



## RESEARCH ARTICLE

## The Effect of Self-Management Education as a Family-Based Nursing Model on Blood Pressure Control in Patients with Hypertension

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**ABSTRACT**

Hypertension is a persistent pressure where the systolic pressure is above 140 mmHg and the diastolic pressure is above 90 mmHg. Uncontrolled hypertension causes complications such as stroke, heart failure and kidney failure. So, it is very important for patients to apply hypertension self-management to prevent and reduce the impact of complications. Hypertension is a chronic disease whose handling requires the ability to manage one's own behavior (self-management behavior) in daily life such as; diet management, exercise, taking medication and the ability to manage stress. The benefits of *Self-Management* are, Self-management supports active patient participation in treatment, minimizes the impact of chronic diseases on function and health status and patient collaboration with health workers. The purpose of this study is that patients and families who experience hypertension know and can control blood pressure properly to reduce high blood pressure. This research is in the form of *Self-Management Education* techniques. Respondents with the *Wilcoxon Test* obtained a p value = 0.000, while for the effect of *Hypertension Self-Management Education* there was a decrease in blood pressure with a p test of 0.000. Conclusion *Hypertension Self-Management Education* (HSME) affects blood pressure control in patients with hypertension as a family-based nursing model.

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## INTRODUCTION

Hypertension is the cause of many complications to several other diseases, even causing the onset of heart disease, stroke and kidney disease. Worldwide, hypertension is a major and serious problem. Aside from its high prevalence and tendency to increase in the future, it is also due to its high malignancy rate in the form of permanent disability and sudden death. High blood pressure or hypertension is often referred to as a silent killer, because a person can suffer from hypertension for years without realizing it until damage to vital organs is severe enough to even bring death (Adib, 2009). Based on data collected from the WHO, in 2015 it is estimated that deaths from heart and blood vessel diseases will increase to 20 million, and will continue to increase until 2030. By 2030, an estimated 23.6 million people will die from heart and blood vessel disease. Indonesia is among the 10 countries with the highest prevalence of hypertension in the world (WHO, 2013).

The Basic Health Research (2013) showed that the prevalence of hypertension in Indonesia was 26.5%. Central Java Province is one of the provinces where the incidence of hypertension is still high, which is around 26.4% (Risksdas, 2013). The highest prevalence of hypertension occurs in the elderly, namely at the age of 45-54 years at 35.6%, at the age of 55-64 years at 45.9%, at the age of 65-74 years at 57.6%, and at the age of >75 years at 63.8% (Risksdas, 2013).

People nowadays tend to use non-pharmacological therapies due to the high side effects caused by pharmacological therapies. These non-pharmacological therapies include stopping smoking, losing excessive weight, reducing excessive alcohol consumption, increasing physical exercise, reducing salt intake, and increasing fruit and vegetable consumption and reducing fat intake (Sudoyo, 2006). Management in patients with hypertension is very necessary, one of which uses a self-management model for groups of hypertensive patients. Self-Management is an important component in the care of hypertensive patients and is indispensable in efforts to improve the health status of patients.

According to Kisokanth et al., (2013), *Self-management* is a process carried out to facilitate the knowledge, skills and abilities of hypertensive patients which emphasizes the role and responsibility of individuals in managing their own disease to carry out self-care.

Family involvement affects lifestyle changes in patients with heart failure (Rakhshan et al., 2015). Family-based nursing has a positive impact on hypertensive patients. In other side, there are many stimulant drinks can improve the stamina of the people but other side can increase the blood pressure too (Agussalim, et al., 2024).

## METHOD OF RESEARCH

This study is a quasi-experimental with *pre-post-test group design*. Which aims to see the effect of *Self-Management Education* as a family-based nursing model on controlling blood pressure in patients with hypertension. This research was conducted at the Nangka Binjai Sub-Basic Health Center. The population in this study were families with hypertension problems in the working area of the Nangka Binjai Helper Health Center. The population in this study was 35 people. The sampling technique in this study was purposive sampling. The sampling method in this study refers to the Solvin formula, Nursalam (2011) where the sample size in this study was 32 people.

The inclusion criteria in this study were: Patients with hypertension in the working area of the Nangka Binjai Helper Health Center, Patients living with family, Willing to be a respondent, suffering from hypertension for more than 6 months, Blood pressure checks before the *Self-Management Education* intervention (pretest) and continued blood pressure checks. Implementation of the *Self-Management Education* program for 1 month with procedures; Researchers provide education and training to hypertensive patients about hypertension and its treatment with media in the form of pocket books which are carried out once a week, Researchers provide motivation to families and patients that routine care for people with hypertension is important to avoid complications, conduct blood pressure checks after the *Self-Management Education* intervention (Post test). Preparation Patients are prepared and blood pressure measurements are taken. The ways of measuring blood pressure using a Sphygmomanometer tool.

Analysis of the results for this study using a computer program. Paired *T-Test* was used to determine the effect due to treatment in one group with pre and posttest. The difference was declared significant if  $P < 0.05$ . This study aims to determine the effect of HSME on blood pressure levels of patients with hypertension. Researchers provide education to patients and families of patients with hypertension related to self-management of hypertension management. Four points that must be emphasized in the management of hypertension management are diet control, physical activity, medication, and blood pressure checks. The characteristics of respondents who participated in this study are:

According to research conducted by Saraswati, R, Ropi and Sari, CWM. (2015) The implementation of self-management in patients with hypertension is expected to increase knowledge, attitudes, and treatment related to hypertension. Implementation of self-management can be done through community-based education programs. The formation of community groups caring for hypertension is a community nursing program effort designed to increase community knowledge so that people have the strength to build themselves through interaction with the environment. The formation of community care groups is a community-based education program that can be interpreted as an education program from the community, by the community and for the community (Bagong, 2005). The results of a study by Saraswati, et al. (2015), reported that community-based education programs can improve self-management of hypertension and diabetes mellitus patients (Sari and Santoso, 2014)

**Table 4.1: Characteristics of respondents**

Variables	Distribution
Age	49.23±4.5
Gender	
Male	15 (44.4%)
Female	17 (56.6%)
Education	
SD	3 (0,09%)
SMP	8 (0,25%)
HIGH SCHOOL	18 (56,2%)
Higher Education	3 (0,09%)
Family caregivers	
Husband	5 (0,15%)
Wife	16 (50,0%)
Children	8 (0,25%)
Father/Mother	2 (0,62%)
More	1 (0,31%)

Based on table 4.1. The average age of respondents in this study was  $49.23 \pm 4.5$  years. The majority of respondents in the study were female (56.6%), had a high school education (56.2%), and family care (50.0%). Before the education, the researcher gave a questionnaire related to the respondents' knowledge of hypertension and its management. Then, the researcher checked the respondent's blood pressure to find out the blood pressure before being given education. Education was given in 4 sessions for one month. After education, the researcher again gave a questionnaire to determine the level of understanding of respondents regarding educational material and continued with checking the respondent's blood pressure to determine blood pressure after education. The following are the results of respondents' knowledge and blood pressure before and after education.

**Table 4.2: Frequency of respondents' knowledge level**

Knowledge level	Before		After	
	F	%	F	%
Less	21	65,6	0	0,0
Simply	10	31,3	17	46,9
Good	1	3,1	15	53,1
<b>Total</b>	<b>32</b>	<b>100</b>	<b>32</b>	<b>100</b>

Based on table 4.2 the majority of respondents' knowledge before giving education was at a low level as many as 21 people (65.6%), and after giving education, the majority of respondents' knowledge level was moderate as many as 28 people (53.1%).

**Table 4.3: Frequency of family support level**

Knowledge level	Before		After	
	F	%	F	%
Less	21	65,6	0	0,0
Medium	11	34,4	15	46,9
Good	0	3,1	18	51,4
<b>Total</b>	<b>32</b>	<b>100</b>	<b>32</b>	<b>100</b>

Based on table 4.3, the majority of family support before providing education was at a low level as many as 21 people (65.6%), and after providing education, the majority of respondents' knowledge level was moderate as many as 18 people (51.4%).

**Table 4.4: Blood pressure levels of respondents**

Variables	Blood Pressure (mmHg)
Before HSME	177,1875
After HSME	138,1250

Based on table 4.4 the blood pressure level of hypertensive patients before treatment was 177.1875mmHg, and the blood pressure of hypertensive patients after treatment was 138.1250 mmHg.

**Table 4.5. Effect of HSME on increasing respondents' knowledge, family support and reducing blood sugar levels**

Variable	Mean	P value
Knowledge	14.50±0,0	0.000
Family Support	13,57±6,50	P value
		<b>0.000</b>

Based on table 4.5, it is known that the Wilcoxon test obtained a p value of 0.000, this means that HSME has a significant effect on increasing respondents' knowledge regarding hypertension management. Based on the paired t test, the p value is 0.000, this means that HSME has a significant effect on reducing the blood pressure of hypertensive patients.

## DISCUSSION

The results of the study based on the level of knowledge of respondents before HSME, namely the majority of respondents had a level of knowledge of respondents before the provision of education, the majority were at a level of less as many as 21 people (65.6%), and after the provision of education, the majority of respondents' knowledge level was moderate as many as 28 people (53.1%) This means that there is an increase in respondents' knowledge after HSME. The results of statistical tests with the Wilcoxon test confirmed that the knowledge of respondents after HSME was significantly increased (pvalue = 0.000).

Self-care management according to Riegel, Jaarsma and Stomberg (2012), is evaluating changes in physical, emotional and symptomatic signs to determine the actions needed to respond when these signs and symptoms occur. Self-management is a treatment that uses a combination of biological, psychological and social interventions to maximize the function of the self-care regulation process used as a prevention strategy so that self-management is interpreted as daily individual tasks that must be taken to control or reduce the impact of disease on physical health status with collaboration and guidance from doctors and other health care providers (Davies, 2011).

Optimal intervention is needed so that hypertensive patients are able to carry out self-care management by maintaining their lifestyle, diet and activity, and taking prescribed medications regularly. Continuous guidance, counseling and encouragement are needed so that hypertensive patients are able to implement the interventions received to live with hypertension and adhere to their therapy (Bare and Smeltzer 2002).

Health education is a form of intervention or effort aimed at behavior so that behavior is conducive to health (Notoatmodjo, 2007). According to Dermawan & Setiawan (2008) health education is a

series of efforts aimed at influencing others, starting from individuals, groups, families and communities to implement healthy living behavior.

Maemun (2011) said that knowledge is created because of the environment, education patterns, and curiosity of a person himself. High knowledge will have an impact on awareness in an effort to minimize diseases, one of which is hypertension, and can increase awareness of health. Based on table 4.5, the blood pressure level of hypertensive patients before treatment was 177.1875 mmHg, and the blood pressure of hypertensive patients after treatment was 138.1250 mmHg. These results indicate that there is a decrease in blood pressure of hypertensive patients after the HMSE method is applied. This is reinforced by statistical results with a paired t test obtained a P value of 0.000 where the p value is smaller than 0.05, which means that HMSE has an effect on reducing the blood pressure of hypertensive patients. The results of this study are in line with research conducted by Kisokanth et al. (2013), Self-management is a process carried out to facilitate the knowledge, skills and abilities of hypertensive patients who emphasize the role and responsibility of individuals in managing their own disease to carry out self-care.

According to research conducted by Saraswati, R, Ropi and Sari, CWM. (2015). The implementation of self-management in patients with hypertension is expected to improve knowledge, attitudes, and treatment related to hypertension. The implementation of self-management can be done through a community-based education program. The formation of community groups caring for hypertension is a community nursing program effort designed to increase community knowledge so that people have the strength to build themselves through interaction with the environment. The formation of community care groups is a community-based education program that can be interpreted as an education program from the community, by the community and for the community (Bagong, 2005).

The results of a study by Saraswati, et al. (2015), reported that community-based education programs can improve self-management of hypertension and diabetes mellitus patients (Sari and Santoso, 2014). Another explanation says that the family is a resource that can improve the patient's ability to control the disease, namely by having a close relationship between the patient and family members and friends. Patients can pour out their feelings and difficulties faced and get support to increase the confidence and hope of hypertensive patients.

## CONCLUSION

The level of knowledge of respondents before being carried out *Hypertension Self-Management Education* (HSME) as a Family-Based Nursing Model on Blood Pressure Control in Hypertensive Patients is Less while after HSME is obtained the knowledge of respondents is moderate. The blood pressure level of respondents before the *Hypertension Self-Management Education* (HSME) as a Family-Based Nursing Model on Blood Pressure Control in Hypertensive Patients was 177.1875 mmHg, and the blood pressure of hypertensive patients after treatment was 138.1250 mmHg.

The results showed that there was an effect of increasing respondents' knowledge on the intervention of *Hypertension Self-Management Education* (HSME) as a Family-Based Nursing Model on Blood Pressure Control in Patients with Hypertension. The results showed that there was an effect of lowering blood pressure on *Hypertension Self-Management Education* (HSME) as a Family-Based Nursing Model on Blood Pressure Control in Patients with Hypertension. Health workers in providing HSME which aims at making correct decisions, self-care, problem solving, should involve family members in the management of patients with Hypertension so that the health status of respondents improve

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