Relationship between self-care behaviors and quality of life in patients with heart failure

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ARTICLE INFO

ABSTRACT

Background: It has been generally agreed that cardiac failure is one of the common and devastating diseases due to its morbidity, mortality and rates of disability. Moreover, it has negative impacts on quality of life among sufferers. Meanwhile, improving quality of life among heart failure patients is essential. It can be suggested that people with self-care ability have a better quality of life. However, this issue may be affected by some cultural issues. Regarding a paucity of information on this aspect in Iran, this study aims to explore the relationship between self-care behaviors and quality of life in patients with heart failure.

Methods: This study is carried out using a descriptive - analytical method. The sample size consists of 77 patients who consented to participate in the study and had ejection fraction <40%. The tools were demographic checklist, European heart failure self-care behavior scale, and SF-36 quality of life questionnaire. Data was gathered from the heart center of Imam Ali in Kermanshah-Iran. Data analysis was done using independent t-test, Mann Whitney, ANOVA, and Kruskal-Wallis tests by SPSS-24 software.

Findings: The study sample was 77 participants, of which 45 were female and 51 lived in an urban area. The mean of self-care score was 39.42 ± 7.04, and most of the patients (67.5%) were in moderate level. The mean and SD of quality of life was estimated as 38.45 ± 17.28. The spearman correlation test showed no correlation between self-care and quality of life. However there was a correlation between marital status and self-care ability, in which it shows the higher scores in unmarried people (K2 = 7.75, P = 0.021), and the results indicated better quality of life in male (t = 2.68, P = 0.009), educated patients at the level of university (F = 7.60, P < 0.001), free job (F = 6.21, P < 0.001) and lived in the urban area (Z = 2.05, P = 0.04).

Conclusion: In this study, there is no correlation between self-care behaviors and quality of life in which, this may be attributed to Iranian cultures and perspectives such as valuing live with the children and importance of their attention to elderly patients, which demanded more studies.

1. Introduction

Cardiac disease is one of the most prevalent chronic diseases, which causes a great number of mortality in adults, worldwide. Heart failure (HF) is recognized as one of the frequent and somewhat ultimate of all cardiac disorders. Cardiac disease is defined as the inadequacy of the heart to pump blood based on the body's need in which the ejection fraction is reduced to less than 40% [1]. According to the American heart association reports, 5.3 million American are suffering from heart failure

and 550,000 newly diagnosed are added annually [2]. This problem is a major health expenditure issue which imposes a remarkable burden on health care systems [3]. The annual spending on the current problem by American Health care system for instance, is estimated as 38 billion US dollar [4]. In Iran, over a million of people are also suffering from this morbid disease [5].

Heart failure can cause some complications such as tiredness, edema, enlargement and displacement of the heart to the left, apical pulses, pallor and cyanosis, jugular vein dilatation, tightness of breath, abnormal

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lung sounds, orthopnea, paroxysmal nocturnal dyspnea, cough during activity or supine position, confusion without reason or altered mental status, oliguria, nocturia, anorexia and nausea, hepatomegaly, and ascites [6]. These symptoms could reduce physical and social activities and as the results decreased quality of life [7]. Quality of life (QOL) is a general term and has some aspects of sociological, economic, psychological, philosophical and ethical [8, 9], so, it is not an emphasis only on humanistic biology and characterized as "overall enjoyment", and "a subjective evaluation of good and satisfactions" [9]. Although QOL is a self-perception of individual mind state, however, there are some controversies about its term [8, 10]. Heart failure patients have a markedly low QOL because of some physical and psychological constraints, which causes more hospitalization, mortality and burden of disease [7]. Other studies declared more context-based factors affecting QOL in heart failure patients such as poverty, literacy level, availability of preventive service, and insurance [11]. Self-care behaviors are another agent affect QOL [7, 8].

Self-care is a crucial task for controlling the negative consequences of the illness, by which behavioral modifications are targeted including, health education knowledge and attitude toward patients affected by HF [12]. Insufficient self-care leads to poor health outcomes [3] and re-hospitalization [13]. Self-care in heart failure refers to diet and drug management, sodium and fluid restriction, daily weighting, regular exercise, monitoring signs and symptoms of exacerbation of the disease, and the search for and decision-making for proper treatment. Self-management of heart failure is complex and difficult for the HF patients, because they should be obliged to monitor the symptoms and observe drug regimens, and identify any changes in their health status and evaluate them in order to select the appropriate treatment option and evaluate its effectiveness. Therefore, the main intentions in self-care are acceptance and participation of the patients to follow the care plan [12, 14]. There are many barriers to self-care practice such as, lack of self-management supports, inadequate economic state, lack of health insurance, and lack of access to an appropriate health care that can result in poor HF outcomes [11]. Approximately, half of the patients with HF do not follow the treatment recommendations, and this may lead to readmission to the hospitals [15].

Sufficient self-care is an important factor to promote positive health outcomes and prevent frequent hospitalization [16]. Consequently, in recent years, there has been a special focus on receiving treatment and self-care [17]. Self-care promotes both medical- and person-centered outcomes in patients with HF. In these cases, patients who have the better self-care, have better quality of life. Moreover they probably have lower mortality rates and fewer re-hospitalization [18, 19, 20]. To exemplify, in a study by Rezaei Loyeh et al., the final justifications showed that self-care education is effective on the quality of life in patients with heart failure. Furthermore, it is recommended to be one of the impressive and non-pharmacological methods to improve the quality of life in these clients [21]. The conclusion of a study by Salehi Tali et al. showed that implementing nursing and educational care based on patient needs along with lifestyle modifications in patients with HF will improve the physical condition and quality of life among them [22]. The results of a study by Tedaion far et al. explored that better quality of life can be achieved by health education based on self-care needs in patients who have been diagnosed with heart failure [23].

In spite of the importance of self-care activities in the management of heart failure, only few studies have been conducted in the country regarding self-care status of patients with heart failure and its related with quality of life. In a single study by Shojaee in Tehran in 2009 [14], the self-care capacity of patients was reported moderately, considering that environmental factors play a determining role in self-care behavior in patients with heart failure. On the contrary, many factors have significant roles in self-care behaviors, such as lack of information, physical constraints, incompatibility with multiple treatments and emotional problems [7, 9, 11]. In the present study, in order to find the knowledge gap, the aim is to explore the relationship between self-care ability and quality of life among patients with heart failure.

2. Methods

In a descriptive-analytical study, the relationship between self-care behaviors and quality of life of the heart failure patients was investigated. The population in the study refers to all the admitted patients in Imam Ali hospital (the center of the cardiac disease in the west of Iran) that is affiliated to the Kermanshah University of Medical Sciences. The sample was 77 patients who consented to the study, had ejection fraction <40%, age>18 years, and disease history of more than three months, which were taken conveniently. The sampling process lasted for three months from January to March 2016.

The tools consist of demographic checklist, European heart failure self-care behavior scale, and SF-36 quality of life questionnaire. The demographic questioner includes age, sex, marital status, job, living location, education level, children rate, level of income (weak: less than 100$, moderate: between 100-200$, good: more than 200 $), past medical history, frequency of hospitalization, ejection fraction, and the distance to a nearest clinic and heart center. European heart failure self-care behavior scale is developed by Jaarsma et al. [24] in 1998, and validated by several experts in research [25, 26]. The cultural validity evaluation of the scale was performed in some Iranian projects [27, 28, 29], and the Cronbach alpha was mentioned to be 0.71 [27]. The scale has 12 items that are scored in five-points Likert from completely correct (No.1) to be completely incorrect (No.5), the score is varied from 12 to 60, in which the higher scores stand for lower self-care behavior. The SF-36 questionnaire has 36 items and eight domains, including physical functioning, social role functioning, physical role functioning, emotional role functioning, mental health, vitality, bodily pain, and general health perception. This tool is widely used for determining QOL of cardiac patients in Iran [30].

Data was collected in the Imam Ali hospital after approving the project by the research ethics committee of Kermanshah University of medical sciences, and informed consent was obtained from the patients, and all participants were assured about the anonymity and confidentiality of their personal information. Thereafter, legal permission by research deputy in Kermanshah University of Medical Sciences (KUMS) (with number: 93061) and all the works were performed in accordance with the relevant guidelines and regulations. Additionally, the officials of the hospital permitted to data collection. The questionnaires were completed by the patients. However, for the illiterate participants, the questions were directed to the patients by the researcher, and the answers were written precisely.

Data were entered into SPSS-24 software and analyzed by descriptive and inferential statistics, the normality of the quantitative variables was checked by Kolmogorov-Smirnov. The independent t-test, Mann Whitney, ANOVA, Spearman correlation (regarding non-normality of quantitative variables), and Kruskal-Wallis tests were applied for inferential statistics. The significant level was considered as P value of 0.05.

3. Results

According to the data analysis of the study, in all 77 participants, 45 (58.4) were female, 51 (66.2%) married and 37 (48.1) had a housekeeper job. Most of them lived in the urban area which is (51, 66.2%) and (57.1%) were illiterate. Forty-four people (57.1%) had a monthly income of approximately 100–200 Dollars (Table 1). Mean and standard deviation of the variables, age, children rate, and heart disease duration were 59.17 ± 14.59 yrs, 4.31 ± 2.74 and 33.61 ± 67.63 months, respectively. The patients had an ejection fraction between 10 to 40% and the mean of the distance of patients to the nearest clinic, and a heart center was 7.41 ± 10.40 and 20.63 ± 24.45 km.

The mean of self-care score was 39.42 ± 7.04, and most of the patients (67.5%) were in a moderate level. There was no significant relationship between self-care and the variables of sex (t = 0.873, P = 0.385),

Table 1

Demographic characteristics of the samples.

Variable		Frequency	Frequency percent
Sex	Male	32	41.6
	Female	45	58.4
Marital status	Married	51	66.2
	Single	5	6.5
	Widow	21	27.3
Job status	Housekeeper	37	48.1
	Unemployed	6	7.8
	Retired	5	6.5
	Self-employment	7	9.1
	Employee	22	28.6
Living location	Urban	51	66.2
	Rural	26	33.8
Education level	Illiterate	44	57.1
	Under diploma	17	22.1
	Diploma	7	9.1
	Academic	9	11.7
Income level	Weak	24	31.2
	Moderate	44	57.1
	Good	9	11.7
total		77	100

income level (F = 1.53, P = 0.223), education level (F = 0.832, P = 0.481) living area (t = 1.52, P = 0.131), and the job status (F = 0.914, P = 0.461). Consequently, those who were unmarried (K2 = 7.75, P = 0.021) had higher level of self-care, considerably (Table 2). There was no correlation between self-care with the quantitative variables such as age (r = -0.180, P = 0.123), EF (r = -.208, P = 0.075), and heart history (r = -0.035, P = 0.763) by spearman correlation test.

The mean and SD of quality of life were estimated as 38.45 ± 17.28. In the study, male had more quality of life than female (t = 2.68, P = 0.009) and also those who had university education (F = 7.60, P < 0.001), self-employment (F = 6.21, P < 0.001) and lived in the urban area (Z = 2.05, P = 0.04). In the meantime, there was no difference in quality of life in terms of marital status (F = 0.488, P = 0.641) (Table 3). There was a remarkable correlation between quality of life and some variables such as ejection fraction (r = 0.298, P = 0.01), age (r = -0.230, P = 0.046) and number of children (r = -0.237, P = 0.037). Finally, the spearman correlation test showed no correlation between self-care and quality of life, as well as all the subcategories (Table 4).

Table 2

Mean and standard deviation of self-care number based on the demographic characteristics.

Variable		Mean (SD)	Statistical test
Sex	Male	40.25 (6.07)	*t = 0.873
	Female	38.81 (7.68)	P = 0.385
Marital status	Married	38.48 (6.11)	**K2 = 7.75
	Single	36.40 (7.63)	P = 0.021
	Widow	42.38 (8.31)	
Job status	Housekeeper	38.69 (7.91}	***F = 0.914
	Unemployed	43.66 (4.88)	P = 0.461
	Retired	37.60 (3.28)	
	Self- employment	41.71 (3.54)	
	Employee	39.13 (7.45)	
Living location	Urban	38.54 (7.53)	t = 1.52
	Rural	41.11 (5.75)	p = 0.131
Education level	Illiterate	40.48 (7.11)	F = 0.832
	Under diploma	38.58 (6.48)	P = 0.481
	Diploma	37.71 (7.99)	
	Academic	37.22 (7.18)	
Income level	Weak	40.87 (7.68)	F = 1.53
	Moderate	39.30 (6.54)	P = 0.223
	Good	36.11 (7.20)	

* independent t-test.
** Kruskal Wallis test.
*** One-way ANOVA test.

Table 3

Mean and standard deviation of quality of life based on the demographic characteristics.

Variable		Mean (SD)	Statistical test
Sex	male	44.48 (19.07)	*t = 2.68
	Female	34.17 (14.64)	P = 0.009
Marital status	Married	37.67 (16.10)	**F = 0.448
	Single	45.36 (23.57)	P = 0.641
	Widow	38.72 (19.3)	
Job status	Housekeeper	32.22 (15.9)	F = 6.21
	Unemployed	34.79 (22.03)	P < 0.001
	Retired	36.70 (14.55)	
	Self-employment	61.95 (18.49)	
	Employee	42.87 (12.06)	
Live location	Urban	41.08 (7.80)	***Z = 2.05
	Rural	33.30 (15.25)	P = 0.04
Education level	Illiterate	32.30 (14.73)	F = 7.60
	Under diploma	41.17 (18.95)	P < 0.001
	Diploma	46.45 (11.40)	
	Academic	57.21 (13.40)	
Income level	Weak	39.95 (21.30)	F = 0.223
	Moderate	37.30 (15.26)	P = 0.801
	Good	40.08 (16.25)	

* independent t-test.
** One-way ANOVA test.
*** Mann whitney U test.

4. Discussion

In this study, the mean of self-care score was 39.42 ± 7.04, and most of the patients (67.5%) were in moderate level. This finding was consistent with the study of Abootalebi et al. that reported 31.9% of heart failure patients with poor self-care, 61.1% with moderate, and only 7% with good self-care capacity [31]. In Shojaee's study that aimed to investigate self-care behaviors in patients with heart failure, self-care favorable behaviors were high, with 26% of patients having proper self-care behaviors and others having moderate to low level behaviors [14]. In the study by Azarbad which was focused on the relationship between self-care behaviors and self-care needs in patients with heart failure, half of the patients were found to have moderate self-care behaviors [32]. Although, the rehabilitation centers have been established in the Iranian hospitals, But the patients are not desire to participate in these centers by reasons of Lack of knowledge, costs, transportation and insurance problems [33]and addressing these limitations could improve self-care power of HF patients.

In the current study, there is no correlation between age and self-care, which is contrary to studies that stated that age was an effective factor in

Table 4

Correlation between self-care and quality of life factors.

Factors of quality of life	self-care
Physical health	r = -0.022
	P = 0.848
General health	r = -0.106
	P = 0.364
Pain	r = 0.04
	P = 0.971
Social functioning	r = 0.025
	P = 0.829
Emotional wellbeing	r = 0.028
	P = 0.808
Energy/fatigue	r = -0.078
	P = 0.501
Psychological health	r = 0.067
	P = 0.568
Role limitation	r = 0.044
	P = 0.708
Physical functioning	r = 0.098
	P = 0.398
Total quality of life	r = 0.032
	P = 0.783

the self-care capacity of patients, thus the patients with less age had better self-care capabilities [14, 30, 32, 34]. Studies show that age-related changes such as visual, hearing, and cognitive impairment led to disability in self-care. Older patients also depend on others to relieve a lot of disabilities in self-care behaviors [17]. Regarding mean age of the subject (about 60 years), all of them were in the range of senile and elderly adult, no correlation between age and self-care are justifiable.

In this study, there was no significant difference between self-care behaviors among men and women. Abootalebi et al., Azarbad et al. and Artinin et al. also found that there is no relation between these two variables [31, 32, 34]. Even so, in Shojaee et al. research, men had a better self-care behaviors than women [14]. In another study by Abootalebi et al. [35], in hypertensive patients, men also had better self-care than women. It appears that the effect of gender differences on self-care capacity can be influenced by other variables, including the level of education, physical, psychological and behavioral status of individuals. For example, Abootalebi recognized the higher self-care in men with hypertension to their higher-education level when compared with women [35].

In this study, although single individuals had better self-care behaviors than married, but in Shojaee et al. study married people had better caring behaviors than widows, but singles had the best scores. Of course, in their research, singles often had higher education, which could affect the level of awareness and observance of self-care behaviors [14]. On the other hand, single people are less responsible for their family responsibilities, so they may have more opportunities to take care of their behaviors, meanwhile, in the study of Artinin et al., marital status was related to three behaviors, including: resting during the day, control of absorption and discharging fluids, and belief in having a happy life despite having heart failure [34]. Additionally, in the study of Azarbayd et al., married people had more knowledge than the singles regarding heart failure disease [32]. In the study of Abootalebi et al., married people had a better self-care than non-married people [31]. The higher self-care score of single individual may be related to less responsibility to other individuals, and they only cared for themselves.

In our study, there was no significant relation between the level of education and self-care behaviors but in the study by Shojaee et al., the patients with a high educational level had a better self-care [14]. In Fallahat et al.'s study which aimed to assess the influence of home visits on re-hospitalization of patients with heart failure who were discharged from the hospital, the highest number of re-admittances was found among patients with a primary school education. This could be an indication of poor performance of self-care behaviors in patients with less education [36]. In the study by Abootalebi et al., with growing educational levels, self-care capacity of the units was significantly raised [31]. Rockwell also stated that patients with higher education have the power to judge and make better decisions regarding self-care behaviors [37]. Never relevance between education and self-care maybe attributed to lack of patients' education about self-care, which demanded more studies.

In our study, male patients had more quality of life, whereas Rahnavard et al. did not find a correlation between gender and quality of life in their study [38]. On the contrary, Cline et al. in their study on 191 heart failure patients, found that gender has a significant impact on the quality of life, in which men's quality of life was more favorable than that of women [39]. In another study by Riedinger et al., they found that men's quality of life, especially in the physical and social context, is better than that of women [40]. The rational reason for this good quality of life among men patients might be that most men are retired and are not as active as before, but older women with chronic illness still have a coping responsibility for home affairs, which leads to fatigue and reduced physical activity, and reduces their quality of life. Riedinger et al. explored that women are less likely to exercise than men; this leads to a decrease in functional capacity and a decrease in their physical conditions that affects their quality of life [41].

In the results of his paper, there was no correlation between marital status and quality of life. However in the study by Shojaee et al., married people in comparison with the separated and widows had a better quality of life, but unmarried people who were often inferior in age had the most favorable quality of life [42].

There was a significant negative correlation between quality of life and age in our study, and Johansson et al., in a similar study on heart failure patients, reported that an increase in age is associated with decrease in quality of life [43]. The level of education has been effective in changing the knowledge and attitude in health and well-being as well as other aspects of life. It has also been considered as a factor in the quality of life in many researches [38, 44]. In our study, those who had a university education level also had a better quality of life.

There was an outstanding positive correlation between quality of life and ejection fraction in our study. Nonetheless, in a study by Juenger et al., it has been determined that increase in severity of the disease and reduction in the ejection fraction had a relation with the quality of life and decreased reliably, and they stated that ejection fraction is an indicator of cardiac efficiency and decrease in this index indicates severity of failure [45].

According to our study, there was no correlation between self-care behaviors and quality of life, this may be related to particular cultural issues in Iran. In contrast, the results of Jaarsma et al. study indicated that there is a relationship between these two variables [46]. Finally, some other studies suggest that inappropriate self-care leads to aggravations in heart failure and poor quality of life. It can also lead to frequent hospitalization [47, 48]. Other studies approved the negative attitude of Iranian people on self-care; Shakibazadeh et al. declared that in view point of the elderly patients with diabetes, self-care is not related with good health outcome, and it is a hard work to do [49], Siabani et al. investigated the self-care barriers in chronic heart failure, also cultural belief has raised as one of the main obstacles of self-care [50].

4.1. Limitations

There are some challenges in the study; this may be due to the sensitivity of the subject. For instance, non-probability sampling was applied in which convenience sample was practiced. Despite the fact that non probability sampling is the weakest among quantitative research methods, in the current study, the only population that is not convenient to be selected is admitted patients who have been diagnosed with heart failure criteria. Additionally, the sample size was drowning in regard to those who met the study criteria, which limited the sample size.

5. Conclusion

Nowadays, heart failure is responsible for a huge number of death, hospitalization and disability, and researchers strive to advance the management based on evidence. The prognosis of this mortal disease shows devastating impact on the overall health in population who are affected. Literature illustrated that self-care may have a positive effect on the management outcomes. Meanwhile, the disease itself can alter quality of life among patients. Moreover, very limited studies investigated self-care and quality of life among affected people. This study revealed that the level of self-care in participants was moderate and there was no relationship between demographic characteristics except for unmarried patients who had the most desirable self-care behaviors. In terms of quality of life, male patients, people who are self-employed, patients who live in the urban area and those with a university education level, had a higher quality of life. However, in this study, no correlations were found between self-care and quality of life. This may be attributed to some cultural issues and believes in Iranian population. To illustrate that there is a notion in Iranian culture, which says children are "walking sticks for elderly people", in other words, they usually depend on their children, particularly when they become sick. As a result, this belief may prevent them from adhering to self-care. Consequently, this issue demands an investigation. The final justification of this paper,

therefore calls for further studies on the current topic in order to achieve better results in patients with heart failure.

Declarations

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