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DIFFERENCES IN SELF-CARE SCORES AMONG HEART FAILURE PATIENTS IN REHOSPITALIZED AND NON-REHOSPITALIZED GROUPS

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ABSTRACT

Heart failure is a chronic condition that can lead to clinical deterioration and an increased risk of rehospitalization. A patient's ability to engage in self-care is a crucial factor in maintaining health and reducing the risk of such deterioration, which could otherwise result in rehospitalization. This study aimed to analyze the differences in self-care scores among heart failure patients comparing those who were rehospitalized with those who were not at the Dr. Moewardi Regional General Hospital (RSUD) in Surakarta. The study employed a quantitative, analytical, and cross-sectional design. Participants were selected using purposive sampling and consisted of 150 heart failure patients attending follow-up appointments 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 ($p = 0.110$). The study concludes that the perception of symptoms a key aspect of self-care is the only factor that clearly distinguishes between the rehospitalized group and the non-rehospitalized group. Therefore, enhacing self-care capabilities, particulary in identifying changes in symptoms is crucial for preventing rehospitalization.

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

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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 demans, 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 continous monitoring. Even with medical therapy, patients remain at risk of clinical deterioration that can lead to hospital readmission (Abassi et al., 2022). Hospital readmissions among patients with heart failure represent a significant healthcare challenge, as they can lead to a deterioration in clinical status and an increased financial burden on the healthcare system. The heightened risk of readmission may stem from various factors, including non-adherence to medication, failure to attend routine follow-up appointments, the inability of family members to recognize symptoms and obstacles to performing self-care at home (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 of rehospitalization is a critical factor in the ongoing management of the disease following a patient's 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 (Marganingsih & Hudiyawati, 2023). 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 guidlines 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 adherences 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. Furthermore, research conducted by Kiuchi et al. (2025) indicates that when evaluated using a self-care index, there is no significant difference between self-care scores and the occurence of rehospitalization. This suggests that rehospitalization status is not solely influenced by self-care, but also by factors such as medication adherence, disease control, and family support. The role of self-care in preventing rehospitalization among heart failure patients remains a subject of inconsistent findings. On one hand, some studies suggest that higher self-care scores can reduce readmission rates. On the other hand, other studies have found no significant difference between self-care scores and rehospitalization events. These conflicting results indicate that the variation in self-care scores between patients who are rehospitalized and those who are not warrants further investigation. Interviews conducted with 10 heart failure patients at Dr. Moewardi Regional General Hospital (RSUD) in Surakarta revealed that seven of these patients were readmitted within 90 days of their hospital discharge. Moreover, among this group, seven patients with heart failure demonstrated a reasonable level of self-care maintenance such as adhering to medication regimens, attending routine check-ups, and restricting salt and sodium intake. Based on this background, this study aims to examine the differences in self-care scores among heart failure patients comparing those who were rehospitalized with those who were not by comprehensively addressing the three dimensions of self-care at the Dr. Moewardi Regional General Hospital (RSUD) in Surakarta.

METHOD

This study employs a quantitative design with a cross-sectional approach to analyze differences in self-care scores among heart failure patients comparing those who were rehospitalized with those who were not at the Dr. Moewardi Regional General Hospital in Surakarta. The study population consisted of 179 patients using the Slovin formula and a purposive sampling technique, with a sample of 150 respondents selected using purposive sampling. Inclusion criteria for this study were heart failure patients classified as NYHA I-III, aged $\geq$ 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 from February to May 2026 using a sociodemographic questionnaire and the Self-Care of Heart Failure Index (SCHFI) version 7.2. The latter consists of 29 items measuring three dimensions of self-care: self-care maintenance, self-care symptom perception, and self-care management. The instrument employs a 5 point Likert scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = frequently, and 5 = always. Scores are interpreted as follows ≤ 50 indicates poor self-care, 51–69 indicates fair self-care, and ≥ 70 indicates good self-care. Validity testing for the three self-care dimensions yielded calculated r-values greater than the critical r-table value (> 0.3), confirming the instrument's validity for use in a population of patients with heart failure. Reliability testing yielded Cronbach's alpha coefficients of 0.755 for self-care maintenance, 0.740 for self-care symptom perception, and 0.702 for self-care management, confirming that the instrument is reliable for use in this patient population. Data regarding hospital readmissions were collected via questionnaires and direct interviews, categorized as follows a score of 1 for patients who had experienced a readmission, and a score of 0 for those who had not been readmitted within the previous six months.

Data were analyzed using SPSS, employing univariate analysis to describe respondent characteristics and variable distributions, and bivariate analysis to examine differences in self-care scores among heart failure patients comparing those who were rehospitalized with those who were not using the Independent Sample T-test for normally distributed data and the Mann-Whitney test for non-normally distributed data. The entire study adheres to ethical principles. The data collection process begins with identifying respondents who meet the research criteria. The researcher then explains the study's objectives and benefits to the potential respondents. Once they understand this information and express their willingness to participate, they are asked to sign an informed consent form. Subsequently, participants complete the research instrument, a process estimated to take 10 to 15 minutes. Once the data has been fully collected, it is prepared for the statistical analysis phase.

RESULT

Respondent Characteristic

A total of 150 patients with heart failure participated in this study. Most of the respondents were under 60 years old, male. The majority have completed elementary school, are married, and work as private employees. Additionally, taking 2-5 medications per day, and having been diagnosed with heart failure for less than a year. Regarding clinical characteristics, the majority of respondents had comorbidities and were classified in NYHA functional class I. The largest proportion had an ejection fraction value of 41-49% and 49 respondents had experienced rehospitalization, while 101 had not experienced rehospitalization.

Table 1.
Respondent Characteristics (n=150)

Respondent Characteristic	Rehospitalization	%	No Rehospitalization	%	Total (n)
Age					
< 60 years	32	36.4	56	63.6	
> 60 years	17	27.	45	72.6	150
Gender					
Male	34	31.8	73	68.2	
Female	15	34.9	28	65.1	150
Education Level					
No Formal Education	1	9.1	10	90.9	
Elementary School	19	42.2	26	57.8	
Junior High School	8	30.8	18	69.2	
Senior High School	15	37.5	25	62.5	
College/University	6	21.4	22	78.6	150
Marital Status					
Married	44	33.8	86	66.2	
Unmarried	0	0.0	3	100.0	
Widowed	5	29.4	12	70.6	150

Respondent Characteristic	Rehospitalization	%	No Rehospitalization	%	Total (n)
Occupation					
Unemployed	10	33.3	20	66.7	
Laborer	5	35.7	9	64.3	
Farmer/Trader	15	41.7	21	58.3	
Private Employee	13	27.7	34	72.3	
Civil Servant/Military	2	25.0	6	75.0	150
Other (Housewife, Retired)	4	26.7	11	73.3	
Number of Medications Consumed					
2-5 medications	17	22.7	58	77.3	
6-9 medications	28	42.4	38	57.6	
> 10 medications	4	44.4	5	55.6	150
Duration of Heart Failure					
< 1 year	22	23.2	73	76.8	
> 1 year	27	49.1	28	50.9	150
Comorbidities					
Yes	21	30.0	49	70.0	
No	28	35.0	52	65.0	150
NYHA Functional Class					
NYHA I	20	23.5	65	76.5	
NYHA II	15	36.6	26	63.4	
NYHA III	14	58.3	10	41.7	150
Ejection Fraction					
Reduced <40%	17	51.5	16	48.5	
Reduced 41 – 49%	18	28.6	45	71.4	
Reduced >50%	14	25.9	40	74.1	150

Differences in Self-Care Scores Between Rehospitalized and Non-Rehospitalized Groups

Bivariate analysis showed that self-care maintenance did not differ significantly between respondents who experienced rehospitalization (57.90 ± 15.19) and those who did not (56.16 ± 16.89), with a p-value of 0.541. Furthermore, the minimum and maximum values were 27.50–92.50 for the rehospitalization group and 15.00 - 92.50 for the non-rehospitalization group. In contrast, self-care symptom perception showed a statistically significant difference between the two groups 53.61 ± 19.94 for the rehospitalization group and 45.09 ± 15.73 for the non-rehospitalization group with a p-value of 0.021. Additionally, the minimum and maximum values were 18.18 - 100.00 for the rehospitalization group and 9.09 - 81.82 for the non-rehospitalization group. Meanwhile, self-care management did not show a statistically significant difference between respondents who experienced rehospitalization (82.27 ± 12.77) and those who did not (78.80 ± 12.82), with a p-value of 0.110. The minimum and maximum values for both the rehospitalization group and the non-rehospitalization group were 50.00 - 100.00.

Table 2.
Comparison of Self-Care Scores Based on Rehospitalization Status

Self-Care Domain	Rehospitalitation			No Rehospitalitation			*P-Value*
	Mean ± SD	*Min*	*Max*	*Mean* ± SD	*Min*	*Max*	
Self-Care Maintenance	57,90 ± 15,19	27.50	92.50	56,16 ± 16,89	15.00	92.50	0.541[a]
Self-Care Symptom Perception	53.61 ± 19.94	18.18	100.00	45.09 ± 15.73	9.09	81.82	0.021[b]
Self-Care Management	82.27 ± 12.77	50.00	100.00	78.80 ± 12.82	50.00	100.00	0.110[b]

Independent Sample T-Test [b.] *Mann-Whitney Test*

DISCUSSION

This study aimed to analyze the differences in self-care scores between heart failure patients who experienced hospital readmission and those who did not. The results indicate no significant differences in the domains of self-care maintenance and self-care management between the readmitted and non-readmitted groups. However, a significant difference was observed in the domain of self-care symptom perception between the two groups. These findings suggest that each self-care domain exhibits a distinct pattern in relation to hospital readmission. Findings regarding the influence of self-care on readmission among heart failure patients remain varied, as readmission status is determined not only by self-care practices but also by clinical variables such as New York Heart Association (NYHA) functional class, ejection fraction, and comorbidities as well as psychosocial factors, including depression, anxiety, family support, and educational level.

Self-care maintenance refers to behaviors aimed at maintaining the stability of a patient with heart failure; this includes medication adherence, restriction of sodium and fluid intake, engaging in physical activity appropriate to one's capabilities, monitoring body weight, attending regular check-ups, and adopting a healthy lifestyle (Riegel et al., 2021). Such actions are influenced by knowledge, experience with illness, family support, health literacy, and access to healthcare services (Vellone et al., 2020). However, the occurrence of rehospitalization is also influenced by other factors, including comorbidities, declining cardiac function, disease severity, and response to treatment. In this study, self-care maintenance scores in both the rehospitalized and non-rehospitalized groups were similar, showing no significant difference; furthermore, both groups scored below 70—the threshold established in this study as the benchmark for adequate self-care. This similarity is likely attributable to the high proportion of patients who attend regular follow-up appointments and have received education on heart failure management, resulting in relatively comparable self-care behaviors across both groups, even though these behaviors have not yet reached an optimal level. This finding contradicts research conducted by Dessie et al. (2021) it is shown that a six-month structured education program can improve self-care maintenance. However, such behavioral improvements do not necessarily lead directly to a reduction in rehospitalization rates, as rehospitalization is influenced by various clinical factors and the healthcare services available. Therefore, self-care maintenance still requires further enhancement through ongoing education and comprehensive monitoring of the patient's condition (Putri & Hudiyawati, 2022).

Self-care symptom perception refers to the ability of patients with heart failure to monitor changes in their physical condition, identify and understand symptoms such as shortness of breath, swelling, or excessive fatigue and determine the appropriate time to seek medical care (Riegel et al., 2021). Factors that influence this ability include knowledge about health conditions, experience with illness, cognitive capacity, and support from family. Research by Lee et al. (2024) this highlights the importance of understanding and the ability to recognize bodily changes, which facilitates the perception of symptoms. In this study, self-care symptom perception scores were higher in the rehospitalized group compared to the group that was not rehospitalized. This difference is likely linked to prior hospitalization experiences and health education, which enhance a patient's understanding of symptoms indicating a worsening of heart failure. These findings do not imply that the ability to recognize symptoms is the cause of rehospitalization, as such events are also influenced by comorbidities, the severity of the condition, declining cardiac function, and responses to treatment. The results of this study cannot be directly compared to previous research that found no significant association, as there are variations in respondent characteristics, clinical conditions, and care experiences that can influence the final outcomes. Furthermore, the cross-sectional research design employed cannot determine whether the ability to understand symptoms existed prior to rehospitalization or if it developed only after the patient experienced a hospital stay. Therefore, health education should encompass symptom monitoring, an understanding of changes in physical condition, and guidance on determining the appropriate steps and timing for seeking medical assistance (Hudiyawati et al., 2025).

Self-care management refers to a patient's ability to recognize and take appropriate action when heart failure symptoms arise such as reducing activity during episodes of shortness of breath, following medical instructions, contacting healthcare professionals if symptoms worsen, and evaluating the effectiveness of the actions taken (Riegel et al., 2021). This ability is influenced by experience in dealing with illness, the capacity to recognize symptoms, self-confidence, and support from family and healthcare professionals (Hudiyawati et al., 2021). In this study, self-care management scores in the rehospitalized group were higher than those in the non-rehospitalized group, though the difference was not statistically significant. This indicates that there is no meaningful disparity in scores between the two groups; the majority of respondents consistently attend routine check-ups and have received education on heart failure care, which has resulted in relatively good self-care management abilities in both groups. Nevertheless, rehospitalization is influenced by various other factors, such as the presence of comorbidities, disease severity, cardiac function, response to treatment, and medication adherence (Heidenreich et al., 2022). These findings differ from previous studies that identified a link between symptom management and rehospitalization, a discrepancy likely due to variations in respondent characteristics and clinical conditions. Consequently, even when self-care management scores are relatively high, such skills may not necessarily prevent rehospitalization, therefore education should emphasize the appropriate steps to take when symptoms worsen.

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.

Study Limitations

The cross-sectional study design limits the interpretation of causality, as self-care was measured at only a single point in time. Consequently, it remains unclear whether self-care abilities preceded hospital readmission or changed following it. Higher symptom perception scores in the rehospitalized group may be attributable to their treatment experiences, furthermore these findings cannot establish a definitive difference in self-care scores between the two groups of heart failure patients.

CONCLUSION

Based on a study of 150 heart failure patients, the majority of respondents did not experience rehospitalization (67.3%), while 32.7% experienced rehospitalization. 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. Conversately, 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. Consequently, enhancing self-care capabilities particularly the ability to identify changes in symptoms is crucial for supporting efforts to prevent readmission.

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