

# Determination of self-care agency and affecting factors in patients undergoing cardiac surgery

Kalp ameliyatı geçiren hastaların öz bakım gücü ve etkileyen faktörlerin belirlenmesi

## Abstract

**Aim:** The aim of this study is to assess the self-care agency in patients who have undergone heart surgery and to identify the socio-demographic, clinical, and lifestyle factors that influence their agency to manage their own care.

**Methods:** This is a descriptive study conducted on 80 patients who underwent cardiac surgery between April 2023 and September 2023 at a cardiology institute affiliated with a university in Istanbul and a training and research hospital affiliated with a foundation university in the same city. Data were collected using the "Sociodemographic Characteristics Form" and the "Self-Care Agency Scale". Statistical analysis included the Kolmogorov-Smirnov Test, Shapiro-Wilk Test, Mann-Whitney U Test, and Kruskal-Wallis Test.

**Results:** The study found that gender, smoking status, and alcohol consumption significantly influenced self-care agency, with females, non-smokers, and non-drinkers demonstrating higher self-care scores. Additionally, the presence of chronic diseases, particularly a combination of diabetes and hypertension, was associated with lower self-care abilities. Physical attributes such as height and body weight were also negatively correlated with self-care agency scores, indicating that greater height and weight were linked to lower self-care agency.

**Conclusion:** A combination of socio-demographic factors, lifestyle habits, and physical characteristics influences self-care agency among heart surgery patients. Lifestyle modification, chronic disease management, and patient education-focused strategies are critically important for improving self-care abilities in this patient group.

**Keywords:** Care; heart surgery; self-care; surgical nursing

## Öz

**Amaç:** Bu çalışmanın amacı kalp ameliyatı geçiren hastalarda öz bakım gücünü değerlendirmek ve kendi bakımlarını yönetme becerilerini etkileyen sosyo-demografik, klinik ve yaşam tarzı faktörlerini belirlemektir.

**Yöntemler:** Bu çalışma Nisan 2023 ile Eylül 2023 tarihleri arasında İstanbul'daki bir üniversiteye bağlı kardiyoloji enstitüsü ve aynı şehirdeki bir vakıf üniversitesine bağlı eğitim ve araştırma hastanesinde kalp ameliyatı geçiren 80 hasta üzerinde gerçekleştirilen tanımlayıcı bir araştırmadır. Veriler "Sosyodemografik Özellikler Formu" ve "Öz Bakım Gücü Ölçeği" kullanılarak toplandı. İstatistiksel analizler Kolmogorov-Smirnov Testi, Shapiro-Wilk Testi, Mann-Whitney U Testi, Kruskal-Wallis testini içerdi.

**Bulgular:** Çalışmada cinsiyet, sigara içme durumu ve alkol tüketiminin öz bakım gücünü önemli ölçüde etkilediği, kadınların, sigara içmeyenlerin ve alkol almayanların daha yüksek öz bakım puanları gösterdiği bulundu. Ek olarak, kronik hastalıkların varlığı, özellikle diyabet ve hipertansiyonun birleşimi, daha düşük öz bakım yetenekleriyle ilişkilendirilmiştir. Boy ve vücut ağırlığı gibi fiziksel özellikler de öz bakım gücü puanlarıyla negatif korelasyon göstermiştir; bu da daha fazla boy ve kilonun daha düşük öz bakım gücüyle bağlantılı olduğunu göstermektedir.

**Sonuç:** Sosyo-demografik faktörler, yaşam tarzı alışkanlıkları ve fiziksel özelliklerin birleşimi, kalp ameliyatı geçiren hastalarda öz bakım gücünü etkilemektedir. Yaşam tarzı değişikliği, kronik hastalık yönetimi ve hasta eğitimi odaklı stratejiler, bu hasta grubunda öz bakım becerilerinin geliştirilmesi için kritik öneme sahiptir.

**Anahtar Sözcükler:** Bakım; cerrahi hemşireliği; kalp ameliyatı; özbakım

## Zümrüt Balaban<sup>1</sup>, Gizem Kubat Bakir<sup>2</sup>

<sup>1</sup> Department of Interdisciplinary Nursing, Graduate Education Institute, Maltepe University

<sup>2</sup> Department of Nursing, Faculty of Health Sciences, Maltepe University

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Corresponding author/Yazışma yazarı

Gizem Kubat Bakir

Maltepe Üniversitesi, Hemşirelik Bölümü, Hemşirelik, İstanbul, Türkiye.  
E-mail: gzmkbt@gmail.com

## ORCID

Zümrüt Balaban: 0000-0002-3864-9732  
Gizem Kubat Bakir: 0000-0003-4294-0669

## INTRODUCTION

Heart surgery is a critical intervention for various cardiac conditions, is associated with significant challenges during the postoperative recovery period. Effective self-care is essential for patients undergoing heart surgery, as it directly influences their recovery, quality of life, and long-term health outcomes (1-3). The agency of patients to engage in self-care activities, such as medication adherence, symptom management, and lifestyle modifications, plays a pivotal role in reducing hospital readmissions and preventing complications. Despite the importance of self-care, many patients struggle with maintaining adequate self-care practices, leading to suboptimal health outcomes (1,2,4).

Self-care in the context of heart surgery is a multifaceted process influenced by various factors, including sociodemographic characteristics, clinical factors, and support from healthcare professionals. Patients' educational level, income, and employment status are among the key sociodemographic factors that have been found to affect self-care abilities. For instance, patients with higher education levels are more likely to understand complex medical instructions and adhere to prescribed regimens, thereby exhibiting better self-care behaviors (1). Similarly, a higher income level provides greater access to resources that facilitate self-care, such as medications, follow-up appointments, and healthy food choices (2,4,5).

Clinical factors, including the severity of the cardiac condition, cognitive function, and the presence of comorbidities, also significantly impact patients' self-care abilities. Patients with more severe heart failure, for instance, often exhibit poorer self-care due to the complexity of managing their symptoms and the overwhelming nature of their condition (3). Cognitive impairment further complicates self-care, as it affects patients' agency to remember and correctly perform self-care tasks. This is particularly evident in older adults, who are more likely to experience cognitive decline, leading to challenges in managing their health post-surgery (4).

The support provided by healthcare professionals is another crucial determinant of self-care. Effective communication, education, and encouragement from healthcare providers can enhance patients' confidence in managing their condition and performing self-care

activities. Conversely, inadequate support and poor communication can lead to misunderstandings, non-adherence to treatment plans, and ultimately, poorer health outcomes (5). A systematic review of qualitative studies highlighted the importance of patient-healthcare provider interactions, noting that patients who perceive their healthcare providers as responsive and supportive are more likely to engage in effective self-care (6).

Moreover, psychological factors, such as depression and anxiety, have been shown to negatively impact self-care behaviors in heart surgery patients. Depression is particularly prevalent in this population and is associated with decreased motivation and energy to engage in self-care activities (7). Addressing these psychological factors through appropriate interventions, such as counseling or medication, is essential to improving self-care and, consequently, health outcomes in these patients.

Given the complexity and importance of self-care in the postoperative period following heart surgery, there is a need for comprehensive strategies that address the various factors influencing self-care (1). Tailored interventions that consider the individual characteristics of patients, such as their sociodemographic background, clinical status, and psychological well-being, are likely to be more effective in promoting self-care. Additionally, healthcare providers must be equipped with the necessary skills to support patients in their self-care journey, ensuring that they receive the education, resources, and encouragement needed to manage their health effectively (3).

Self-care is a critical component of recovery for heart surgery patients, with multiple factors influencing its effectiveness. Understanding these factors and developing targeted interventions is essential to improving patient outcomes and ensuring a successful recovery. Future research should continue to explore the complex interplay of these factors and identify strategies to enhance self-care among this vulnerable population.

We underscore the vital importance of self-care in the recovery process and long-term health outcomes of patients undergoing cardiac surgery. Effective self-care plays a crucial role in preventing complications, managing comorbid conditions, and enhancing over-

all quality of life. While numerous studies have explored self-care in populations with chronic illnesses, research specifically focusing on cardiac surgery patients remains limited. Moreover, the influence of demographic, medical, and lifestyle factors on self-care capacity within this particular group has not been adequately addressed. This study seeks to bridge this gap by evaluating the self-care agency of cardiac surgery patients and identifying the factors that impact it. We have clarified that the findings contribute to understanding how patient-specific variables can guide personalized interventions for improving self-care outcomes.

## METHODS

### Research design

This study was conducted as a descriptive research study to determine the self-care agency and the factors influencing it in patients who have undergone heart surgery.

### Research questions

The study was guided by the following research questions:

1. What are the mean scores of the self-care agency scale for patients who have undergone heart surgery?
2. What factors influence the self-care agency levels of patients who have undergone heart surgery?

### Independent variable

The independent variables in this study included demographic and clinical characteristics of the patients. Specifically, these variables were gender, age, education level, income level, employment status, presence of chronic diseases, type of chronic disease, history of previous surgeries, regular medication use, smoking status, alcohol consumption, family history of heart disease, presence of heart disease among family members, height, and body weight.

### Dependent variable

The dependent variable in this study was the self-care agency of the patients, as measured by the scores obtained from the Self-Care Agency Scale. This scale is

a reliable tool for assessing the agency of patients to manage their own care, which is essential for recovery and maintaining long-term health outcomes after heart surgery.

### Population and sample

The study was conducted from April 2023 to September 2023. The study population consisted of patients who underwent heart surgery at a cardiology institute affiliated with a university in Istanbul and at an educational and research hospital associated with a foundation university in the same city. The sample size was determined using a power analysis, performed with G-Power 3.1.9.4 software. Given the independent variables and their subgroups, a minimum sample size of 72 patients was required to detect significant differences with a Type I error rate of 0.05 and a Type II error rate of 0.20 (power of 0.80) (3). To account for the possibility of using non-parametric tests, the sample size was increased by 10%, resulting in a final sample of 79 patients. The study was completed with 80 patients, ensuring sufficient statistical power to identify meaningful relationships between the variables.

### Inclusion and exclusion criteria

The inclusion criteria for the study included patients who consented to participate, had undergone heart surgery, did not have any communication barriers, were over 18 years of age, and whose native language was Turkish. The exclusion criteria were patients who were admitted to intensive care after surgery and those who had been diagnosed with a psychiatric disorder.

### Data collection

Data for the study were collected using a “Socio-Demographic Characteristics Form” and the “Self-Care Agency Scale”. These instruments were used to gather comprehensive data on patients’ socio-demographic characteristics, medical history, and their self-care abilities, which are critical for their recovery process post-surgery.

### Data collection instruments

#### Socio-demographic characteristics form

Socio-demographic characteristics form was developed by the researcher based on a literature review and

comprised 16 questions designed to capture the socio-demographic and medical background of the patients. The form included items related to the patient's age, gender, marital status, education level, employment status, income level, presence and type of chronic diseases, history of previous surgeries, regular medication use, smoking and alcohol consumption, family history of heart disease, height, and body weight. These factors are recognized in the literature as significant determinants of self-care behavior in clinical populations (7,8).

### **Self-Care agency scale**

The Self-Care Agency Scale, originally developed by Kearney and Fleischer in 1979, is used to assess an individual's agency to perform self-care activities. The scale was adapted into Turkish by Nahcivan in 1994 and consists of 35 items rated on a 5-point Likert scale, with scores ranging from 0 to 140 (9,10). Higher scores on the scale indicate greater self-care agency. The scale includes eight reverse-scored items, and higher overall scores reflect stronger self-care capacities. The Cronbach's alpha coefficient for the scale in this study was 0.93, indicating high reliability (9).

### **Data collection procedure**

Patients were informed about the study, and written informed consent was obtained using the "Informed Consent Form". Data were collected through face-to-face interviews, ensuring that patients fully understood the questions and provided accurate information. The interviewers explained each question in simple and understandable language, and if the patient did not understand the question, it was rephrased. Completion of the Socio-Demographic Characteristics Form and the Self-Care Agency Scale took approximately 15-20 minutes per patient.

### **Data analysis and interpretation**

Data analysis was performed using the Statistical Package for Social Sciences (SPSS Inc., version 25.0, Chicago, IL, USA). The normality of data distribution was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. De-scriptive statistics (frequency, percentage, mean, standard deviation, minimum, and maximum) were used to summarize the socio-demographic characteristics of the participants. The Mann-Whitney U test was applied to compare two in-

dependent groups, while the Kruskal-Wallis test was used for comparisons among more than two groups. Statistical significance was set at  $p < 0.05$ . The skewness value of the "Self-Care Agency Scale" was -0.427, the kurtosis value was -0.455, and the Cronbach's  $\alpha$  reliability coefficient was calculated as 0.93, indicating high internal consistency.

### **Ethical considerations**

Permission to use the "Self-Care Agency Scale" was obtained from the researcher who conducted the validity and reliability studies for the Turkish adaptation of the scale. Ethical approval for the study was granted by the Ethics Committee of Maltepe University (date: 23.03.2023, decision no: 2023/07-17). Institutional permissions were also obtained from the Istanbul University-Cerrahpaşa Cardiology Institute (date: 26.05.2023, decision no: E-69291215-900-675192), Maltepe University University Education and Research Hospital (date: 16.11.2023, no: E-32835138-050.01.01-274050), and Istanbul University-Cerrahpaşa Faculty of Medicine (date: 22.06.2023, no: E-97248701-300-742874). The study was conducted in accordance with the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants.

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## **RESULTS**

The study population comprised 80 patients with an average age of  $65,20 \pm 11,70$  years, ranging from 27 to 96 years. The average height was  $173,73 \pm 11,04$  cm, and the average body weight was  $77,21 \pm 12,85$  kg. The majority of the patients were male (76.3%), and most were married (96.2%). In terms of education, 43.8% had completed primary school, while 10% were illiterate. Employment status showed that 73.7% were not employed, with only 26.3% currently working. Regarding income, 61.2% of the patients reported that their income was equal to their expenses, while 23.8% had an income less than their expenses. Over half of the patients (52.5%) were smokers, and 20% consumed alcohol (Table 1).

The table provides an overview of the medical history of 80 patients. A significant majority (90%) of the patients had a chronic disease, with 55.5% suffering from both diabetes and hypertension, 33.4% having

Table 1. Socio-demographic characteristics of the patients (n=80)

	n	(%)
<b>Gender</b>		
- Female	19	23.8
- Male	61	76.3
<b>Marital status</b>		
- Married	77	96.2
- Single	3	3.8
<b>Education level</b>		
- Illiterate	8	10.0
- Primary school	35	43.8
- Middle school	19	23.8
- High school	10	12.5
- University	8	10.0
<b>Employment status</b>		
- Employed	21	26.3
- Unemployed	59	73.7
<b>Income level</b>		
- Less than expenses	19	23.8
- Equal to expenses	49	61.2
- More than expenses	12	15.0
<b>Smoking status</b>		
- Yes	42	52.5
- No	38	47.5
<b>Alcohol consumption</b>		
- Yes	16	20.0
- No	64	80.0
- Other	4	10.8

n: Number, %: Percentage

only hypertension, and 11.1% having only diabetes. Nearly half of the patients (48.8%) had undergone previous surgery. Regular medication use was very common, with 95% of the patients reporting that they take medications regularly. Regarding family history, 46.3% of the patients had a family history of heart disease. Among those with a family history, the father was the most frequently affected family member (83.8%), followed by the mother (56.8%) and siblings (24.3%). A smaller percentage (10.8%) reported that other family members had heart disease. This data indicates a high prevalence of chronic conditions and a strong family history of heart disease within this patient group, highlighting the importance of regular monitoring and preventive care (Table 2).

The analysis of self-care agency scores showed no statistically significant difference between genders ( $p = 0.058$ ). When examining education level, there were no significant differences in self-care agency scores across different levels of education ( $p = 0.278$ ), although university-educated individuals had the highest mean rank (54.50), while those with middle school education had the lowest (34.13). The mean rank for self-care agency was 38.74 for employed individuals and 41.13 for unemployed individuals, with no significant difference ( $p = 0.686$ ). Income level also did not show a significant impact on self-care scores ( $p = 0.676$ ), despite those with less than sufficient income having a slightly higher mean rank (42.66) compared to those with more than sufficient income (35.29). However,

**Table 2.** Distribution of patients according to their medical history (n=80)

Variables	n	(%)
<b>Presence of chronic disease</b>		
- Yes	72	90.0
- No	8	10.0
<b>Type of chronic disease</b>		
- Diabetes	8	11.1
- Hypertension	24	33.4
- Both	40	55.5
<b>Previous surgery</b>		
- Yes	39	48.8
- No	41	51.2
<b>Regular medication use</b>		
- Yes	76	95.0
- No	4	5.0
<b>Family history of heart disease</b>		
- Yes	37	46.3
- No	43	53.8
<b>Family members with heart disease</b>		
- Mother	21	56.8
- Father	31	83.8
- Sibling	9	24.3
- Other	4	10.8

n: Number, %: Percentage

smoking status and alcohol consumption were both significantly associated with self-care agency. Non-smokers had a significantly higher mean rank (54.53) compared to smokers (27.81) ( $p = 0.001$ ), and those who did not consume alcohol also had significantly higher self-care scores (mean rank of 44.76) compared to those who did consume alcohol (mean rank of 23.47) ( $p = 0.001$ ). These results suggest that lifestyle factors such as smoking and alcohol consumption are significantly associated with lower self-care agency scores (Table 3). Formun ÜstüFormun Altı

The comparison of total Self-Care Agency Scale scores based on the patients' medical history revealed that patients without a chronic disease had significantly higher self-care agency scores (Mean Rank = 67.75) compared to those with a chronic disease (Mean Rank = 37.47), with a  $p$ -value of 0.001. Among those with chronic diseases, patients with diabetes had the highest self-care scores (Mean Rank = 53.50), followed by those with hypertension (Mean Rank = 38.77), and those with both conditions had the lowest scores

(Mean Rank = 31.74), with a significant  $p$ -value of 0.022. There were no significant differences in self-care agency scores based on previous surgery status ( $p = 0.283$ ) or family history of heart disease ( $p = 0.499$ ). These results suggest that the absence of chronic disease and having only diabetes, as opposed to multiple conditions, may be associated with better self-care abilities (Table 4).

The analysis presented in Table 5 shows the correlation between age, height, weight, and total self-care agency scores among the participants. The results indicate that there is no significant correlation between age and self-care agency scores ( $r = -0.039$ ,  $p = 0.730$ ), suggesting that age does not have a meaningful impact on self-care abilities in this sample. However, there is a significant negative correlation between height and self-care agency scores ( $r = -0.325$ ,  $p = 0.003$ ), indicating that as height increases, self-care agency scores tend to decrease. Additionally, body weight is also negatively correlated with self-care agency scores ( $r = -0.388$ ,  $p = 0.001$ ), suggesting that higher body weight

**Table 3.** Comparison of “self-care agency scale” total scores of patients according to their socio-demographic characteristics (n=80)

Variables	Mean Rank	U / KW / p
<b>Gender</b>		U: 412.000
- Female	49.32	p = 0.058
- Male	37.75	
<b>Education level</b>		KW: 5096
- Illiterate	47.25	p = 0.278
- Primary school	39.37	
- Middle school	34.13	
- High school	39.95	
- University	54.50	
<b>Employment status</b>		U: 582.500
- Employed	38.74	p = 0.686
- Unemployed	41.13	
<b>Income level</b>		KW: 0785
- Less than expenses	42.66	p = 0.676
- Equal to expenses	40.94	
- More than expenses	35.29	
<b>Smoking status</b>		U: 265.000
- Yes	27.81	p = 0.001
- No	54.53	
<b>Alcohol consumption</b>		U: 239.500
- Yes	23.47	p = 0.001
- No	44.76	

U: Mann-Whitney U test, KW: Kruskal-Wallis test, p: p-value, statistical significance was set at p<0.05.

**Table 4.** Comparison of total self-care agency scores by medical history characteristics of patients (n=80)

Variables	Self-Care Agency Scale -Total mean rank	U / KW / p
<b>Presence of chronic disease</b>		U: 70.000
- Yes	37.47	*p = 0.001
- No	67.75	
<b>Type of chronic disease</b>		KW: 7637
- Diabetes (1)	53.50	*p = 0.022
- Hypertension (2)	38.77	2 < 1; 3 < 1
- Both (3)	31.74	
<b>Previous surgery</b>		U: 688.000
- Yes	43.36	p = 0.283
- No	37.78	
<b>Family history of heart disease</b>		U: 725.500
- Yes	38.61	p = 0.499
- No	42.13	

U: Mann-Whitney U test, KW: Kruskal-Wallis test, p: p-value, statistical significance was set at p<0.05.

**Table 5.** Correlation between age, height, weight, body mass index and total self-care agency scores (n=80)

Variables	Self-Care Agency Scale – Total p-value / Correlation (r)
Age	p = 0.730 r = -0.039
Height	p = 0.003 r = -0.325
Body weight	p = 0.001 r = -0.388
Body mass index	p = 0.002 r = -0.342

Note: Spearman Rank Correlation Test was used for analysis.

**Table 6.** Mean total self-care agency scores of participants (n=80)

Variables	Mean±SD	Minimum	Maximum
Total Self-Care Agency Score	81.60 ±21.47	43.00	121.00

SD: Standard deviation

is associated with lower self-care agency. These findings highlight that while age may not play a significant role, physical attributes like height and weight may influence an individual's agency to perform self-care activities, with greater height and weight being associated with lower self-care agency. Correlation analysis shows a significant negative relationship between BMI and self-care agency scores. (Table 5).

The data presented in Table 6 shows the mean total self-care agency scores among the 80 participants. The average score is 81.60 with a standard deviation of 21.47, indicating some variability in self-care abilities among the participants. The scores ranged from a minimum of 43.00 to a maximum of 121.00. (Table 6).

## DISCUSSION

Self-care is a crucial determinant of post-operative recovery and long-term health outcomes, particularly among individuals with cardiovascular conditions. Existing literature has highlighted the influence of health behaviors, comorbidities, and demographic factors on self-care capacity. However, there is still limited understanding of the specific ways in which these factors interact to affect the self-care agency of cardiac patients. This study aims to address this gap by examining the

relationship between self-care abilities and a variety of influencing factors, including lifestyle behaviors, medical history, and physical characteristics, in patients recovering from cardiac surgery. The findings seek to provide valuable insights that can inform the development of targeted interventions to enhance self-care practices and improve recovery outcomes within this patient population.

The study population predominantly comprised older, male, married individuals, with a considerable proportion having only a primary level of education and being unemployed. A significant number of patients reported smoking and the presence of chronic conditions, particularly diabetes and hypertension. A substantial proportion of the patients had undergone cardiac surgery. Additionally, most patients had a family history of heart disease, with fathers being the most frequently affected relatives. The widespread use of regular medication further emphasizes the necessity for continuous medical management in this population. This demographic and medical profile underscores the importance of tailored preventive measures and continuous care, particularly for post-surgical heart patients. The data of this study are consistent with the literature (11,12).

The aim of this study is to assess the self-care agency in patients who have undergone heart surgery

and to identify the socio-demographic, clinical, and lifestyle factors that influence their agency to manage their own care. The findings indicate several key trends, with significant implications for self-care behaviors. Firstly, while the difference in self-care agency scores between genders was not significant, females had higher mean ranks compared to males. This aligns with other studies that suggest women generally engage more in health-promoting behaviors, possibly due to greater health consciousness or social roles that encourage caregiving and self-care practices (13,14). Gender differences in self-care behaviors are also influenced by social, cultural, and economic factors, which can shape how men and women manage their health (15). The analysis also revealed no significant differences in self-care scores based on educational levels ( $p = 0.278$ ). While individuals with a university education exhibited the highest mean rank, education alone may not be sufficient to predict self-care abilities. Previous research suggests that while education may provide individuals with better access to health information, other factors, such as socioeconomic status and mental health, often mediate this relationship (16). Employment status and income were not significantly associated with self-care agency in this study. Both employed and unemployed individuals had similar self-care scores, which may indicate that self-care behaviors are influenced more by individual lifestyle factors than by employment or financial resources alone (17). These findings contrast with some literature, which suggests that socioeconomic status can influence health behaviors due to differences in access to healthcare resources and health literacy (18). On the other hand, lifestyle factors such as smoking and alcohol consumption were significantly associated with self-care agency. Non-smokers and those who abstained from alcohol demonstrated significantly higher self-care scores ( $p = 0.001$ ). This finding is consistent with a broad body of literature that links smoking and alcohol consumption to lower engagement in self-care practices and worse health outcomes (19,20). Such behaviors may indicate a reduced focus on long-term health maintenance, emphasizing the need for targeted interventions to encourage healthier lifestyles among individuals who engage in these behaviors. While gender, education, employment, and income showed trends in influencing

self-care agency, lifestyle factors such as smoking and alcohol consumption had the most significant impact. Future interventions should focus on reducing unhealthy behaviors like smoking and alcohol consumption to improve self-care capabilities across different socio-demographic groups.

The analysis of self-care agency scores based on medical history highlights the significant role chronic conditions play in determining self-care agency. Patients without chronic diseases had significantly higher self-care agency scores, aligning with studies that suggest the absence of chronic illness facilitates better engagement in self-care activities (21). Patients with chronic conditions face greater complexity in managing their health, which often impedes their agency to effectively perform self-care behaviors (22). Among patients with chronic diseases, those diagnosed solely with diabetes had the highest self-care scores compared to patients with hypertension or both diabetes and hypertension. This finding supports previous research indicating that diabetes, when managed in isolation, allows for better self-care compared to when it is compounded by other conditions like hypertension (23). The presence of multiple chronic diseases introduces additional burdens that decrease self-care agency due to the increased complexity of managing these conditions (24). Interestingly, the study found no significant differences in self-care agency based on previous surgery or family history of heart disease. This contrasts with research suggesting that a family history of cardiovascular disease could increase health vigilance and self-care efforts (25). The findings of this study emphasize the importance of chronic disease management in enhancing self-care abilities. Specifically, patients with multiple chronic conditions, such as hypertension and diabetes, may require additional support and targeted interventions to improve their self-care agency. These insights align with existing literature advocating for more personalized self-management strategies tailored to the specific needs and burdens of patients with chronic diseases (26).

The analysis of correlations between physical characteristics (age, height, and body weight) and self-care agency in the study reveals some noteworthy trends. The lack of significant correlation between age and self-care agency scores ( $r = -0.039$ ,  $p = 0.730$ ) is con-

sistent with prior research indicating that self-care behaviors may be more influenced by factors such as lifestyle and education than by age itself. Age does not appear to have a direct impact on self-care abilities in this sample (27). However, the significant negative correlations observed between both height and weight with self-care agency suggest that higher physical measurements may be associated with reduced self-care agency. Specifically, the negative correlation between height and self-care agency ( $r = -0.325$ ,  $p = 0.003$ ) aligns with studies that show taller individuals may have a lower perception of vulnerability, potentially leading to reduced attention to self-care (28). For heart disease patients, maintaining optimal weight is critical for managing their condition, and reduced self-care agency in individuals with higher weight could hinder adherence to dietary, physical activity, and medication regimens essential for cardiac health. These findings highlight the necessity of tailored interventions for heart disease patients, particularly those with higher weight or height, to enhance their self-care capacities and mitigate potential barriers to effective disease management.

Additionally, the significant negative correlation between body weight and self-care agency ( $r = -0.388$ ,  $p = 0.001$ ) is supported by previous research indicating that individuals with higher body mass index tend to engage less in health-promoting behaviors, which may be due to psychological barriers, body image concerns, or physical limitations (29,30). These findings reflect a complex relationship between physical attributes and self-care behaviors. While age does not seem to play a significant role, greater height and weight are associated with lower self-care abilities. This highlights the need for targeted interventions that address physical and psychological barriers to self-care, particularly among individuals with higher body mass or stature. While age does not significantly impact self-care agency, height and body weight are negatively correlated with self-care capacities. These results underscore the importance of addressing both physical and psychological factors in promoting effective self-care behaviors, particularly among individuals with larger physical frames. The findings reveal a significant negative correlation between Body Mass Index (BMI) and total self-care agency scores ( $r = 0.342$ ,  $p = 0.002$ ), indicat-

ing that as BMI increases, self-care agency tends to decrease. This relationship suggests that individuals with higher BMI may face greater challenges in maintaining or engaging in self-care behaviors, potentially due to physical, psychological, or lifestyle-related factors associated with elevated BMI. These results align with previous research highlighting the impact of obesity on self-management capacities, emphasizing the need for targeted interventions to support self-care practices in populations with higher BMI.

Variability in self-care abilities is a common feature in health-related studies, particularly those focused on self-care, as individual agency for self-care is influenced by a wide range of factors. Several studies support this finding, suggesting that various factors such as cognitive functioning, emotional support, and chronic conditions significantly impact self-care abilities. One study demonstrated that patients with severe mental disorders often exhibit deficiencies in self-care abilities, influenced by factors like age, education, and social support. The study conducted in Beijing, China, reported a strong correlation between self-care abilities and factors such as physical health, education, and social support. As age increases and physical health declines, self-care agency tends to decrease, supporting the observation that variability in self-care abilities is common across patient populations (31). Additionally, self-care capacities among individuals with chronic conditions, such as diabetes or cancer, are often closely tied to their emotional and psychological states. A study on patients undergoing chemotherapy highlighted that despite challenging diagnoses, individuals still strive to manage their health effectively, which is similar to the variability noted in the table (32). Similarly, research on elderly diabetic patients demonstrated that those with better emotional support and health locus of control exhibited higher self-care scores, further emphasizing the role of psychological and social factors in self-care abilities (33). Furthermore, intervention studies have shown that structured support systems, such as nurse-led self-management programs, can significantly improve self-care abilities, particularly among individuals with mental health or chronic illness challenges (34). This suggests that targeted interventions could reduce the variability seen in self-care capacities. In conclusion, the variability in

self-care abilities observed in this study is supported by broader research, which shows that self-care is influenced by a complex interplay of physical, psychological, and social factors. Interventions aimed at addressing these factors can potentially enhance self-care abilities across diverse patient populations.

## CONCLUSION

This study highlights that self-care abilities among patients are significantly influenced by lifestyle factors such as smoking and alcohol consumption, as well as the presence of chronic diseases. While socio-demographic factors like gender, education, and employment show trends, they are less impactful compared to lifestyle and health conditions. Future interventions should focus on reducing unhealthy behaviors and providing support for chronic disease management to enhance self-care capabilities across diverse patient groups.

## LIMITATIONS

The study is confined to patients who underwent cardiac surgery in the cardiovascular surgery departments of a medical faculty hospital, a cardiology institute, and a foundation university training and research hospital in Istanbul during the specified timeframe, and who provided written informed consent to participate in the study. Additionally, our study employed a cross-sectional design, making it difficult to establish causal relationships between the factors studied. The lack of long-term follow-up or intervention-based research limits our ability to draw conclusions about the sustainability of the findings. Moreover, other potential factors influencing self-care agency, such as psychological well-being, social support, and environmental factors, were not included in our study.

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## Conflict of interest and financial disclosure

The authors declare that they have no conflict of interest to disclose. The authors also declare that they did not receive any financial support for the study.

## REFERENCES

1. Lei X, Cai M. Self-care agency and influencing factors in chronic heart failure patients. *Biomed Res.* 2018;29(3):595-601.
2. Jaarsma T, Cameron J, Riegel B, Stromberg A. Factors Related to Self-Care in Heart Failure Patients According to the Middle-Range Theory of Self-Care of Chronic Illness: a Literature Update. *Curr Heart Fail Rep.* 2017;14(2):71-7.
3. Amegbor PM, Kuuire VZ, Robertson H, Kuffuor OA. Predictors of basic self-care and intermediate self-care functional disabilities among older adults in Ghana. *Arch Gerontol Geriatr.* 2018;77:81-8.
4. Lovell J, Pham T, Noaman SQ, Davis MC, Johnson M, Ibrahim JE. Self-management of heart failure in dementia and cognitive impairment: a systematic review. *BMC Cardiovasc Disord.* 2019;19(1):99.
5. Currie K, Strachan PH, Spaling M, Harkness K, Barber D, Clark AM. The importance of interactions between patients and healthcare professionals for heart failure self-care: A systematic review of qualitative research into patient perspectives. *Eur J Cardiovasc Nurs.* 2015;14(6):525-35.
6. Vellone E, Pancani L, Greco A, Steca P, Riegel B. Self-care confidence may be more important than cognition to influence self-care behaviors in adults with heart failure: Testing a mediation model. *Int J Nurs Stud.* 2016;60:191-9.
7. Liu D. Analysis of influencing factors of the self-care behavior status quo in patients with heart failure. *Chin J Mod Nurs.* 2018;24:802-4.
8. Ausili D, Rebora P, Di Mauro S, et al. Clinical and socio-demographic determinants of self-care behaviours in patients with heart failure and diabetes mellitus: A multi-centre cross-sectional study. *Int J Nurs Stud.* 2016;63:18-27.
9. Nahcivan NO. A Turkish language equivalence of the Exercise of Self-Care Agency Scale. *West J Nurs Res.* 2004;26(7):813-24.
10. Kearney BY, Fleischer BJ. Development of an instrument to measure exercise of self-care agency. *Res Nurs Health.* 1979;2(1):25-34.

11. Riegel B, Moser DK, Buck HG, et al. Self-Care for the Prevention and Management of Cardiovascular Disease and Stroke: A Scientific Statement for Healthcare Professionals From the American Heart Association. *J Am Heart Assoc.* 2017;6(9):e006997.
12. Kärner Köhler A, Tingström P, Jaarsma T, Nilsson S. Patient empowerment and general self-efficacy in patients with coronary heart disease: a cross-sectional study. *BMC Fam Pract.* 2018;19(1):76.
13. Shah VN, Wu M, Polsky S, et al. Gender differences in diabetes self-care in adults with type 1 diabetes: Findings from the T1D Exchange clinic registry. *J Diabetes Complications.* 2018;32(10):961-5.
14. Morris M, John M. Gender differences in self-care in type 2 diabetes in rural Kerala. *J Biomed Sci.* 2019;6(3):12.
15. Patel R, Chauhan S. Gender differential in health care utilisation in India. *Clin Epidemiol Glob Health.* 2020;8(2):526–30.
16. Yang H, Xie X, Song Y, Nie A, Chen H. Self-care agency in systemic lupus erythematosus and its associated factors: a cross-sectional study. *Patient Prefer Adherence.* 2018;12:607-13.
17. Gyasi RM, Phillips DR, David R. Explaining the gender gap in health services use among Ghanaian community-dwelling older cohorts. *Women Health.* 2019;59(10):1089-104.
18. Frintner MP, Sisk B, Byrne BJ, Freed GL, Starmer AJ, Olson LM. Gender Differences in Earnings of Early- and Mid-career Pediatricians. *Pediatrics.* 2019;144(4):e20183955.
19. Vallejo MC, Shapiro RE, Lilly CL, et al. Rural health-care and gender-related differences. *J Public Health.* 2021;31(6):869–75.
20. Wang S, Ungvari GS, Forester BP, et al. Gender differences in general mental health, smoking, drinking and chronic diseases in older adults in Jilin province, China. *Psychiatry Res.* 2017;251:58-62.
21. Devito Dabbs A, Song MK, De Geest S, Davidson PM. Promoting patient and caregiver engagement in self-management of chronic illness. *Nurs Res Pract.* 2013;2013:180757.
22. Aga F, Dunbar SB, Kebede T, Gary RA. The role of concordant and discordant comorbidities on performance of self-care behaviors in adults with type 2 diabetes: a systematic review. *Diabetes Metab Syndr Obes.* 2019;12:333-56.
23. Powers MA, Bardsley J, Cypress M, et al. Diabetes Self-management Education and Support in Type 2 Diabetes: A Joint Position Statement of the American Diabetes Association, the American Association of Diabetes Educat
- ors, and the Academy of Nutrition and Dietetics. *Diabetes Care.* 2015;38(7):1372-82.
24. Hassan A. Self-care maintenance of heart failure patients in Babylon teaching hospitals. *J Glob Pharm Technol Dev.* 2018;9(5):157–74.
25. Jabbar JA, Al Masri AH, Oweidat FA, Al Ahmad MM, Ali OB, Oweidat ZA, Sreedharan J. Family history of diabetes, hypertension, obesity and cardiovascular diseases in relation to self health-care. *Int J Community Med Public Health.* 2023;10(3):919-23.
26. Dineen-Griffin S, Garcia-Cardenas V, Williams K, Benrimoj SI. Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice. *PLoS One.* 2019;14(8):e0220116.
27. Yoong SL, Carey ML, D'Este C, Sanson-Fisher RW. Agreement between self-reported and measured weight and height collected in general practice patients: a prospective study. *BMC Med Res Methodol.* 2013;13:38.
28. Fatjon N, Spahiu M, Ermal M, Kadri H. The role and association of body height and weight of the performance of motor abilities in soccer players. *Eur J Phys Educ Sport Sci.* 2017;3(11):1–9.
29. Pineda-García G, Serrano-Medina A, Cornejo-Bravo JM, Andrade-Soto VH, Armenta-Rojas E, González-Sánchez DL. Self-care model and body image in adults after a bariatric surgery. *Modelo de autocuidado e imagem corporal em adultos pós cirurgia bariátrica.* *Rev Lat Am Enfermagem.* 2022;30:e3586.
30. Kamody RC, Thurston IB, Decker KM, Kaufman CC, Sonnevile KR, Richmond TK. Relating shape/weight based self-esteem, depression, and anxiety with weight and perceived physical health among young adults. *Body Image.* 2018;25:168-76.
31. Chen C, Chen Y, Huang Q, Yan S, Zhu J. Self-Care Ability of Patients With Severe Mental Disorders: Based on Community Patients Investigation in Beijing, China. *Front Public Health.* 2022;10:847098.
32. Ability for self-care in clients undergoing antineoplastic chemotherapy treatment. *Biosci J.* 2020;36(4):1446-53.
33. Morishita M, Hattori S, Miyai N. Agency for self-care among elderly patients with diabetes mellitus and its association with health locus of control and social support. *Nihon Eiseigaku Zasshi.* 2017;72(1):77–86.
34. Zimmermann T, Puschmann E, van den Bussche H, et al. Collaborative nurse-led self-management support for primary care patients with anxiety, depressive or somatic symptoms: Cluster-randomised controlled trial (findings of the SMADS study). *Int J Nurs Stud.* 2016;63:101-11.