Psychiatr Nurs. 2018;32(2):235-41.
16. Oğuz S, Kara N, Araç V, Karataş A. Examination of Anxiety And Depression in Patients with Pacemaker. Turk Soc Cardiol Turkish J Cardiovasc Nurs. 2014;5(7):22-31.
17. Keskin G, Gümüş AB. The Evaluation of Anxiety, Anger and Coping Strategies in Patients with Chronic Heart Failure. Yeni Symp. 2012;50 (3):134-44.
18. Chung ML, Moser DK, Lennie TA, Rayens MK. The effects of depressive symptoms and anxiety on quality of life in patients with heart failure and their spouses: Testing dyadic dynamics using Actor-Partner Interdependence Model. J Psychosomatic Res. 2009;67(1):29-35.
19. Yıldırım O, Erdem A, Alçelik A, Canan F, Öztürk S, Ayhan SS, et al. Depression and Effect of Mortality in Hospitalized Patients with Decompensated Heart Failure. Koşuyolu Kalp Dergisi 2012;15(1):22-27.
20. Gottlieb SS, Khatta M, Friedmann E, Einbinder L, Katzen S, Baker B, et al. The Influence of age, gender, and race on the prevalence of depression in heart failure patients. J Am Coll Cardiol. 2004;43(9):1542-9
21. Gustad LT, Laugsand LE, Janzky I, Lars E., Dalen H., Bjerkeset O. Symptoms of anxiety and depression and risk of heart failure: the HUNT Study. Eur J of Heart Fail. 2014;16:861-70.
22. Sönmez E, Oğuz S. The Relationship Between Re-Hospitalization and Dietary Compliance in Patients with Chronic Heart Disease. Türkiye Klinikleri J Intern Med Nurs- Special Topics. 2016;2(3):23-9.