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The Relationship between Dietary Compliance of Hypertension Patients and Increased Blood Pressure in Hypertension Patients in the Internal Medicine Poly Room of Dr Rm Djoelham Binjai Hospital in 2019

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Hypertension,
Blood pressure.E-mail:
nurhasanah@gmail.com**ABSTRACT**

Diet is one way to treat hypertension without serious side effects because of its natural control methods. Reducing salt intake, increasing fiber, stopping bad habits such as smoking, drinking coffee, consuming alcohol, using vegetables and herbs and taking medication regularly will help in lowering blood pressure. The eating factor in dietary compliance is an important thing to consider in hypertensive patients. Patients with hypertension should adhere to a hypertension diet in order to prevent further complications. Patients with hypertension must continue to carry out a hypertension diet every day with the presence or absence of pain and symptoms. The purpose of the hypertension diet and hypertension treatment is to control the blood pressure of hypertensive patients to remain stable or normal blood pressure so that they can avoid hypertension and prevent complications, especially the heart and blood vessels that can cause death. The results of the study were 31 respondents, the majority of patients aged 45-59 years with a total of 18 people (58.1) and a minority at the age of 60-75 years with a total of 13 people (41.9).

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1. Introduction

Hypertension is a blood pressure disease where the individual's blood pressure is above the normal value, a condition in which the blood vessels have persistently elevated pressure. Blood is transported from the heart to all organs of the body through blood vessels. Every time the heart beats is to pump blood into the blood vessels. Blood pressure is formed by the pressure of the blood pressure pushing against the walls of the arteries being pumped by the heart. The higher the pressure the harder the heart has to be pumped. (WHO, 2018).

Hypertension is a non-communicable disease. Hypertension is a blood pressure condition of 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 hypertension primary or essential of unknown cause 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).

Hypertension is a degenerative disease. Generally, blood pressure increases slowly with increasing age. The risk for suffering from hypertension in the population 55 years of age whose blood pressure was normal is 90%. Most patients have had prehypertension blood pressure before they were diagnosed with hypertension, and most of the hypertension diagnoses occurred between the third and fifth decades of life (Triyanto, 2018).

According to WHO, the blood pressure limit that is still considered normal is less than 130/85 mmHg, whereas if it is more than 140/90 mmHg it is declared as hypertension, and between these values it is normal-high. (This limit is for adults over 18 years old). The limit of blood pressure that is still considered normal is less than 130/85 mmHg. Actually, the boundary between normal blood pressure and high blood pressure is not clear, so the classification of hypertension is made based on high levels of blood pressure which result in an increased risk of heart and blood vessel disease (Triyanto, 2018).

Approximately 75 million American adults (29%) have hypertension, meaning 1 in every 3 adults has hypertension. Based on the data above, only half (54%) of people with hypertension have been able to control their hypertension condition. The national fund for hypertension is 46 billion USD, this total fund includes financing from health services, treatment and abandoned workdays (CDC, 2017).

In America, it is estimated that 30% of the population (\pm 50 million people) suffer from high blood pressure (\geq 140/90 mmHg), with a fairly large percentage of health costs each year. According to the National Health and Nutrition Examination Survey (NHNES), the incidence of hypertension in The number of adults in America in 2010-2012 was around 39-51%, which means that there were 58-65 million people suffering from hypertension, and an increase of 15 million from the NHNES III data (Triyanto, 2018).

The prevalence of hypertension in Indonesia reaches 31.7% of the population aged 18 years and over. Of that amount, 60% of patients with hypertension experienced complications of stroke. While the rest experienced heart disease, kidney failure, and blindness. Hypertension as the 3rd cause of death after stroke and tuberculosis, the number reaches 6.8% of the proportion of causes of death at all ages in Indonesia (Triyanto, 2018).

The prevalence of hypertension in adults in Southeast Asia reaches 36%. Of the ten countries in Southeast Asia, Indonesia ranks third based on male gender at 42.7% and ranks second based on female gender with 39.2%. (M. Hasvian, 2016).

According to data on population estimates for health development targets in 2014, Pusdatin Riau Province found that 20.9% had hypertension out of a total population of 6,358,636 people (Pusdatin, 2014).

Research conducted by Aryanti Sulistyani, et al in 2018 with the research problem "the relationship between knowledge about hypertension and sodium intake in outpatient hypertension patients at the PKU Muhammadiyah Pekalongan Hospital" shows that there are research results showing by age the most 46 - 55 years 36 people (90%). Most of the sexes are women 27 people (67.5%). The level of work is mostly housewives 16 people (40%). The level of education is high school graduates as many as 21 people (52.5%). Obesity ($>$ 27) as many as 23 people (57.5%). The level of good knowledge as many as 27 people (67.5%), compliance that is obedient $>$ 16 as many as 28 people (70.0%). Sodium intake was 28 people (70%). There was a relationship between adherence to a low-salt diet and sodium intake.

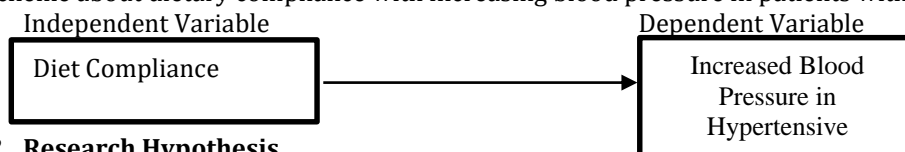
The initial survey was conducted in the internal medicine clinic of Dr. General Hospital. RM Djoelham Binjai data obtained from patients suffering from hypertension as many as 156 people. The results of the researchers' initial survey of patients suffering from hypertension were patients with hypertension due to an unhealthy lifestyle.

Based on the description above, the researcher is interested in conducting research on the relationship between dietary compliance of hypertensive patients with increasing blood pressure in hypertensive patients in the internal medicine clinic of Dr. General Hospital. RM Djoelham Binjai in 2019.

2. Research methods

2.1 Conceptual framework

The conceptual framework in this study aims to analyze the relationship between dietary compliance of hypertensive patients with increased blood pressure in hypertensive patients at Dr. General Hospital. RM Djoelham Binjai. The conceptual framework in this study is described by using a scheme about dietary compliance with increasing blood pressure in patients with hypertension.



2.2 Research Hypothesis

The hypothesis is a temporary answer from a study whose truth still needs to be tested (Nursalam, 2016). The research hypothesis is:

H₀ : There is no significant relationship between dietary compliance of hypertensive patients with increasing blood pressure in hypertensive patients at Dr. General Hospital. RM

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Djoelham Binjai.

Ha : There is a significant relationship between dietary compliance of hypertensive patients with increasing blood pressure in hypertensive patients at Dr. General Hospital. RM Djoelham Binjai..

2.3 Types of research

The type of research used is a quantitative study using a cross sectional analytic design which aims to determine the dietary compliance of hypertensive patients with increasing blood pressure in hypertensive patients at Dr. General Hospital. RM Djoelham Binjai in 2019.

2.4 Place and time of research

This research was conducted at Dr. General Hospital. RM Djoelham Binjai in 2019 and this research was conducted in January -July 2020.

2.5 Population and Sample

The population in the study is the subject who meets the predetermined criteria (Nursalam, 2016). The population taken in this study were hypertensive patients who went to RSUD Dr RM Djoelham Binjai as many as 156 respondents. According to Arikunto (2016), if the population is less than 100 then it is good to take everything and if the population is more than 100 then the formula must be used. The sampling technique used was accidental sampling. The formula used for sampling is (Notoadmodjo, 2016).

$$n = 10\% \times N$$

Description:

n = sample size

N = population size

The population in this study was 156 hypertensive patients, so the sample size used in this study can be calculated as follows:

$$n = 20 \times 156$$

100

$$n = 0.2 \times 156$$

$$n = 31.2$$

$$n = 31$$

3. Results And Discussion

This chapter describes the results of research and discussion of the relationship between dietary compliance of hypertensive patients with increased blood pressure in patients with hypertension at Dr. Hospital. RM Djoelham Binjai in 2019. The data was obtained through a collection process with a total of 31 respondents.

3.1 Univariate Analysis

Univariate analysis was conducted to see the distribution of each research variable. Based on the results of research conducted which aims to determine the dietary compliance of hypertensive patients with increasing blood pressure in patients with hypertension in Dr. Hospital. RM Djoelham Binjai in 2019 with a total of 31 people. The frequency distribution based on the characteristics of dietary adherence to the increase in blood pressure in hypertensive patients is as follows:

TABLE 1
Frequency Distribution Based on Respondent Age in RSUD
Dr. RM Doelham Binjai in 2019 (n = 31)

No	Characteristics	Frequency (f)	Percent (%)
1	Age		
	a. Age(45-59year)	18	58.1
	b. Age(60-75year)	13	41.9
	Total	31	100

Based on the table above, it is known that of the 31 respondents, the majority of patients aged 45-59 years with a total of 18 people (58.1) and a minority aged 60-75 years with a total of 13 people (41.9).

3.2 Gender

TABLE 2
Frequency Distribution by Gender of Respondents in
Dr RM Doelham Binjai Hospital in 2019 (n = 31)

No	Characteristics	Frequency (f)	Percent (%)
1	Gender		
	a. Man	14	45.2
	b. Woman	17	54.8
	Total	31	100

Based on the table above, it is known that of the 31 respondents the majority of the sex patients were female with a total of 17 people (54.8) and the minority in the male sex with a total of 14 people (45.2).

3.3 Genetics

TABLE 3
Frequency Distribution Based on Respondent Genetics at Dr RM Doelham Binjai Hospital in 2019 (n = 31)

No	Characteristics	Frequency (f)	Percent (%)
1	Genetics		
	a. There are descendants	20	64.5
	b. no offspring	11	35.5
	Total	31	100

Based on the table above, it is known that the majority of the 31 respondents have descendants with a total of 20 people (64.5) and the minority have no descendants with a total of 11 people (35.5).

3.4 Diet Compliance

TABLES . 4
Frequency Distribution Based on Respondent Genetics at Dr RM Doelham Binjai Hospital in 2019 (n = 31)

No	Variable	Frequency (f)	Percentage
1	Diet Compliance		
	a. Obey	15	48.4
	b. Not obey	16	51.6
	Total	31	100

Based on the table above, it is known that of the 31 respondents, the majority of non-compliant hypertension sufferers were 16 (51.6%) and the compliant minority were 15 (48.4%).

3.5 Increased Blood Pressure

TABLES . 5
Frequency Distribution of Respondents based on Variables of Increased Blood Pressure
For Hypertension Patients At Dr RM Djoelham Binjai Hospital in 2020 (n = 43)

No	Variable	Frequency (f)	Percentage
1	Increased Blood Pressure		
	a. Light	13	41.9
	b. Currently	18	58.1
	Total	31	100

Based on the table above, it is known that of the 31 respondents, the majority had a moderate increase in blood pressure of 18 people (58.1%) and a mild increase in blood pressure of 13 people (41.9%).

3.6 Univariate Analysis

Bivariate analysis was conducted to determine the relationship between the independent variable and the dependent variable. The analysis was carried out using the Chi-Square test at a 95% confidence level, so that if the results of statistical analysis were found to be $p < 0.05$, the variables were stated to be significantly related.

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3.7 Dietary adherence of hypertensive patients to increased blood pressure in hypertensive patients in Dr. Hospital. RM Djoelham Binjai in 2019

Based on the results of the study, it was found that there was a relationship between dietary compliance with increasing blood pressure in patients with hypertension at Dr RM Djoelham Binjai Hospital in 2019 in the following table:

TABLES . 6
Dietary Compliance of Hypertensive Patients with Increased Blood Pressure in Hypertension Patients In Dr. Hospital. RM Djoelham Binjai Year 2019 (n = 31)

No	Diet Compliance	Increased Blood Pressure				Total		df	Sig (2-tailed)
		Light		Currently		n	%		
		n	%	n	%				
1.	Not obey	4	25	12	75	16	100	1 0.038	
2.	Obey	9	60	6	40	15	100		
Amount		13	38.7	18	61.3	31	100		

Based on the table above, it is known that of the 31 respondents who did not comply with diet compliance, the majority of hypertensive patients experienced a moderate increase in blood pressure, namely as many as 12 people (75%) and the minority of non-adherent dietary compliance in patients with hypertension experienced a mild increase in blood pressure as many as 4 people (25%). Of the 31 respondents who adhered to diet compliance, the majority of patients with hypertension did not experience a mild increase in blood pressure as many as 9 people (60%) and the minority who adhered to diet compliance with hypertension experienced a moderate increase in blood pressure as many as 6 people (40%).

Based on the results of the chi square test, the relationship between diet compliance and increased blood pressure in patients with hypertension at Dr RM Djoelham Binjai Hospital in 2019 with a significance degree (α) = 0.05 and $df = 1$, the calculation results obtained, namely Sig (2-tailed) $0.038 < () = 0.05$, then H_0 is rejected and H_a is accepted. In conclusion, there is a relationship between diet compliance and increased blood pressure in patients with hypertension at Dr RM Djoelham Binjai Hospital in 2019.

3.8 Discussion

Based on the table above, it is known that of the 31 respondents, the majority of patients aged 45-59 years with a total of 18 people (58.1) and a minority aged 60-75 years with a total of 13 people (41.9). The older age is directly proportional to the increase in blood pressure. This is because in old age there are structural and functional changes in the peripheral vascular system which are responsible for changes in blood pressure. These changes include atherosclerosis, loss of elasticity of connective tissue, and decreased ability to relax vascular smooth muscle which in turn reduces the distension and stretchability of blood vessels (Smeltzer & Bare, 2015). Mardalena (2017) said that the older a person gets, the blood pressure will increase and the risk of experiencing hypertension will increase.

The age factor is very influential on hypertension because with increasing age, the higher the risk of hypertension. The fact that blood pressure increases with age has been reported by many researchers. Systolic and diastolic pressures increase by 2 mmHg every decade of age (Triyanto, 2018). Based on the table above, it is known that of the 31 respondents the majority of the sex patients were female with a total of 17 people (54.8) and the minority in the male sex with a total of 14 people (45.2).

Hypertension affects more women than men. This is related to hormonal factors, where women over the age of 40 begin to enter menopause. The hormone estrogen has a number of metabolic effects, one of which is the maintenance of the normal structure of blood vessels. The decrease in estrogen production at the age of menopause causes the function of maintaining the structure of blood vessels to also decrease, so that women are more susceptible to hypertension (Smeltzer & Bare, 2015). Based on the table above, it is known that the majority of the 31 respondents have descendants with a total of 20 people (64.5) and the minority have no descendants with a total of 11 people (35.5).

The results of this study are in accordance with previous research by Nia Kurniasih in Riska Agustina (2015) which stated that there was a significant relationship between genetic factors and the incidence of hypertension ($p = 0.000$). Genetic factors have a risk of 11,982 times greater for hypertension than those who do not have genetic factors. Based on the results of the study, there were genetic factors with the incidence of hypertension due to the large number of hypertension sufferers who had genetic factors, namely 18 people (60%) which differed greatly from those who did not suffer from hypertension as many as 8 people (26.7%).

Based on the table above, it is known that of the 31 respondents, the majority of non-compliant hypertension sufferers were 16 (51.6%) and the compliant minority were 15 (48.4%). This study is in accordance with that conducted by Nisfiani in Delima Sari, (2018), regarding the relationship between family support and adherence to a hypertension diet in the elderly in Begajah Village, Sukoharjo District, Sukoharjo Regency, showing that there is a relationship between family support and hypertension diet compliance in the elderly in Begajah Village. Sukoharjo District, Sukoharjo Regency. One of the inhibiting factors for adherence to diet in hypertensive patients is avoiding daily eating habits. Regulating diet is not easy for people with hypertension, because it causes a sense of saturation and boredom for people with hypertension due to the menu consumed is completely limited so it is necessary to self-motivate people with hypertension to be able to control blood pressure by adjusting their diet or implementing a hypertension diet. Based on the table above, it is known that of the 31 respondents, the majority had a moderate increase in blood pressure of 18 people (58.1%) and a mild increase in blood pressure of 13 people (41.9%).

Hypertension is the main factor for cardiovascular diseases which is the highest cause of death in Indonesia. Hypertension is categorized as the silent disease because clients with hypertension do not know or even realize that they are hypertension before checking their blood pressure. Hypertension is a condition in which a person's blood pressure is above the normal limit of 120 mmHg for systolic and 80 mmHg for diastolic. Hypertension that occurs in the long term and continuously can trigger strokes, heart attacks, heart failure and is a cause of chronic kidney failure (Purnomo, 2019).

4. Conclusion

Based on the results of the research and discussion that have been described previously, the following conclusions are obtained. Based on the table above, it is known that from the 31 respondents the majority of patients were 45-59 years old with a total of 18 people (58.1) and a minority aged 60-75 years with a total of 13 people (41.9). Based on the table above, it is known that of the 31 respondents the majority of the sex patients were female with a total of 17 people (54.8) and the minority in the male sex with a total of 14 people (45.2). Based on the table above, it is known that the majority of the 31 respondents have descendants with a total of 20 people (64.5) and the minority have no descendants with a total of 11 people (35.5). Based on the table above, it is known that of the 31 respondents, the majority of hypertension sufferers were not compliant, as many as 16 people (51.6%) and the compliant minority amounted to 15 people (48.4%). Based on the table above, it is known that of the 31 respondents, the majority had a moderate increase in blood pressure of 18 people (58.1%) and a mild increase in blood pressure of 13 people (41.9%). There is a relationship between dietary compliance with increasing blood pressure in patients with hypertension at Dr RM Djoelham Binjai Hospital in 2019.

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