



## The Relationship between Quality of Life and Mental Health in Patients with Heart Failure

Behnam Gholizadeh<sup>1</sup>, Fatemeh Javaherforoosh Zadeh<sup>2</sup>, Seyed Salaheddin Nabavi<sup>3</sup>, Ehsan Moradi-Joo<sup>4</sup>, Siamak Baghaei<sup>5,6\*</sup>

<sup>1</sup>Department of General Surgery, School of Medicine, Golestan Hospital, Ahvaz Anesthesiology, and Pain Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

<sup>2</sup>Ahvaz Anesthesiology and Pain Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

<sup>3</sup>Department of General Surgery, School of Medicine, Imam Khomeini Hospital, Ahvaz Anesthesiology, and Pain Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

<sup>4</sup>Faculty of Management and Medical Information Sciences, Kerman University of Medical Sciences, Kerman, Iran.

<sup>5</sup>Department of Internal Medicine, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran.

<sup>6</sup>Department of Internal Medicine, Alimentary Tract Research Center, Clinical Sciences Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

### ABSTRACT

In all cases, Heart Failure (HF) affects the mental health and consequently the QoL of patients to a varying extent. This study aimed to investigate the relationship between QoL and mental health in HF patients at teaching hospitals in Ahvaz. The present descriptive-analytical study was performed on 220 patients admitted to the cardiac ward of Golestan Hospital in Ahvaz during 2020. Sampling was not performed due to the limited statistical population. Data was collected using a 36-item QoL and mental health questionnaire after determining their validity and reliability. The data was analyzed by SPSS 22 software using analysis of variance, t-test, and Pearson correlation coefficient at a significance level of 0.05.

Men and women were significantly different in dimensions of general health and physical pain, with women having a lower QoL in these two subscales ( $P < 0.05$ ). However, QoL in women was significantly higher than in men in dimensions of mental problems and mental health ( $P < 0.05$ ). There were also significant differences between men and women in dimensions of depression and anxiety, with women showing lower mental health in both dimensions ( $P < 0.05$ ). QoL and mental health problems in HF patients necessitate conducting qualitative research on ways to improve QoL and mental health of these patients. Besides, comparative studies on these patients are necessary before and after implementing nursing models to care for and support HF patients.

**Keywords:** Quality of life, Mental health, Heart failure, Golestan hospital, Ahvaz.

**HOW TO CITE THIS ARTICLE:** Gholizadeh B, Javaherforoosh Zadeh F, Nabavi SS, Moradi-Joo E, Baghaei S. The Relationship between Quality of Life and Mental Health in Patients with Heart Failure. *Entomol Appl Sci Lett.* 2021;8(3):60-6. <https://doi.org/10.51847/BYoMaYhb1i>

**Corresponding author:** Siamak Baghaei

**E-mail** ✉ Baghaei-s@ajums.ac.ir

**Received:** 30/04/2021

**Accepted:** 19/08/2021

### INTRODUCTION

Cardiovascular diseases and related complications are some of the most important causes of death in industrialized and developing countries, including Iran [1], where conducted

studies reported a prevalence of 2.32% for cardiovascular diseases [2]. HF is known as the common final consequence of all heart disorders [3]. The prevalence of this disease has increased, firstly, due to elevated life expectancy leading to an elevation in chronic diseases (e.g. chronic

HF), and, secondly, because of progress in the treatment of heart disease [4]. A report by the American Heart Association indicates that about 3.7% of all deaths from cardiovascular diseases are caused by HF. By 2030, more than 3.23 million people are predicted to die annually because of cardiovascular disease [5], and the prevalence of HF to rise by 25% [6].

HF is often referred to as Congestive Heart Failure (CHF), i.e. the inability of the heart to pump sufficient blood to meet the needs of tissues for oxygen and nutrients [7]. The disease symptoms and the consequent complications gradually cause limitations in the routine lives of patients, thereby affecting their QoL [8]. Among heart diseases, HF equally overshadows patients' mental, social, and psychological health and, consequently, their perception of health, in addition to the physical consequences. An elevated lifetime of HF patients along with the profound effects of this disease on their individual and social life and their families, as well as its chronic, progressive, and irreversible nature, are among the most important reasons for the decline in QoL of these patients. As such, most studies reported that the quality of life in patients with HF is lower than that of other chronic diseases [9-13]. Declined QoL not only hurts social, family, and work-life as well as on leisure activities but also increases the risk of hospitalization and death due to this disease; QoL, therefore, accounts for a predictor of HF consequences [14].

In addition to assisting ineffective treatment, access to QoL information also plays an important role in promoting support programs and rehabilitation measures [15]. Since maximization of QoL is one of the main goals in the treatment of HF patients, health providers and researchers should first acquire more information about the quality of life and its improvement in these patients [16]. QoL is an indicator of physical and social activities as well as mental health being considered as one of the important components of health. In all cases, HF affects the mental health and consequently the QoL of patients to a varying extent. The concept of QoL, mental health, and related factors in HF patients has been studied scarcely in Iran, and consequently, this group of patients has been less studied by psychological interventions. Therefore, this study aimed to investigate the relationship between QoL and mental health in

patients with HF at educational hospitals in Ahvaz.

## MATERIALS AND METHODS

The present descriptive-analytical study was performed on 220 HF patients admitted to the cardiovascular ward of Golestan Hospital in Ahvaz during 2020. The study population consisted of all HF patients hospitalized at the cardiovascular ward of Golestan Hospital in Ahvaz. Sampling was not performed due to the limited statistical population. Inclusion criteria were definitive diagnosis of HF (HF diagnosis in the patient's medical record), at least six months passed since the diagnosis of patients being hospitalized again for medical reasons, fluency in Persian, no mental retardation, and over 18 years of age. Data was collected using three demographics, SF-36 QoL, and GHQ-28 mental health questionnaires.

The SF-36 QoL questionnaire consists of 36 questions in eight subscales of physical function, physical limitation, physical pain, general health, vivacity, social functioning, mental problems, and mental health, which are classified into two scales of physical health and mental health. In other words, physical health comprises the total questions of subscales of physical function [10], physical limitation [4], physical pain [2], and general health [5]. Mental health also includes the total questions of subscales of social performance [2], mental problems [3], mental health [5], and vivacity [4]. One more question also examines a change in one's health status compared with the previous year. The scores of each scale vary from zero to 100, with zero reporting the worst and 100 being the best in the intended scale [17].

The mental health questionnaire also consists of 28 questions in four subtests of physical symptoms (questions 1-7), anxiety (questions 8-14), social dysfunction (questions 15-21), and depression (questions 22-28), on which the subjects mark their answers based on a 4-point scale from zero to 3. The scores in each subscale vary from zero to 21 and the total score ranges from zero to 84. In this scale, an increase in the score is associated with the deterioration of mental health, and if the total score is > 23, the patient will have mental health problems [18]. These two questionnaires are standardized tools with confirmed validity and reliability of the

Persian version in various studies [19]. Molavi confirmed its validity with  $r = 0.91$  and reported reliability of 0.90 using Cronbach's alpha coefficient [20]. The data was analyzed by SPSS 22 software using descriptive statistics and analysis of variance (ANOVA), t-test, and Pearson correlation coefficient at a significance level of 0.05.

## RESULTS AND DISCUSSION

The distribution of frequency percentage of demographic characteristics for the subjects showed that 45% and 55% of the population were males and females, respectively. Married, single, and deceased spouses comprised 75%, 12%, 13% of the participants. Dropouts and above school diploma were recorded in 63% and 37% of the subjects, respectively. Participants with and without a history of hospitalization were 44% and 66%, respectively, and 64% and 36% had incomes below and above two million Tomans, respectively. The dimensions of QoL and mental health (mean  $\pm$  standard deviation) are shown in **Table 1**.

**Table 1.** Mean and Standard Deviation of Dimensions of Quality of Life and Mental Health

Variables	Dimension	Mean	Standard Deviation
Quality of Life	General Health	41.3 $\pm$ 14.2	
	Physical Function	31.1 $\pm$ 13.3	
	Physical Problems	16.1 $\pm$ 11.2	
	Mental Problems	33.3 $\pm$ 14.8	
	Social Performance	32.1 $\pm$ 10.1	
	Physical Pain	39.5 $\pm$ 11.6	
	Cheerfulness	37.3 $\pm$ 20.1	
	Mental Health	40.4 $\pm$ 17.2	
Mental Health	Physical Symptoms	6.2 $\pm$ 3.2	
	Anxiety	6.1 $\pm$ 4.5	
	Social Performance	6.9 $\pm$ 3.9	
	Depression	5.9 $\pm$ 4.6	

According to **Table 1**, 29.2%, 39%, and 8.31% of the subjects had good, moderate, and poor QoL. Subjects attained the lowest (16.1  $\pm$  11.2) and the highest (41.1  $\pm$  14.2) mean scores in physical problems and general health dimensions, respectively. Besides, the mean total score of mental health was 25.1  $\pm$  16.2 in four dimensions, with social functioning and depression having the lowest (6.9  $\pm$  3.9) and the highest (5.9  $\pm$  4.6) mean scores, respectively. **Table 2** represents the correlation between gender and the dimensions of QoL.

**Table 2.** Correlation between Gender and Dimensions of Quality of Life

Variable	Dimension	Gender				P-Value
		Female		Man		
		Mean	Standard Deviation	Mean	Standard Deviation	
Quality of Life	General Health	11.1 $\pm$ 1.2		11.3 $\pm$ 4.6		0.000*
	Physical Function	11.1 $\pm$ 2.3		20.1 $\pm$ 5.1		0.43
	Physical Problems	6.5 $\pm$ 3.1		16.1 $\pm$ 3.2		0.32
	Mental Problems	5.3 $\pm$ 4.8		2.3 $\pm$ 7.3		0.005*
	Social Performance	15.1 $\pm$ 10.2		9.3 $\pm$ 5.3		0.33
	Physical Pain	9.4 $\pm$ 9.6		10.1 $\pm$ 1.6		0.000*
	Cheerfulness	7.3 $\pm$ 5.6		12.4 $\pm$ 15.1		0.45
	Mental Health	12.6 $\pm$ 8.2		11.3 $\pm$ 11.2		0.003*

As shown in **Table 2**, men and women were different significantly in dimensions of general health and physical pain, with women having a lower QoL in these two subscales ( $P < 0.05$ ). However, the QoL of women in dimensions of

mental problems and mental health was significantly higher than that of men ( $P < 0.05$ ). The correlation between gender and the dimensions of mental health is shown in **Table 3**.

**Table 3.** Correlation between Gender and Mental Health Dimensions

Variable	Dimension	Gender				P-Value
		Female		Man		
		Mean	Standard Deviation	Mean	Standard Deviation	
Mental Health	Physical Symptoms	3.3 $\pm$ 4.3		3.4 $\pm$ 7.3		0.34
	Anxiety	4.3 $\pm$ 35.3		5.1 $\pm$ 4.3		0.001*
	Social Performance	3.1 $\pm$ 2.6		4.4 $\pm$ 3.6		0.65
	Depression	4.4 $\pm$ 1.1		7.1 $\pm$ 7.1		0.000*

**Table 3** shows a significant difference between the depression and anxiety dimensions between men and women so that women had lower mental health in both dimensions ( $P < 0.05$ ).

The findings of the present study showed that women comprised most of the studied patients, which is not in line with those of most studies [21-23], but it is consistent with a few limited studies in which the frequency of females was higher [24, 25]. Although HF is relatively less common in women, at least half of the cases occur in women because they have a longer life expectancy [26].

The present findings demonstrated moderate and low QoL in the majority of subjects, which corresponds to those of Phillip [27] and Gavin [28]. Phillip reported that most patients with HF described poor QoL, which could be attributed to limitations created in patients' life, including the inability to perform many daily life activities compared with other people. Additionally, HF had the most negative effect on our patients' mental health, in particular on social functioning, which is in agreement with those of Mardani [29] and Salati [30]. Supportive resources in disease conditions are considered a high necessity for survival and adaptation, and heart patients living alone have a poor QoL [31]. Compared with other chronic diseases, HF leads to the destruction of one's functional roles in social, family, and marital relationships and reduces job performance due to disabling complications and consequent severe limitations in life.

Based on the findings of this research, statistically, significant relationships were observed between the four dimensions of general health, mental problems, physical pain, and mental health of QoL and gender. Female subjects had lower general health and physical pain than men, while men suffered from more mental problems and mental health, which is contrary to those of Sharif [32] and Elahi [33]. Besides, there was a statistically significant relationship between depression and gender, so that men experienced more depression and anxiety, which corresponds to that of Non [34]. In the present study, male patients showed higher physical symptoms and social dysfunction than women, which might play an important role in the incidence of their anxiety and depression. Stromberg, on the other hand,

concluded that life stresses and deprivation of emotional support pose women with HF to a greater risk of declined QoL than men. Women were reported to show lower vitality and physical function than men, and this difference became more pronounced after one year of follow-up, as they suffered from problems, such as sleep disorders, emotional problems, decreased energy and strength, and illness in comparison to men [35].

Findings of the current research revealed no significant correlations between the areas of mental health and QoL with hospitalization frequency, marital status, and education levels. However, Cline suggests that a hospitalization frequency more than two times weakens the mental status of patients due to unfavorable conditions such as social isolation and disability [36]. Shojaei [37], Rahnavard [24], and Johansson [38] also found a significant inverse relationship between QoL and hospitalization frequency. Patients with low QoL have more chances of recurrent hospitalizations as they experience multiple and more severe symptoms over time, making hospitalization even more necessary [38].

## CONCLUSION

The QoL of most subjects was at a moderate level, and according to an average score of total mental health, these patients had a low level of mental health. Therefore, the QoL and mental health problems in HF patients necessitate conducting qualitative research on ways to improve QoL and the mental health of these patients. Besides, comparative studies on these patients are necessary before and after implementing nursing models to care for and support HF patients.

**ACKNOWLEDGMENTS:** We hereby thank the cooperation and participation of the staff of Golestan Hospital in collecting the data of the research project approved by the Vice-Chancellor for Research and Technology of Ahvaz Jundishapur University of Medical Sciences with the ID IR.AJUMS.REC.1399.583.

**CONFLICT OF INTEREST:** None

**FINANCIAL SUPPORT:** None

**ETHICS STATEMENT:** None

### REFERENCES

- Schmitz T, Thilo C, Linseisen J, Heier M, Peters A, Kuch B, et al. Admission ECG changes predict short term-mortality after acute myocardial infarction less reliable in patients with diabetes. *Sci Rep.* 2021;11(1):1-0.
- Yurevich KV, Yuryevna ZS, Viktorovich DA, Natalia V. Influence of regular feasible physical activity on the platelet's functional activity of the second mature age people. *Syst Rev Pharm.* 2020;11(8):439-45.
- Gholizadeh B, Nabavi SS, Baghaei S, Javaherforoosh Zadeh F, Moradi-joo E, Amraie R, et al. Evaluation of Risk Factors for Cardiovascular Diseases in Pregnant Women Referred to Golestan Hospital in Ahvaz. *Entomol Appl Sci Lett.* 2021;8(3):40-5.
- Litterini AJ, Wilson CM. Management of Conditions and Symptoms. In *Physical Activity and Rehabilitation in Life-threatening Illness*; 2021. pp. 211-48. Routledge.
- Virani SS, Alonso A, Aparicio HJ, Benjamin EJ, Bittencourt MS, Callaway CW, et al. Heart disease and stroke statistics—2021 update: a report from the American Heart Association. *Circulation.* 2021;143(8):e254-743.
- Kontogeorgos S, Thunström E, Basic C, Hansson PO, Zhong Y, Ergatoudes C, et al. Prevalence and risk factors of aortic stenosis and aortic sclerosis: a 21-year follow-up of middle-aged men. *Scand Cardiovasc J.* 2020;54(2):115-23.
- Musavi F, Gholizadeh B, Rahimi A, Heidari MR. The Effect of the Holy Quran Voice on Improving Sleep Quality of Patients after Cardiac Surgery. *Jccnursing.* 2019;12(2):4-11.
- Arnold R, Ranchor AV, Koëter GH, de Jongste MJ, Sanderman R. Consequences of chronic obstructive pulmonary disease and chronic heart failure: the relationship between objective and subjective health. *Soc Sci Med.* 2005;61(10):2144-54.
- Cassidy L, Hill L, Fitzsimons D, McGaughey J. The impact of psychoeducational interventions on the outcomes of caregivers of patients with heart failure: A systematic review and meta-analysis. *Int J Nurs Stud.* 2021;114:103806.
- Fakhri A, Baboli M, Jahanbani E, Karamianpoor J, Binandeh M, Moradi-Joo E. The Relationship between Perfectionism, Personality Type A and Meta-cognition with Job Burnout in Staff of Ahvaz Jundishapur University of Medical Sciences. *Entomol Appl Sci Lett.* 2020;7(2):26-34.
- Javaherforooshzadeh F, Abdalbeygi H, Janatmakan F, Gholizadeh B. Comparing the effects of ketorolac and Paracetamol on postoperative pain relief after coronary artery bypass graft surgery. A randomized clinical trial. *J Cardiothorac Surg.* 2020;15:1-8.
- Fakhri A, Hamedpour H, Pad Z, Hamedpour R, Moradi-Joo E, Binandeh M, et al. Exercise Effect on Anxiety and Depression among Kidney Transplant Patients. *Entomol Appl Sci Lett.* 2020;7(2):77-82.
- Olivera MJ, Fory JA, Buitrago G. Comparison of health-related quality of life in outpatients with Chagas and matched non-Chagas chronic heart failure in Colombia: A cross-sectional analysis. *Am J Trop Med Hyg.* 2021;104(3):951-8.
- Molania T, Malekzadeh Shafaroudi A, Taghavi M, Ehsani H, Moosazadeh M, Haddadi A, et al. Oral health-related quality of life (OHRQoL) in cardiovascular patients referring to Fatima Zahra Hospital in Sari, Iran. *BMC Oral Health.* 2021;21(1):1-9.
- Brugts JJ, Veenis JF, Radhoe SP, Linszen GC, van Gent M, Borleffs CJ, et al. A randomised comparison of the effect of haemodynamic monitoring with CardioMEMS in addition to standard care on quality of life and hospitalisations in patients with chronic heart failure. *Neth Heart J.* 2020;28(1):16-26.
- Wang L, Lin C, Han C, Huang Y, Hsiao P, Chen L. Undergraduate nursing student academic resilience during medical surgical clinical practicum: A constructivist analysis of Taiwanese experience. *J Prof Nurs.* 2021;37(3):521-8.
- Mahamid FA, Bdier D. The association between positive religious coping, perceived stress, and depressive symptoms during the

- spread of coronavirus (covid-19) among a sample of adults in palestine: Across sectional study. *J Relig Health.* 2021;60(1):34-49.
18. Timmerman ME, Voncken L, Albers CJ. A tutorial on regression-based norming of psychological tests with GAMLSS. *Psychol Methods.* 2021;26(3):357.
  19. Seppälä EM, Bradley C, Moeller J, Harouni L, Nandamudi D, Brackett MA. Promoting mental health and psychological thriving in university students: a randomized controlled trial of three well-being interventions. *Front Psychiatry.* 2020;11:590.
  20. Molavi H. Validity factor structure and reliability of the Farsi version of general health questionnaire 28 In Iranian students. *J Psychol Res.* 2004;2(17):30-40.
  21. Köberich S, Kato NP, Kugler C, Strömberg A, Jaarsma T. Methodological quality of studies assessing validity and reliability of the European Heart Failure Self-care Behaviour Scale: a systematic review using the COSMIN methodology. *Eur J Cardiovasc Nurs.* 2021;20(5):501-12.
  22. Khayati R, Rezaee N, Shakiba M, Navidian A. The Effect of Cognitive-Behavioral Training Versus Conventional Training on Self-care and Depression Severity in Heart Failure Patients with Depression: A Randomized Clinical Trial. *J Caring Sci.* 2020;9(4):203.
  23. Cichosz SL, Udsen FW, Hejlesen O. The impact of telehealth care on health-related quality of life of patients with heart failure: results from the Danish TeleCare North heart failure trial. *J Telemed Telecare.* 2020;26(7-8):452-61.
  24. Moradi M, Daneshi F, Behzadmehr R, Rafiemanesh H, Bouya S, Raeisi M. Quality of life of chronic heart failure patients: a systematic review and meta-analysis. *Heart Fail Rev.* 2020;25(6):993-1006.
  25. Seddigh M, Hazrati M, Jokar M, Mansouri A, Bazrafshan MR, Rasti M, et al. A comparative study of perceived social support and depression among elderly members of senior day centers, elderly residents in nursing homes, and elderly living at home. *Iran J Nurs Midwifery Res.* 2020;25(2):160.
  26. Kyriakou M, Middleton N, Ktisti S, Philippou K, Lambrinou E. Supportive care interventions to promote health-related quality of life in patients living with heart failure: a systematic review and meta-analysis. *Heart Lung Circ.* 2020.
  27. Phillip J, Gary W, Terina S, Harald B. The Real World Mental Health Needs of Heart Failure Patients Are Not Reflected by the Depression Randomized Controlled Trial Evidence. *J PloS. One.* 2014;9(1):85-92.
  28. Gavin W, Dagmara H, Murray D. Health-related quality of life after renal denervation in patients with treatment-resistant hypertension. *J Am Heart Assoc.* 2012;8(2):1479-85.
  29. Mardani Hamoule M, Shahraki Vahed A. The Relationship between Mental Health and Quality of Life in Patients with Cancer. *J Hamadan Univ Med Sci.* 2009;16(2):33-8. [In Persian].
  30. Salati M, Brunelli A, Xiumè F, Refai M, Sabbatini A. Quality of life in the elderly after major lung resection for lung cancer. *Interact Cardiovasc Thorac Surg.* 2009;8(1):79-83.
  31. Luttik ML, Jaarsma T, Lesman I, Sanderman R, Hagedoorn M. Quality of life in partners of people with congestive heart failure: gender and involvement in care. *J Adv Nurs.* 2009;65(7):1442-51.
  32. Sharif F, Vedad F. The Relationship Between Mental Health and Quality of Life of Hemodialysis Patients Referred to Hospitals Affiliated to Shiraz University of Medical Sciences; Iran *J Nurs.* 2007;20(52):60-9. [In Persian].
  33. Elahi A, Ramezani M. Psychological states of dialysis patients. *TB.* 2005;1(4):40-7. [In Persian].
  34. Hou N, Chui MA, Eckert GJ, Oldridge NB, Murray MD, Bennett SJ. Relationship of age and sex to health-related quality of life in patients with heart failure. *Am J Crit Care.* 2004;1(4):34-41.
  35. Stromberg A, Martensson J. Gender differences in patients with heart failure. *Eur J Cardiovasc Nurs.* 2003;2(1):7-18.
  36. Cline CM, Willenheimer RB, Erhardt LR, Wiklund I, Israelsson BY. Health-related quality of life in elderly patients with heart failure. *Scand Cardiovasc J.* 2009;33(5):278-85.

37. Shojaei F. Quality of life in patients with heart failure. *Hayat*. 2009;14(2):5-13.
38. Johansson P, Dahlström U, Broström A. Factors and interventions influencing

health-related quality of life in patients with heart failure: a review of the literature. *Eur J Cardiovasc Nurs*. 2006;5(1):5-15.