The Effect of Self-Care Health Education on Dorothea Orem's Self-Care Knowledge of the Elderly with Hypertension at the Cardiac Ward of the Public General Hospital R. Syamsudin, SH

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Abstract. Hypertension happens when blood pressure exceeds the normal threshold; it can be dangerous and a major cause of cardiovascular system complications. Hypertensive patients must make a self-care effort to avoid complications. This research aims to determine the effect of self-care according to the Dorothea Orem approach in the cardiac ward of the Public General Hospital (*Rumah Sakit Umum Daerah* – RSUD) R. Syamsudin, SH in Sukabumi City, West Java, Indonesia. Our research was quasi-experimental with a nonequivalent control group design model. Samples were selected using probability sampling through a systematic random sampling approach. We had 34 hypertensive patients as our samples. Data were analyzed using Bivariate analysis of the Wilcoxon test and Mann-Whitney test. Findings showed different Dorothea Orem's knowledge of the control and treatment groups during the pre-test and post-test, in which the p-value for the Man-Whitney test was 0.049 (p-value < 0.043) and the average difference value between the control and treatment groups was 21.76. To sum up, health education on self-care knowledge effectively improves the self-care knowledge of Dorothea Orem among hypertensive patients. It is recommended that the hospital continue health education.

Keywords: Hypertension; knowledge; self-care; dorothea orem; health education

1 Introduction

Hypertension has been a global issue; it has been called a silent disease because people suffering from hypertension may not realize their high tension before taking a medical check-up. Frequent and long-term hypertension may trigger stroke and heart attack; hypertension is the main cause of acute kidney failure [1].

Hypertension happens when the Systolic Blood Pressure is more than or equal to 140 mmHg, and Diastolic Blood Pressure (TDD) is more than or equal to 90 mmHg. Hypertension affects the quality of life of the people suffering from it. Hypertensive people need long-term therapy; they also pose a high risk for complications and decreased quality of life that may affect their physical, psychological, and social relationships.

Based on WHO data in 2018, cardiovascular disease has caused 17 million deaths each year, of which 9.4 million deaths have been due to hypertensive complications, and the figure is nearly 1.5 million for people living in Asia. On average, 1 in 3 adults in Indonesia suffers from hypertension, out of 927 million people with hypertension in Asia [2].

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Hypertension is closely related to the cardiovascular system; it is a disorder that involves the heart as the carrier of blood. Control starts from the rapid reaction system, such as cardiovascular reflexes through the nervous system, chemoreceptor reflexes, ischemia responses, the central nervous system originating from the atrium, and smooth muscle pulmonary arteries. Meanwhile, the slow control-system reaction occurs through fluid transfer between the capillary circulation and the interstitial space and is controlled by the hormones angiotensin and vasopressin. Then it is continued with a potent system and takes place in the long term. It is maintained by a system regulating body fluids involving various organs, so hypertension is said to be a cardiovascular disorder [3].

Data from the Ministry of Health of the Republic of Indonesia in 2020 show that the prevalence of hypertension in Indonesia has reached 113 million, or 31.7% of the adult population. Around 1781 or 60% of hypertension sufferers end in strokes, and the rest cause heart disease, kidney failure, and blindness. West Java Province ranks fourth in 2021 as the region with the highest hypertension prevalence, at 29.4%, with 12,781 people with hypertension in West Java [4].

One reason people suffer from hypertension is that they prefer to eat junk food, which is low in fiber, high in fat, high in sugar, and contains much salt; this unhealthy eating pattern triggers hypertension. Intake of foods with high fat and sodium can affect blood pressure, causing hypertension.

Uncontrolled hypertension will cause various complications, especially in the elderly who experience physiological function decline. Hypertension in the elderly is riskier than in young people. If it affects the heart, there may be myocardial infarction, coronary heart disease, or congestive hypertension. It may trigger a stroke and hypertensive enteropathy if it affects the brain. If it affects the kidneys, chronic renal failure occurs. If it affects the eye, hypertensive retinopathy will occur. One of the efforts to prevent complications of hypertension is to increase awareness of hypertension prevention. Individuals with heart disease must master self-management of the disease in everyday life [5].

Sustainable self-care can help people to prevent, recognize, and manage illness. Thus, it is hoped that self-care increases health and quality of life to avoid complications. Self-care is important for controlling hypertension in hypertensive individuals. For the hypertensive elderly, sufficient knowledge is crucial to control hypertension. Health education can affect knowledge and prevent disease complications, including hypertension. Continuous hypertension can lead to strokes, heart attacks, and kidney failure. Health education is the responsibility of health workers, including nurses. Nurses are vital in evaluating the quality of health services; they contribute to improving the services. One of the important roles of a nurse is as a client educator, emphasizing that learning is the basis of health education related to all levels of health and prevention [6].

Our previous observations at the cardiac ward of RSUD R. Syamsudin, SH in Sukabumi, West Java, on April 18, 2022, showed that out of 10 hypertensive patients, 7 did not understand the definition, symptoms, and complications of hypertension. Then, 6 patients admitted that they did not care much about their lifestyle, including not having enough exercise, not complying with health treatment, and smoking. We also found that 7 patients did not take care of themselves much, including being unable to control their hypertension, not complying with the medication, and not having a proper diet for hypertensive patients. Only 3 patients stated that they took care of themselves, including eating nutritious food, following a good diet, exercising regularly, and independently performing their daily activities.

Based on the initial observations, we were interested in analyzing the effect of self-care health education on Dorothea Orem's self-care knowledge of the elderly with hypertension at the cardiac ward of a general public hospital in Sukabumi, West Java, Indonesia.

2 Method

The study was quasi-experimental with a nonequivalent control group design model. Our population was all elderly patients with hypertension taking their health treatment at the cardiac ward of RSUD R. Syamsudin, SH in Sukabumi, West Java. Data showed an average number of 400 patients per month. Samples were selected using probability sampling through a systematic random sampling approach. Samples were selected based on the following criteria: (1) hypertensive patients with a systolic blood pressure of > 140 mmHg and diastolic blood pressure of > 90, aged > 60 years; (2) hypertensive patients who were willing to be respondents; and (3) patients with hypertension taking treatment at the cardiac ward of RSUD R. Syamsudin, SH in Sukabumi, West Java.

The sample size must represent the study population, with a standard error of 5%. Roscoe in Astuti (2013) mentions that the minimum sample per group for a simple experimental study is 15. Our study employed 34 hypertensive patients as the samples—17 in the control group and 17 in the experimental or treatment group.

The intervention was in the form of lecturing. Lecturing is a method of explaining ideas or messages orally to individuals or groups as the target—this method is the most widely used in health education [7]. The media used for this method were books or booklets and presentations for around 35-60 minutes. [8] mention that a duration of 60 minutes is more effective for health education.

3 Findings and Discussion

The followings are the results on self-knowledge among hypertensive patients.

Table 1. Data Analysis Results

Knowledge	N	Mean	Mean Difference	SD	Min	Max
Control Group						
Pre-Test	17	52.70		23.36	11. 76	94.11
Post-Test	17	53.64	0.94	19.21	14.70	88.23
Treatment group						
Pre-Test	17	44.94	22.7	34.93	2.9	97.05
Post-Test	17	67.64		19.31	41.17	97.05

Table 1 shows that the p-value on the normality test for the control group was 0.806 during the pre-test and 0.169 during the post-test. The p-value on the normality test for the treatment group was 0.006 during the pre-test and 0.098 during the post-test. The data were normally distributed for the control group during the pre-test and post-test; however, the data for the treatment group was not normally distributed for the pre-test. Because some data were not

normally distributed, the bivariate analysis for the present study employed the non-parametric analysis, i.e., the Wilcoxon Test and the Mann-Whitney Test.

Table 1 confirms that both groups experienced an increase in the average health knowledge score, 0.94 for the control group and 22.7 for the treatment group.

3.1 An Overview of Dorothea Orem's Self-care Knowledge Before Intervention

Frequent and long-term hypertension may trigger stroke and heart attack; hypertension is the main cause of acute kidney failure. Stroke attacks 36% of the elderly in Indonesia, especially hemorrhagic stroke, due to uncontrolled hypertension. Death due to coronary heart disease triggered by uncontrolled hypertension reaches 42.9%. It can be concluded that the high complication rate among hypertensive patients is due to uncontrolled hypertension.

Findings show that the average score of Dorothea Orem's self-care knowledge before intervention (pre-test) for the control group is 52.70, and for the treatment group is 44.94.

Health education is one way to raise public awareness on knowledge of hypertension; it aims to bring impacts for a better lifestyle. Operationally, it is an activity to disseminate knowledge, attitude, or practice in caring for and increasing health. Health education can be done using health promotion aids in the form of visual, audio-visual, and audio. The primary objective of health education is to help people understand their health status, fulfill their needs, and understand how to manage their health problems with the resources accessible to them coupled with outside support so they can decide on what to do to improve their standard of living and well-being.

Education is crucial in determining human quality because humans gain knowledge and information through education. The higher people's level of education, the higher the quality of life they have. Several factors, including age, gender, education, and information sources, influence knowledge.

Age greatly affects people's ability to receive information and the way they think about the information obtained. Increasing age will affect one's ability to receive information to develop the mindset further.

Most respondents graduated from elementary school, meaning most had a low education level. One factor affecting knowledge is education—education levels affect one's perception in taking actions and making decisions. Our findings confirm that respondents had a low level of knowledge before the health education program. This could happen because the respondents' family members also lacked hypertension knowledge. In addition, lack of knowledge may also be associated with age, gender, education levels, and the ability of community health workers responsible for the people in a certain area. People's attitude toward certain things, including health, is determined by their knowledge, beliefs, traditions, and others. In addition, the availability of facilities, along with health workers' attitudes and behavior, also affect people's attitudes toward health.

3.2 An Overview of Dorothea Orem's Self-care Knowledge After the Intervention

Findings show that the average score of Dorothea Orem's self-care knowledge after intervention (pre-test) for the control group is 53.64, and for the treatment group is 67.64. This means that the average score of Dorothea Orem's self-care knowledge for the two groups increased; however, the control group's increase was not as significant as in the treatment group. The increase happened due to the intervention in the form of health education related to Dorothea Orem's self-care knowledge.

In this study, we compared the intervention and control groups with the consideration that the respondents continued to use health education provided by nurses from the hospital's cardiac ward. Intervention is important in increasing compliance in treating chronic diseases, such as changes in attitudes toward medication, diet, and daily activities. Efforts to change how people maintain their health continuously are required in health education. One effort that can be made to improve self-management is to provide health education [6].

One effort to improve self-care for hypertensive clients is to provide health education. Health education is a top priority and is one of the effective nursing interventions to increase public awareness of hypertension. Health promotion activities can achieve maximum results if health promotion uses appropriate methods and media suitable to the target [3].

Self-care management helps to control hypertension mortality and morbidity by managing factors affecting blood pressure. The results of this study indicate that self-care management as disease management can be applied in everyday life to avoid complications in hypertension. [9] shows that self-care management in hypertensive patients leads to a change in systolic blood pressure with a significance value of 0.000 (p 0.05).

3.3 Difference in Dorothea Orem's Self-care Knowledge Before and After the Intervention

Table 1 confirms that the test results differ between the control and treatment groups in Dorothea Orem's self-care knowledge. The treatment group has a mean difference score of 22.7 between the pre-test and post-test, while the control group has a mean difference score of only 0.94 between the pre-test and post-test. The higher increase in the treatment group was more significant than the control group. The finding supports [10], stating that self-care education and support from health workers significantly improve patients' self-care efforts and daily activities among patients with heart failure. There is also an increase in the mean score of the control group during the pre-test and post-test; this is understandable because no intervention was done in the control group, yet the group also experienced an increase in the mean score because the group might have received information from the health workers at the cardiac ward.

The change in the mean score before and after the supportive and educative intervention confirms that the intervention affects self-care knowledge; in other words, the supportive and educative intervention significantly affects self-care knowledge among hypertensive patients. Support from health workers affects the intervention to improve self-care; support from health workers and family members is also important for the patients. Family support means attitudes or behavior and acceptance of family members to the condition of patients—the care, love, and support from family members can change the patients' perspective in taking care of themselves. Knowledge also affects the self-care of hypertensive patients. Patients not complying with the medication usually are those with low knowledge. Health education is an effective intervention to increase people's awareness of hypertension. Such intervention can affect the capability to improve knowledge. Health education related to diet and medication affects diet and medication compliance and reduces blood pressure (Lukawati, 2009).

5 Conclusions

The following conclusions are drawn after the analysis. First, no significant difference has been found in Dorothea Orem's self-care knowledge before and after the intervention of the control group since the mean difference was only 0.94. Second, there is a significant difference

in Dorothea Orem's self-care knowledge before and after the intervention of the treatment group, with a mean difference of 22.7. Third, there is a difference in Dorothea Orem's self-care knowledge between the intervention and the control group by 0.043.

RSUD R. Syamsudin, SH in Sukabumi City, West Java, Indonesia, needs to consider health education using appropriate media as an effort to improve Dorothea Orem's self-care among hypertensive patients. The health education program must be held continuously twice or three times a week. The hospital must also facilitate the program by providing a big room to accommodate more patients. The program must not be done in the waiting room because it is inconvenient and disturbs other patients.

Further studies must consider the effect of health education other than improving Dorothea Orem's self-care knowledge to add to the body of knowledge and improve the service quality to patients, especially hypertensive patients.

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