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Effectiveness of Health Management Education for Congestive Heart Failure Patients in Surabaya

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Abstract

BACKGROUND: Health problems with cardiovascular system disorders including congestive heart failure (CHF) still rank highly. CHF is one of the heart diseases that continue to increase in incidence and prevalence every year, including in Indonesia. Lack of health education about how home care is a factor increases the incidence of rehospitalization in CHF patients. Here, researchers have provided knowledge to patients about how things to avoid, foods to avoid, recommended foods, and diet to do.

OBJECTIVE: This study aimed to analyze effectiveness of health management education for CHF patients in Surabaya.

METHODS: The research method used is quantitative analytics with a pre-experimental design with an approach (one group pre-post-test design). The population in this study was all CHF patients admitted to hospitals in Surabaya as many as 150 respondents. Sampling using accidental sampling technique. Data were analyzed using and Wilcoxon test.

RESULTS: Wilcoxon test results obtained knowledge (p = 0.000), diet (p = 0.001), and physical activity (p = 0.001) which means there is an influence on providing health management education for CHF patients.

CONCLUSION: Health management education effectiveness for CHF patients in Surabaya. Health-care providers can add health education programs for patients with CHF or other diseases, as a form of nursing service implementation.

Introduction

Congestive heart failure (CHF) is the inability of the heart to maintain adequate cardiac output to meet metabolic and oxygen needs in tissues despite adequate venous backflow. CHF is one of the heart diseases that continue to increase in incidence and prevalence every year. This has resulted in CHF morbidity and death rates continuing to increase [1]. Several conditions are known to be associated with the risk of death in CHF patients. CHF patients are known to have a greater risk of death than CHF patients aged below that. This is in line with the quality of life of CHF patients who decline with age. Research says that female CHF patients have a lower risk of death than male CHF patients. However, other studies also mention that female CHF patients actually have a higher risk of poor prognosis [2].

Health problems with cardiovascular system disorders including CHF still rank highly. According to the Centers for Disease Control and Prevention, in the United States about 5.7 million adults suffer from heart failure and half of patients who suffer from heart failure will die within 5 years. In addition, data reported by the American Heart Association projects the prevalence of heart failure will increase by 46% from 2012 to 2030 which will >8 million people aged ≥18 years will experience heart failure [3]. About 17.9 million people died from cardiovascular disease in 2016, accounting for 31% of the world's total deaths. This mortality rate, 85%, is caused by heart attacks and strokes [4]. CHF is the second leading cause of death in Indonesia after stroke [5]. Meanwhile, in East Java Province itself, when comparing between 2020 and 2021, data show that there has been a decrease in the cumulative incidence rate or the proportion of new cases of CHF in East Java, from the previous 9.82% in 2020 to 1.90% in 2021 [6], [7]. The preliminary study dated January–March 2022 results from interviews found a total of 40 patients. Management carried out when patients go home is given education about diet, diet carried out, and activities carried out so that there is no recurrence at home.

The tendency of patients to experience dependence affects the role and function of the family who cares for the patient so that it interferes with the family's economic status, this is because patients with heart failure must always routinely checkup and

therapy which certainly requires expensive costs, as a result not only financially disrupted, the level of family stress also plays a big role in the problems faced by the family. Heart failure patients also have psychological problems such as anxiety, sleep disorders, depression, and excessive sensitivity which results in a decreased quality of life of patients [8], [9].

Lack of health education about how home care is a factor increases the incidence of rehospitalization in CHF patients. Here, researchers have provided knowledge to patients about how things to avoid, foods to avoid, recommended foods, and diet to do. Therefore, the importance of health education "CHF Health Management" for patients when returning home so that patients can minimize recurrence while at home. Heart failure has a great impact on patients and families. Patients with heart failure in principle have symptoms of fatigue and dyspnea coupled with rehospitalization and high mortality contribute to worsening health [10].

One of the efforts that can be made to increase one's knowledge is by providing counseling. Counseling is a process of interaction with someone who provides information and reactions to stimulate the ability to develop knowledge, understanding, and awareness to behave in a way that allows someone to play a more effective role for themselves and their environment [11], [12]. Based on this background description, researchers are interested in conducting research on "Effectiveness of Health Management Education for CHF Patients in Surabaya."

Methods

The research method used is quantitative analytics with a pre-experimental design with an approach (One Group Pre-Post Test Design). The population in this study was all CHF patients admitted to hospitals in Surabaya, Indonesia as many as 150 respondents. Sampling used the method accidental sampling. This research has received ethical approval from the ethics committee of Universitas Nahdlatul Ulama Surabaya with No. 2451/EC/KEPK/UNUSA/2021.

This research was conducted from June to September 2022 at a hospital in Surabaya. Where in this study, the sample was given a pretest (initial observation) first before being given an intervention, after that an intervention was given, then a posttest (final observation) was carried out. This research uses ethical principles in collecting data, namely, the principle of benefit, the principle of respecting the rights of subjects, and the principle of justice. Data collection was performed using a questionnaire sheet. The data that has been obtained are then analyzed Wilcoxon test.

Results

Demographic data

Based on Table 1 above, it shows that the majority of CHF patients with gender man, age average 45–54 years old, and level of education is high education more than 50%.

Table 1: Demographic data of CHF patients

S. No.	Variable	Group	
		Intervention (%)	Control (%)
1.	Gender		
	46 (61.3)	46 (61.3)	47 (62.7)
	Women	29 (38.7)	28 (37.3)
2.	Age (years)		
	<45	11 (14.7)	9 (12.0)
	45–60	54 (72.0)	58 (77.3)
	>60	10 (13.3)	8 (10.7)
3.	Level of education		
	Low education	28 (37.3)	29 (38.7)
	High education	47 (62.7)	46 (61.3)

Based on the statistical analysis of the Wilcoxon test, the knowledge p = 0.001, diet p = 0.001, and physical activity p = 0.001 was smaller than 0.05, which means that there is a significant difference between after and before intervention of health management education (Table 2).

Discussion

Demographic data of CHF patients

With increasing age, there will be changes in the physical and psychological (mental) aspects. Physical growths there are four categories of changes in size, proportion, loss of old characteristics, and emergence of new characteristics. This occurs due to the maturity of organ function. The psychological or mental aspect of a person's level of thinking is getting more mature and mature [13], [14]. Age 45-60 years old of heart failure sufferers at a hospital in Surabaya was 45-60. In this study, the proportion of respondents with heart failure was divided into three, in which the age range was 45–60 years with a portion of more than 70% each in both groups. This shows that there are people with heart failure who suffer from heart failure in adulthood, the elderly to the elderly. Age is indeed a risk factor for heart failure.

However, the role of age risk factors must be reviewed from the gender factor. This is because in terms of gender, a person's susceptibility to heart failure is influenced by the role of the hormone estrogen which protects women from various cardiovascular diseases. Therefore, men are susceptible to heart failure at the age of 50, while women are at the age of 65 or after menopause [15], [16].

This research is also in line with Rispawati's research (2019). The results of research that have been

Table 2: The dispute of the knowledge, diet, physical activity, and before and after the intervention of health management education

Variable	Mean	Standard deviation	Standard error mean	p-value
Knowledge				
Pre test	276.93	15.606	58.352	0.000
Post test	227.93	18.495	69.544	
Diet				
Pre test	3.66	0.614	0.179	0.001
Post test	3.76	0.317	0.049	
Physical activity				
Pre test	2.85	0.526	0.119	0.001
Post test	3.35	0.000	0.000	

conducted related to clients who have heart failure and undergo treatment procedures obtained the results of respondents' characteristic data based on education are 25 high school graduates (75.8%) and education with at least Diploma/PT as many as 2 people (6.1%) [11].

Based on the results of existing studies, researchers analyzed that one of the risk factors that cannot be changed in CHF is age and sex.

Effectiveness of health management education for CHF

Patients: the results of this study showed an influence (pre-test) with significant values of non-parametric statistical test results (Wilcoxon) knowledge (p = 0.000), diet (p = 0.001), and physical activity (p = 0.001) meaning that there was an influence of providing health management education on knowledge, diet, and physical activity of CHF patients.

Knowledge is the result of knowing and this happens after people have sensed a particular object. Sensing occurs through the five human senses, namely, the senses of sight, hearing, smell, taste, and touch. Most human knowledge is acquired through the eyes and ears. Knowledge or cognitive is a very important domain in shaping a person's actions. Experience and research prove that behavior based on knowledge will be more lasting than behavior that is not based on knowledge [17], [18].

The results of this study are in line with Wulandari and Hariyati's research (2019) showing that there is an influence on the implementation of discharge planning on family knowledge in treating CHF patients [19]. In addition, research conducted by Rispawati (2019) explained that the average value of knowledge before being given cardiac diet counseling was 47.87 and changed to 63.63 after being given cardiac diet counseling [11]. Then, the calculated value results show a number of 13,656 or greater 1,697 which means that there is an influence of cardiac diet counseling on knowledge of heart diet in CHF patients. Research conducted by Putradana *et al*., (2021) with the results showed that fluid balance in both the intervention and control groups experienced significant changes as shown by the value of p = 0.001 which means there was a significant improvement in the post-test [20].

During the study, it was seen that all respondents were active and cooperative to ask questions related to health education about Health Management of CHF Patients [21]. Most respondents were enthusiastic about providing CHF material, all respondents were cooperative so that researchers felt the positive impact of providing health management education for CHF patients. The provision of health education CHF can be reduced and prevented.

Conclusion

Effective health management education is carried out for CHF patients. Providing regular health education should be done. Health-care providers can add health education programs for patients with CHF or other diseases, as a form of nursing service implementation.

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Authors' Contribution

All authors contributed equally to the study conceptualization, methodology, article search, data analysis, writing, and editing of the manuscript. All authors approved the final version of the article.

Data availability statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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