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## Effect of Patients Behavior and Family Health Companion Role on Hypertension Complication Occurrence

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### Info Artikel

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### Abstract

Various efforts of hypertension complications prevention have been carried out properly but the prevalence of hypertensive complications in NTT Province is still very high. The study aimed to determine the effect of patient behavior and family health companion role on the incidence of hypertension complications. The study was carried out in the work area of Sikumana Health Center in Kupang City with a case-control design. A total of 40 case samples and 40 control samples were taken by simple-random sampling. Data were analyzed by bivariate (simple logistic-regression) and multivariate (multiple-logistic regression), with significant values of  $\alpha < 0.05$  and  $OR > 1$ . The results showed that 70% of patients experienced Non-Hemorrhagic Stroke (SNH) complications and 30% experienced complications of Coronary Artery Disease (CAD). The results of the knowledge factor analysis ( $\alpha = 0.000$ ,  $OR = 4.775$ ), attitude ( $\alpha = 0.998$ ,  $OR = 1.876$ ), practice ( $\alpha = 0.000$ ,  $OR = 18.599$ ), family health officer ( $\alpha = 0.000$ ,  $OR = 15.13$ ) and simultaneously the practices of the patient ( $\alpha = 0.000$ ,  $OR = 17.233$ ). There was a significant influence on patient knowledge, patient practices, and family health companion role on the incidence of hypertensive complications. The most influential variable was the patient's practices. Patients who had poor behavior had a risk of 17.233 times greater of complications of hypertension.

### Abstrak

Beragam upaya untuk mencegah komplikasi hipertensi, telah dilaksanakan dengan baik. Namun prevalensi komplikasi hipertensi di NTT masih sangat tinggi. Penelitian bertujuan untuk mengetahui pengaruh perilaku pasien dan peran pendamping kesehatan keluarga pada kejadian komplikasi hipertensi. Penelitian dilakukan di wilayah kerja Puskesmas Sikumana Kota Kupang dengan desain kasus-kontrol. Sebanyak 40 sampel kasus dan 40 sampel kontrol, diambil secara simple-random-sampling. Data dianalisis bivariat (regresi-logistic-sederhana) dan multivariat (regresi-logistic-berganda), dengan nilai signifikan  $\alpha < 0,05$  dan  $OR > 1$ . Hasil penelitian menunjukkan 70% pasien mengalami komplikasi Stroke Non Haemoragik (SNH) dan 30% mengalami komplikasi Coronary Artery Diseases (CAD). Hasil analisis faktor pengetahuan ( $\alpha = 0,000$ ,  $OR = 4,775$ ), sikap ( $\alpha = 0,998$ ,  $OR = 1,876$ ), tindakan ( $\alpha = 0,000$ ,  $OR = 18,599$ ), peran pendamping kesehatan keluarga ( $\alpha = 0,000$ ,  $OR = 15,13$ ), dan secara simultan tindakan pasien ( $\alpha = 0,000$ ,  $OR = 17,233$ ). Ada pengaruh signifikan antara pengetahuan pasien, praktek/tindakan pasien, dan peran pendamping kesehatan keluarga terhadap kejadian komplikasi hipertensi. Variabel yang paling berpengaruh adalah praktek/tindakan pasien. Pasien yang memiliki praktek/tindakan kurang baik memiliki risiko 17,233 kali lebih besar terjadi komplikasi hipertensi.

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## INTRODUCTION

Hypertension is a type of chronic disease that is non-communicable diseases which has affected the health status of the Indonesian people. The government stated that Indonesia is experiencing a double burden disease epidemiological transition. Hypertension that is not treated properly will lead to dangerous complications for the sufferer. Complications of hypertension have caused around 9.4% of deaths worldwide every year. Hypertension caused 45% of deaths due to complications of heart disease and 51% of deaths due to stroke complications. Death caused by cardiovascular disease, especially coronary heart disease and stroke. This is a serious complication of hypertension. It is estimated that it will continue to increase to 23.3 million deaths, by 2030. WHO in 2011 stated that one billion people in the world suffer from hypertension, of which two-thirds are in developing countries. The prevalence of hypertension is predicted to continue to increase sharply until 2025. An estimated 29% of adults worldwide suffer from hypertension. The results of *Riskesdas (Riset Kesehatan Dasar* or Basic Health Research) in 2013 showed that the prevalence of hypertension in Nusa Tenggara Timur (NTT) Province was 7.4 percent and was below the national prevalence of 9.5 percent. The results of blood pressure reduction at the age of >18 years, showed the rate of increase in blood pressure or hypertension of the people of NTT was 23.3 or below the national of 25.8. Although the prevalence of hypertension in NTT was below the national prevalence, the prevalence of hypertension complications in NTT was very high. *Riskesdas* results in 2013 on the complications of hypertension indicated the complications of hypertension. Coronary Heart Disease (CHD) in NTT has the highest prevalence nationally at 4.4% (prevalence of national CHD of 1.5%). The prevalence of stroke was 12.1% that is equal to the national prevalence, and the prevalence of renal failure of 0.3% that is above the national prevalence of 0.2%. Data from Kupang City Health Office in 2014 showed that hypertension was the top 10 most common diseases suffered by the people of Kupang City. Hypertension is a non-communicable disease with an incidence rate of 7.4% or 1474 cases. In 2015 the prevalence of hypertension increased to 13,111 and in 2016 it continued to increase to 14,535.

The Sikumana Health Center in Kupang City is one of the health centers with the highest prevalence of hypertension and hypertension complications in the city of Kupang. Medical record data of Sikumana Health Center shows that there are 292 hypertensive patients. The number of visits each month ranges from 199 - 270 people. A total of 40

hypertensive patients were reported to have experienced complications, 5 people have died in 2016, and three people have died in 2017 (in January, February, and September), and 1 person has moved from the work area of Sikumana Health Center in Kupang City.

Complications of hypertension can be prevented if all parties are involved in handling it. The involvement of all parties, including the government, the private sector, health workers, community, family and patients themselves is very important in the effort to prevent hypertension complications in the community. Patient behavior is a major factor in the prevention of hypertension complications. The behavior of patients who are at risk and do not adhere to treatment is a major cause of complications of hypertension in the community. Family health companion role are one of the programs for handling hypertension patients that cannot be separated from the effort to prevent complications of hypertension. Healthy Indonesia Program 2015 - 2019 is currently promoting families, as targets of health care as an effort to improve the health status of the Indonesian people, including handling hypertension.

Handling hypertensive patients in the work area of Sikumana Health Center in Kupang City has been carried out properly. Routine health check and blood pressure control activities are carried out in the Chronic Disease Control Program (*Program Pengelolaan Penyakit Kronis* or *Prolanis*). *Prolanis* is carried out every week or every day according to the patient's condition. Health education about hypertension is done every week on *Prolanis* activities. Every day when the patient performs examinations, exercises together or exercises to prevent hypertension is performed every week. Counseling and motivation about the treatment of hypertension, is also carried out every time the distribution of chronic drugs to hypertensive patients in the health center. Health education about handling hypertensive patients is also done to all levels of society. Patients who come to visit the health center or during other health service activities in the community, such as *Posyandu (Pos Pelayanan Terpadu* or Integrated Health Service) and *Posbindu PTM (Pos Pembinaan Terpadu Penyakit Tidak Menular* or Integrated Fostering Post for Non-Communicable Disease).

Health education about handling hypertensive patients is also carried out on families. That is at the time of home visit to each patient. Various forms of activities in handling and preventing the complications of hypertensive patients have been carried out properly. However, the incidence of complications of hypertension in the working area of the Sikumana Health Center in Kupang City still occurs. The purpose of this study was to analyze the influen-

ce of patient behavior and family health companion role, on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in 2017. So that it can identify the types of hypertension complications in the work area of Kupang City Sikumana Health Center, analyze the influence of patient behavior (knowledge, attitude, and practice). Then analyze the influence of family health companion role, and simultaneously analyze the influence of patient behavior and family health companion role on the incidence of hypertension complications in the work area of Sikumana Health Center Kupang City.

**METHOD**

This study is a study with a case control design, to see the effect of patient behavior and family health companion role on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City. The population in this study were all hypertensive patients in the Sikumana Health Center Kupang City as many as 292 people. The study sample was 80 people. Divided into two groups, namely 40 people in the case group and 40 people in the control group.

The case group is a total of hypertensive patients who have experienced complications. The control group is hypertensive patients who have not experienced complications. Samples were taken by simple random sampling, matching the sex and age (> 45 years). Inclusion criteria for case groups were hypertensive patients with complications for the case group. The criteria for inclusion of the control group were uncomplicated hypertensive patients with complications. Samples in the case and control group, were selected with the criteria of having at least primary school education and willing to become respondents.

The independent variables of this study were the behavior of patients (knowledge, attitudes, and practices), and family health companion role. The

dependent variable was the incidence of hypertensive complications in the work area of Sikumana Health Center in Kupang City. The instruments used were questionnaires and patient medical records. Questionnaires were used to determine the behavior of patients (knowledge, attitudes, and practices), and family health companion role to treat hypertension. Medical records were used to see the diagnosis of hypertensive complications, namely ischemic stroke, heart disease, myocardial infarction, nephrosclerosis and kidney failure, heart failure, and retinopathy.

The research data was processed and analyzed using bivariate and multivariate analysis. Bivariate analysis with simple logistic regression test with significance level ( $\alpha = 0.05$ ) and multivariate with Multiple Logistic Regression Test with significance level ( $\alpha = 0.05$ ).

**RESULTS AND DISCUSSION**

**Types of Hypertension Complications in the Work Area of Sikumana Health Center in Kupang City October-November 2017**

Table 1 shows that the majority of respondents (70.0%) in the group experienced complications of HNS (Non-Hemorrhagic Stroke), and 30% experienced CAD (Coroner Artery Diseases). No one experienced other hypertensive complications such as heart failure, retinopathy and kidney failure.

The results of this study indicate that the majority of respondents in the case group experienced complications of type of Non Hemorrhagic Stroke hypertension or NHS and Coronaria Artery Diseases (CAD) or coronary heart disease. Non hemorrhagic stroke or NHS and arterial cornaria disease or CAD are the most common types of complications in uncontrolled hypertensive patients. Chronic increase in blood pressure causes the arteries that bleed the brain to hypertrophy and thicken so that the blood flow to the area that is bleeding in

Table 1. Distribution of Respondents based on the Types of Complications of Hypertension in the Work Area of the Sikumana Health Center in Kupang City in October - November 2017

Type of Complication	Hypertension Complication Occurrence			
	Case		Control	
	n	%	n	%
NHS	28	70	0	0
CAD	12	30	0	0
Heart failure	0	0	0	0
Retinopathy	0	0	0	0
Kidney failure	0	0	0	0
No complications	0	0	40	100
Total	40	100	40	100

the brain is reduced. Parts of the brain that do not get an adequate blood supply will experience a lack of oxygen, hypoxia and ischemia which can cause a non-hemorrhagic stroke or NHS (Ganong et al., 2010; Ghani, 2016).

In cardiac organs, chronic hypertension results in decreased cardiac perfusion, decreased cardiac tissue perfusion resulting in reduced cardiac oxygen demand and hypoxia. Increased oxygen demand in the myocardium results from ventricular hypertrophy and increased cardiac workload. Disruption of coronary function, occurs because there is a workload of the heart rises. Excessive heart work, resulting in perfusion of heart tissue. Disorders of cardiac perfusion cause coronary heart disease, angina and myocardial infarction. Coronary atherosclerosis can aggravate cardiac perfusion (Ganong et al, 2010; Mitsnefes, 2008).

Hypertension complications can occur by several risk factors such as age, sex, family history, smoking habits, uncontrolled high blood pressure, high blood cholesterol levels, blood glucose levels, smoking and stress. In this study found most respondents aged > 56 years, most of them were female and most had a history of hypertension and / or complications of hypertension in the family.

Increased age or aging process results in various complications in the condition and function of the heart. It results in decreased vascular elasticity, heart valve thickening and stiffness, aortic dilation, increased connective tissue in the SA-AV node, and bundle branches. This condition causes hypertensive patients entering the age of aging to be unable to respond to changes in pressure. Long increase in blood pressure (hypertension). So that the heart takes a long time to return to its initial state. Even though the blood pressure increases only slightly. Resulting in various complications of hypertension can occur easily (Elkayam et al. 2013; Mitsnefes, 2008).

Women over the age of 56 experience decreased hormonal function due to menopause. Estrogen and progesterone are important hormones that have decreased function in menopausal women. Estrogen is a hormone responsible for increasing

HDL concentrations, decreasing LDL and Lipoprotein. Estrogen also functions to improve vascular function where the vasodilation that occurs gives an opportunity to repair the damaged endothelium. Progesterone has a catabolic effect on platelet aggregation in addition to fat content (Ganong, 2010). Decreased estrogen and progesterone hormones in menopausal women result in decreased HDL, increased LDL, decreased vascular function, and decreased fat catabolism. This situation has an impact on increasing blood vessel damage in hypertensive patients which is exacerbated by an uncontrolled increase in blood pressure (hypertension).

Family history of hypertension and / or hypertension complications found in this study are in accordance with the theory of surfaces. That a positive family history of heart disease is a risk factor for coronary artery heart disease also suggests that this form of idiopathic hypertension is called primary or essential hypertension. Patogenesis certainly seems very complex with the interpractice of various types of variables, genetic factors are predisposing factors (Elkayam et al. 2013; Mitsnefes, 2008; Ghani 2016).

**Effect of Patient Behavior (knowledge, attitudes and practices) on Hypertension Complication Occurrence in Sikumana Health Center Kupang City**

Table 2 shows that the majority of respondents (55.0%) in the case group had moderate knowledge level about hypertension and its complications, 35.0% had lack knowledge level, and only a small percentage (10.0%) of respondents had good knowledge level. Whereas in the control group, there were 38.8% respondents who had moderate knowledge level, not much different from those who had good knowledge level (37.5%), and only a small proportion (23.8%) of respondents who had lack knowledge level. The results of the analysis used simple logistic regression statistical tests showed  $p=0.000$  or  $\alpha < 0.05$ .

These results indicate that there was a significant effect between respondents' knowledge of

Table 2 Distribution of the Effect of Patient Knowledge on Hypertension Complication Occurrence in Sikumana Health Center in Kupang City in October - November 2017

Knowledge Level of Respondent	Hypertension Complication Occurrence				sig	OR	95% CI	
	Case		Control				Low	Up
	n	%	n	%				
Lack	14	35	5	12.5	0.000	4.775	2.253	10.120
Moderate	22	55	9	22.5				
Good	4	10	26	65.0				
Total	40	100	40	100				

Table 3 Distribution of Patients' Attitude to Hypertension Complication Occurrence in Sikumana Health Center in Kupang City in October - November 2017

Respondent's Attitudes	Hypertension Complication Occurrence				sig
	Case		Control		
	N	%	n	%	
Negative	7	17.5	0	0	0.998
Moderate	2	5	0	0	
Positive	31	77.5	40	100	
Total	40	100	40	100	

the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in October - November 2017, with an OR of 4.775 or OR > 1 which means that respondents who had less knowledge had a risk of 4.775 times complications than respondents who had good knowledge.

Table 3 shows that the majority of respondents (77.5%) in the case group had good attitude towards hypertension and its complications, some of the other respondents (17.5%) had negative attitude, and only (5.0%) respondents had moderate attitude. Whereas in the control group, most respondents (88.8%) had positive attitude, and there were only 8.8% respondents who had negative attitude. The results of the analysis used a simple logistic regression statistical test showed Sig. 0.998 or  $\alpha > 0.05$ . These results indicated that there was no significant effect between the attitude of respondents to the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City, October - November 2017.

Table 4 shows that the majority of respondents (95.0%) in the case group had deficient practice on hypertension and its complications, there were 5.0% had moderate practice, and none of the respondents (0.0%) had good practice. Whereas in the control group, most respondents (58.8%) had deficient practice, and there were some respondents (32.5%) who had good practice. The results of the analysis used a simple logistic regression statistical test showed Sig. 0.00 or  $\alpha < 0.05$ . These results indicated that there was a significant effect between the respondent's practice on the incidence of hyper-

tension complications in the work area of Sikumana Health Center, Kupang City in October - November 2017, OR 18.599 or OR > 1 which means that respondents who had bad practices had a risk of 18.599 times complications than respondents who had good practices.

The results of the analysis showed that there was a significant effect between respondents' knowledge of hypertension and its complications on the incidence of hypertension complications in the work area of Kupang City Sikumana Health Center in October - November 2017. Simple logistic regression test results showed p-value 0,000 or  $\alpha < 0.05$  and OR=4.775. The results of this study are in accordance with the research results of Ambarika et al (2015) which found that there was a significant relationship between the knowledge of hypertensive patients with stroke awareness behavior as a complication of hypertension with the results of statistical tests p-value = 0,000 and OR = 0.062. Knowledge is the result of knowing. It occurs after someone makes an assessment to an object. The persistence of case group respondents found in this study was 50% of respondents did not know that high blood pressure could affect kidney damage, 75% did not know that high blood pressure could damage the eyes or result in retinopathy, 72.5% did not know that consuming excessive salt foods can have an impact on heart damage, 77.5% did not know that consuming excessive oily foods can affect damage to blood vessels, and 82.5% did not know that excessive fatty foods can have an impact on brain damage. This study found that most of respondents were elementary

Table 4 Distribution of Patient's Practice to Hypertension Complication Occurrence in Sikumana Health Center in Kupang City in October - November 2017

Respondent's Practice	Hypertension Complication Occurrence				sig	OR	95% CI	
	Case		Control				Low	Up
	N	%	n	%				
Deficient	38	95	9	22.5	0.000	18.5.99	4.695	73.683
Moderate	2	5	5	12.5				
Good	0	0	26	65				
Total	40	100	40	100				

school educated and aged over 56 years. The level of education greatly influences knowledge. A low level of education affects the ability of respondents to receive and understand every health information obtained. The higher the level of education of a person, the better the process of acceptance and understanding of each information obtained. Education and awareness of a person directly affect knowledge. Then different levels of education have different effects on a perception. Increased age affects the decline in various organ functions. The brain is one of the organs of the body that has decreased function due to aging. The manifestation of the decline in function is a decrease in thinking ability. The decline in thinking ability has an impact on the ability of respondents to understand the health information they obtain (McDonnell et al., 2014; Ghani, 2016).

The results of this study showed no significant effect between the attitude of respondents to the incidence of hypertension complications with p-value 0.998 or  $\alpha > 0.05$ . This study found that most of the respondents had a positive attitude towards the treatment of hypertension and its complications, but the treatment was not in accordance with the attitude and caused the incidence of hypertension complications. Attitude is a feeling that is still closed in influencing human behavior. Someone who has a positive attitude does not necessarily have a positive practice or behavior, and vice versa. Attitude is only a form of statement to an object or information obtained. The application of attitudes in the form of practices or behavior is strongly influenced by various factors, including social and environmental support (Naingolan, 2013; Tsani, 2014). The results of this study found that there was a significant influence between family health tasks with the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City. Most respondents in the case group in this study had less family health companion role with OR = 15.131, which means that respondents who had family health companion role had less risk of 15.131 times there were complications than respondents who had good family health companion role.

The results of this study indicated that there was a significant influence between the respondent's practice on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City from October to November 2017. This study found that most of respondents had deficient practice in managing hypertension and had an impact on the incidence of hypertension complications. The analysis results used a simple logistic regression statistical test showed Sig. 0.00 or  $\alpha < 0.05$  with OR 18.599 which means that respondents who had bad practices had a risk of 18.599 times complications

occur than respondents who had good practices. Practice is the last result of one's knowledge and attitude. The practice of the case group respondents found in this study were, 55% was rarely performed blood pressure checks/controls, 57.5% was rarely consumed hypertension drugs, 50% sometimes limit salt consumption, 77.5 was rarely limited the consumption of oily foods, 52.5 % always experience stress, and 72.5% always consume processed foods such as sei, smoked meat, canned fish and other fast food. Researchers found that the deficient practice of respondents in the case group in handling hypertension caused by low levels of knowledge and low family support. The results of the study found that most of the respondents had moderate level of knowledge and lacked family health companion role. Efendi et al (2017) found that family support is very influential in the management of hypertension in family members at home.

#### **The Effect of Family Health Companion role on Hypertension Complication Occurrence in the Work Area of Sikumana Health Center in Kupang City in October-November 2017**

Table 5 shows that most of the respondent's family (92.5%) in the case group had deficient family health companion role, there were only 2.5% respondents who had proficient family health companion role in their family. Whereas in the control group, most of respondents (62.5%) had moderate family health companion role, there were only 5.0% respondents whose family health companion role were proficient. The results of the analysis used a simple logistic regression statistical test showed Sig. 0.00 or  $\alpha < 0.05$ . These results indicated that there was a significant influence between family health companion role on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in October - November 2017, with OR 15.131 or OR > 1 which means that respondents whose family health companion role had less risk of 15.131 times complications than respondents who had good family health companion role.

The family is the smallest unit of society. Family which consists of father, mother and child. They are called as main family. The family which consists of main family and other family members who either have blood relationships or not is called as extended family. One of the family functions is the health care function or known as a family health companion. Family health companion role are a family function to maintain the condition of all family members in order to stay healthy and have high productivity (Friedman, 2010; Elkayam et al., 2013). Family health companion role are one of the main

Table 5 Distribution of the Effects of Family Health Companion role on Hypertension Complication Occurrence in Sikumana Health Center in Kupang City in October - November 2017

Family Health Worker	Hypertension Complication Occurrence				sig	OR	95% CI	
	Case		Control				Low	Up
	N	%	n	%				
Deficient	37	92.5	13	32.5	0.00	15.13	4.50	50.78
Moderate	2	5.0	25	62.5				
Proficient	1	2.5	2	5.0				
Total	40	100	40	100				

factors that determine the successful handling of hypertensive patients in the treatment and prevention of complications. The results of this study indicated that there was significantly influence between family health companion role on the incidence of hypertensive complications in the work area of Sikumana Health Center in Kupang City in October-November 2017. The results of the analysis used a simple logistic regression statistical test shows Sig. 0.00 or  $\alpha < 0.05$  with OR 15.131, which means that respondents whose family health companion role had less risk 15.131 times complications occur than respondents who had good family health companion role. The results of this study are supported by the results of Herlinah et al. (2012) finding that there was a significant relationship between family values and hypertension control in patients. Efendi et al (2017) study found that there was a significant effect between family support and management of hypertension in family members at home. Family health companion role are an important indicator in the successful handling of hypertensive patients at home. Handling hypertensive patients at home is one indicator of a healthy Indonesian program with a family approach. Family health companion role are said to be good if the family has all the abilities in carrying out health duties. The family's ability to carry out health duties includes the ability to recognize health problems in family members, make decisions in appropriate health practices, provide care to sick family members, modify or maintain an environment that supports the health of family members, and use health facilities to deal with health problems family (Efendi, 2017; Farahdika & Azam, 2015). Deficient family health companion role in this study was caused by the deficient ability of families to recognize health problems. The results of this study showed that 94.4% of case group respondents had families who did not know that the patient had hypertension, 79.9% did not know that the disease experienced by the patient could lead to complications, 83.8% did not know the cause of complications, and 78.4% did not know the signs and symptoms of complications that can be experienced by patients. The lack

of knowledge of the respondent's family caused the family to be unable to make the right decision. This is evidenced in this study which found 81.8% of case group respondents had families who did not know the form of treatment or treatment of hypertension experienced by patients, 100% did not seek information from health companion role about the disease experienced by patients, and 95.5% had the patient's illness did not need to be treated and did not think out by family. The ability of families to care for patients is one of the factors that determine the success of a patient's practices in the treatment and regulation of the patient's lifestyle. The results of this study found 56.7% of case group respondents had families that did not provide or separate special foods for patients according to their diets, 48.6% did not remind patients to take drugs every day, and 76.2% did not remind patients about check schedules or controls health at a health facility or health center.

The house is a place for humans to live their daily lives with their families. The atmosphere of the house and living environment is one of the factors that play a role in supporting the health status of its inhabitants. The results of this study found 69.8% of case group respondents had families who were unable to modify a comfortable home environment and support their health. This is evidenced by the explanation that most of respondents who stated that *"the family has not been able to maintain the atmosphere of a peaceful and joyful home, every day there must be some who are noisy and fight sometimes only with trivial things. The television voice was also opened with a big and disturbing sound of rest. People in the house also sometimes spoke in a loud voice that made their hearts shock and stops."* This situation occurs because the family did not know the health problems experienced by family members (patients) properly.

The ability of families to utilize health facilities is one of the factors causing the formation of good knowledge for families in recognizing the health problems of their family members. Puskesmas/health center is healthcare facility that focuses on promotive and preventive services by not delive-

ring curative and rehabilitative services. The results of this study found 65.5% of case group respondents had families who were not able to use health facilities well in handling the health problems experienced by patients. Respondents stated that the family did not have time to accompany patients to the Sikumana Health Center because they were busy. The family also thought that patients were used to themselves to the Sikumana Health Center, to the *Posyandu*, and to the *Prolanis* activities with their peers, so there was no need for special assistance from the family. This condition caused the families of hypertensive patients in the work area of Sikumana Health Center in Kupang City did not have good knowledge about the handling of hypertension for their family members at home, because in every health service provided at the Health Center, *Posyandu* and *Prolanis* activities, there are various important health information services delivered by health companion role in the effort of handling and preventing complications for hypertensive patients.

**The Influence of Patient Behavior and Family Health Companion Role Simultaneously on Hypertension Complication Occurrence in the Work Area of Sikumana Health Center in Kupang City in October-November 2017**

Table 6 shows that respondent's practices have a greater influence on the incidence of hypertension compared to the influence of family health companion role. The results of multiple logistic regression statistical tests showed that the respondent's practice OR was 17.233, which means respondents who had deficient practices had 17.233 times higher of complications risk than those who had good practices, while the family health companion role OR was 7.234 or lower than respondent's practices OR.

The results of the analysis showed that simultaneously the practices of respondents had a greater influence on the incidence of hypertension compared to the influence of family health companion role. The results of multiple logistic regression statistical tests showed that the respondent's practice OR was 17.233, which means that respondents who had deficient practices had 17.233 times higher of

complications risk than those who had good practices, while the OR of family health companion role was 7.234, which means that respondents who had proficient family health companion role had less risk of complications (7.234 times) than respondent who had deficient family health companion role. This is less than the risk of the respondent's practices.

Family health companion role is family functions to maintain the condition of all family members in order to stay healthy and have high productivity. The practice has a greater influence because the practice is the end point of the success of a goal in handling hypertension. Practices are inseparable from behavior and daily practices based on knowledge and attitudes. Practices are influenced by age factors, closely related to knowledge, education, mindset and experience (Friedman, 2010; Nainggolan, 2013). Practices are also influenced by reinforcing factors, namely attitudes and behavior of health companion role and social support such as family and peers. The magnitude of the effect of the practice on the incidence of hypertension complications in the working area of the Sikumana Health Center in Kupang City in October-November 2017 was due to the low level of respondents' knowledge and low family support. Knowledge is the main domain that influences a person's practices or behavior (McDonnell et al., 2014).

Person's behavior is also influenced by a driving factor such as family support. The low level of knowledge of respondents in this study was caused by the low level of education of respondents and the age of those who entered the early elderly age. Lack of support from other family member is due to the low involvement of families in utilizing health facilities; Health Center, *Posyandu* for the elderly and *Prolanis* activities that have had an impact on the family's lack of ability to recognize health problems experienced by family members. Low levels of education affect the ability of patients to understand, accept and try behavior. So that the lower the level of education of a person, the more difficult it is to understand, try and adopt a health behavior, and vice versa. Family health companion role are social support for improving one's behavior. The family is a support system in the effort to deal with patients'

Table 6. Distribution of The Influence of Patient Behavior and Family Health Companion role Simultaneously on Hypertension Complication Occurrence in the Work Area of Sikumana Health Center in Kupang City in October-November 2017

Research Variable	sig	OR	95% CI	
			Low	Up
Patient's Knowledge Level	0.250	1.938	0.625	5.977
Patient's Practice	0.000	17.233	3.813	77.882
Family Health Companion Role	0.006	7.234	1.772	29.541



health problems in society (Friedman, 2010; Bisnu et al., 2016). Family support in handling hypertensive patients at home is one indicator in the *Indonesia Sehat* (Healthy Indonesia) program with family approach. Family social support has a significant influence on hypertension patients' self-management, which means that the better the family support, the better self-management in hypertensive patients. The results of this study showed that most of the support/family health companion role of hypertensive patients are lacking. This condition seems to be the cause of the deficient practice or behavior of hypertensive patients to deal with hypertension and prevention of hypertension complications in the working area of Sikumana Health Center in Kupang City in October - November 2017 (Yonata et al., 2016; Bisnu et al., 2016)

## CONCLUSION

Most hypertensive patients experience Non-Hemorrhagic Stroke (NHS) and Coronary Artery Diseases (CAD) complications in the work area of Sikumana Health Center in Kupang City in October - November 2017. The patient's knowledge level had a significant influence on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in October - November 2017, with p-value = 0.000 and OR = 4.775. The patient's attitude did not have a significant effect on the incidence of hypertension complications in the Work Area of Sikumana Health Center in Kupang City in October - November 2017 with p-value = 0.998. The patient's practices had a significant influence on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in October - November 2017 with p-value = 0.000 and OR 18,599. Family health companion role had a significant influence on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in October - November 2017, with p-value = 0.000 and OR = 15.131. Simultaneous analysis, the patient's practices had the most significant influence on the incidence of hypertension complications in the work area of Sikumana Health Center in Kupang City in October - November 2017, with p-value = 0.000 and OR = 17.233, which means that hypertensive patients who had deficient practice in hypertension had a risk of 17.233 times of complications than hypertensive patients who had good practices in handling hypertension.

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