

## Study of the Self-Care Status and Factors Related to It in Heart Failure Patients

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### Abstract

One of the most common chronic diseases in the world is heart failure, which imposes a lot of costs on health systems every year. One of the important ways to control heart failure is self-care. The purpose of the current study was to examine the self-care status and factors affecting it in patients with heart failure. In this descriptive-analytical study, a total of 248 eligible patients with heart failure referred to the therapeutic and educational center were studied. The selection of samples was done by gradual sampling method. The data collection tool included a demographic information questionnaire and information about the disease and heart failure self-care index. Data analysis was done by descriptive statistics and t-tests, Pearson's correlation coefficient, and ANOVA in SPSS-21 software. The average and standard deviation of the self-care score of the patients participating in this study was  $26.44 \pm 13.13$  and just 4.4% of them had a favorable self-care behavior. The most favorable state of self-care was regarding the management of self-care. There was a statistically significant relationship between self-care with education ( $p < 0.0001$ ), age ( $p < 0.0001$ ), comorbidities ( $p < 0.0001$ ), and marital status ( $p = 0.003$ ). Since the majority of people in the study had unfavorable self-care, it is suggested that nurses pay attention to self-care predictors in the care and education programs of patients with heart failure.

**Keywords:** Patients, Self-care, Heart failure, Chronic diseases

### Introduction

Suffering from chronic diseases is the biggest problem of health care systems [1, 2]. One of the most common chronic diseases is cardiovascular disease [3, 4]. Based on the report the WHO, cardiovascular diseases are the most common cause of death in the whole world, and 82% of these deaths occur in developing countries, it is predicted that it will continue to be the primary cause of death in the world [5, 6]. Among heart diseases, the discussion of heart failure as one of the most important and chronic diseases has taken a very important place in the field of health and treatment [7]. This disease is one of the most common cardiovascular disorders and is considered a progressive and debilitating chronic disorder, the prevalence of which increases with age [8]. Over the past 2-3 decades, the prevalence of heart failure has tripled [9, 10] and millions of people worldwide suffer from it [10]. According to the conducted research, heart failure patients use healthcare systems the most [11]. Most of the costs that are spent annually on the care of these patients are caused by the exacerbation of the disease, re-hospitalization, and the use of special care [10]. Apart from poor foreknowledge, this disease can lead

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to limitations in physical activity, interruption of social interactions, psychological distress, decreased vitality, increased dependence, early retirement, and low quality of life [12]. Heart failure affects the psychological, physical, social, and economic aspects of patients [11]. Adhering to medication and food regimen, resting, improving the sleep and life quality, knowing how to control emotions, and how to take care of yourself are among the things that help in controlling the complications and problems of this disease, among which knowing how to take care It is very important by itself [13, 14].

Self-care in heart failure is a behavior set including following diet and medication, limiting fluid intake and sodium, the number of permitted activities, daily weighing, and seeking and deciding on proper treatment measures when the disease worsens. The vital principle in self-care is acceptance and participation of responsibility on behalf of the patient. So that many of the complications of the disease can be controlled by correct behavior related to it [15]. Despite the prominent role of self-care behaviors in preventing problems and serious consequences of heart failure, the evidence shows the frequent lack of proper implementation of self-care behaviors in these patients. So the findings of Kessing's study indicate poor self-care behavior in most patients with heart failure [16]. In addition, in the Oxel study in Turkey, the ability of patients to self-care with heart failure was stated to be weak [17].

Inadequate self-care causes poor health outcomes and readmissions. Studies have stated that at least 50% of heart patients do not follow their treatment recommendations, and this increases the possibility of their re-hospitalization. On the contrary, effective self-care is a vital factor in promoting positive health results and preventing frequent hospitalizations [18].

Self-care is one of the most important disease control strategies and the key to successful treatment in heart failure patients. Any development in treatment results is related to the patient's ability to take care of himself and manage the treatment consequences, and if the patient can take care of himself appropriately, more than fifty percent of the cases of readmission of patients can be prevented [19]. Therefore, the present study was done to examine the self-care status of patients with heart failure, so that with the knowledge of the self-care status, it is possible to educate patients and plan to improve the level of self-care behaviors and empower them to perform self-care tasks.

## Materials and Methods

This research was a descriptive-analytical study whose statistical population consisted of all patients with heart failure referred to a medical training center. The sample size was determined to be 248 people with a confidence of 95% and a test power of 80%.

The research environment in this study was the internal cardiology department and specialized clinic of the hospital. The samples were selected by gradual sampling from among the patients who met the study entry criteria. The criteria for entering the study included the following: not having cognitive problems, interest, and consent to participate in the study, heart failure diagnosis, confirmed by a specialist, age 18 years and older, ability to read, speak, and write texts and functional class of heart failure. Data collection using a three-part tool consisting of a personal information questionnaire (age, gender, average monthly income, employment status, education level, marital status), related to the disease (duration of the disease, class of heart failure, EF level of diseases) at the same time, using Charlson Comorbidity Index (CCI), hospitalization history and cause of heart failure) and heart failure self-care tools were done. The heart failure self-care tool was designed by Vellone *et al.* [20]. CFA (Confirmatory factor analysis) was used to determine the instrument validity and it showed that the said questionnaire has good validity. The reliability of the tool was also estimated by calculating its internal correlation and the correlation for the self-care maintenance scale was 0.56, self-care confidence was 0.79, and self-care management was 0.64, which indicated the good internal correlation of the tool.

To collect data, the researcher went to the medical education center in two shifts, morning and evening, and selected the patients who met the criteria for entering the study, after introducing themselves, obtaining consent from the research units, and stating the purpose of the research. Completed the questionnaires. In this period, 255 samples entered the study environment, 6 of them did not want to cooperate and were excluded from the study. To collect data, data was prepared by the researcher using interviews with patients and review of their medical records. After coding, the prepared data were entered into SPSS version 21 software and analyzed using descriptive statistics (average frequency and standard deviation) and inferential (test), Pearson's correlation coefficient, and independent ANOVA.

## Results and Discussion

The analysis of the data reveals that the majority of the samples were with the functional class of heart failure II (43.1%) and had a history of hospitalization (78.2%). Also, the most common cause of heart failure was heart valve disease (44.8%), the average duration of the disease was 37.56 months, the average number of hospitalizations was 2.39 times, and the average EF rate was 30.77%.

Regarding the average self-care scores of the patients participating in the study, the results showed that the lowest average is in the trust subscale and the highest average is in the self-care management subscale (**Table 1**).

**Table 1.** Dispersion indices of total self-care scores and its subscales in the studied units.

Self-care score	Mean and standard deviation	Median	Min.	Max.
Self-care maintenance score (0-100)	52.85 ± 12.21	53.33	10	83.33
Self-care management score (0-100)	55.27 ± 14.44	54.17	25	95.83
Self-care confidence score (0-100)	26.57 ± 20.78	22.2	0	100
Total self-care score (0-100)	44.26 ± 13.13	42.08	19.54	86.67

Also, the majority of the samples had an unfavorable situation in terms of total self-care (95.6%) and its subscales including preservation (92.7%), management (80.8%), and self-care confidence (96%) and only 4.4% of the research units had good self-care. The results of independent t-tests and ANOVA showed that among the investigated variables, age under 50 years ( $p = 0.0001$ ), being married ( $P = 0.003$ ), diploma education level and higher ( $P = 0.0001$ ), and the score of zero co-morbidities based on the Charlson index ( $P = 0.0001$ ) significantly increased the self-care score (**Table 2**).

**Table 2.** Relationship between individual social variables and disease with self-care scores of research units.

Variables	Total self-care score			
	N	Mean and standard deviation	P-value	
Age category	Under 50 years	34	52.82 ± 15.19	0.0001**
	50-59 years	65	48.89 ± 12.24	
	60-69 years	76	41.44 ± 12.34	
	70-80 years	73	77.77 ± 20.56	
Marital status	Married	200	44.97 ± 13.55	0.003*
	Single	8	41.31 ± 10.87	
Education	Reading and writing	170	40.74 ± 10.33	0.0001**
	Under Diploma	37	47.71 ± 13.32	
	Diploma and above	41	55.73 ± 15.99	
Associated diseases	0	49	51.49 ± 14.19	0.0001**
	1-2	116	43.84 ± 12.99	
	3-4	83	40.57 ± 10.95	

\*\*ANOVA, \*Independent t-test

Pearson's correlation coefficient about the correlation of self-care with quantitative variables showed that there is a significant direct correlation between monthly income ( $P = 0.0001$ ) and self-care and an inverse correlation between age ( $P = 0.0001$ ) and self-care.

The results of the current study showed that the overall status of self-care and its three subscales (maintenance, management, and self-care confidence) are unfavorable in heart failure patients. Among the subscales, the lowest mean and standard deviation belonged to the self-care trust subscale. The findings of Heo *et al.*'s study [11], which was conducted to determine factors related to behaviors of self-care in heart failure patients in America, were in agreement with the findings of the current study and showed that the self-care status of the majority of the studied units is unfavorable. Contrary to the findings of the current study, the study of Peters-Klimm *et al.* [21] aimed at identifying the potential determinants of heart failure self-care showed that the status of self-care in the researched units is good. Perhaps this difference in the findings of Pimmers-Klimm *et al.* with the present study and other similar studies is due to a different self-care assessment tool because, in their study, the EHFSCBs (European Heart Failure Self-Care Behavior Scale) was used.

About factors affecting self-care, the findings reveal that there is a relationship between self-care and marital status. There was a significant direct relationship, which is in line with the results of other studies. So in other studies, married patients had better self-care than unmarried people. Tung *et al.*'s study [22] aimed at describing self-care behaviors in people with heart failure also showed that married participants were better at performing self-care behaviors than unmarried participants. However, Marti *et al.* [23] did not observe a statistically significant relationship between marital status and self-care in their study. This difference in the findings can be

caused by cultural differences and the serious support of spouses, which affects the self-care status of patients by helping to change their way of life and reduce stress. Another finding of this study was the existence of a statistically significant relationship between the self-care and education level. In such a way the self-care situation in people with diplomas and higher education was more favorable than other groups. It seems that higher education can be effective in developing critical thinking skills and the ability of people to participate in decisions and treatment and care programs [24].

Another finding of this study was the presence of an inverse statistical relationship between age and self-care so that people with a younger age had a more favorable level of self-care. According to Carlson *et al.* the changes caused by old age, such as the loss of sight, hearing, and cognition of the patient, cause his inability to take care of himself. On the other hand, older patients become dependent on others due to the reduction of many abilities in performing self-care behaviors [25].

The findings of this study reveal a direct and statistically significant relationship between monthly income and patients' self-care. Such a relationship was also observed in our study by Macabasco-O'Connell *et al.* [26]. It seems that the level of income can affect the individual's ability to be self-confident and independent, and as a result, to provide the resources needed for self-care. The current study also showed that there is a positive and significant correlation between co-morbidities based on the Charlson index and self-care. According to Kato *et al.* [27], suffering from chronic diseases meanwhile complicates the treatment regimen and as a result, the self-care of patients will need more time and skill to make these behaviors, which will affect their self-care behavior [27].

## Conclusion

In the current study, the results reveal that self-care in the majority of the researched units was in an unfavorable condition and factors such as marital status, education level, concomitant diseases, monthly income, and age had a significant relationship with the self-care status. Based on this, the importance of self-care behaviors and teaching how to do it to patients is very effective in improving these behaviors and reducing hospitalization costs and mortality rates. Nurses have a very important role in teaching these behaviors.

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