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Research Article

#### SELF-CARE BEHAVIOURS: A RESEARCH ON CASES OF HEART FAILURE

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Article Info	ABSTRACT
Received: 20 October 2024 Accepted: 26 April 2025	The aim of the study was to evaluate the self-care behaviors of patients with heart failure (HF) and associated factors. This descriptive and cross-sectional study was conducted with 151 HF patients. Data were collected using the
Keywords	"Patient Information Form", which included the descriptive characteristics of the patients, and the "European Heart Failure Self-Care Behavior Scale
Heart failure, Nursing, Self-care behaviours	(EHFScBS)" to assess self-care behaviors. Descriptive statistics, Student's t- test and ANOVA test were used in statistical evaluation. Bonferroni test was used for post-hoc analyses. It was found that the total EHFScBS score of the participants was $35.07\pm8.03$ and $61.6\%$ of the participants had inadequate self- care behaviors. It was determined that age, educational status, presence of additional disease and duration of diagnosis were significant determinants of self-care behaviors (p<0.05). However, no significant difference was found between gender and marital status variables and EHFScBS (p>0.05). As a result of the study, it has been determined that the self-care behaviors of HF patients are at a moderate level, and the majority of them have inadequate self- care behaviors. Accordingly, it is thought that it would be beneficial to develop strategies to increase self-care skills in HF patients and to inform health professionals on this issue.

#### INTRODUCTION

Despite all the advancements in healthcare, cardiovascular diseases (CVD) are still among the most common diseases today (Rajan et al., 2020). CVD causes approximately 20 million deaths each year. Reports indicate that approximately 29 million Americans, independent of hypertension, have CVD (Martin et al., 2024). Heart failure (HF), which has a significant place among CVD, is an important public health problem that affects approximately 64.3 million people worldwide and has high mortality rates. HF is a significant burden for the health economy (Bowen, Graetz, Emmert & Avidan, 2020; Savarese et al., 2023).

Heart failure is a multifactorial syndrome characterized by decreased ventricular filling capacity due to structural and functional cardiac dysfunction, with many cardiac and non-cardiac etiologies (Bozkurt et al., 2021; Savarese et al., 2023). Common symptoms in HF include shortness of breath, fatigue, and weakness. Additionally, rales, jugular venous engorgement and peripheral edema are associated with HF (McDonagh et al., 2021).

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 Although a decrease in the incidence of HF due to age has been reported in developed countries in recent years, a significant increase in the prevalence of HF is observed with age due to factors such as the prolonged life expectancy of the World's population in general and an increase in the prevalence chronic diseases (McDonagh et al., 2021). It is estimated that the prevalence of HF, which affects 64.3 million people globally, will increase by 25% as of 2030 (Savarese et al., 2023; Martin et al., 2024). In 2018, approximately 380,000 people in the USA died due to HF, while more than six million adults continue to live with HF (Virani et al., 2020). In 2030, this rate is estimated to exceed eight million (Khan et al., 2019). The prevalence of HF is reported to be increasing in the USA, Europe and Asian countries due to the aging population (Timmis et al., 2022). The economic burden of HF is heavy due to its intensive treatment process and the rates of rehospitalization (Tsao et al., 2023). It was reported that the prevalence of HF in adults in Turkiye, and this rate was reported to be quite high compared to European countries (Yilmaz et al., 2019).

The mortality rates in HF cases are high and the average life expectancy is five years for more than half of the patients (Shahim, Kapelios, Savarese & Lund, 2023). HF is one of the most significant causes of hospitalization in people aged 65 years and older. It causes a severe symptom burden in patients and negatively affects their quality of life. In addition to well-known symptoms such as dyspnea, edema, fluid retention and pulmonary congestion, patients with HF frequently experience pain, depression, gastrointestinal stress and fatigue. Self-care is thought to play a key role in providing symptom management, optimizing treatment compliance, preventing rehospitalizations, and increasing quality of life in patients with HF (Zhao, Chen, Zhang, Ye & Fan, 2020; Sahlin et al., 2022).

Although there are different definitions in the literature, the concept of self-care is generally described as "the ability of a person to decide what to do to cope when symptoms related to a disease occur and to take responsibility for their own health without being dependent on others" (Bayrak et al., 2019). The main goal of self-care is to enable the individual to take responsibility for their own health (Jiang et al., 2021). Therefore, self-care in HF is considered an important component of the success of treatment (Dogu Kokcu & Tiryaki, 2020).

Understanding self-care behaviors and affecting factors can help HF patients achieve better symptom management, increase their compliance with treatment, and reduce rehospitalization rates (Zhao et al., 2020; Sahlin et al., 2022). Based on this consideration, the aim of this study is to examine the self-care levels of individuals with HF and the determining factors. It is expected that the results of this study will guide health professionals, direct strategies to be developed to increase self-care skills in these patients, and contribute to the literature.

**Research Questions:** 

- > Are the self-care behaviors of HF patients sufficient?
- > What are the determinants of self-care behaviors in HF patients?

# MATERIALS AND METHODS

## **Objective and Design**

This study had a descriptive-cross-sectional design. The aim of the study was to evaluate the self-care behaviors of patients with HF and associated factors (Akbiyik, Kocak & Oksel, 2016; Ermis, Kasar, Karaman & Yildirim, 2018).

## Population and Sample of the Study

The data of the study was collected in the cardiology clinic of a university hospital in western Turkiye between January and June 2024. The study population consisted of all HF patients who visited the aforementioned outpatient clinic on the dates of the study. The sample size of the study was calculated using the G\*Power program (Version 3.1). In the calculation made based on the study conducted by Bayrak et al. (2019), the minimum required sample size of the study was determined as 128 patients with 95% power, 5% Type I error, 0.8 effect size and 95% confidence interval. The study was completed with 151 HF patients who met the inclusion criteria and filled out the data collection forms completely.

## **Inclusion Criteria:**

- Being between the ages of 18 and 65,
- Having been diagnosed with HF at least six months ago,
- Receiving outpatient treatment in the outpatient clinic,
- Volunteering to participate in the study.

## **Exclusion Criteria:**

- Being diagnosed with chronic kidney failure and on dialysis,
- Being diagnosed with cancer and receiving chemotherapy/radiotherapy,
- Having cognitive or communication barriers,
- Not wanting to participate in the study.

## **Data Collection Tools**

# **Patient Information Form**

The form included a total of seven questions regarding the characteristics of the participants, including their marital status, gender, age, diagnosis period, education level, and presence of comorbidities of the participants.

## European Heart Failure Self-Care Behavior Scale (EHFScBS)

The scale was developed by Jaarasma et al (2003). It was later adapted to the Turkish society by Baydemir et al. (2013). EHFScBS is a five-point Likert-type scale and consists of 12 items. The scores obtained from the scale range from 12 to 60. Higher scale scores indicate poorer self-care behaviors. Scores at or below 36 indicate adequate self-care behaviors, while scores at or above 37 indicate inadequate self-care behaviors. The alpha reliability value of the scale was reported as 0.69 (Baydemir, Ozdamar & Unalir, 2013). The alpha reliability value was found to be 0.82 in our study.

# **Statistical Analysis**

The Statistical Package for the Social Sciences (IBM SPSS Version 25) program was used to analyze the collected data. Normal distribution assumptions were tested using skewness and kurtosis values. The analyses included descriptive statistics (frequency, percentage, standard deviation, min-max values), Student's t-test, and ANOVA as parametric tests. In post hoc analyses, the Bonferroni test was applied for the pairwise comparisons of variables showing significant differences among three or more groups.

## Limitations

This study was conducted in a single center. Additionally, due to the limited sample size, the results cannot be generalized to all HF patients. It is recommended that the study be repeated in multiple centers with larger samples and that regional differences be revealed by including HF patients from different regions of Turkiye in the sample.

## **Ethical Consideration**

Before starting the study, ethics committee approval (Date: 20/12/2023; Number: 20.478.486-2082 - 2131), necessary institutional permissions, and permission to use EHFScBS in the study were obtained. The study was conducted in accordance with the principles of the Declaration of Helsinki. The participants were informed about the study, and their consent was obtained.

### RESULTS

The mean age of the participants was  $55.50\pm7.19$  years, and their mean duration of diagnosis was  $4.64\pm3.46$  years. It was determined that 52.3% of the participants were female, 74.2% were married, 58.3% had primary school or lower levels of education, and 74.2% had comorbidities. Among those with comorbidities, 45.6% had hypertension, 57.1% had diabetes, 24.7% had respiratory tract diseases, 2.7% had renal diseases, and 10.7% had other diseases (Table 1).

Descriptive Features	Ν	%
Gender		
Female	79	52.3
Male	72	47.7
Marital Status		
Married	112	74.2
Single	39	25.8
Education Status		
Primary school and below	88	58.3
High School	45	29.8
Bachelor's degree and above	18	11.9
Presence of Comorbidities		
Yes	112	74.2
No	39	25.8
Comorbidity*		
Hypertension	51	45.6
Diabetes	64	57.1
Respiratory system diseases	27	24.7
Kidney diseases	3	2.7
Other	12	10.7
	X±S.D.	Min-Max
Age	55.50±7.19	37-65
Duration of Diagnosis	4.64±3.46	1-13

 Table 1. Descriptive Characteristics of Participants (n=151)

\* More than one option is selected; X: mean; S.D.: standard deviation; Min: minimum; Max: maximum

The mean total EHFScBS score of the participants was  $35.07\pm8.03$ . Among the EHFScBS items, the participants had the lowest mean score in item 6 ( $1.45\pm0.85$ ), which is about limiting alcohol intake, and they had the highest mean score in item 12 ( $4.18\pm1.05$ ), which is about doing regular exercise (Table 2).

Table 2. Mean of Participants	s' Responses to	EHFScBS Q	uestions (n=151	.)
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Scale Items	X±S.D.	Min-Max
I1	$3.94{\pm}0.98$	1-5
I2	2.37±1.08	1-5
I3	2.70±1.15	1-5
I4	2.76±1.11	1-5
15	2.92±1.72	1-5
I6	$1.45\pm0.85$	1-5
Ι7	2.36±1.01	1-5

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I8	2.63±1.07	1-5
19	3.03±1.23	1-5
I10	2.66±1.38	1-5
I11	4.01±1.24	1-5
I12	4.18±1.05	1-5
EHFScBS Total Score	35.07±8.03	16-50

EHFScBS: European Heart Failure Self-Care Behavior Scale; X: mean; S.D.: standard deviation; Min: minimum; Max: maximum

According to their EHFScBS scores, the majority of the participants (61.6%) had inadequate self-care behaviors (Table 3).

Scale	n	%
Self-care behaviors are appropriate	58	61.6
Inadequate self-care behaviors	93	38.4

EHFScBS: European Heart Failure Self-Care Behavior Scale

Age, education level, presence of comorbidities, and duration of diagnosis were significant determinants of the self-care behaviors of the participants (p<0.05). The post hoc analyses (Bonferroni) showed that the participants aged 45-55 had higher scores than those aged under 45 and those aged over 55, and those with bachelor's or higher degrees had higher scores than those with high school degrees and those with primary school or lower levels of education. On the other hand, gender and marital status did not create a significant difference in self-care behaviors (p>0.05). The differences in the total EHFScBS scores of the participants associated with their descriptive characteristics are shown in Table 4.

<b>Table 4.</b> Participants' Scores on the EHFScBS According to Descriptive Characteristics	(n=151	i)
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Descriptive Characteristics	n	%	X±S.D.	Significant
Age				
Under 45 years old	18	11.9	34.66±10.53	F=16.947
45-55 years	42	27.8	29.71±6.39	p=0.000**
Over 55 years old	91	60.3	37.62±6.91	
Gender				
Female	79	52.3	34.79±6.69	t=-0.440
Male	72	47.7	35.37±9.31	p=0.66
Marital Status				
Married	112	74.2	34.88±7.39	t=-0.489
Single	39	25.8	35.61±9.70	p=0.62
Education Status				
Primary school and below	88	58.3	36.82±7.44	F=8.648
High School	45	29.8	34.13±7.07	p=0.000**
Bachelor's degree and above	18	11.9	28.83±9.82	
Presence of Comorbidities				
Yes	112	74.2	36.81±7.43	t=4.836
No	39	25.8	30.07±7.6	p=0.000**
Duration of Diagnosis				
4 years and below	93	61.6	33.77±8.16	t=-2.563
5 years and above	58	38.4	37.15±7.40	p=0.011*

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EHFScBS: European Heart Failure Self-Care Behavior Scale; X: mean; S.D.: standard deviation; t=Student's t test, F= One Way ANOVA, \*p<0.05; \*\*p<0.01

#### DISCUSSION

Heart failure is a multifactorial syndrome that occurs when the heart cannot pump enough blood to the tissues, has a heavy symptom burden and causes rehospitalizations. Despite all advanments in treatment, HF continues to be a global public health problem (Meng, Wang, Tang, Gu & Fu, 2021). It is thought that self-care may be an important key in the effective management of HF, which affects more than 64 million people worldwide and has a high financial burden due to rehospitalizations (Shahim, Kapelios, Savarese & Lund, 2023; Savarese et al., 2023). In this study, which was conducted to determine self-care behaviors and related factors in HF patients, the mean EHFScBS scores of the participants were found to be 35.07±8.03. In the study conducted by Bayrak et al. (2019), a mean self-care behaviors score of 30.58±7.1 was found. Dogu Kokcu and Tiryaki (2020) reported a mean self-care behaviors score of 33.14±9.41 in HF patients. In another study involving HF patients, performed by Pobrotyn, Mazur, Kałużna-Oleksy, Uchmanowicz and Lomper (2021), the mean self-care behaviors score of the patients was reported as 49.55±22.07. It is observed that different outcomes of self-care behavior have been reported in the literature. These differences may have been due to the differences in the geographical regions where these studies have been conducted and their samples. Moreover, studies in the literature have emphasized that the self-care in HF patients is not yet at the desired level. It is believed that planning individualized, multidisciplinary interventions to increase the self-care agency of HF patients will be beneficial.

The results of this study revealed a significant relationship between age and self-care behaviors. In the post-hoc analyses, it was determined that the difference originated from the 45-55 age group. Bayrak et al. (2019) reported that the self-care scores of their participants were inversely proportional to their age. This situation was similar to the one in our study. However, there are also studies in the literature reporting no significant relationship between age and self-care (Pobrotyn et al., 2021; Nur Guzel & Koc, 2024; Karagoz & Sayin Kasar, 2024). Therefore, studies examining the age variable and its relationships to self-care in larger care in larger samples are needed.

In this study, it was seen that the female patients had lower self-care behavior scores than male patients, but this difference was not significant. Other studies have provided different results on this issue. While the results of some studies indicated that gender was not a determinant of self-care behaviors (Bayrak et al., 2019; Nur Güzel and Koç, 2024; Karagöz and Sayın Kasar, 2024), some showed that male gender was a negative predictor of self-care levels

(Pobrotyn et al., 2021). In this respect, it is thought that more studies examining the relationship between the gender variable and self-care are needed.

The marital statuses of the participants of this study were not associated with a significant difference in their EHFScBS scores. In other studies in the literature, it has been similarly reported that marital status is not a significant determinant of self-care behaviors (Bayrak et al., 2019; Nur Guzel & Koc, 2024; Karagoz & Sayin Kasar, 2024). In this respect, our findings supported the literature.

It was determined that the EHFScBS scores of participants in this study decreased as their education levels increased. The post-hoc analyses showed that those with a bachelor's or higher degrees had better levels of self-care than those with high school degrees and those with primary school or lower levels of education. Some previous studies have revealed that self-care behaviors improve education levels (Bayrak et al., 2019). In this respect, our findings supported the information in the literature. This result may have been associated with an increase in health literacy as the education level of a person increases, and these individuals can understand the education provided by health professionals more easily. However, there are also studies in the literature reporting that education levels do not affect self-care behaviors (Nur Guzel & Koc, 2024; Karagoz & Sayin Kasar, 2024). It is thought that further studies examining the relationship between education levels and self-care would be beneficial.

In this study, it was observed that the participants without comorbidities had better selfcare behaviors than those with comorbidities. This result may be explained by the possibility that those without comorbidities had less symptom burden, higher motivation, and more optimistic beliefs about recovery.

Furthermore, it was determined that the study participants with a diagnosis period of four years or less had significantly lower scale scores than others. Different results have been obtained in the literature on this topic. In a study conducted with HF patients by Ermis et al. (2018), it was reported that the diagnosis period was not a significant determinant of self-care agency. Pobrotyn et al. (2021) reported that those with a diagnosis period of more than 10 years had better self-care behaviors. In this respect, it can be stated that more studies are needed to examine the diagnosis period variable and its relationship to self-care levels. In our study, the better self-care scores of those with a shorter diagnosis period may have been associated with their potentially higher motivation to recover as newly diagnosed patients.

#### CONCLUSION

Our findings showed that the majority of HF patients had had inadequate self-care behaviors. Additionally, age, education level, presence of comorbidities, and duration of diagnosis were found to be significant determinants of self-care behaviors. According to these results, it is recommended that the study be repeated in larger samples and different regions, strategies be developed to increase self-care skills in HF patients, and training programs be organized for health professionals on this subject.

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