

Nursing Knowledge and Practice in Self-Care Compliance in Heart Failure Patients: A Systematic Review

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Article Info

Article history:

Received: Apr 14, 2024

Revised: Jul 17, 2024

Accepted: Jul 24, 2024

DOI: [10.58418/ijni.v3i1.59](https://doi.org/10.58418/ijni.v3i1.59)

How to cite this article:

Istianah, I., Said, F. B. M., Nambiar, N., Tohri, T., Ramadhan, M. D., Purwanti, T. F., & Juwita, N. A. (2024). Nursing Knowledge and Practice in Self-Care Compliance in Heart Failure Patients: A Systematic Review. *International Journal of Nursing Information*, 3(1), 7–15.

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ABSTRACT

The disease that causes the number 1 death in the world is cardiovascular disease. Self-care involves maintaining possibilities by engaging in practices that enhance health. Monitoring symptoms and managing symptoms when they arise in patients with chronic diseases, including heart failure. This study aimed to explore knowledge and innovations that can be applied to Self-care with heart failure. The research method uses a systematic literature review. Research articles were obtained from three databases, namely Proquest, PubMed, and Google Scholar. Literature searches using keywords (in English), namely knowledge and practice, self-care, and heart failure, with Primary articles. The inclusion criteria used are articles from 2019-2023 in English. Primary articles, full text, and research subjects of patients with heart failure were reviewed from 1390 articles in eleven that met all criteria. Then, it was analyzed using simplified thematic analysis. The results show the themes that emerged from this literature review were the critical domain of self-care, the excellent impact of compliance, and monitoring innovations needed to reduce complications. Apart from that, telemonitoring is an outstanding innovation. The conclusion is that self-care for heart failure patients improves their quality of life and reduces complications. Adherence is critical, and innovations like telemonitoring applications enhance monitoring, proving effective in boosting patient welfare. This research contributes to providing readers with information about self-care strategies for heart failure patients to improve patient well-being.

Keywords: Nursing Knowledge, Nursing Practice, Self-Care, Heart Failure, Compliance



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1. INTRODUCTION

Cardiovascular disease is still a threat throughout the world. Heart failure is a syndrome that significantly affects the survival rate, illness burden, and quality of life of patients which represents an extreme challenge for health services (Johansson et al., 2021; Moradi et al., 2020; Savarese et al., 2023). Data from the World Health Organization (2020) shows that the disease that causes number 1 death in the world is cardiovascular disease. Data according to the World Health Organization (WHO) shows that the prevalence of heart failure in 2013 in the United States was approximately 550,000 cases per year, the American Heart Association (AHA) shows data in the United States as many as 375,000 people died per year due to heart failure (Dwiyanto et al., 2021).

Data in Indonesia in 2018 showed that heart failure was among the 10 non-communicable diseases in Indonesia, with an estimated 229,696 (0.13% of people suffering from heart failure) (Sari & Kristinawati, 2023). According to data from Riskesdas report (Kemenkes, 2019), it is stated that the

prevalence of heart disease According to age characteristics in 2018, the highest prevalence was in the elderly aged > 75 years (4.7%) and the lowest was in > 1 year old (0.1%). Then the prevalence according to gender in 2018, showed the highest figure in women, namely, it is at 1.6% and men are at 1.3%. Self-care involves practices that promote health, monitoring symptoms, and effectively managing symptoms as they occur in patients with chronic conditions such as heart failure (Jönsson et al., 2020). The concept of self-care comprises three key components. Firstly, maintenance of self-care refers to the behavior carried out by the patient in daily activities Secondly, self-care monitoring pertains to the patient's skill in recognizing signs and symptoms that indicate worsening conditions. Thirdly, self-care management refers to how patients respond to these signs and symptoms (Riegel et al., 2019).

Apart from getting a positive impact from self-care compliance, there are still patients who fail to implement self-care management in their daily lives, such as weighing themselves every day and inadequate physical exercise for patients (Choi et al., 2023). This is influenced by several factors, including lack of monitoring and no evaluation of patients who implement self-care behavior while at home, which results in patients being readmitted to the hospital (Istianah et al., 2023). According to Greene et al., (2015), the rate of patients with heart failure returning to the hospital within 30 days is around 20-30% with a mortality rate reaching 15% after leaving the hospital, this is because some patients have poor quality of life. Bad behavior so they don't comply with the recommended self-care behavior.

Compliance with self-care is an important key in heart failure management to reduce mortality rates and improve patient quality of life (Jönsson et al., 2020). The hospitals provided nursing interventions for heart failure patients followed by mobile monitoring after discharge from the hospital (Bekfani et al., 2021; DeVore et al., 2021; Kitsiou et al., 2021). However, the use of telemonitoring is still controversial in several previous research results because it does not support its benefits. Therefore, this literature review aims to examine in more depth the knowledge and benefits of several practices for increasing adherence to self-care for heart failure.

2. METHOD

The method used by the authors is a literature review using three databases to search for literature sources, namely Proquest, PubMed, and Google Scholar. The author used search keywords, namely Knowledge and Practice, Self-Care, Heart Failure, and compliance. The inclusion criteria used were articles from 2019 - 2023 using English, primary articles, full text, and research subjects of patients with heart failure. Based on the search above, 1,390 articles were obtained based on keywords and eleven articles will undergo analysis using a descriptive narrative approach in this study. The findings from the search are illustrated in a PRISMA flowchart.

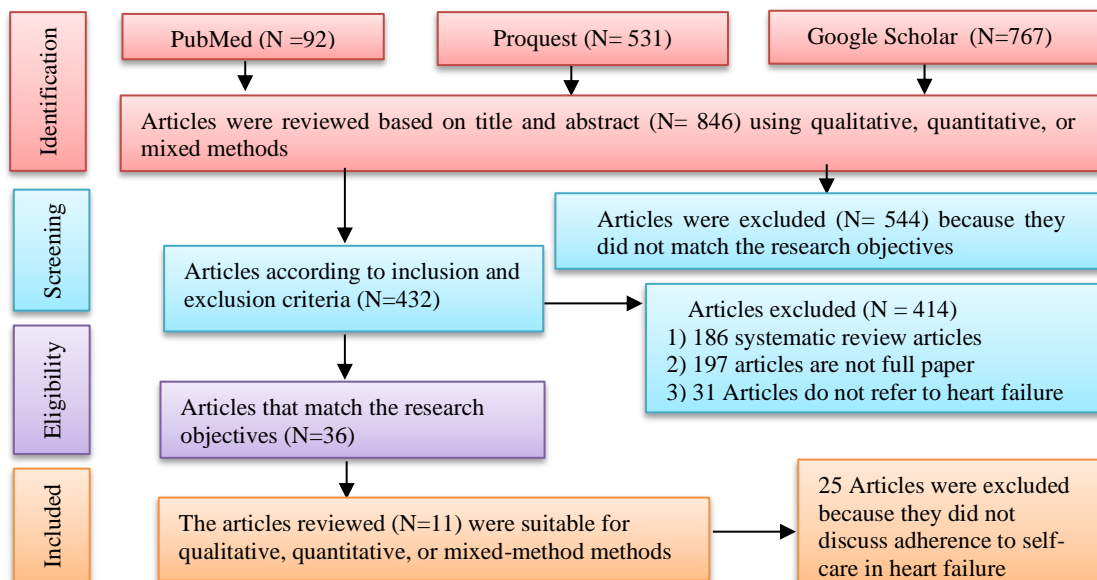
3. RESULTS AND DISCUSSION

3.1. Results

Below is Figure 1, which displays a PRISMA flow diagram detailing the article screening process employed in this literature review.

Figure 1

Prisma Flowchart



The process of initially searching for articles started with inputting keywords into four databases and then searching with the keywords Knowledge and Practice, Self-Care, Heart Failure, and Compliance combined with the Boolean Operator "AND" got 1390 articles. 544 articles that did not meet the inclusion and exclusion criteria were excluded, leaving 846 articles. There were 279 articles excluded because they did not match the research objectives 56 articles were excluded because they were not in English or Indonesian, 186 articles were excluded because they were systematic reviews, 568 articles were excluded because they were outside the time range criteria, namely 2019 - 2023 and 265 articles were not full papers. 36 articles were then selected again based on articles that discussed compliance in self-care with heart failure and the final result was eleven articles.

Researchers analyzed the data using critical appraisal with the Aveyard (2010) approach. Eleven articles were analyzed further. Table 1 below shows the results of the analysis using critical appraisal.

Table 1
Themes Emerging from the Results of the Literature Review

Domain Self-Care	Compliance Impact	Monitoring Innovation
- Self-care	Quality of life in patients increases	Telemonitoring includes:
- Self-monitoring	- Reducing the number of re-hospitalizations in heart failure patients	- Heart Failure-Smart Life
- Self-care Management	- Decreased recurrence rate	- Nursing Led Collaborative
	- The patient's condition is stable	- Mobile Health

Based on Table 1, the results of the analysis that has been carried out, three themes were obtained, namely: important domains of self-care, the good impact of compliance, and innovations in monitoring self-care. Furthermore, Table 2 below is the basic characteristics of studies from the results of reviewed articles that are suitable for qualitative, quantitative, or mixed-method methods.

Table 2
Basic Characteristics of Studies

Authors (Year) APA Style Citation	Methods	Results	Discussion	Recomendasion
Strandberg et al. (2023)	A method of qualitative research that involves semi-structured interviews for descriptive purposes involving 20 patients and 4 nurses was carried out from October 2019 to June 2021	A qualitative descriptive method using semi-structured interviews involving 20 patients and 4 nurses was carried out from October 2019 to June 2021.	Telemonitoring is deemed valuable when it aligns with an individual's personal values and objectives. And its implementation sufficiently supports the patient's implementation of self-care or chronic disease management.	Telemonitoring in primary care promotes the sharing of information and support among patients, informal caregivers, and healthcare professionals, thereby improving support for self-care.
Mohammad et al. (2023)	Cross-Sectional using the Self-Care Heart Failure Index (SCHFI) version 7.2.	Marital status obtained significant results with the level in the subdomains of self-care maintenance and self-care management.	Patients with heart failure are incapable of carrying out sufficient self-care practices. Socio-demographic factors considered important are marital status, gender, and caregiver.	Interventions that patients can do at home will keep patients healthy and reduce the intensity of readmissions.

Choi et al. (2023)	Experimental studies using randomized controlled trials divided into experimental groups (n=36) and control groups (n=38).	After administering the intervention for 3 months, the results showed significant (p = 0.003).	The Heart Failure-Smart Life mobile app is an extensive self-management program for heart failure that assesses its impact using a Randomized Controlled Trial (RCT) methodology.	Examining the benefits of adapting self-care practices based on the cultural background of both the patient and healthcare provider is crucial system.
Jönsson et al. (2020)	Qualitative study using semi-structured interview techniques.	Cultural background influences patient self-care behavior.	Health services view culture as a factor that greatly influences compliance with self-care in patients with heart failure.	Utilizing technology facilitates naturalistic decision-making in the management of older adults with heart failure.
Daley et al. (2022)	Cross-sectional qualitative study involving 24 older adults.	Some obstacles and strategies influence the performance of the decision-making phase, and the involvement of other people plays an important role in the context of decision-making priorities.	The conceptual model of naturalistic decisions created for adults includes monitoring, interpretation, and action phases.	Patient management using technology aids naturalistic decision-making among older adults with heart failure.
Sterling et al. (2022)	Cross-sectional survey of health workers who care for heart patients	Mutuality has a direct influence on health workers' contributions to self-care and preparedness influences contributions to self-care.	A good relationship between health workers and patients influences health workers' contribution to patient self-care.	Self-efficacy is a modifiable factor that plays a crucial role in the contribution of health workers to heart failure self-care.
Dellafiore et al. (2023)	A study conducted at a single center, utilizing randomization and control, with two experimental groups and a control group in parallel.	Motivation through interviews with patients is effective in increasing the maintenance of self-care with a p-value <0.001.	Nurse-led Motivational Interviewing (MI) demonstrated progress in improving the maintenance of self-care in heart failure patients over one year of follow-up.	Self-care manifests through various individual-level characteristics in practice.
Mizukawa et al. (2019)	Cross-sectional study using the SCHFI version 7.2 questionnaire	44% of the sample were women, 80% of them were	Telemonitoring is believed to have a significant role in disease prevention	Nurses must conduct thorough assessments to ascertain whether

	involving 150 heart failure patients treated at DHQ Timergara Dir Lower Hospital.	married, 6% were illiterate and 86% had a caregiver at home. The average score for the inadequate self-care subscale is the maintenance of self-care: 68.5%, perception of symptoms: 67.28%, self-management: 68.56%, and confidence in self-care: 69.15. The level of self-care is significantly related to marital status with $p = 0.011$.	by allowing patients to face the acceptance phase early.	patients are effectively managing their heart failure or require additional support through a telemonitoring system.
Aljohani (2023)	Cross-sectional study using the revised Self Care of Heart Failure Index (SCHFI) using 245 samples treated for HF.	The SCHFI figure shows a confidence level of 84%, a maintenance level of 67.5%, and a control level of 67.2%. HF management in women obtained p value = 0.023 and self-confidence p value = 0.002 indicating a high significant number compared to male participants. The independent variable significantly obtained a score of $p = 0.005$	Self-care for HF patients shows less than optimal self-care and confidence to carry out self-care activities.	Prioritizing the development of self-confidence among heart failure patients could be a key focus in healthcare interventions.
Foster et al. (2022)	This research used a qualitative descriptive method which was conducted in January – July 2021 with participants being heart failure patients aged 65	Most agree that applications on smartphones support self-care for heart failure patients.	The M-Health application is useful for gaining knowledge about a patient's heart failure condition. There are 7 sub-themes in this application, namely: education	There is a need to elaborate on the researchers' findings and evaluate the feasibility and usability of applications incorporating these features.

	years and over using the integrated health service system.		about daily heart failure care, how often to receive education about heart failure, support for medication compliance, support for dietary restrictions, setting goals for exercise, stress reduction strategies, and instructions on when to exercise.	
Liu et al. (2023)	A cross-sectional study based on primary data aims to determine factors associated with self-care in heart failure patients.	The analysis involved 189 patients, averaging 65 years old, who had been living with heart failure for an average of 24 months. Physical symptom severity showed a positive correlation with self-care management behavior ($p = 0.039$) but did not show a correlation with self-care maintenance ($p = 0.097$).	Heart failure patients who exhibit inadequate self-care tend to experience more dyspnea symptoms. Severe physical symptoms could potentially forecast improved self-care management among patients with insufficient self-care practices.	The mechanisms that explain how physical symptoms are linked to the self-care management of heart failure patients who demonstrate inadequate self-care behavior.

3.2. Discussion

Table 2 shows the results of the analysis that has been carried out, three themes were obtained, namely: important domains of self-care, the good impact of compliance, and innovations in monitoring self-care. The selected articles consist of articles conducted by Strandberg et al. (2023), Mohammad et al. (2023), Choi et al. (2023), Jönsson et al. (2020), Daley et al. (2022), Sterling et al. (2022), Dellafiore et al. (2023), Mizukawa et al. (2019), Aljohani (2023), Foster et al. (2022) and Liu et al. (2023). Participants involved in the research above were adults to the elderly with heart failure. Management of heart failure patients varies, the main factors being self-care management and compliance practices. The goal of self-care is to prevent things from getting worse until complications arise.

Clinical manifestations of heart failure include breathing difficulties, swelling, chest discomfort, sleep disturbances, fatigue, reduced strength, decreased vitality, anxiety, and notable shifts in mood. Therefore, to reduce symptoms, patients must carry out self-care behavior. This was proven by researcher Liu et al. (2023) who obtained results that the severity of physical symptoms was positively related to self-care management behavior (0.039) but not significantly related to maintaining self-care (0.097). Poor physical symptoms were associated with suboptimal self-management behavior. The physical symptom that is often encountered is dyspnea which continues to get worse and ends in repeated hospitalizations

Self-care is a comprehensive concept that consists of three keys, namely the first is maintaining self-care, such as taking medication as recommended by a doctor, doing physical activity, and having a regular eating pattern. The second is self-care monitoring including weighing weight every day, and the third, self-care management such as changing the dose of diuretic medication in response to the patient's

symptoms (Jönsson et al., 2020). The way to know if a patient is taking good self-care is to use the Self Care of Heart Failure Index (SCHFI) version 7.2. This instrument has been tested by Aljohani, (2023) and Mohammad et al. (2023) who obtained significant results with $p = 0.001$.

Independent self-care does not mean everything is done independently by the patient, but caregivers can be involved so that patients are more compliant in carrying out self-care independently. This assumption was proven by Sterling et al. (2022) who researched readiness, mutuality, and self-efficacy for self-care in heart failure patients involving health workers who had cared for heart failure patients for at least the last year and found that the relationship was good between health workers and patients influence health care workers' contributions to patient self-care.

The above assumption is reinforced by Mohammad et al. (2023) who states that people who are married and have a partner have better self-care behavior than those who are divorced or single. Partners can provide psychological and physical support to help with client care. As evidenced by research in Germany conducted in 2013, it was stated that unmarried patients tend to be less interested in self-care due to a lack of social support for physical activity and good care (Kocalevent et al., 2013).

Emotions play an important role in a person's decision-making. Frustration as an illustration of disappointment becomes a barrier to decision-making. This opinion is proven in Daley et al. (2022) research which involved 24 elderly people who found that some obstacles and strategies influenced the performance of the decision-making phase, and the involvement of other people played an important role in the context of decision-making priorities.

One of the obstacles that hinders patient compliance with heart failure is cultural differences. This is caused by the patient's living habits which depend heavily on their cultural background, making it difficult to carry out self-care. Therefore, according to Jönsson et al. (2020), it is important to maintain a patient-centered approach and adapt to the background in providing care to patients to take into account the fact that not all patients can identify themselves through their culture.

Several things have been said previously, but innovation is needed to optimize adherence to self-care so that heart failure patients can be independent. Heart failure patients have physical limitations due to increasingly worsening symptoms coupled with comorbidities, difficulties in undergoing treatment, unstable emotions, and lack of knowledge (Mohammad et al., 2023). Based on this, Mariko provided an innovation called Collaborative Management (CM) connected with telemonitoring, where CM is a treatment that supports self-management skills and early detection of symptoms and encourages decision-making for patient treatment. This innovation was tested by Mizukawa et al. (2019) and obtained significant results with $p=0.011 (<0.05)$.

In 2022 Foster et al. designed an innovation using technology again called Mobile Health (M-Health) which was tested via smartphone from January-to June 2021 and received positive results from participants. The M-Health application is useful for gaining knowledge about a patient's heart failure condition. There are 7 sub-themes in this application, namely: education about daily heart failure care, how often to receive education about heart failure, support for medication compliance, support for dietary restrictions, setting goals for exercise, stress reduction strategies, and instructions on when to exercise.

Subsequent research in developing compliance using technology was carried out again (Strandberg et al., 2023), which aimed to describe the experience of patients with hypertension and heart failure at home with primary support via telemonitoring. In this study, we get an overview of how patients and informal caregivers gradually develop confidence in their self-care management domain by adjusting their activities according to the results of the patient's vital signs. Monitoring symptoms can create independence in self-care management (Riegel et al., 2022).

The use of telemonitoring increases and develops patient and caregiver self-efficacy in self-care management, thus demonstrating that digital tools offer a way of building professional reciprocal relationships in treatment (Mizukawa et al., 2019). So it can be concluded that telemonitoring applications can be an e-health innovation that is proven to improve patient welfare (Strandberg et al., 2023).

4. CONCLUSION

Self-care is a management that can be done for heart failure patients to reduce the possibility of complications and improve the patient's quality of life. This self-care is carried out so that the patient can be independent even if assisted by a caregiver. Compliance is an important factor in successfully achieving goals in self-care interventions. Therefore, several innovations have been made to carry out monitoring with technology so that patients can be controlled. Telemonitoring applications can be an e-health innovation that is proven to improve patient welfare. This research contributes to providing readers with information about self-care strategies for heart failure patients to improve patient well-being.

ACKNOWLEDGEMENTS

The authors would like to thank all colleague from Lincoln University College and Institut Kesehatan Rajawali.

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