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## The Level of Knowledge is a Predictor Factor of Self-Care Compliance in Patients with Heart Failure

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### ABSTRACT

Self care is essential for achieving good outcomes among patient with heart failure and a predictor of well-being. The self-care activities that these patients must perform, including adhering to a multiple medication regimen, following dietary sodium restrictions, and self-monitoring weight, managing patient symptoms. A critical component of heart failure care, remains difficult in many case. Research Objectives This study aims to analyze relationship between level of knowledge with self-care compliance among patient with heart failure. Research Methods This research uses a quantitative research design with cros sectional study. The number of sample at 196 participants. This research was conducted from December 2021 to February 2022. The mean of age the participants at 56 years old. The most of participants are male and below higher school. The results of the analysis showed that there was an associated between level of knowledge with self-care compliance among patient with heart failure in Hasan Sadikin General Hospital, Bandung, Indonesia (p value = 0.001). Conclusion Higher levels of knowledge and better self-care compliance have been associated with improved clinical outcomes among patients with heart failure. Patients who actively engage in self-care behaviors, such as medication adherence, dietary modifications, regular physical activity, symptom monitoring, and timely healthcare seeking, are more likely to experience better symptom management, reduced hospitalizations, and improved quality of life.

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## 1. INTRODUCTION

Heart failure is a serious condition that can lead to death if left untreated or poorly managed. According to data from the World Health Organization (WHO), heart failure contributes to a significant number of deaths worldwide. In 2017, heart failure accounted for approximately 3.3 million deaths, representing 6% of all global deaths. Approximately 50% of individuals diagnosed with heart failure do not survive beyond five years [1]. According to Gupta et al.'s research in 2018, the Get With the guidelines, Heart Failure registry of the American Heart Association discovered an increased mortality rate in heart failure patients after hospitalization, even after adjusting for underlying factors.

The prognosis for individuals diagnosed with heart failure can vary depending on various factors such as age, underlying health conditions, and access to medical care. However, research suggests that the mortality rate for heart failure remains high. A study conducted found that approximately 50% of people who experience heart failure do not survive beyond five years after being diagnosed [2]. The degree of heart failure is determined by a scale of restrictions in the range of functional physical activity, and it is deemed stable when the symptoms and signs have not changed for more than one month [3]. Several mayor problems were extreme fatigue, shortness of breath, anxiety, hopelessness, and anger [4]. Physical and mental symptoms of heart failure include dyspnea, exhaustion, discomfort, orthopnea, edema, loss of appetite, anxiety, and sadness [5].

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The European Society of Cardiology and American Heart Association stress the value of self-care practices and self-management abilities to supplement medicines and enhance heart failure patients' symptoms and prognosis [6]. Self-care management is a predictor of well-being, self-care management patterns among heart failure patients and the self-care activities that these patients must perform, including adhering to a multiple medication regimen, following dietary sodium restrictions, and self-monitoring weight, managing patient symptoms [7]. A critical component of heart failure care, remains difficult in many case.

For heart failure patients to have successful results, self-care behavior is crucial. It's crucial to comprehend the aspects that affect self-care over time in order to provide suitable[8]. Self-care practices are essential for lowering chronic heart failure (HF) morbidity and mortality, although results are still lacking globally.

Self care is something that is learned, activities aimed at helping themselves to manage their desired lives, health, development, and well-being [9]. The aim of Orem's theory of self care is to help clients take care of themselves. Five themes showed up. the reasons for self-care were (1) considering the future of the family and (2) taking into account one's past, even while demotivated (3) fatalistic reflection about one's own future. Barriers to changing behavior were (4) developing a physical activity routine, and (5) a challenge departing from sociocultural and personal dietary customs. Clinicians and case managers can help patients improve self-regulation by teaching them situational and tactical skills to create individualized plans to change their lifestyles and avoid temptations. Patients that do not adhere to their self-care routine are one example of practice issues [8]. Better self-care could enhance patient outcomes, lower the need for readmission, and lessen the financial burden of global healthcare.

The gap in self-care compliance among patients with heart failure refers to the disparity between the recommended self-care practices and the actual adherence or compliance of patients in implementing those practices [3]. Several factors contribute to this gap is lack of understanding about self-care [5]. Some patients may not fully understand the importance of self-care practices or the potential consequences of non-compliance [5]. They may not be aware of the direct impact that adherence to medication, dietary restrictions, or lifestyle modifications can have on managing their heart failure effectively [8][5]. The self-care regimens for heart failure can be complex and involve multiple components such as medication schedules, dietary modifications, fluid restrictions, physical activity guidelines, and symptom monitoring [7]. Patients may find it overwhelming to juggle and adhere to all these recommendations consistently.

Non-compliance with self-care recommendations and guidelines among patients with heart failure is a common issue that can have negative impacts on their health and well-being [8]. Several factors contribute to the problem of self-care non-compliance, one of them is lack of knowledge [10]. Limited understanding or knowledge about heart failure and the importance of self-care can lead to non-compliance [7]. Patients may not fully comprehend the consequences of non-adherence to medications, dietary restrictions, or lifestyle modifications [11].

Research findings indicate that many heart failure patients have a limited understanding of self-care practices [12]. Several studies have highlighted the insufficient knowledge among patients regarding self-care in heart failure management, a significant number of heart failure patients lacked knowledge about dietary restrictions, medication adherence, and symptom recognition [5]. Another study conducted patients often struggled with recognizing early signs and symptoms of worsening heart failure, leading to delayed seeking of medical assistance [13]. Furthermore, they demonstrated inadequate knowledge about fluid and sodium restrictions [10], which are crucial aspects of self-care in heart failure management [8]. Based on the aforementioned condition, the researchers are interested in conducting a study on the relationship between level of knowledge and self-care compliance among patient with heart failure.

## 2. RESEARCH METHOD

This study used a quantitative research design with cross-sectional study. This research is to reveal a causal relationship by involving participants between level of knowledge and self-care compliance in time. This research was conducted in the clinic heart failure in Hasan Sadikin General Hospital, Bandung, Indonesia in 2022. To calculate the sample size using the Slovin's formula with acceptable margin of error 5%. The number of sample was calculated with at 110 participants. This research was supported and approved by International Review Board Hasan Sadikin Hospital with number LB.02/01/X.6.5/197/2021 on 27 July 2021.

## 3. RESULTS AND DISCUSSION

### 3.1. RESULTS

The findings of the research that was done to determine the demographic profiles, level of knowledge, and self-care compliance:

**Table 1.** Demographic Profile among Patients with Heart Failure in Hasan Sadikin General Hospital in Bandung, Indonesia (n=110)

Demographic profile	Age, mean±SD
Age, mean±SD	56.26 ± 12.49
Gender, f(%)	
Male	63 (57,3)
Female	47 (42,7)
Education level, f(%)	
Above the senior high school	39 (35,5)
Below senior high school	71 (64,5)
Occupation, f(%)	
Employed	39 (35,4)
Unemployed	71 (64,6)
Level of knowledge, f(%)	
Low knowledge	84 (76,4)
High knowledge	26 (23,6)
Self-care Compliance	
Low	92 (83,6)
High	18 (16,4)

Based on the results of research on demographics profiles this study found that mean of age at 56,26 years, most of participants are male and most of participants with below senior high school. Most of participants with low knowledge at 84 (76,4%), and most of participants in low self-care compliance at 92 (83,6%).

**Table 2.** Analysis of the Relationship between Level of Knowledge with Self-Care Compliance among Patients with Heart Failure

Level of knowledge	Self-care compliance				P Value
	Low		High		
	n	%	n	%	
Low knowledge	73	79,3	11	61,1	0.001
High knowledge	19	20,7	7	38,9	
Total	92	100	18	100	

## 3.2 DISCUSSION

### 3.2.1. Demographics Profiles

Based on the results of research on demographics profiles among patients with HF was mean of age 56.26 ± 12.49. The age of 56 represents the older adult age group that undergoes degenerative processes, thus carrying a higher risk of experiencing cardiovascular system disorders. The prevalence of heart failure increases, and it becomes a leading cause of hospitalization and mortality in elderly.

The relationship between the elderly and heart failure is significant due to several factors. As individuals age, they are more prone to developing heart failure due to the natural aging process and the cumulative effects of other health conditions. The elderly population faces a higher risk of developing heart failure compared to younger individuals. This can be attributed to age-related changes in the cardiovascular system, including reduced elasticity of blood vessels, decreased cardiac reserve, and impaired heart muscle function. Managing heart failure in the elderly can be complex due to multiple comorbidities, polypharmacy (taking multiple medications), and the need for close monitoring and lifestyle modifications.

Given these factors, it is crucial to prioritize preventive measures, regular cardiovascular screenings, and comprehensive management strategies for heart failure among the elderly population. Early detection, lifestyle modifications, medication management, and appropriate healthcare interventions can help improve outcomes and enhance the quality of life for elderly individuals living with heart failure.

Studies have shown that male tend to have a higher prevalence of heart failure compared to women. This may be attributed to biological, hormonal, and lifestyle factors. Male often experience heart failure at a younger age

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compared to women. This may be due to the presence of other cardiovascular risk factors, such as hypertension and coronary artery disease, which tend to develop earlier in men. Under lying Cardiovascular Conditions: Certain cardiovascular conditions, such as coronary artery disease and heart attacks, are more common in male. These conditions can contribute to the development of heart failure. Male and female may have differences in heart structure and function, such as variations in ventricular size and mass. These differences may influence the development and progression of heart failure. Lifestyle choices, such as smoking, excessive alcohol consumption, and a sedentary lifestyle, can increase the risk of heart failure in male. These factors, when combined with genetic and physiological factors, can contribute to the development of heart failure.

Majority of participants are below senior high school. Education level is often used as a proxy for socioeconomic status. Lower education levels are generally associated with lower socioeconomic status, which may have implications for overall health and access to healthcare resources. Higher education levels are often associated with better knowledge and awareness of healthy lifestyle behaviors. Individuals with lower education levels may have a higher prevalence of risk factors for heart failure, such as smoking, poor dietary habits, sedentary lifestyle, and limited access to healthcare. Education level can influence health literacy, which refers to an individual's ability to understand and utilize health information. Higher education levels are generally associated with better health literacy, enabling individuals to make informed decisions regarding their health, including managing risk factors and adhering to treatment plans. Higher education levels are often associated with better access to healthcare services and utilization of preventive measures. Individuals with lower education levels may face barriers to healthcare access, leading to delayed diagnosis, suboptimal management, and poorer outcomes

### 3.2.2. Level of knowledge Among Patient with Heart Failure

Most of participants with low knowledge at 84 (76,4%) and other high knowledge at 26 (23,6). Most heart failure patients lack understanding of how to perform self-care at home; they struggle to comprehend the actions to take when symptoms like severe shortness of breath, the onset of leg edema, and extreme fatigue occur. Heart failure patients' ignorance about home care refers to the lack of understanding or knowledge that patients suffering from heart failure have about the actions to take or treatments to follow when they are at home. This is a serious issue in the management of heart failure conditions, as inappropriate or inadequate understanding of home care can result in more severe symptoms, worsening of the condition, and even more frequent hospitalizations [8].

Some of the main reasons for heart failure patients' ignorance about home care include:(1) Treatment Complexity: Treatment for heart failure often involves the use of different medications, dosages, and complex schedules. Patients may have difficulty understanding or following a doctor's prescription correctly. (2) Lack of Education: Patients may not receive adequate education about their condition, symptoms to look for, or emergency actions to take when symptoms worsen.(3). Limited Access to Information: Some patients may not have adequate access to medical information sources that can help them understand home care. (4) Lifestyle Changes: Lifestyle changes such as a low-salt diet, increased physical activity, and fluid control may be necessary, and patients may not know how to implement these changes. (5) Stigma or Denial: Some patients may experience stigma or denial related to their heart failure condition, which may prevent them from seeking the help or information they need [14].

To overcome this ignorance, it is important to provide effective education to patients about their condition, explain home care steps clearly, and provide adequate support. This can help patients understand their role in the management of their disease and improve their quality of life while reducing the risk of serious complications [5].

### 3.2.3. Self-care Compliance Among Patient with Heart Failure

Table 2 shows that patient undergoing HF in Hasan Sadikin General Hospital endorse low of self-care compliance. The European Society of Cardiology and American Heart Association stress the value of self-care practices and self-management abilities to supplement medicines and enhance heart failure patients' symptoms and prognosis. [6]. Self-care management is a predictor of well-being, self-care management patterns among heart failure patients and the self-care activities that these patients must perform, including adhering to a multiple medication regimen, following dietary sodium restrictions, and self-monitoring weight, managing patient symptoms. In many cases, a crucial aspect of treating heart failure remains challenging. Self-care practices are essential for lowering chronic heart failure (HF) morbidity and mortality, although results are still lacking globally.

Self care is something that is learned, activities aimed at helping themselves to manage their desired lives, health, development, and well-being [9]. The aim of Orem's theory of self care is to help clients take care of themselves. Five themes showed up. the reasons for self-care were (1) considering the future of the family and (2) taking into account one's past, even while demotivated (3) fatalistic reflection about one's own future. Barriers to

changing behavior were (4) developing a physical activity routine, and (5) a challenge departing from sociocultural and personal dietary customs. Clinicians and case managers can help patients improve self-regulation by teaching them situational and tactical skills to create individualized plans to change their lifestyles and avoid temptations. [4].

Patients with chronic heart failure must practice self-care and actively monitor their symptoms and signs to prevent deterioration. [15]. Patient adherence to prescribed treatment good survive. How ever study shows compliance to medications and self care are low. Complex pharmaceutical management, continuing behavioral adjustments, and self-care are all necessary for the management of HF. (eg, dietary modification, sodium restriction, monitoring of weight) [14].

### 3.2.4. Relationship between Level of Knowledge with Self-care Compliance Among Patient with Heart Failure

Higher levels of knowledge about heart failure, its management, and self-care practices are generally associated with better self-care compliance among patients. When individuals have a good understanding of their condition, its symptoms, treatment options, and the importance of self-care, they are more likely to engage in behaviors that promote their well-being [5]. Higher levels of knowledge and better self-care compliance have been associated with improved clinical outcomes among patients with heart failure [7]. Patients who actively engage in self-care behaviors, such as medication adherence, dietary modifications, regular physical activity, symptom monitoring, and timely healthcare seeking, are more likely to experience better symptom management, reduced hospitalizations, and improved quality of life [8].

Effective communication between healthcare providers and patients plays a crucial role in improving knowledge and self-care compliance [5]. Clear explanations, tailored education, and ongoing support and reinforcement of self-care practices can help patients better understand and adhere to the recommended self-care behaviors. Patients with lower levels of education, limited access to healthcare resources, or language barriers may face challenges in acquiring knowledge about heart failure and self-care practices. Addressing these barriers through culturally appropriate educational materials, support groups, and personalized patient education can improve knowledge and subsequent compliance[16].

## 4. CONCLUSION

Based on the results of the research that has been carried out and described in the discussion that was exposed in the previous chapter, the researcher can provide the following conclusions: The majority of heart failure patients exhibit low compliance to self-care practices. Majority of heart failure patients have insufficient knowledge about self-care practices. There is an relationship between level of knowledge with self-care compliance among patients with heart failure.

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