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Quality of Life and Related Demographic Characteristics of Elderly with Heart Failure Admitted to Hospitals of Guilan University of Medical Sciences

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Abstract

Background: Given the debilitating nature of heart failure, all aspects of life including quality of life should be considered in the care of patients with this problem. This study aimed to assess the quality of life and related demographic characteristics in elderly patients with heart failure.

Methods: The participants in this cross-sectional study were 135 elderly people aged 60 years and older with heart failure admitted to teaching hospitals of Guilan University of Medical Sciences in 2018. The patients were selected using convenience sampling. The data in this study were collected using a demographic information questionnaire and the Minnesota Living with Heart Failure Questionnaire (MLHFQ). The collected data were analyzed using descriptive statistics and inferential statistics including independent samples t-test, Pearson correlation, and ANOVA at a significance level of less than 0.05 (P<0.05).

Results: The results showed that the mean of the total quality of life in the elderly was 61.5±15.62 from 126; and the mean scores for the physical, psychological, and socio-economic subscales of quality of life were 27.7±9.58, 12.2±2.80, and 21.5±5.65, respectively. Most of the elderly reported average quality of life and socioeconomic status, and high physical, and psychological health. It was also found that the patients' quality of life had a significant relation with income (p<0.038), the number of admissions due to heart failure and non-heart diseases (p<0.001), and chronic diseases (p<0.001).

Conclusion: The majority of patients under study reported a moderate quality of life. Adopting preventive policies, identifying high-risk patients, and planning for therapeutic and nursing interventions will improve the quality of life for this group of patients.

Keywords: Elderly, Quality of life, Heart failure

Introduction

Currently, increasing life expectancy and declining fertility rates have led to an increase in the number of older people around the world, so that global aging has been recognized as one of the public health challenges in recent years (1). The world's population is rapidly aging, and the number of the elderly is projected to increase from about 10.5% in 2007 to about 22.8% in 2050. In Iran, the trend of population change indicates population growth in the elderly (2). According to the estimates of international authorities, the elderly population in Iran will grow faster from 2040 onwards in comparison with other places and even the world average, and by 2045 will surpass the average growth of the world's elderly population (3). According to the 2016 National Population and Housing Census, the number of elderly people in Iran was 7 million and 450 thousand people, of which the share of Guilan province was 110656 elderly people (4). With increased age, the risk of developing chronic diseases in the elderly increases significantly. Heart failure is one of the most common chronic diseases associated with old age (5). Heart failure is a widespread problem affecting more than 30 million people worldwide (6). This disorder is recognized to varying degrees in all age groups. However, according to statistics, the disease is increasing rapidly among middle-aged people and the elderly (7). The average population of the elderly in the world is increasing and the prevalence of heart failure has followed an exponentially growing pattern with age affecting 6-10% of people over 65 years of age. Thus, this disease is of considerable importance (6, 8). In a survey conducted in Iran, 25% of patients admitted to cardiac care units (CCUs) had heart failure and the highest prevalence of heart failure was reported in Khuzestan and Guilan provinces with 9.05% and 7.51% mostly affecting people with an average age of 61 years (9).

Heart failure affects the physical, psychological, and socio-economic aspects of patients' lives and given the debilitating nature of heart failure, all aspects of life including quality of life should be considered in the care of patients with this problem (8). The main consequences of this disease are impairment of patients' functional ability, restricting work, family, and social functions, a decline in patients' quality of life, social isolation, and depression (10). With the advancements in the treatment of the disease, the life expectancy of patients with heart failure increases, and, as a result, the improvement in their quality of life becomes even more important (11). Quality of life is defined by the World Health Organization (WHO) as an individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns (12).

Heidarzadeh et al. defined the affective and constructive aspects of quality of life as physical, social, and mental health domains that are influenced by an individual's experiences, beliefs, expectations, and perceptions. However, the quality of life should be measured from different physical, mental, and social perspectives (13). The physical aspect depends on the patient's perception, ability to perform daily activities, and energy. The social aspect depends on isolation, dependence, relationships with family members and relatives, and the conditions of other social environments. Finally, the psychological aspect of quality of life is affected by psychological concepts, emotions, and issues such as fear, anger, happiness, joy, and anxiety (14). Azami-Aghdash et al. reported a low level of quality of life among cardiovascular patients in Tabriz (15). Another study by Shojaei in Tehran showed that 76.4% of patients with heart failure had a moderate (relatively desirable) quality of life and 10% of patients had a low quality of life (16). Polikandrioti et al. (17) conducted a study in Athens, Greece, and found that at least 50% of patients with heart failure reported an MLHFQ score above 68, indicating a low quality of life in these patients. Heo et al. studied the quality of life of heart failure patients in Midwestern city and found that about half of patients have a high quality of life (18).

One of the important nursing tasks is to recognize factors associated with the quality of life of patients with chronic diseases and their perceptions about their diseases (8). Heart failure is a chronic disease that greatly affects a person's life. Besides, Guilan Province has the highest number of elderly compared to other provinces in Iran. However, there is little research evidence about the quality of life of this group of patients across the province. Accordingly, this study aims to

assess the quality of life and related demographic characteristics of elderly with heart failure admitted to hospitals of Guilan University of Medical Sciences. The findings of the present study can contribute to effective planning to enhance the quality of life of these patients.

Methods

This article was part of a larger cross-sectional study (19) that was performed on elderly patients aged 60 years and older with heart failure admitted to teaching hospitals affiliated with Guilan University of Medical Sciences in 2018 (20). To this end, the patients in the only existing teaching hospitals (22 Aban Hospital in Lahijan and Shahid Beheshti Hospital in Anzali) in the east and west of Guilan Province and the only teaching heart hospital (Dr. Heshmat in Rasht) were enrolled in the study. The patients were selected using convenience sampling from each hospital, from May to September 2018. The inclusion criteria were the ability to understand and speak Persian, full consciousness and awareness of time and place, no cognitive problems, no history of mental illness or use of psychotropic drugs, no malignancy, kidney failure, and chronic obstructive pulmonary disease, the diagnosis and record of heart failure (classes III, II, I) in patients' medical records, heart failure for at least six weeks, heart rate of 40% or lower, and the age of 60 years or higher. Moreover, the exclusion criterion was the patient's unwillingness to continue cooperation at any stage of the study.

The sample size in the initial study (19) was 135 persons; 25 patients were selected from the teaching hospital of the east of the province, 25 patients from the west, and 85 patients from the hospital in the capital of the province (Rasht).

The data were collected using two questionnaires. The demographic information questionnaire assessed the patients' age, gender, marital status, education, occupation, smoking history, income, ejection fraction (EF), chronic comorbidity, and the number of admissions due to cardiac and non-cardiac diseases in the past year. The second instrument used in this study was the Minnesota Living with Heart Failure Questionnaire (MLHFQ). It contains 21 items that measure physical, psychological, and socio-economic problems caused by heart failure symptoms in the past month. Each item is answered on a six-point Likert scale (1=no; 2=very little; 3=little: 4=moderate; 5=much; 6=very much), with 1 indicating the best condition and 6 indicating the worst condition. The overall score of the questionnaire ranges from 21 to 126, with a score of 21 indicating no effect of the disease on various aspects of quality of life and a score of 126 indicating the high impact of the disease on the patient's quality of life. Furthermore, a score of 21-56 shows a high quality of life, a score of 57-92 shows an average quality of life, and a score of 93-126 suggests a low quality of life. In addition, 9 items (items 1 to 7, 12, and 13) measure the patient's physical health and function, 5 items (items 17 to 21) assess the psychological and emotional aspects, and items 8, 9, 10, 11, 15, 14, and 16 measure the socio-economic aspect of the patient's quality of life (21).

Based on the MLHFQ scores, the physical, socio-economic, and psychological aspects of quality of life are classified at three low, medium, and high levels. Accordingly, the physical aspect is assessed as high (9-24), moderate (25-40), and low (41-54). Besides, the socio-economic aspect is divided into high (7-18), moderate (19-30), and low levels (31-42). Finally, the psychological aspect of the quality of life is divided into high (5-13), moderate (14-22), and low levels (23-30), respectively (10). In this scale, the lower the scores, the higher the patient's quality of life.

The Minnesota Living with Heart Failure Questionnaire (MLHFQ) was developed by Rector and Cohn (22) The construct and content validity of the questionnaire in Rector and Cohn study was very desirable and its reliability was reported as equal to 0.94 (22). The psychometric properties of this questionnaire were assessed for use in Iran by Eskandari et al. and its criterion validity was reported as very desirable. Moreover, its reliability based on Cronbach's alpha was 0.95 and its test-retest reliability was reported to be higher than 0.90 (21). In the present study, the reliability of the questionnaire was assessed to be 0.92 using Cronbach's alpha for quality of life.

To comply with ethical considerations, this research project was approved by the Ethics Committee of Guilan University of Medical Sciences (ethics code IR.GUMS.REC.1396.156). After obtaining a letter of introduction from the Vice-Chancellor for Research and Technology

and after obtaining permission from hospital officials, the process of data collection started in this study. The objectives of the study were explained to the patients and informed consent was obtained from them. They were also assured that participation in the study was voluntary and their information would be kept confidential. Besides, the patients were not required to write their names on the questionnaires and the collected data were analyzed on a group basis.

The quantitative variables were assessed using mean and standard deviation and the qualitative variables were analyzed using frequency and percentage. Moreover, since the data were normally distributed, the relations between demographic variables and quality of life were assessed using Pearson correlation, independent samples t-test, and ANOVA with SPSS software (version 16) at the significance level of 0.05.

Results

The mean age of the patients was 70.6±8.7 years. Besides, of 135 participants in this study, the majority were female (57.8%), married (68.1%), illiterate (51.2%), and housewife (40.7%). Most of the patients (30.3%) were hospitalized twice due to heart failure in the past year and the ejection fraction (EF) of 78.5% of the patients was less than 40%. It was also shown that 52.6% of the patients had a moderate level of income and 76.3% of them had other chronic diseases in addition to heart failure. More information is presented in Table 1.

Table 1. The participants' demographic characteristics (n = 135)

Variable	Category	Number	Percentage
Gender	Female	78	57.8
	Male	57	42.2
Education	Illiterate	69	51.2
	High school & lower education	50	37
	Diploma	11	8.1
	Academic	5	3.7
Occupation	Housewife	55	40.7
	Farmer	31	23
	Employee	3	2.2
	Retired	16	11.9
	Unemployed	24	17.8
	Self-employed	6	4.4
Marital status	Single	2	1.5
	Married	92	68.1
	Widow	39	28.9
	Divorced	2	1.5
Smoker?	Yes	34	25.2
	No	101	74.8
Income	Low (< 700,000 Tomans in a week)	19	14.1
	Moderate (700,000 to 1,000,000 Tomans in a week)	71	52.6
	High (> 1,000,000 Tomans in a week)	45	33.3
Ejection fraction (EF)	40%	29	21.5
	< 40%	106	78.5
Chronic comorbidity?	Yes	103	76.3
	No	32	23.7
Number of admissions due to heart failure	Once	31	23
	Twice	41	30.3
	Three times	34	25.2
	More than three times	29	21.5
Number of admissions due to non-cardiac problems	Never	79	58.5
	Once	43	31.9
	Twice	9	6.7
	Three times and more	4	2.9

The mean score of the overall quality of life of the patients was 61.5±15.62 with a range of 21 to 126 (average quality of life). The mean score of the physical aspect of quality of life was 27.7±9.58 ranging from 9 to 54, the mean score of the psychological aspect of quality of life was 12.2±2.80 with a range of 5-30, and the mean score of socio-economic aspect of quality of was 21.5±5.65 ranging from 7 to 42.

Overall, 51.1% of the patients reported that they had a moderate quality of life score. Besides, an assessment of the scores of quality of life aspects of the participants suggested that

63% of the elderly had a moderate socioeconomic status, 45.2% of the elderly had a low score for physical condition (i.e. high-quality physical condition), and 74.1% of them had a low psychological score (i.e. high psychological quality). Table 2 shows the descriptive statistics for the patients' quality of life score and its subscales.

Table 2. The descriptive statistics for the patients' quality of life score and its subscales (n = 135)

Subscales of quality of life	Levels	Number	Percentage	SD± Mean
Physical aspect	9-24: High	61	45.2	27.7±9.58
	25-40: Moderate	56	41.5	
	41-45: Low	18	13.3	
Socio-economic aspect	7-18: High	41	30.4	21.5±5.65
	19-30: Moderate	85	63	
	31-42: Low	9	6.6	
Psychological aspect	5-13: High	100	74.1	12.2± 2.80
	14-22: Moderate	34	25.2	
	23-30: Low	1	0.7	
The overall quality of life	21-56: High	62	45.9	61.5± 15.62
	57-92: Moderate	69	51.1	
	93-126: Low	4	3	

The results of the Pearson correlation test showed no significant relation between the patients' quality of life and age (r=0.13, p=0.11). However, there was a statistically significant relation between the patients' quality of life and the number of admissions due to heart failure (p <0.001) and also the number of admissions due to non-cardiac problems (p <0.001), indicating that the higher the number of admissions due to heart failure and non-cardiac problems, the lower the quality of life. It was also noted that there was a significant relation between the patients' quality of life and their income (p <0.038) and chronic comorbidity (p <0.001) so that lower levels of income and the presence of comorbid disease led to a lower level of quality of life. Table 3 shows the relation between the participants' demographic characteristics and their overall quality of life.

Table 3. The relation between the participants' demographic characteristics and their overall quality of life

Variable	Category	The overall quality of life	P-value
Gender	Female	16.20±63.21	0.28*
	Male	15.16±60.30	
Education	Illiterate	15.95±63.01	0.49**
	High school & lower education	14.85±60.04	
	Diploma	17.98±57	
	Academic	13.72±66	
Occupation	Housewife	15.87±61.89	0.31**
	Farmer	16.08±65.54	
	Employee	7±49	
	Retired	15.88±61.93	
	Unemployed	13.81±57.25	
	Self-employed	18.03±59.83	
Marital status	Single	4.94±70.50	0.58**
	Married	15.31±60.44	
	Widow	16.49±63.30	
	Divorced	22.62±68	
Smoker?	Yes	15.68±58.55	0.20*
	No	15.55±62.53	
Income	Low (< 700,000 Tomans in a week)	16.13±74.63	0.038**
	Moderate (700,000 to 1,000,000 Tomans in a week)	13.62±61.59	
	High (> 1,000,000 Tomans in a week)	15.33±55.91	
Ejection fraction (EF)	40%	11.14±59.03	0.12**
	< 40%	12.23±63.31	
Chronic comorbidity?	Yes	15.36±64.08	0.001*
	No	13.65±53.31	
Number of admissions due to heart failure	Once	12.94±50.48	0.001**
	Twice	12.25±58.68	
	Three times	14.17±65.26	
	More than three times	15.39±73	
Number of admissions due to non-cardiac problems	Never	14.27±57.01	0.001**
	Once	13.53±63.32	
	Twice	12.39±484.4	
	Three times and more	3.74±80	

Discussion

This study examined the quality of life and related demographic characteristics in the elderly with heart failure. The results showed that the mean scores of overall quality of life and socioeconomic status were in a moderate range and the majority of patients reported high quality of life concerning physical and sociological conditions.

Kraai et al. reported that the average overall quality of life score using the MLHFQ in patients with heart failure at the University of Groningen Medical Center in New Zealand was 30±23 and the mean scores of physical and emotional aspects were 12±14 and 6±6, respectively (23). Moreover, García-Olmos et al. conducted a study in Madrid, Spain using the same instrument on patients with heart failure. The scores of overall quality of life and its physical and emotional subscales were 23.95± 16.44, 16±10.29, and 6.33±6.23, respectively (24). These two studies reported higher levels of quality of life in patients with heart failure compared to the present study. This disparity can be attributed to differences in the participants' living environments and lifestyles.

Abbasi et al. conducted a study in Tehran Heart Center in 2014 using the MLHFQ and showed that the mean scores of physical, psychological, and socio-economic aspects and the overall quality of life were 28.21, 10.45, 7.17, and 45.83, respectively, indicating the good quality of life and its aspects in these patients (25). However, Cheraghi et al. showed that in specialized cardiovascular training centers of Hamadan and by using the MLHFQ, 46.7% of heart failure patients had a moderate quality of life, and their psychological health was poor (8). In another study, Abbasi et al. surveyed patients with heart failure admitted to hospitals of Ahvaz University of Medical Sciences using the MLHFQ and showed that the mean score of the overall quality of life was 59.50±5.54 (11). Mansouri et al. used the MLHFQ to evaluate the quality of life of patients with heart failure who visited a specialized clinic in Shushtar in Khuzestan Province and showed that the mean overall quality of life was 56.61 and heart failure had the largest negative effect on the physical aspect of quality of life (32.97±6.89) and the lowest negative effect on the psychological aspect of quality of life (7.72±6.06) (26). The results of the studies detailed above showed an average level of quality of life among patients with heart failure. These findings are consistent with the observations made in the present study. Parsamehr et al. studied patients undergoing coronary artery bypass graft surgery in Shiraz using WHOQOL-BREF and reported that the quality of life of most patients (64.7%) was relatively desirable, and the mean score of their overall quality of life was 85.53 (relatively desirable) (27). These conflicting results can be attributed to the different tools and target groups, compared to the present study.

The patients in the present study reported optimal physical health, moderate socio-economic status, and good psychological conditions. In Greece, Aggelopoulou et al. reported that among patients with heart failure, the patients' quality of life (65.4±20.6) was poor. Besides, the mean scores for physical health and psychological conditions were 25.9±8.4 and 6.4±15.2, respectively, indicating the patients' poor quality of life in terms of physical and psychological aspects (28). In another study, AbuRuz reported that heart failure patients' quality of life was poor in terms of physical and psychological aspects (29). The differences between the present study and other studies in terms of patients' quality of life can be attributed to differences in geographical, lifestyle, and cultural differences in different regions, affecting a person's perception of quality of life. Moreover, the use of different instruments to measure the quality of life in some studies can be another cause of differences in the quality of life of patients with heart failure.

The results of the present study showed a significant relation between the number of hospitalizations due to heart failure and non-cardiac diseases with quality of life, so that the higher the number of hospitalizations due to heart failure and non-cardiac problems, the lower the patient's quality of life. Shojaei et al. (16) and Abbasi et al. (25) also reported a significant and negative relation between the frequency of admissions and quality of life. Multiple hospitalizations create more problems for patients and decrease their quality of life. On the other hand, the present study showed that the higher the income of people, the better their quality of life. Studies by Verma et al. in Washington (30) and Abbasi et al. in the Tehran Heart Center (25) reported similar

results. Support resources during illness play an important role in patients' adaptation and improve their quality of life.

The present study indicated a significant relation between chronic comorbidity and quality of life, so that patients with chronic comorbidity reported lower quality of life. Patinan et al. showed that increasing the number of chronic diseases could lead to a decrease in the quality of life of the elderly (31), which was consistent with the results of the present study. Accordingly, it can be argued that having several chronic diseases at the same time causes a person to have to make many changes in the normal course of life, including diet, social activity, and lifestyle in general, and these changes reduce the patient's quality of life.

Smaeili Shahmirzadi et al. studied the elderly with chronic diseases using the quality of life questionnaire (SF-36) and found that age, sex, marital status, economic status, and education had a statistically significant relation with most subscales of quality of life (32). Rafati et al. surveyed the elderly in a nursing home in Tehran using the quality of life questionnaire (SF-36) and found no relation between age and quality of life (33). However, Abbasi et al. who examined patients with heart failure in Tehran Heart Center showed that most demographic variables (age, gender, marital status, level of education, occupation, lifestyle, length of illness, number of hospitalizations, smoking, and alcohol and drug use) had significant relations with the three aspects of quality of life and also the overall quality of life (25). The study by Parsamehr et al. in Shiraz showed that quality of life was significantly correlated with gender, education, income, and job (27). Furthermore, the study by Azami-Aghdash et al. in Tabriz showed that the quality of life of cardiovascular patients had a significant relation with age, place of residence, education, and income (15).

The results of this study showed that the majority of the patients had a moderate quality of life. Besides, income, number of hospitalizations, and chronic illnesses had significant relations with patients' quality of life. Therefore, given the changes that occur in different aspects of the quality of life of this group of patients, the adaptation of preventive policies, identification of high-risk patients, provision of adequate health insurance, cheaper welfare services, and planning for medical and nursing interventions can improve the quality of life of patients with heart failure. Moreover, providing the necessary training to this group of patients can be helpful for disease management and improving their health and quality of life.

One of the limitations of the present study was the limited number of the elderly attending the study. Accordingly, further studies can be performed on a larger sample and different age groups to come up with more generalizable findings.

Conclusion

Since heart failure can affect the quality of life of patients, therefore it will be useful to plan treatment and nursing interventions to improve the quality of life of these patients.

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Conflict of interest

The authors declared no conflict of interest.

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