



**EFFECTIVENESS OF HEALTH EDUCATION USING BOOKLETS TOWARDS ABILITY SELF-CARE FOR HEART FAILURE PATIENTS**

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**ABSTRACT**

Heart failure remains a major global health problem, contributing to high morbidity and mortality, particularly among older adults. Effective self-care is essential to maintain clinical stability and improve the quality of life in patients with chronic heart failure. This study aims to increase the effectiveness of family-based health education by using a booklet containing self-care skills for heart failure patients. A quasi-experimental one-group pretest-posttest design was conducted at a regional hospital in Surakarta, involving 148 patients selected through purposive sampling. Data were collected using the Self Care of Heart Failure Index (SCHFI) version 6.2 and analyzed with the Wilcoxon Signed Rank Test. Results showed a significant improvement in self-care scores from pretest (mean = 53.60) to posttest (mean = 63.18), with an average increase of 9.58 points (17.87%;  $p < 0.001$ ). The findings indicate that family-centered education through a booklet significantly enhances patients' self-care, maintenance, and management, and increases their confidence. This intervention strengthens family involvement, increases health knowledge and self-efficacy, and supports sustainable home-based care. The study contributes to nursing science by providing empirical evidence that simple, low-cost educational media can effectively empower families and improve self-care outcomes in chronic heart failure management, underscoring the importance of family engagement in patient-centered care.

Keywords: booklet; health education; heart failure; self-care

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**INTRODUCTION**

Heart failure is a global health problem that remains a leading cause of morbidity and mortality in many countries. This disease is characterized by structural or functional heart disorders that inhibit the ventricles' ability to pump blood optimally to meet the body's metabolic needs (Heidenreich et al., 2022). This disorder causes decreased cardiac output, increased intracardiac pressure, and systemic circulatory disorders that trigger symptoms such as shortness of breath, fatigue, peripheral edema, and intolerance to physical activity. This condition gradually reduces the sufferer's quality of life and increases the risk of serious complications. Global Burden of Disease data shows that more than 64 million people worldwide live with heart failure, and the one-year mortality rate reaches 15–30%, increasing to 50–75% within five years of diagnosis (Savarese et al., 2023). These figures demonstrate that heart failure is not only a medical problem but also a major challenge to global health systems due to its far-reaching impact on people's quality of life and the economy.

Heart failure not only poses a clinical burden but also has significant social and economic impacts. Heart failure patients often experience limitations in daily activities, loss of productivity, and require long-term, costly treatment (Karakayalı et al., 2023). Dependence on ongoing medical care can also cause psychological distress for patients. In various developing countries, including Indonesia, the economic burden of this disease continues to increase annually (Tsao et al., 2022). The Ministry of Health reported that approximately 650,000 deaths will be due to heart failure by 2023, emphasizing that pharmacological therapy alone cannot be used to treat this disease. Non-

pharmacological interventions, such as health education, are needed to help patients manage their health conditions independently. The success of heart failure management is highly dependent on the patient's ability to maintain consistent self-care behaviors, so strengthening self-care capacity is an important step to reduce recurrence and disease burden (Kristinawati et al., 2025). This understanding becomes even more relevant when we consider that the physical impairments resulting from heart failure directly impact a patient's ability to function and maintain quality of life.

Heart failure causes a significant decline in physical function due to the heart's limited ability to pump blood. This often causes patients to feel fatigued, short of breath, and have difficulty performing simple activities like walking, climbing stairs, or even getting dressed (K. S. Lee & Oh, 2022). This condition indirectly lowers self-confidence, increases dependence on others, and causes emotional stress. Previous studies have shown that heart failure patients with a low quality of life experience relapses and re-hospitalizations more often than those who maintain a healthy lifestyle and adhere to medication (Johansson et al., 2021). This fact underlies the idea that improving quality of life is a key indicator of successful heart failure management. A good quality of life indicates that patients are able to adapt to their health condition, undergo therapy effectively, and have optimal self-care skills (Lawson et al., 2023).

Self-care skills are a key aspect of managing chronic diseases, including heart failure. Self-care is defined as an individual's ability to maintain stable health, recognize symptoms of deterioration, and make appropriate decisions about how to manage them (Riegel et al., 2022). There are three main components of self-care: self-care maintenance, self-care management, and self-care confidence. Self-care maintenance includes routine activities such as maintaining a low-salt diet, adhering to medication schedules, monitoring weight, and engaging in physical activity as recommended. Self-care management includes the patient's ability to recognize worsening symptoms, such as shortness of breath or swelling, and take appropriate action, such as adjusting fluid intake or immediately contacting a healthcare professional. Self-care confidence refers to the patient's level of confidence in their ability to manage their illness and make informed decisions about their health (H. K. Lee & Lee, 2024). These three components are interrelated and determine the patient's success in undergoing long-term treatment.

Clinical reality shows that most heart failure patients are still unable to perform self-care effectively. Research shows that most heart failure patients have low levels of self-care, characterized by non-compliance with medication, unhealthy diet, and lack of monitoring of physical condition (Huesken et al., 2021). Factors that influence low self-care skills include a lack of knowledge about the disease, low health literacy, and limited understanding of medical instructions (Sugebo et al., 2024). In addition, psychological conditions such as anxiety and depression can also reduce patient motivation to consistently carry out self-care (Hailu Gebru et al., 2021). As a result, patients with poor self-care skills are more susceptible to relapse, worsening symptoms, and hospital readmissions. This situation highlights the importance of effective and accessible health education to enable patients to actively participate in their disease management.

Health education is a crucial component in helping patients understand their illness and develop self-care skills. Health education is a systematic process to improve an individual's knowledge, attitudes, and behaviors so they can make informed decisions about their health (Cohee et al., 2020). Structured and ongoing education has been shown to increase patient compliance with treatment, improve healthy lifestyle behaviors, and reduce the risk of relapse (Pakpahan et al., 2021). In the context of heart failure patients, health education focuses not only on understanding the disease but also on developing positive habits such as maintaining a low-sodium diet, monitoring vital signs, and adhering to scheduled medical check-ups. An effective education process can help patients recognize signs of deterioration early, allowing them to take preventative action before more serious complications occur.

The effectiveness of education itself is greatly influenced by the methods and media used. Selecting appropriate educational media allows patients to more easily understand information, especially for individuals with limited health literacy, thus optimally achieving educational goals (Hutasoit et al., 2023). One effective and widely used educational medium is the booklet. A booklet is a printed medium containing health information systematically organized in simple language and accompanied by pictures or illustrations to facilitate understanding. This medium has the advantage of being practical, portable, and allowing patients to read and study independently. Furthermore, booklets can be reused repeatedly, making the information more easily remembered and applied by patients in their daily lives (Romero-Castillo et al., 2022).

Several studies have demonstrated the effectiveness of using booklets in improving self-care skills in heart failure patients. One study reported that providing education using printed media significantly improved patient knowledge and adherence to treatment compared to oral education without supporting media (Tinoco et al., 2021). Similar research also showed that the use of booklets in nursing education programs successfully increased patients' knowledge levels about heart failure, as well as increasing the frequency of routine consultations with medical personnel after the intervention (Kolasa et al., 2022). In addition, research conducted in Ethiopia also found that self-care education using written media was able to increase patient compliance and reduce the rate of disease recurrence (Dessie et al., 2021). These results demonstrate that the booklet is an effective medium for supporting sustainable self-care behavior changes in heart failure patients.

Not only does the booklet increase knowledge, it also helps patients increase their motivation and confidence in managing their disease. Through print media that can be read repeatedly, patients can strengthen their understanding of the causes, symptoms, and management of heart failure, thus better preparing them for changes in their condition (Huang et al., 2024). Furthermore, booklets facilitate patient self-study and tailor information to their individual needs. In Indonesia, printed media such as booklets are also considered more relevant than digital media because they are more accessible to patients with technological limitations or the elderly (Hutasoit et al., 2023). Thus, the use of booklets is a realistic and effective alternative to improve patient understanding and encourage better self-care behaviors.

Challenges remain in implementing booklet-based education, particularly in developing materials that use simple language and are easily understood by various age groups and education levels. Visual design and content must also be made engaging to encourage patients to read and apply the information in their daily lives. The success of the education program depends heavily on the involvement of healthcare professionals in providing initial explanations and motivating patients to utilize the media, including the crucial role of nurses in ensuring optimal educational benefits (Aryani et al., 2024). Therefore, greater attention to content quality and support from healthcare professionals are crucial steps in increasing the effectiveness of booklets as educational media. These conditions indicate that improving self-care skills in heart failure patients is an integral part of comprehensive disease management. Health education plays a strategic role in increasing patients' awareness, knowledge, and ability to manage their health independently. The use of educational media such as booklets is considered capable of strengthening patients' understanding of disease management, increasing therapy compliance, and encouraging healthier behavioral changes. However, the extent to which booklet-based health education contributes to improving self-care in heart failure patients, particularly in the context of nursing care, still needs to be further studied. A simple, engaging, and accessible educational approach is expected to support patient independence, improve quality of life, and reduce recurrence and rehospitalization rates.

## **METHOD**

This study employed a quantitative approach with a quasi-experimental one-group pretest-posttest design. This design was used to assess changes in self-care skills in heart failure patients before and

after receiving a health education intervention. The study was conducted at the Heart Polyclinic of a regional hospital in Surakarta from February to May 2025. Medical records from 2024 recorded 236 active heart failure patients undergoing outpatient care at the polyclinic, making this location a representative location for the study. The population in this study included all outpatients with heart failure at the Heart Polyclinic of a regional hospital in Surakarta. From this population, the sample size was determined using the Slovin formula with a 5% error rate, resulting in 148 respondents. The sample was selected using a purposive sampling technique based on certain criteria to align with the research objectives. Inclusion criteria included patients diagnosed with heart failure based on a doctor's medical record, aged 18 years or older, able to read and understand Indonesian, and willing to participate as respondents by signing an informed consent form. Exclusion criteria included patients with cognitive or cognitive impairments that could hinder understanding of the material, patients who were absent during the education process, and patients who experienced severe complications during the study period. This selection criteria was carried out to ensure that respondents were truly able to follow the intervention process and fill out the instruments optimally.

Patient self-care ability was measured using the Self-Care of Heart Failure Index (SCHFI) version 6.2. This instrument has been widely used in international research and has been adapted into Indonesian through back-translation by previous researchers, accompanied by validity and reliability testing by a team of medical-surgical nursing experts consisting of lecturers and practitioners experienced in the field of cardiovascular nursing. The SCHFI instrument consists of 22 items covering three dimensions: self-care maintenance, self-care management, and self-care confidence. Each item uses a Likert scale of 1–4, and the score for each dimension is converted to a scale of 0–100 according to guidelines. The reliability test in this study showed a Cronbach's alpha value of 0.956, indicating excellent internal consistency (Riegel et al., 2022).

In addition to using a questionnaire instrument, this study also utilized educational media in the form of a booklet containing self-care guidelines for heart failure patients. This booklet was compiled by researchers based on the results of a literature review and has been validated by three experts, consisting of two medical-surgical nursing lecturers and one clinical practitioner. The material in the booklet covers the definition of heart failure, causes, signs and symptoms, treatment management, self-care strategies, low-salt diet management, physical activity management, medication adherence, and recurrence prevention. This booklet is written in simple, concise, and easy-to-understand language, and is equipped with attractive illustrations to aid patient understanding. Before being used in the study, the booklet underwent content validation and readability testing on five heart failure patients outside the study sample to ensure the language and material were easy to understand. The test results showed that 96% of respondents found the booklet's content easy to understand and engaging to read. Following the validation process, researchers prepared an educational guide, observation sheets, and an intervention schedule to ensure consistent research procedures.

The research implementation phase was conducted face-to-face in the waiting room of the Heart Polyclinic. Respondents first completed the SCHFI questionnaire as a pretest to assess self-care skills before the educational intervention. Next, researchers provided health education using a booklet for approximately 15 minutes. The educational process was conducted interactively through short lectures, discussions, and questions and answers to help patients better understand the material. Following the educational session, each respondent was given a booklet to study independently at home for four weeks.

After the intervention period ended, respondents were asked to complete the SCHFI questionnaire again as a posttest to assess changes in self-care skills after receiving health education. The results of the measurements before and after the intervention were then compared to determine the increase in scores reflecting the effectiveness of booklet use. The collected data were analyzed using SPSS

software version 29.0. Univariate analysis was used to describe the characteristics of the respondents, while normality tests were performed using the Kolmogorov-Smirnov test. Because the data were not normally distributed ( $p < 0.05$ ), differences in pretest and posttest scores were analyzed using the non-parametric Wilcoxon Signed Rank Test. This study received ethical approval from the Health Research Ethics Committee of Dr. Moewardi General Hospital, with ethical clearance number: 387/II/HREC/2025. All research procedures were conducted in accordance with ethical research principles. Prior to participation, respondents were provided with a clear explanation of the study objectives, benefits, and procedures, and written informed consent was obtained from all participants. The confidentiality and anonymity of respondents were strictly maintained, and all data collected were used solely for academic purposes. This study did not involve any invasive medical procedures and posed no physical risk to the participants.

## RESULT

The results of this study illustrate the effectiveness of health education using booklets on the self-care skills of heart failure patients. The data are presented in a table that includes the respondents' demographic characteristics, self-care skills before and after the intervention, and the results of statistical tests to assess the differences between the two. 148 respondents successfully completed all stages of the research from pretest to posttest, so that the data obtained can describe changes in self-care abilities comprehensively.

### Demographic Characteristics of Respondents (n=148)

The results of the respondents' demographic characteristics are presented in Table 1, which includes the respondents' demographic characteristics based on age, gender, education level, occupation, comorbidities, length of time suffering from heart failure, and functional class.

Table 1.

Demographic characteristics of respondents (n=148)		
Characteristics	f	%
Age (Year)		
Teenagers (18-24 years)	7	4.7
Young adults (25-44 years)	26	17.6
Middle age (45-59 years)	58	39.2
Elderly ( $\geq 60$ years)	57	38.5
Type Sex		
Man	81	54.7
Woman	67	45.3
Education Final		
No school	12	8.1
Elementary School	41	27.7
Junior High School	25	16.9
Senior High School	48	32.4
Diploma	6	4.1
Bachelor	16	10.8
Postgraduate	0	0
Work		
Doesn't work	62	41.9
Civil servant	6	4.1
Indonesian National Armed Forces /Indonesian National Police	1	0.7
Self-employed	44	29.7
Businessman	10	6.8
Laborer	25	16.9
Disease Participant		
Hypertension	36	24.3

Characteristics	f	%
Diabetes	27	18.2
There isn't any	85	57.4
LongDisease		
<1 Year	56	37.8
1-3 Years	43	29.1
>3 Years	49	33.1
Class Functional		
NYHA I	33	22.3
NYHA II	62	41.9
NYHA III	48	32.4
NYHA IV	5	3.4

The majority of respondents were in the older adult and elderly age group (77.7%), with a slightly higher proportion of men than women. These findings indicate that heart failure is common in the elderly, who physiologically experience decreased heart function and thickening of the ventricular muscle. These results are consistent with studies reporting that the prevalence of heart failure increases with age and is more common in men (Groenewegen et al., 2020). Most respondents had secondary education (high school/vocational school), so the use of educational media with simple language and visuals is important to ensure that the information is well received by all patients.

**Distribution of Patient Self-Care Ability Before and After Intervention**

The results of the univariate analysis are presented in Table 2, which includes the distribution of self-care abilities of heart failure patients before and after being given health education using booklets.

Table 2.  
Patient self-care ability before and after intervention

Category	Before		After	
	f	%	f	%
Good	58	39.2	141	95.33
Bad	90	60.8	7	4.7

The results showed that before the intervention, the majority of patients (60.8%) had low self-care skills, with an average score of 53.60. This indicates that patients were not optimally recognizing signs of deterioration, adhering to a low-salt diet, or maintaining adherence to treatment. After receiving the educational intervention, there was a significant increase in self-care skills. The majority of respondents (95.3%) were in the good category, with an average score increasing to 63.18. This increase in scores reflects improvements in patients' understanding and behavior in managing their illness, both in aspects of self-care maintenance, self-care management, and self-care confidence. These results indicate that the use of educational media in the form of booklets designed with simple language and attractive illustrations can facilitate the learning process, increase family involvement, and strengthen patients' motivation to perform self-care independently.

**Self-Care Ability Difference Test Results**

The results of the bivariate analysis using the non-parametric Wilcoxon Signed Rank Test are presented in Table 3 to identify the comparison of the average scores of patients' self-care abilities before and after being given health education using booklets.

Table 3  
Differences in Self-Care Abilities

Variables	Average Before	Average After	p-value
Self-Care Skills	53.60	63.18	P < 0.001

The analysis results showed a significant difference between the pretest and posttest scores (p < 0.001). The average score increased from 53.60 in the pretest to 63.18 in the posttest, representing a

difference of 9.58 points, or a 17.87% increase. This improvement indicates that booklet-based health education plays a significant role in strengthening the knowledge, attitudes, and skills of heart failure patients in carrying out self-care. These results are not only statistically significant but also clinically significant, as they illustrate real behavioral changes in patients who are more disciplined in undergoing therapy, understand signs of deterioration, and are more active in making decisions regarding their health.

## **DISCUSSION**

Results Research shows that health education using booklets has a significant impact on improving the self-care skills of heart failure patients. The increase in the average score from 53.60 in the pretest to 63.18 in the posttest, with a difference of 9.58 points or an increase of 17.87%, indicates that this educational intervention successfully improved the cognitive, affective, and psychomotor aspects of patients in carrying out self-care. The results of the Wilcoxon Signed Rank Test with a p value <0.001 confirmed that the difference was statistically significant. Substantially, this indicates that the use of booklets as an educational medium is not only to convey information, but also triggers a learning process that has an impact on real behavioral changes in patients in managing their chronic disease. This success can be explained through the Self-Care of Heart Failure theory which emphasizes that self-care ability consists of three main components, namely self-care maintenance, self-care management, and self-care confidence (Riegel et al., 2022). These three aspects interact with each other and form the foundation for patient success in maintaining a stable condition and preventing relapse. Through the booklet, patients receive practical guidance on diet management, physical activity, symptom monitoring, and medication management, which can strengthen each component of self-care. A significant improvement in self-care scores indicates that patients not only understand the information but are also able to apply it in their daily routines, reflecting the transformation from knowing to doing.

The effectiveness of booklets is inseparable from their communicative, simple, and accessible characteristics. This booklet, which covers self-care for heart failure patients, is designed with easy-to-understand language, a systematic layout, and includes illustrations that help visualize health concepts. These characteristics align with the principles of andragogy, which states that adults learn most effectively when learning materials are relevant to their needs, directly applicable, and presented contextually. The ability to carry and reread booklets allows patients to learn independently, strengthens information retention, and facilitates personal reflection on their health behaviors. Thus, booklets function not only as a means of conveying information but also as a means of empowering patients to self-manage their condition. These results are consistent with several previous studies that have confirmed the effectiveness of written educational media. One study showed that written education significantly improved adherence in heart failure patients to medication and a low-salt diet compared to verbal education alone (Tinoco et al., 2021), the use of booklets in nursing education programs can increase the frequency of medical controls and reduce the recurrence rate (Kolasa et al., 2022), as well as booklet-based education reduces rehospitalization rates by increasing patient knowledge of signs of decompensation (Dessie et al., 2021). The consistency of these findings reinforces the fact that booklets remain an effective educational tool, particularly for patient groups with limited access to digital technology.

In addition to increasing knowledge, this study also highlighted the booklet's role in strengthening patients' self-efficacy. Self-efficacy plays a crucial role in successful self-care because patients who believe they can control their disease tend to be more compliant with therapy, more disciplined in monitoring symptoms, and more quickly make decisions about seeking medical help. These improvements reflect the internalization of health values, where patients begin to understand their active role in disease management. This finding aligns with Bandura's theory of self-efficacy, which states that the success of a new behavior is largely determined by the extent to which an individual believes in their ability to successfully perform it. An analysis of respondent characteristics also

reinforces these findings. The majority of respondents were in the older to elderly age group (77.7%) with a secondary education. This group generally has limited health literacy and the ability to understand complex information. However, the significant improvement in self-care scores suggests that media tailored to user characteristics, both in terms of language, design, and social context, can bridge these limitations. This aligns with research indicating that printed media, such as booklets, are the most effective educational tool for elderly patients in Indonesia because they do not rely on digital capabilities and can be accessed anytime (Hutasoit et al., 2023).

In addition to media quality, the effectiveness of education is also influenced by the interpersonal approach of healthcare workers. In this study, education was delivered through short, interactive lectures accompanied by discussions, providing opportunities for patients to ask questions and share experiences. This two-way interaction strengthens the therapeutic relationship between nurse and patient, increases information acceptance, and fosters internal motivation to change behavior. This is supported by research showing that the communicative and empathetic approach of nursing staff contributes significantly to the success of health education, particularly for chronic patients (Pakpahan et al., 2021).

Clinically, improving self-care skills has broad implications for heart failure management. Patients with strong self-care skills are able to recognize signs of deterioration early, take corrective action independently, and reduce the frequency of readmissions. One study demonstrated that improved self-care skills correlate with decreased mortality and rehospitalizations (Johansson et al., 2021). Thus, the improvement in self-care scores found in this study not only means increased knowledge, but also has the potential to improve long-term clinical outcomes and the efficiency of the healthcare system. From a psychosocial perspective, booklets also play a role in reducing anxiety and increasing family support. Education conducted with families allows them to understand the patient's condition and actively participate in monitoring, dietary management, and medication reminders. Thus, booklets serve as a therapeutic communication tool that strengthens the patient-family-healthcare professional relationship. This aligns with the principles of family-centered care, where family involvement is a crucial component in the successful management of chronic diseases.

However, this study has several limitations. The one-group pretest-posttest design without a control group means the results cannot definitively confirm that the changes were entirely due to the intervention, as they may still be influenced by other factors such as support from loved ones or the patient's previous experiences. The short-term (four-week) measurements also cannot demonstrate whether the educational effects are sustainable over the long term. Future research is recommended to use a randomized controlled trial design with a follow-up period of three to six months to assess the stability of behavioral changes. Using a mix of quantitative and qualitative methods can also provide a more comprehensive picture of patients' experiences using educational media.

Digital-based educational media innovations such as e-booklets or interactive videos have the potential to be attractive alternatives, especially for younger age groups who are accustomed to using technology. In the context of healthcare services in Indonesia, particularly in areas with limited digital infrastructure, printed booklets remain the most practical and effective medium. Nursing staff are encouraged to integrate booklets into routine educational programs, ensuring that the content is evidence-based and tailored to the patient's culture and literacy level.

## **CONCLUSION**

This study shows that health education using booklets is an effective, simple, and applicable intervention in improving the self-care skills of heart failure patients. Through a quantitative approach with a one-group pretest-posttest design involving 148 respondents at the Heart Polyclinic of a hospital in D, a self-care ability score of 9.58 points (17.87%) was obtained with a significance value of  $p < 0.001$  after the education was provided. These results prove that delivering information

visually and structured can improve patients' knowledge, motivation, and confidence in managing their disease according to self-care principles. Booklet-based education has been shown to help patients recognize symptoms of deterioration, comply with treatment, and consistently practice healthy lifestyles. This improvement not only has a statistical impact but is also clinically significant because it has the potential to reduce the risk of recurrence and rehospitalization. Thus, the use of booklets as an educational medium can be an effective strategy in medical-surgical nursing practice to improve the independence and quality of life of heart failure patients, while supporting promotive and preventive efforts in health services.

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