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## **Relationship compliance with dietary approach to stop hypertension pattern with blood pressure in hypertension patients at Puskesmas Tulungagung, Tulungagung Regency**

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**Abstract**---Hypertension is a condition in which a person experiences an increase in blood pressure above normal. One of the recommended countermeasures for hypertension is a dietetic approach to stop hypertension or known as DASH. The purpose of the study was to analyze the relationship between DASH pattern adherence and blood pressure in hypertension patients at the Tulungagung Public Health Center. The research was conducted in April 2021. The type of research was correlation, analytical design with a cross sectional approach and the research instrument was a questionnaire. The population of the study was some hypertension patients at the Tulungagung Health Center. Samples were taken by purposive sampling technique of 30 respondents. The independent variable is DASH Diet Compliance, the dependent variable is hypertension. Data were analyzed by Spearman rho test. The results showed that the knowledge of DASH Pattern Compliance at the Tulungagung Health Center was more than half of the respondents who had the DASH Pattern Compliance at the Tulungagung Health Center in the obedient

category as many as 17 respondents (56.7%). Blood Pressure in Hypertensive Patients at the Tulungagung Health Center most of the respondents had mild hypertension, as many as 10 respondents (23.3%). Spearman Rho statistical test obtained P Value = 0.000 < 0.05 so H1 is accepted, which means there is a relationship between DASH pattern compliance with blood pressure in hypertension patients at the Tulungagung Health Center. Adherence to the DASH diet will control blood pressure in hypertension patients. This proves that it is important to carry out the DASH diet in hypertension patients so that blood pressure can be controlled in order to anticipate the occurrence of complications of hypertension.

**Keywords**---blood pressure, hypertension, DASH diet.

## Introduction

Hypertension is a non-communicable disease. Hypertension is a condition where blood pressure is more than 140/90 mmHg. Hypertension is also often referred to as the "silent killer" because people with hypertension do not show clear signs and symptoms. Hypertension can be classified into two types, namely primary or essential hypertension whose cause is unknown and secondary hypertension which can be caused by kidney disease, endocrine disease, heart disease, and kidney failure disorders. Hypertension can attack anyone, both men and women aged 30-60 years (Agung, 2015).

The prevalence of hypertension in 2012 in adults worldwide reached 29.2% in men while 24.8% in women and is expected to continue to increase to 25% in 2025 (Leon, 2015). Basic Health Research (Rikesdas) in 2013 organized by the Ministry of Health showed that the prevalence of hypertension in Indonesia (based on blood pressure measurements) in 2013 reached 25.8% of the total adult population. The highest prevalence in Indonesia is in Bangka Belitung (30.9%) followed by South Kalimantan (30.8%), East Kalimantan (29.6%) and West Java (29.4%). Research conducted by the East Java Health Service, Hypertension still ranks first out of all reported non-communicable diseases (PTM) 2, which is 57.89%. From the number of men examined, as many as 2,411,488 souls were found as many as 5.25% were detected as suffering from high blood pressure. Meanwhile, in the women who were examined as many as 2,901,801 souls, it was found that 5.95% had high blood pressure. The highest prevalence of hypertension in the city of Tulungagung was found in 2016 as much as 50.5%.

The impact that arises when not complying with a hypertension diet on the body can cause stroke symptoms, if this situation is not detected early, it is possible that this can result in permanent damage to the brain (Eka Claudia, 2017). Hypertension continues to increase with varying levels of control, the majority of people with hypertension are under control. Compliance has become the most important element in reducing morbidity and mortality due to hypertension. However, poor adherence to antihypertensive therapy continues to be a problem so that two thirds of patients with hypertension have poor control of

hypertension. One element of antihypertensive therapy is diet (Black & Hawks, 2014).

Diet is a person's eating and drinking habits. One of the most important and difficult tasks during the treatment period is to accurately estimate the patient's dietary habits. This difficulty arises because a person's diet can vary greatly from day to day. One of the main strategies in treating hypertension is by modifying diet patterns. Diet patterns in patients with hypertension are very dependent on compliance in running it. The concept of adherence to a diet pattern in hypertension is that people with hypertension do a low-salt, low-fat diet and consume fruits and vegetables. (Ramayulis, 2016). Previous research on adherence to the DASH (Dietary Approach to Stop Hypertension) diet in 2015 showed that the benefits of this diet depend on adherence (Leon et al, 2015). Research conducted in the Philippines showed a strong relationship between awareness of hypertension and adherence to dietary regimens with a significant value at the 0.01 2-tailed level (Kiblasan, 2015). Based on the description above, the introduction of the researcher chose the title "Relationship of Compliance with DASH Patterns with Blood Pressure in Hypertensive Patients at Tulungagung Health Center".

## Method

Research design is the most important thing in research, which allows maximizing control of several factors that can affect the accuracy of a result (Nursalam, 2015). This type of research is a non-experimental design research with a correlation study (Correlation Study), which is a design that is used to see the significance of the relationship between variables. The reason for using this design is because the researchers wanted to investigate the relationship between adherence to the DASH diet (independent variable) and blood pressure in hypertensive patients (dependent variable), through hypothesis testing. The approach used is a cross-sectional or cross-sectional study, considering that there is only one sampling. The reason for using this approach is because compliance measurement is carried out or started right away. In this case, it was only done once, to prove the validity of the data, especially to measure the level of compliance, the researcher used a questionnaire (Alimul, 2003).

## Results

Table 1.  
Compliance with the DASH Pattern at the Tulungagung Health Center

Obedience	f	%
Not obey	13	43,3
Obey	17	56,7

Table 1 can be interpreted that from a total of 30 respondents, more than half of the respondents have a DASH Pattern Compliance at the Tulungagung Health Center in the obedient category, namely 17 respondents (56.7%), and almost half of the respondents in the non-compliant category, namely 13 respondents ( 43.3%).

Table 2  
Blood Pressure in Hypertensive Patients at Tulungagung Health Center

Hypertension	f	%
Normal	9	30
Mild Hypertension	10	33,3
Moderate Hypertension	7	23,3
Severe Hypertension	4	13,3

Table 2 can be interpreted that from a total of 30 respondents, most of the respondents had normal blood pressure as many as 9 respondents (30%), mild hypertension, namely 10 respondents (33.3%), moderate hypertension as many as 7 respondents (23.3%) and severe hypertension as many as 4 respondents (13.3%).

Table 3  
Relationship between DASH Pattern Compliance and Blood Pressure in Hypertensive Patients at Tulungagung Health Center

Obedience Not obey	Hypertension								Total	
	Severe Hypertension		Moderate Hypertension		Mild Hypertension		Normal			
	f	%	f	%	f	%	f	%	f	%
Obedience	4	30,7 7	5	38,4 6	4	30,77	0	0	13	100
Not obey	0	0	2	11,7 6	6	35,29	9	52,9 4	17	100

Spearman Rho test P value = 0.000 = 0.05

Table 3 can be interpreted that a number of 17 respondents who were compliant there were 9 respondents (52.94%) normal and none of them had severe hypertension, while of the 13 respondents who did not comply there were 4 respondents (30.77%) who had severe hypertension and none of them had severe hypertension. Normal. The results of quantitative data analysis using the Spearman Rho statistical test with the help of the SPSS computer program can be interpreted as the result of the Spearman Rho statistical test with a significant 0.05 resulting in a P Value = 0.000 which is smaller than the value = 0.05 (0.000 < 0.05) so that H0 rejected and H1 accepted, which means there is a relationship between DASH pattern compliance with blood pressure in hypertension patients at the Tulungagung Health Center.

## Discussion

In table 1, it can be seen that from a total of 30 respondents, more than half of the respondents had a DASH Pattern Compliance At the Tulungagung Health Center in the obedient category, namely 17 respondents (56.7%), and almost half of the respondents in the non-compliant category, namely 13 respondents. (43.3%). Dietary Approach to Stop Hypertension (DASH) is a diet for hypertensive

patients. One of the recommended countermeasures for hypertension is a dietetic approach to stop hypertension or known as DASH. Because so far this has only been done by adjusting the salt and sodium (low-salt diet), but it does not take into account the quality of a dish arrangement. DASH generally includes a diet of vegetables and fruits that contain lots of dietary fiber (30 grams/day) and certain minerals (potassium, magnesium and calcium) while limiting salt intake (Pibriyanti, 2013).

The results showed that more than half of the respondents adhered to the DASH diet, as many as 17 respondents. Adherence to the DASH Diet is very necessary for hypertension patients so that blood pressure is always controlled. Meanwhile, 13 respondents did not comply with the DASH diet. This can increase blood pressure that occurs due to patient non-adherence to the DASH diet pattern which consists of Consumption of fruits and vegetables containing potassium, phytoestrogens and fiber, using low-fat dairy products, Consumption of fish, nuts and poultry in moderation, Reduce fatty meats and limit sugar and salt. One of the factors that influence hypertension is age. Based on diagram 4.2 above, it shows that from a total of 30 respondents, most of the respondents aged > 60 years, namely as many as 16 respondents (53.3%), respondents aged 41-60 years as many as 11 respondents (36.6%) and respondents aged 21 -40 years as many as 3 respondents (10%).

The older you get, the greater your risk of developing high blood pressure, especially systolic. This is mostly caused by arteriosclerosis (Dina T, Elperin, et al 2013). The incidence of hypertension increases with the age of a person aged over 60 years, 50-60% have blood pressure greater than or equal to 140/90 mmHg. This is the effect of degeneration that occurs in people who get older (Gunawan, 2016). The results of the study there were as many as 16 respondents aged > 60 years, it is possible that the risk of developing hypertension will be higher due to atherosclerosis which clogs blood vessels, so that blood flow is not smooth and causes the heart to pump stronger.

In table 2 it is found that from a total of 30 respondents, most of the respondents had normal blood pressure as many as 9 respondents (30%), mild hypertension, namely 10 respondents (23.3%), moderate hypertension as many as 7 respondents (23.3%) and hypertension Weight as many as 4 respondents (13,3%). Hypertension or high blood pressure is a condition in which a person experiences an increase in blood pressure above normal which results in an increase in morbidity and mortality. Blood pressure of 140/90 mmHg is based on two phases in each heartbeat, namely the systolic phase of 140 indicating the phase of blood being pumped by the heart and the diastolic phase of 90 indicating the phase of blood returning to the heart (Mamahit, Mulyadi, Onibala, 2017).

According to the results of the study, the majority of respondents were in the category of mild hypertension, namely 33.3% and normal ones were 30%, but in the remaining categories, they were in the moderate and severe categories. Thus, there are four categories of patients at the Tulungagung Health Center, namely normal patients, mild hypertension, moderate hypertension and severe hypertension. Of concern is in hypertension patients with blood pressure more than 180/110 if not controlled immediately it can cause complications including

heart failure and coronary heart disease, stroke, damage to the kidney filtering system, and hypertensive retinopathy. Therefore, for hypertension patients, regular blood pressure control is needed to prevent complications.

Table 3 can be interpreted that a number of 17 respondents who were compliant there were 9 respondents (52.94%) normal and none of them had severe hypertension, while of the 13 respondents who did not comply there were 4 respondents (30.77%) who had severe hypertension and none of them had severe hypertension. Normal. The results of quantitative data analysis with the Spearman Rho statistical test showed that the P Value = 0.000 was smaller than the value of = 0.05 ( $0.000 < 0.05$ ) so that  $H_0$  was rejected, meaning that there was a relationship between DASH Pattern Compliance and Blood Pressure in Hypertensive Patients at the Tulungagung Health Center.

Compliance is a person's level of knowledge in implementing the recommended rules of behavior. In patients with hypertension, compliance is defined as obedience to carry out something recommended by a doctor or health worker. Compliance with diet programs in hypertensive clients is obedience not to consume foods that contain a lot of salt (sodium), fat, alcoholic beverages because these foods can stimulate an increase in blood pressure (Sarfino, 2012). According to research by Heri Triwibowo (2017), it shows that adherence to a hypertension diet with blood pressure in hypertension patients is influenced by cognitive factors and one's education can also increase adherence to hypertension treatment rules. A person's good adherence to the Hypertension Diet can be influenced by personal characteristics because they already have sufficient knowledge about what to do to maintain their health. According to the facts and theory that the adherence of hypertensive patients to the DASH diet pattern will control blood pressure in hypertension patients. The importance of doing the DASH diet in hypertension patients so that blood pressure can be controlled in order to anticipate the occurrence of complications of hypertension. One of the factors that play an important role in adherence is the cognitive factor that encourages a person to routinely run the DASH diet. Compliance with diet programs in hypertensive clients not to consume foods that contain lots of salt (sodium), fat, alcoholic beverages because these foods can stimulate an increase in blood pressure. Suggestions that researchers can give to hypertension patients to always control blood pressure and also routinely do the DASH diet so that further therapy can be carried out.

## **Conclusion**

Compliance with the DASH Pattern at the Tulungagung Health Center more than half of the respondents had the DASH Pattern Compliance at the Tulungagung Health Center in the obedient category, namely 17 respondents (56.7%) and almost half of the respondents in the non-compliant category, namely 13 respondents (43.3%). Blood Pressure in Hypertensive Patients at the Tulungagung Public Health Center most of the respondents had mild hypertension, as many as 10 respondents (23.3%) and severe hypertension as many as 4 respondents (13.3%). There is a Relationship between DASH Pattern Compliance and Blood Pressure in Hypertensive Patients at Tulungagung Health Center with a P Value = 0.000 which is smaller than the value of = 0.05 ( $0.000 < 0.05$ ).

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