

Application of WHOQOL-BREF for the evaluation of the quality of life in elderly patients with heart failure

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ABSTRACT

Heart failure is the most common cardiovascular disease and its prevalence and incidence increase as the age goes up. This chronic situation affects the quality of life of patients and their family. The main objective of this study was to determine quality of life of elderly patients with heart failure. A cross-sectional study conducted among 150 patients with heart failure aged 50 and above who entered cardiovascular clinic and Coronary Care Unit (CCU) ward of Vali-Asr hospital of Fasa, Iran, from March to August 2013. Patients with a left ventricular ejection fraction below 50% entered. WHOQOL-BREF questionnaire was used to evaluate the quality of life of patients. All the statistical analyses were performed using the statistical package for social sciences version 16.0. Overall we enrolled 147 patients including 77 (52.3 %) males and 70 (47.7 %) females with the mean age \pm standard deviation of 63 ± 27 years. There was not any significant relationship between NYHA class, ejection fraction, past medical history of hypertension, diabetes mellitus, chronic obstructive pulmonary disease, renal failure, pulmonary hypertension in patients and variables of our questionnaire. Social and environmental aspects were the highest and lowest scores of this questionnaire, respectively (53.85 ± 21.28 and 45.74 ± 17.67). There was not any correlation between job of patients and any aspect of their quality of life (p -value = 0.49 for total). Our results indicated that the majority of heart failure patients had poor and undesirable quality of life and the women have weaker scores of quality of life variations than men. Therefore, controlling some available variables among these patients is suggested.

KEY WORDS: HEART FAILURE, QUALITY OF LIFE, WHOQOL-BREF

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INTRODUCTION

Heart failure is the most common cardiovascular disease as a chronic, progressive, and disabling disease, worldwide. Its prevalence and incidence increase as the age goes up; that approximately one percent of more than 50 years old people and 10 percent of people older than 80 years old suffer from heart failure in the United States. In addition, with the progression in medical care and surgery, patients who survive myocardial infarction subsequently develop with heart failure (Jaarsma et al., 2000). Increase in the prevalence of heart failure results from complications of infections, inflammation, vascular, and valvular heart disease. Therefore, it has become a major health problem and an epidemic disorder in the United States. Five million people suffer from heart failure in this state which approximately 500,000 new cases add to this number annually and are expected to be doubled in the next 30 years (Zambroski, Moser, Bhat, & Ziegler, 2005). According to the Center of Disease Control and Prevention (CDC) a study published in the year 1380 and showed that the number of patients with heart failure that have been reported in 18 provinces was 3337 per 100,000 populations. In an epidemiological survey in the year 1377 in Iran, 25% of patients hospitalized in different wards of hospital were cases of heart failure (Rahnavard et al 2006).

Heart failure symptoms are something shortness of breath and blood flow, dizziness, angina, edema, and ascites. These symptoms predispose the patients to experience exercise intolerance and changes in their lifestyle that finally affect their life satisfaction and quality. Patients will be restricted in job tasks, family interactions, and social life that will finally lead to social isolation and depression (Dunderdale et al 2005). Based on who organization, the quality of life is people's definition of their selves in life from many aspects such as culture, their goals in their life, value of their living system, expectations, their standard beliefs and their priorities. Therefore, it has been a subjective issue which is not visible for anyone. Moreover, it is based on people's perceptions of the different aspects of their lives (Dehghan et al 2011). In health care system, control and giving good care to chronic diseases is very important these days, these diseases healing is almost impossible but their fatality is not imminent. So, improving the quality of life should be considered as a consequent of clinical and medical researcher (Kashfi et al 2015).

Martensson et al.(2003) have also suggested that the primary source of depression and decrease in the quality of life in these patients is due to the adverse physical symptoms of the disease. Exercise intolerance disable the patients to perform activities of daily living, it creates dependency and help resulting in decrease in their qual-

ity of life (Molloy et al 2005). Mc Murray et al. carried out a study on heart failure patients in the year 2004 and concluded that the total years of potential life lost in heart failure patients is 6.7 years per 1,000 men and 5.1 years per 1000 women in Australia (McMurray & Stewart, 2002).

Shojaie (2008) studied the quality of life of 250 patients with heart failure in Tehran, which revealed that 76.4% of patients had undesirable and relatively desirable quality of life. According to this study, increase in the age and the frequency of hospitalization and prolonged disease will make much poorer quality of life for these patients. Another similar study was done in Zahedan Iran by Ebrahimi et al. (2007) They concluded that there is a relationship between the quality of life and job, marital status, age, disease duration and the frequency of hospitalization. In addition, there is a significant relationship between being male and experiencing a better life quality. This study showed the negative impact of heart disease on the quality of life. According to aging population in Iran and increase in cardiovascular diseases in developing countries, we conducted this study to assay the quality of life of elderly patients with heart failure.

MATERIAL AND METHODS

In this prospective cross-sectional study, 150 patients with heart failure entered cardiovascular clinic and Coronary Care Unit (CCU) ward of Vali-Asr hospital, a tertiary health care center affiliated with Fasa University of Medical Sciences, Fasa, Iran, from March to August 2013. Patients were included according to the American Heart Association criteria of diagnosing cardiovascular disease (Lloyd-Jones et al., 2009). Patients with stable congestive heart failure, (NYHA class I-III) who referred to the hospital and clinics of cardiovascular disease enrolled the study. Inclusion criterion was a left ventricular ejection fraction below 50%, as determined by transthoracic echocardiography. Patients in NYHA functional class IV were excluded, as were those who had neurological, orthopedic, peripheral vascular, or severe pulmonary diseases. Furthermore, patients were divided into four groups according to the stage of heart failure as follows: stage one: risk factor only, stage two: symptoms without signs, stage three: existences of signs but improved by drugs, and stage four: existences of signs without any improvement with drugs.

Demographic information was recorded by a researcher checklist. The quality of life of the patients were assessed with World Health Organization (WHO) quality of life questionnaire. This questionnaire included demographic information and five dimensions of heart failure patients' quality of life. Trained people helped

the illiterate patients to fill out the questionnaire. (WHOQOL-BREF), this instrument is one of the known instruments that has been developed for cross-cultural comparisons of QOL and is available in many languages (Gholami et al 2013).

Whoqol-BREF questionnaire evaluates QOL in four aspects, physical, psychological, social and environmental health, with 24 questions (7-6-3 and 8 questions for each dimension). The first two questions are not related to any aspect and evaluate the patient's health and the quality of life generally. Therefore, this questionnaire has 26 questions overall. Scores for each aspect would be between four and 20 that score four shows the worst and 20 shows the best condition. These scores are convertible to another score with the domain of 0-100 (Dehghan et al., 2016). Persian version of this questionnaire was prepared by Nedjat et al. and it has good validity and reliability for evaluating QOL in the Persian speakers (Nedjat et al 2008). To fill out the questionnaire for illiterate patients trained people was used. The study was approved by the Ethics Committee of Fasa University of Medical Sciences and all the participants signed a written informed consent (Approval number: 26492/A/28). The protocol of the study was approved by the Institutional Review Board of the University.

STATISTICAL ANALYSIS

All the statistical analyses were performed using the statistical package for social sciences version 16.0 (SPSS 16). Descriptive results were expressed as mean value

± standard deviation. Qualitative data were expressed by frequency and relative frequency. One way ANOVA and Mann Whitney test were used for comparing the scores of quality of life dimensions between the different groups.

RESULTS

Overall, we enrolled 147 patients (3 of 150 excluded during the study) including 77 (52.3 %) males and 70 (47.7 %) females referring to internal clinic and CCU ward of Vali-Asr hospital (Fasa, Iran). The mean age of patients was 63± 27 years. Demographic data is available in Table.1. Also the quality of life dimensions of heart failure patients has been shown in Table 2. Physical, psychological, social, and environmental are all aspects of WHO quality of life questionnaire that is scored in this table.

Past medical history of hypertension, diabetes mellitus, chronic obstructive pulmonary disease, renal failure, and pulmonary hypertension of patients were extracted and each questionnaire variables were assessed with them, but there was not any significant relationship. (P-value = 0.40, 0.14, 0.50, 0.77, and 0.91, respectively).

The scores of the questionnaire dimensions and their correlation with age, sex, education, and stage of heart failure is summarized in Table 3.3. Ejection fraction of the patients didn't have any relationship with these variations (p-value = 0.61). There was not any correlation

Table 1: Demographic data of heart failure patients

Variable	Under 60 Frequency (%)	Between 60 and 70 Frequency (%)	More than 70 Frequency (%)	
Age	45 (30.6)	37 (25.1)	65 (44.3)	
Sex	Male Frequency (%)		Female Frequency (%)	
	77 (52.3)		70 (47.7)	
Education	Illiterate Frequency (%)	Elementary 1 Frequency (%)	Elementary 2 Frequency (%)	Collegiate Frequency (%)
	84 (57.1)	34 (23.1)	23 (15.6)	6 (4.2)

Table 2: Quality of life dimensions of patients with heart failure

Variable	Minimum	Maximum	Mean ± Standard deviation
Physical	3.57	96.43	48.42±20.09
Psychological	12.50	83.33	49.97±14.99
Social	0.00	100.00	53.85 ±21.28
Environmental	6.25	90.63	45.74 ±17.67

Variable		Physical	Psychological	Social	Environmental	Total
Age	< 60	49.76±18.51	48.98±15.96	54.62±20.37	46.73±15.91	51.38±27.72
	60-70	50.09±19.73	49.77±14.59	54.95±16.71	43.15±16.48	37.16±26.59
	> 70	46.53±21.44	50.76±14.71	52.69±24.25	46.53±19.50	46.53±27.99
P value		0.70	0.78	0.83	0.56	0.06
Sex	Male	47.72±20.71	49.89±15.33	53.57±21.22	45.21±18.50	48.21±27.92
	Female	49.18±19.50	50.05±14.71	54.16±21.50	46.33±16.83	42.85±27.79
P value		0.59	0.90	0.84	0.83	0.25
Education	Illiterate	48.25±19.88	49.50±14.78	52.97±22.09	45.34±16.98	45.53±28.56
	Elementary 1	45.90±22.41	50.61±14.61	54.41±22.95	44.76±20.10	44.85±24.25
	Elementary 2	52.63±19.89	50.00±17.45	56.52±17.39	49.59±15.20	46.19±28.56
	Collegiate	48.80±6.64	52.77±13.08	52.77±16.38	42.18±23.61	50.00±41.07
P value		0.69	0.89	0.86	0.67	0.98
Stage of heart failure	Stage 1	30.35±19.45	50.00±10.20	37.50±27.63	37.50±22.24	50.00±20.41
	Stage 2	49.72±17.58	49.35±14.27	53.52±21.10	47.71±18.44	45.19±28.95
	Stage 3	47.46±19.39	50.29±15.53	53.75±20.11	45.40±16.83	47.25±28.01
	Stage 4	56.30±25.45	49.01±14.77	58.82±26.42	46.69±21.17	36.02±27.20
P value		0.18	0.96	0.52	0.77	0.50

between NYHA class of patients and their quality of life aspects, neither (p -value = 0.34)

Moreover, there was not any correlation between the job of patients and any aspect of their quality of life (p -value = 0.49 for total). Number of hospital admission days of patients and variations of questionnaire were also compared with each other. None of them had correlation with hospital staying days of the patients. (P -value = 0.06 for physical, p -value = 0.17 for psychological, p -value = 0.07 for social, p -value = 0.87 for environmental, and P -value = 0.69 for total). It is obvious that if our sample size was much more, scores of physical and social aspect of heart failure quality of life might be significantly correlated with hospital staying days of the patients. Patients who underwent selective coronary angiography and coronary artery bypass graft operation did not have any significant correlation with any dimensions of quality of life questionnaire (p -value= 0.49 and 0.85, respectively). In patients who underwent percutaneous intervention environmental aspect and total score of questionnaire were correlated with this intervention. (P -value= 0.014 for environmental and p -value= 0.023 for total)

DISCUSSION

Access to the information about the quality of life, moreover to treatment, promote supportive programs and rehabilitation proceedings in many societies. Today, people are demanding improved quality of life that is why the governments are increasingly focusing on improving the quality of life of their people and are trying to reduce disease; they also secure health services, physical, mental, and social welfare for their population (Park, Sands, & Marek, 1995). We found in our study that the score of all the aspects of patients' quality of life are in relatively desirable spectrum. Maximum score belonged to social dimension of the heart failure quality of life questionnaire. According to many researchers, the majority of heart failure patients have an undesirable life quality (Jaarsma et al., 2000) (Juenger et al., 2002) (Wielenga et al., 1998). Also it has been declared that congestive heart failure occurs more than other chronic diseases, which disturb patients' quality of life (Cline et al 1999).

In our study, we reached to this theory that the quality of life of younger patients is much better than elderly

patients. In other words, patients under 60 years old had better life quality. Shojaie (2008) also stated that patients between 40 to 60 years old have much desirable quality of life than other age spectrums especially elderly people. Moreover Stewart et al. (2008) stated that males have a better quality of life but we didn't see any significant difference between males and females quality of life in our study. In another study the comparison of the quality of life dimensions in women and men showed that physical function ($P=0.005$) and mental health ($P=0.01$) were significantly higher in men than women (Abedi et al 2011).

Perhaps the main cause of these findings is as follows: Men are very active people in the period before being retired; but they afflicted to heart failure in the years after this section of life. While majority of women in this survey are homemakers and notwithstanding suffering from chronic diseases. This task dramatically reduces their quality of life. Riedinger et al (2006) performed a cross-sectional study and found that women do much less exercise than men that this leads to a decrease in functional capacity and deterioration of their physical condition and finally affects their quality of life (Riedinger et al 2002).

In the present study, the quality of life of the patients older than 70 years old are so low and this quality became worsen with the increasing age. Johansson et al. (2006) and Shojaie (2008) concluded similar consequences but Rahnavard et al., (2006) did not found any significant correlation between the age and the quality of life of heart failure patients. Level of education by establishing fundamental change in knowledge and attitude has always been effective in health, disease, and all aspects of human life. It is also considered as a factor affecting the quality of life of patients in many previous studies. We found in the present study that heart failure patients with college education have much more desirable quality of life than other groups. In other words, the higher the educational level, the more favorable quality of life the patient will have. This theory has been proven in some other studies (Rahnavard et al., 2006) (Esmaili, 2004; Shojaei, 2008). Percentage of ejection fraction is the ratio of end-diastolic volume of blood in each contraction that exited from heart chambers and is affected in heart failure. We did not find any correlation between the amount of ejection fraction and the quality of life of patients but Juenger et al (2002) expressed that with increase in the severity of heart disease and decrease in ejection fraction, the quality of life will be significantly decreased. They also expressed that the percentage of ejection fraction is a measure of heart function and its reduction demonstrates the disease severity. Another variation that affects the quality of life of these patients is the stage of heart failure. The stage of heart

failure shows the severity of the disease and represents the responsibility of patients to our treatment package. In our study, patients were divided into four groups according to the stage of their disease. The scores of the quality of life questionnaire in stage four of heart failure were less than other groups.

Interventions are some actions that influence on all aspects of life especially its quality. Percutaneous intervention is an invasive intervention that may affect the quality of life of heart failure patients. Our results also revealed that patients who underwent this intervention in course of their disease had lower scores of the questionnaire dimensions than patients without any intervention. We think that some of our results and comparisons were unstable due to small sample size of the study. We suggest to choose a bigger sample in future studies in order to evaluate heart failure patients' quality of life more exactly. The burden of the disease on patients, their family, and society are some related variations that could be assessed in next studies. Our results indicated that the majority of heart failure patients had poor and undesirable quality of life and the women have weaker scores of quality of life variations than men. Therefore, controlling some available variables among these patients is suggested.

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REFERENCES

- Abedi, H. A., Yasaman A. M. and Abdeyazdan G. H. (2011). Quality of life in heart failure patients referred to the Kerman outpatient centers, 2010.
- Cline, C. M., Willenheimer, R. B., Erhardt, L. R., Wiklund, I., & Israelsson, B. Y. (1999). Health-related quality of life in elderly patients with heart failure. *Scandinavian Cardiovascular Journal*, 33(5), 278-285.
- Dehghan, A., Ghaem, H., Borhani-Haghighi, A., Safari-Faramani, R., Moosazadeh, M., & Gholami, A. (2016). Evaluation of reliability and validity of PDQ-39: questionnaire in iranian patients with parkinson's disease. *Zahedan Journal of Research in Medical Sciences*, 18(3).
- Dehghan, A., Ghaem, H., Borhani Haghighi, A., Kashfi, S., & Zeyghami, B. (2011). Comparison of quality of life in Parkinson's patients with and without fatigue. *Bimonthly Journal of Hormozgan University of Medical Sciences*, 15(1), 49-55.
- Dunderdale, K., Thompson, D. R., Miles, J. N., Beer, S. F., & Furze, G. (2005). Quality-of-life measurement in chronic heart

- failure: do we take account of the patient perspective? *European journal of heart failure*, 7(4), 572-582.
- Ebrahimi Tabas, E., Khamrani, M., Rezvani Amin, M., & Pournamdar, Z. (2007). Quality of life and related factors in patients with heart failure in CCU wards of Khatam the (PBUH) and Ali Ibn Abi Talib (AS) hospitals in Zahedan. 21-22.
- Esmaili, M. (2004). Self-care self-efficiency and quality of life among patients receiving hemodialysis.
- Gholami, A., Jahromi, L. M., Zarei, E., & Dehghan, A. (2013). Application of WHOQOL-BREF in measuring quality of life in health-care staff. *International journal of preventive medicine*, 4(7).
- Jaarsma, T., Halfens, R., Tan, F., Abu-Saad, H. H., Dracup, K., & Diederiks, J. (2000). Self-care and quality of life in patients with advanced heart failure: the effect of a supportive educational intervention. *Heart & Lung: The Journal of Acute and Critical Care*, 29(5), 319-330.
- Johansson, P., Dahlström, U., & Broström, A. (2006). Factors and interventions influencing health-related quality of life in patients with heart failure: a review of the literature. *European Journal of Cardiovascular Nursing*, 5(1), 5-15.
- Juenger, J., Schellberg, D., Kraemer, S., Haunstetter, A., Zugck, C., Herzog, W., & Haass, M. (2002). Health related quality of life in patients with congestive heart failure: comparison with other chronic diseases and relation to functional variables. *Heart*, 87(3), 235-241.
- Kashfi, S. M., Nasri, A., Dehghan, A., & Yazdankhah, M. (2015). Comparison of quality of life of patients with type II diabetes referring to diabetes association of Larestan with Healthy people in 2013. *J Neyshabur Univ Med Sci*, 3(2), 32-38.
- Lloyd-Jones, D., Adams, R., Carnethon, M., De Simone, G., Ferguson, T. B., Flegal, K., . . . Greenlund, K. (2009). Heart disease and stroke statistics—2009 update a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*, 119(3), e21-e181.
- Mårtensson, J., Dracup, K., Canary, C., & Fridlund, B. (2003). Living with heart failure: depression and quality of life in patients and spouses. *The Journal of heart and lung transplantation*, 22(4), 460-467.
- McMurray, J., & Stewart, S. (2002). The burden of heart failure. *European Heart Journal Supplements*, 4(suppl D), D50-D58.
- Molloy, G. J., Johnston, D. W., & Witham, M. D. (2005). Family caregiving and congestive heart failure. Review and analysis. *European journal of heart failure*, 7(4), 592-603.
- Nedjat, S., Montazeri, A., Holakouie, K., Mohammad, K., & Majdzadeh, R. (2008). Psychometric properties of the Iranian interview-administered version of the World Health Organization's Quality of Life Questionnaire (WHOQOL-BREF): a population-based study. *BMC health services research*, 8(1), 1.
- Park, W., Sands, J., & Marek, J. (1995). *Medical surgical nursing: Concepts and clinical practice*. St. Louis: Mosby, 17.
- Rahnavard, Z., Zolfaghari, M., Kazemnejad, A., & Hatamipour, K. (2006). An investigation of quality of life and factors affecting it in the patients with congestive heart failure. *Journal of hayat*, 12(1), 77-86.
- Rahnavard, Z., Zolfaghari, M., Kazemnejad, A., & Hatamipour, K. (2006). An investigation of quality of life and factors affecting it in the patients with congestive heart failure. *Journal of Hayat*, 77-86.
- Riedinger, M. S., Dracup, K. A., Brecht, M.-L., & Investigators, S. (2002). Quality of life in women with heart failure, normative groups, and patients with other chronic conditions. *American Journal of Critical Care*, 11(3), 211-219.
- Shojaei, F. (2008). Quality of life in patients with heart failure. *Journal of hayat*, 14(2), 5-13.
- Stewart, S., & Blue, L. (2008). *Improving outcomes in chronic heart failure: a practical guide to specialist nurse intervention*: John Wiley & Sons.
- Wielenga, R. P., Erdman, R. A., Huisveld, I. A., Bol, E., Dunselman, P. H., Baselier, M. R., & Mosterd, W. L. (1998). Effect of exercise training on quality of life in patients with chronic heart failure. *Journal of psychosomatic research*, 45(5), 459-464.
- Zambroski, C. H., Moser, D. K., Bhat, G., & Ziegler, C. (2005). Impact of symptom prevalence and symptom burden on quality of life in patients with heart failure. *European Journal of Cardiovascular Nursing*, 4(3), 198-206.