



THE RELATIONSHIP BETWEEN SELF-CARE AND REHOSPITALIZATION IN HEART FAILURE PATIENTS

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ABSTRACT

Heart failure is a chronic condition associated with recurrent symptoms and rehospitalization. Self-care is a crucial component of heart failure management, encompassing self-care maintenance, symptom perception, and management. The relationship between self-care and rehospitalization in heart failure patients requires further investigation. To analyze the relationship between self-care and rehospitalization among heart failure patients at Dr. Moewardi Regional General Hospital (RSUD) Surakarta. This study employed an analytical quantitative method with a cross-sectional approach. The participants were selected using a purposive sampling technique, comprising 150 heart failure patients undergoing follow-up examinations at the Cardiology Clinic of Dr. Moewardi Regional General Hospital, Surakarta. Data were collected using the Self-Care of Heart Failure Index (SCHFI) version 7.2 questionnaire and a respondent characteristics questionnaire. Self-care comprises three domains: self-care maintenance, self-care symptom perception, and self-care management. Data analysis was performed using the Independent Samples T-Test and Mann-Whitney Test. The mean scores for self-care maintenance, self-care symptom perception, and self-care management were 56.73, 47.87, and 79.93, respectively. A total of 49 respondents (32.7%) experienced rehospitalization, while 101 respondents (67.3%) did not. There was no significant difference in self-care maintenance between the rehospitalized and non-rehospitalized groups ($p = 0.541$). A significant difference was observed in self-care symptom perception ($p = 0.021$), with mean scores of 87.21 for the rehospitalized groups and 69.82 for the non-rehospitalized group. Self-care management showed no significant difference between the two groups ($p = 0.110$). Self-care symptom perception is significantly associated with rehospitalization in heart failure patients, whereas self-care maintenance and self-care management do not show a significant association with rehospitalization.

Keywords: heart failure; nursing; rehospitalization; SCHFI; self-care; symptom perception

How to cite (in APA style)

Arifah, N. A., & Hudiyawati, D. (2026). The The Relationship between Self-Care and Rehospitalization in Heart Failure Patients. *Indonesian Journal of Global Health Research*, 8(6), 1125–1132. <https://doi.org/10.37287/ijghr.v8i6.2810>.

INTRODUCTION

Heart failure is a cardiovascular health issues that significantly impacts patient morbidity, mortality, and quality of life. The condition is characterized by the heart's inability to pump blood adequately to meet the body's metabolic demands, leading to symptoms such as shortness of breath, fatigue, and fluid retention (McDonagh et al., 2021). Heart failure is a chronic condition requiring long-term treatment and continuous monitoring. Even with medical therapy, patients remain at risk of clinical deterioration that can lead to hospital readmission (Abassi et al., 2022). Hospital readmission among heart failure patients is a significant healthcare challenge, as it is associated with worsening clinical status, increased demand for medical services, and a rising healthcare financial burden. The risk of readmission can be heightened by various factors, including medication non-adherence, inadequate symptom monitoring, irregular medical follow-ups, and limitations faced by patients and their families in providing home-based care (Djamin, 2024). Research by Ghorbanzadeh et al. (2023) reports that approximately 25-30% of heart failure patients discharged from the hospital are readmitted within the first 30 days. This high rate underscores the importance of sustained disease management efforts following hospital discharge.

Self-care is a crucial aspect of heart failure management. It encompasses a range of behaviors patients adopt to maintain their health, prevent disease progression, and manage emerging symptoms. According to Riegel et al. (2021), self-care for patients with chronic conditions including heart failure comprises three primary dimensions: self-care maintenance, self-care symptom perception, and self-care management. Self-care maintenance involves routine behaviors such as medication adherence, dietary management, restriction of salt and fluid intake, and engaging in physical activity suited to one's capabilities. Meanwhile, self-care symptom perception relates to the patient's ability to recognize and interpret changes in disease sign and symptoms. Finally, self-care management refers to the patient's ability to determine the appropriate course of action when experiencing worsening symptoms. These three dimensions play interconnected roles in heart failure management. Patients who consistently practice self-care, recognize symptoms early, and take appropriate action can manage their condition more effectively. Conversely, limitations in self-care can lead to delayed symptom management and an increased risk of clinical deterioration. Heart failure management guidelines also emphasize the importance of patient education, treatment adherence, symptom monitoring, and patient involvement in care-related decision making (Heidenreich et al., 2022). Therefore, self-care is a vital factor to consider in efforts to reduce the risk of complications and hospital readmission among heart failure patients.

Several studies have examined the relationship between self-care behaviors and rehospitalization among heart failure patients. Research by Tiara et al. (2023) indicates that medication adherence is linked to rehospitalization. Meanwhile, research by Djamin (2024) identified medication non-adherence, depression, irregular follow-up visits, and a lack of patient and family knowledge regarding home care as factors associated with disease recurrence and repeated hospitalizations. However, studies focusing on medication adherence have not fully elucidated the connections between various dimensions of self-care specifically symptom perception and the patient's ability to manage symptoms and the occurrence of rehospitalization. A preliminary study conducted at Dr. Moewardi Regional General Hospital (RSUD) in Surakarta identified 179 heart failure patients between October and December 2025. Interviews with 10 of these patients revealed that seven experienced rehospitalization within 90 days of discharge. Among this group, levels of self-care maintenance and self-care symptom perception were classified as adequate, while self-care management was rated as good. These initial findings highlight the phenomenon of rehospitalization in heart failure patients despite their engagement in certain aspects of self-care. However, given the limited number of respondents in the preliminary study, further research is required to determine the relationship between self-care levels and rehospitalization.

Based on this background, it is necessary to conduct research on the relationship between self-care and rehospitalization in heart failure patients by comprehensively addressing all three dimensions of self-care. This study aims to analyze the relationship between self-care maintenance, self-care symptom perception, and self-care management with the incidence of rehospitalization in heart failure patients at Dr. Moewardi Surakarta Regional Hospital. The findings are expected to provide empirical data on the link between self-care behaviors and hospital readmission, as well as inform the development of educational programs and nursing interventions for heart failure patients.

METHOD

This study employed a quantitative design with a cross-sectional approach to analyze the relationship between self-care and the incidence of rehospitalization among heart failure patients at Dr. Moewardi Regional General Hospital Surakarta. The study population consisted of 179 patients, with a sample of 150 respondents selected using purposive sampling. Inclusion criteria comprised heart failure patients classified as NYHA I-III, aged ≥ 18 years, capable of effective communication, and willing to participate. Patients with terminal or unstable conditions were excluded from the study. Data collection was conducted in February until May 2026 using a sociodemographic questionnaire and the Self-Care of Heart Failure Index (SCHFI) version 7.2, the

latter consist of 29 questions measuring three dimensions of self-care: self-care maintenance, self-care symptom perception, and self-care management. Validity testing yielded a calculated r-value greater than the r-table value (0.361), indicating the instrument is valid for use with a heart failure patient population. Meanwhile, reliability testing resulted in a Cronbach's alpha value of 0.897, confirming the instrument is suitable for use with a heart failure patient population. Data on rehospitalization incidence were obtained via questionnaires and interview confirmation, categorized as having experienced or not experienced readmission within the past six months. Data were analyzed using SPSS, employing univariate analysis to describe respondent characteristics and variable distributions, and bivariate analysis to examine the relationship between self-care and rehospitalization incidence using the Independent Sample T-Test and Mann-Whitney Test, depending on data characteristics. The study adhered to ethical principles, including informed consent, data confidentiality, and the respondents right to voluntary participation.

RESULT

Respondent Characteristic

A total of 150 patients with heart failure participated in this study. Most respondents were aged under 60 years (58.7%) and were male (71.3%). The majority had completed elementary school (30.0%), were married (86.7%), and worked as private employees (31.3%). Most respondents had a monthly income of less than IDR 2,500,000 (61.3%) and used BPJS as their healthcare financing source (96.0%). In addition, most respondents had a spouse as their primary caregiver (60.7%), consumed 2-5 medications (50.0%), and had been diagnosed with heart failure for less than one year (63.3%). Regarding clinical characteristics, 53.3% of respondents had comorbidities, while 98.7% reported attending routine follow-up visits. Most respondents had received education about heart failure care (66.7%) and were classified as NYHA functional class I (56.7%). The largest proportion had an ejection fraction of 41-49% (42.0%). A total of 49 respondents (32.7%) had experienced rehospitalization, while 101 (67.3%) had not.

Table 1.
Respondent Characteristics (n=150)

Respondent characteristics	f	%
Age		
< 60 years	88	58.7
> 60 years	62	41.3
Gender		
Male	107	71.3
Female	43	28.7
Education level		
No formal education	11	7.3
Elementary school	45	30.0
Junior high school	26	17.3
Senior high school	40	26.7
College/university	28	18.7
Marital status		
Married	130	86.7
Unmarried	3	2.0
Widowed	17	11.3
Occupation		
Unemployed	30	20.0
Laborer	14	9.3
Farmer/trader	36	24.0
Private employee	47	31.3
Civil servant/military	8	5.3
Other (housewife, retired)	15	10.0
Monthly income		
< IDR 2,500,000	92	61.3
IDR 2,500,000 – 5,000,000	50	33.3
> IDR 5,000,000	8	5.3

Respondent characteristics	f	%
Healthcare financing		
BPJS	144	96.0
Other insurance	3	2.0
Self-funded	3	2.0
Primary caregiver		
Spouse	91	60.7
Child	50	33.3
None	3	2.0
Other (relative, friend)	6	4.0
Number of medications consumed		
2-5 medications		
6-9 medications	75	50.0
> 10 medications	66	44.0
	9	6.0
Duration of heart failure		
< 1 year	95	63.3
> 1 year	55	36.7
Comorbidities		
Yes	80	53.3
No	70	46.7
Routine follow-up		
Yes	148	98.7
No	2	1.3
Heart failure education		
Ever received	100	66.7
Never received	50	33.3
NYHA functional class		
NYHA I	85	56.7
NYHA II	41	27.3
NYHA III	24	16.0
Ejection fraction		
Reduced (50%)	54	36.0
Rehospitalization		
Yes	49	32.7
No	101	67.3

Self-Care Among Patients with Heart Failure

The mean score for self-care maintenance was 56.73 (SD = 16.32), with scores ranging from 15.00 to 92.50. The mean score for self-care symptom perception was 47.87 (SD = 17.61), with a minimum score of 9.09 and a maximum of 100.00. Meanwhile, self-care management had a mean score of 79.93 (12.86), with scores ranging from 50.00 to 100.00.

Table 2.

Self-Care Among Patients with Heart Failure (n=150)

Self-care domains	Mean	SD	Minimum	Maximum
Self-care maintenance	56.73	16.32	15.00	92.50
Self-care symptom perception	47.87	17.61	9.09	100.00
Self-care management	79.93	12.86	50.00	100.00

Rehospitalization Among Patients with Heart Failure

Of the 150 respondents, 101 (67.3%) had not experienced rehospitalization, while 49 (32.7%) had experienced rehospitalization.

Table 3.

Rehospitalization Among Patients with Heart Failure (n=150)

Rehospitalization status	f	%
No rehospitalization	101	67.3
Rehospitalization	49	32.7

Relationship Between Self-Care and Rehospitalization

The bivariate analysis showed that self-care maintenance did not differ significantly between respondents who experienced rehospitalization (57.91 ± 15.19) and those who did not (56.16 ± 16.90), with a p-value of 0.541. In contrast, self-care symptom perception showed a statistically difference between the two groups (87.21 versus 69.82, $p = 0.021$). Meanwhile, self-care management did not show a statistically significant difference between respondents with and without rehospitalization (83.60 versus 71.57, $p = 0.110$).

Table 4.

Comparison of Self-Care Scores Based on Rehospitalization Status

Self-care domains	Rehospitalization	No rehospitalization	p-value
Self-care maintenance	57.91 ± 15.19	56.16 ± 16.90	0.541 ^a
Self-care symptom perception	87.21	69.82	0.021 ^b
Self-care management	83.60	71.57	0.110 ^b

a Independent Sample T-Test, ^b Mann-Whitney Test

DISCUSSION

The Relationship Between Self-Care and Rehospitalization in Heart Failure Patients

This study aimed to analyze differences in self-care scores between heart failure patients who experienced rehospitalization and those who did not. The result showed no significant differences in the domains of self-care maintenance ($p = 0.541$) and self-care management ($p = 0.110$). However, a significant difference was observed in the self-care symptom perception domain ($p = 0.021$). These findings indicate that each self-care domain exhibits a distinct pattern in relation to rehospitalization. According to Riegel et al. (2021), heart failure self-care comprises three interconnected domains: maintenance, symptom perception, and management. Each serves a distinct function, and examining them separately helps identify self-care differences between rehospitalized and non-rehospitalized patients.

Self-Care Maintenance and Rehospitalization

The study result indicate that the mean self-care maintenance score for the patients who experienced rehospitalization was 57.91 ± 15.19 , whereas for those who did not experience rehospitalization, it was 56.16 ± 16.90 . The Independent Sample T-Test yielded a p-value of 0.541 ($p > 0.05$), indicating no significant difference between the two groups. Although self-care maintenance scores were higher in the rehospitalization group, the difference was not statistically significant. Self-care maintenance includes medication adherence, dietary restriction, physical activity, routine check-ups, weight monitoring, and healthy lifestyle behaviors, influenced by knowledge, experience, family support, health literacy, and healthcare access (Vellone et al., 2020).

These findings align with the discussion by Vellone et al. (2020), which explains that self-care ability is influenced by multiple factors and is not determined solely by the patient's daily care behaviors. Patients who engage in health maintenance activities may still experience rehospitalization if other clinical factors are present, such as comorbidities or a decline in cardiac function. The absence of a significant difference in this study may be related to the respondents characteristics. Almost all respondents attended routine follow-ups (98.7%), and the majority had received education regarding heart failure care (66.7%). Furthermore, the majority of respondents used BPJS as their source of healthcare financing (96.0%). These conditions likely supported the implementation of routine in both groups, resulting in no significant difference in self-care maintenance scores. Nevertheless, the mean self-care maintenance score for both groups remained below 70 the threshold for adequacy established in this study based on the Self-Care of Heart Failure Index (SCHFI) version 7.2. This indicates a need to improve the respondents self-care maintenance behaviors. Ongoing education regarding medication adherence, salt intake restriction, weight monitoring, appropriate physical activity, and regular check-ups remains essential. There efforts must also be accompanied by clinical monitoring, as the incidence of rehospitalization can be influenced by various factors.

Self-Care Symptom Perception and Rehospitalization

The study result indicate that the mean self-care symptom perception score for patients who experienced rehospitalization was 87.21, whereas for those who did not, it was 69.82. The Mann-Whitney Test yielded a p-value of 0.021 ($p < 0.05$), signifying a significant difference between the two groups. Descriptively, patients who experienced rehospitalization had higher self-care symptom perception scores compared to those who did not. Self-care symptom perception refers to a patient's ability to monitor changes in their physical condition, recognize the signs and symptoms of heart failure, and understand the significance of the symptoms experienced. This ability is crucial as it forms the basis for patients to determine the necessary actions when changes in health status occur. Symptom perception is also influenced by patient experience, knowledge of the disease, cognitive ability, and family support (Vellone et al., 2020). These findings align with Lee et al. (2024), who explain that symptom perception in heart failure patients involves the processes of monitoring symptoms, maintaining awareness of changes in bodily condition, and evaluating the causes of symptoms. A lack of understanding regarding the disease can lead to delays in recognizing a worsening condition. Conversely, the experience of dealing with symptoms and receiving treatment can help patients become more attuned to changes in their physical condition. Research by Wang et al. (2026) also explain that knowledge regarding heart failure is linked to a patient's ability to monitor and recognize symptoms. Patients with a better understanding tend to be more proactive in observing changes in their physical condition and determining how to respond to the symptom they experienced. This highlight the importance of education in enhancing symptom perception capabilities among heart failure patients.

The higher self-care symptom perception scores in rehospitalized patients may reflect increased awareness of heart failure symptoms gained through previous hospitalization and healthcare education. Since symptom perception was assessed after some patients had experienced rehospitalization, the scores may not represent their abilities before readmission. Therefore, the findings indicate differences between groups rather than a causal relationship between symptom perception and rehospitalization.

Self-Care Management and Rehospitalization

The study result indicate that the mean self-care management score for patients who experienced rehospitalization was 83.60, whereas for those who did not, it was 71.57. The Mann-Whitney Test yielded a p-value of 0.110 ($p > 0.05$), indicating no significant difference between the two groups. Although the mean score for the rehospitalization group was descriptively higher, the difference was not statistically significant. Self-care management refers to a patients ability to determine appropriate actions when experiencing symptoms, implement those actions, and evaluate their effectiveness. Such actions may include reducing activity during shortness of breath, contacting healthcare professionals when symptoms worsen, and following medical instructions for symptoms management (Riegel et al., 2021). This ability is linked to the patient's capacity to recognize symptoms, their experience in managing the illness, their self-confidence, and the support received from family and healthcare professionals (Vellone et al., 2020). The absence of a significant difference in this study suggest that self-care management scores do not differ meaningfully between patients who are rehospitalized and those who are not. This may be because rehospitalization is not solely related to a patient's ability to manage symptoms, it can also be influenced by clinical conditions, disease severity, response to therapy, and the presence of comorbidities. Research by Wang et al. (2026) explains that self-care management ability is associated with symptom monitoring and recognition. Patients capable of recognizing symptoms and taking appropriate action may still experience clinical deterioration due to other clinical factors. Thus, while self-care management ability is a crucial component of heart failure management, it is not the only factor associated with rehospitalization.

Research by Heidenreich et al. (2022) also emphasize that heart failure management requires a comprehensive approach, including the optimization of pharmacological therapy, clinical monitoring, patient and family education, management of comorbidities, and post-discharge follow-up. This approach demonstrates that preventing rehospitalization does not rely solely on the patient's ability to perform self-care. In this study, the mean self-care management scores in both groups exceeded the score of the 70 the threshold for adequacy established in thesis based on SCHFI version 7.2. These high scores may be attributed to the large proportion of respondents who attended regular check-ups and had received education regarding heart failure care. However, a relatively high score does not necessarily mean the patient is free from the risk of rehospitalization. These findings highlight the importance of education that focuses not only on symptom recognition but also on the actions required when symptoms arise. Patients need to understand when the reduce activity, follow management instructions, and contact healthcare professionals. Family involvement can also support patients in carrying out these actions.

Rehospitalization Among Heart Failure Patients

The study found that 101 respondents (67.3%) did not experience rehospitalization, while 49 (32.7%) did. Rehospitalization in heart failure patients may be influenced by age, comorbidities, disease progression, medication adherence, self-care, and symptom recognition. Research by Heidenreich et al. (2022) and Diamond and DeVore (2022) emphasize the importance of medical management, patient education, monitoring, and continuity of care in reducing rehospitalization. The high proportion of respondents without rehospitalization may be associated with favorable characteristics, including NYHA class I (56.7%), regular follow-ups (98.7%), and prior heart failure education (66.7%). However, these factors cannot be directly linked to the absence of rehospitalization. The findings highlight the need for continuous, individualized heart failure management to prevent readmission.

Implications for Nursing Practice

These findings highlight the importance of addressing all three self-care domains in heart failure nursing care. Nurses can improve self-care maintenance through education on medication adherence, dietary restrictions, physical activity, weight monitoring, and regular check-ups. Self-care symptom perception can be strengthened by teaching patients to recognize worsening symptoms and when to seek medical help. Meanwhile, self-care management education should focus on appropriate responses to symptoms and evaluating their effectiveness. Family involvement is also essential to support symptom monitoring and self-care at home.

Study Limitations

The cross-sectional design limits causal interpretation because self-care was measured at a single point in time. Therefore, it is unclear whether self-care abilities preceded rehospitalization or changed afterward. Higher symptom perception scores in the rehospitalized group may reflect treatment experiences, and the findings cannot establish a causal relationship between self-care and rehospitalization.

CONCLUSION

Based on a study of 150 heart failure patients, the majority of respondents did not experience rehospitalization (67.3%), while 32.7% did. Analysis revealed no significant differences in self-care maintenance ($p = 0.541$) or self-care management ($p = 0.110$) between patients who were rehospitalized and those who were not. Conversely, a significant difference was observed in self-care symptom perception ($p = 0.021$), with higher scores found in the group of patients who experienced rehospitalization. These findings indicate that, among the three self-care domains examined, only self-care symptom perception showed a significant difference based on rehospitalization status.

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