The Most Influential Factors of Hypertension Grade Among Patients Aged 45-75 In the Community Health Center of North Kediri City

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ABSTRACT

Hypertension, often referred to as the silent killer, is a deadly disease that often shows no symptoms until it is too late. Understanding the factors that contribute to its incidence is crucial. In this observational cross-sectional study, 263 hypertensive patients aged 45-75 years were examined to determine the influential factors. Using purposive sampling, a sample of 42 respondents was chosen. The independent variables studied were diet and activity patterns, while the dependent variable was the occurrence of hypertension. The statistical analysis was conducted using ordinal regression. The findings revealed that 64.3% of hypertensive patients aged 45-75 years had an improper diet, while 45.2% had poor activity patterns. Grade I hypertension was observed in 40.5% of the respondents. The data analysis indicated a significant influence of diet, activity, and hypertension ($p = 0.00 < \alpha = 0.05$). Furthermore, the wald value of 17,286 suggested that diet had a greater impact. The study concluded that diet was the most influential factor, emphasizing the importance of avoiding high-cholesterol foods (e.g., fried and coconut milk-based dishes), fatty meats, and high-salt foods (e.g., pickles). These findings highlight the need for individuals to be mindful of their dietary choices to prevent and manage hypertension effectively.

I. Introduction

Hypertension is often referred to as the silent killer, because it is a deadly disease, without any prior symptoms as a warning to its victims. Even if they appear, these symptoms are often considered normal disturbances, so that the victim is late in realizing the arrival of the disease (Sustrani, 2006). Hypertension is a serious public health problem because if it is not controlled it will develop and cause dangerous complications. The result can be fatal because complications often arise, such as stroke (brain hemorrhage), coronary heart disease, and kidney failure (Gunawan, 2008).

Most of the hypertension in these patients is isolated systolic hypertension (HST), the increase in systolic pressure increases the likelihood of stroke and myocardial infarction even though the diastolic pressure is within normal limits (isolated systolic hypertension). Isolated systolic hypertension is the most common form of hypertension. In one study, hypertension occupied 87% of cases in people aged 50 to 59 years. The presence of hypertension, both HST and a combination of systolic and diastolic is a risk factor for morbidity and mortality for people with hypertension. Hypertension is still a major risk factor for stroke, heart failure, and coronary disease, where its role is estimated to be greater than in younger people (Kuswardhani, 2007).

WHO data for 2010 showed that around the world, around 972 million people, or

26.4% of the world's inhabitants had hypertension with a ratio of 26.6% of men and 26.1% of women. This figure is likely to increase to 29.2% in 2025. Of the 972 million people with hypertension, 333 million are in developed countries and the remaining 639 are in developing countries, including Indonesia (Andra, 2007). In 2014, WHO noted that one billion people in the world suffer from hypertension. Hypertension causes the death of nearly 8 million people every year worldwide and nearly 1.5 million people every year in Southeast Asia. About one-third of the adult population in Southeast Asia has high blood pressure. The results of Basic Health Research (Riskesdas) of the Health Research and Development Agency (Balitbangkes) in 2007 showed that the national prevalence of hypertension reached 31.7%. This prevalence is much higher than Singapore (27.3%), Thailand (22.7%), and Malaysia (20%).

Factors that influence the occurrence of hypertension are divided into two major groups, namely inherent or non-modifiable factors such as gender, age, and genetics modifiable factors such as diet, exercise habits, and others. For the occurrence of hypertension, the role of these risk factors together (common underlying risk factor) is needed, in other words, one risk factor alone is not enough to cause hypertension (Ministry of Health RI, 2012).

II. Methods

The research design used was cross-sectional observational. The population in this study was 263 people with hypertension aged 45-75 years. The sample in this study was 42 respondents. The sampling technique used is purposive sampling. The independent variables are diet and activity patterns. The dependent variable is the incidence of hypertension. The results of the study were carried out to test the hypothesis using the ordinal regression test.

III. Results and Discussion

The characteristics of the subjects in this study included age, gender, education, occupation, sources of information, activity patterns, eating patterns, and hypertension grade categories. The description of the variable characteristics is shown in Table 1.

Table 1. Age, gender, education, occupation, sources of information, activity patterns, eating patterns, and hypertension grade categories.

No	Characteristics	ΣN	Σ%
1	**Age**		
	45-55		38
	56-65		34
	66-75		28
2	**Gender**		
	Man		31
	Woman		69
2	**Education**		
	Elementary school		19
	Junior high school		34
	Senior High School		38
	College		9
3	**Work**		
	Self-employed		25
	Private		28
	Housewife		38
	Government employees		9
4	**Resources**		
	Electronic		28
	Print		24
	Health workers		43
	Etc		4,8
5	**Activity patterns**		
	Good	12	28,6
	Enough	11	26,2
	Not enough	19	45,2
6	**Dietary habit**		
	Good	15	
	Bad	27	
7	**Hypertension**		
	Grade I	17	40,5
	Grade II	7	16,7
	Grade III	13	31
	Grade IV	5	11,9
	Total	**42**	**100**

Source: Data analysis results, Year 2016.

Based on the table above, almost half of the respondents were aged 45-55 years, namely 16 people (38%) out of a total of 42 respondents, most of the respondents were female, namely 29 people (69%), worked as housewives, namely 16 people (38%), respondents obtained information on health services, namely 18 people (43%), activity patterns were in the less category, namely 19 people (45.2%), respondents' eating patterns were in a bad category, 27 people (64.3%)), almost half of the respondents were in the Grade I category, namely 17 people (40.5%).

Data analysis

	Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Hypertension = 1	4.492	1.256	12.797	1	.000	2.031	6.953
Hypertension = 2	6.075	1.489	16.639	1	.000	3.156	8.994
Hypertension = 3	8.589	1.740	24.353	1	.000	5.178	12.000
Activity Patterns =1	2.310	.940	6.043	1	.014	.468	4.152
Activity Patterns =2	3.449	1.133	9.260	1	.002	1.228	5.670
Activity Patterns =3	0[a]	.	.	0	.	.	.
Eating Patterns =0	4.747	1.142	17.286	1	.000	2.509	6.984
Eating Patterns =1	0[a]	1.256	.	0	.	.	.

From the results of the analysis carried out by statistical tests on the role of activity patterns and eating patterns on the incidence of hypertension using the ordinal regression test, it is obtained that the value of $p = 0.000 < \alpha = 0.05$ so that H0 is rejected and H1 is accepted thus there is an influence between activity patterns, eating patterns and events Hypertension with a Wald value of 17,286 at the City Health Center in the North Region of Kediri.

Identify activity patterns in patients aged 45-75 years at the City Health Center in the North Region of Kediri

From the results of the study it was found that the pattern of activity in patients aged 45-75 years at the City Health Center in the North Kediri Region, it was known that half of the respondents were in the less category, namely 19 (42.2%) out of a total of 42 respondents.

At the beginning of physical activity and during physical activity, there is an increase in heart rate, this can cause an increase in cardiac output which can increase blood pressure. Increased cardiac output can occur due to the increased demand for oxygen supply from working muscles (Kapriana et al. 2013).

Physical activity and sports are closely related but fundamentally different. Sport includes physical activity, but not all types of physical activity are sports. Physical activity is any body movement produced by skeletal muscles that release energy (Suiraoka, 2012). Lack of physical activity is a risk factor for various chronic diseases, including hypertension (Sutanto, 2010; Sudoyo, 2010).

Regular physical activity can have positive benefits for health, including: preventing heart disease, stroke, hypertension, diabetes, osteoporosis, and others. Regular physical activity is also beneficial in controlling body weight, muscles become more flexible and bones become stronger, body shape is more ideal and proportional, more confident, more powerful, and fitter so that our overall health will be better (Wahiduddin, et al., 2013; Mellisa, 2013).

From the results of the study, it was found that the pattern of activity in patients aged 45-75 years at the City Health Center in the North Region of Kediri was in the less category

as many as 19 (42.2%) respondents. Thus this is already a relationship between the incidence of hypertension with activity patterns. Therefore this must also be supported by health workers, especially Health Center staff to increase the knowledge of hypertensive patients in activities or exercise to prevent hypertension. After carrying out these actions, Health Center staff also need to carry out regular checks so that patients know how to exercise properly and correctly to prevent hypertension.

Identifying eating patterns in patients aged 45-75 years at the City Health Center in the North Region of Kediri

From the results of the study, it was found that the diet of patients aged 45-75 years at the City Health Center in the North Region of Kediri found that half of the respondents were in a bad category, namely 27 (64.3%) of a total of 42 respondents.

Diet is a picture of the type, amount, and composition of food eaten every day by one person which is a characteristic of certain groups of people (Hartono, 2005). Diet is a way or effort in regulating the amount and type of food with a specific purpose such as maintaining health, and nutritional status, and preventing or helping to cure disease (Depkes RI, 2009). Diet is a variety of information that provides an overview of the amount and type of food eaten every day by a person and is characteristic of maintaining survival. Eating habits are the way individuals or groups choose food and consume it as a reaction to physiological, psychological, social, and cultural influences (Suhardjo, 2007).

Sodium-sensitive people will more easily bind sodium, causing fluid retention and increased blood pressure. Salt has the property of retaining fluids, so consuming excess salt or eating salty foods can cause an increase in blood pressure. Hypertension is almost never found in ethnic groups with minimal salt intake. Sodium consumption is less than 3 grams per day, and the prevalence of hypertension is still low, but if sodium consumption increases between 5-15 grams per day, the prevalence of hypertension will increase to 15-20%. The effect of salt intake on the occurrence of hypertension occurs through an increase in plasma volume, cardiac output, and blood pressure (Wahiduddin, et al., 2013).

Identifying hypertension in patients aged 45-75 years at the City Health Center in the North Region of Kediri

From the results of the study, it was found that half of hypertension in patients aged 45-75 years at the City Health Center in the North Kediri Region was in the Grade I category, namely 17 (40.5%) respondents out of a total of 42 respondents.

The mechanism of hypertension is through the formation of angiotensin II from angiotensin I by Angiotensin I Converting Enzyme (ACE). ACE plays an important physiological role in regulating blood pressure. Blood contains angiotensinogen which is produced in the liver. Furthermore, the hormone, renin (produced by the kidneys) will be converted into angiotensin I. By ACE which is in the lungs, angiotensin I is converted into angiotensin II. It is this angiotensin II that has a key role in raising blood pressure through two main actions (Yogiantoro, 2009).

The pathogenesis of essential hypertension is multifactorial and very complex. These factors alter the function of blood pressure on adequate tissue perfusion including hormone mediators, vascular exercise, circulating blood volume, vascular caliber, blood viscosity, cardiac output, vascular elasticity, and neural stimulation. The pathogenesis of essential hypertension can be triggered by several factors including genetic factors, salt intake in the diet, and stress levels can interact to cause symptoms of hypertension (Yogiantoro, 2006).

The consequences of hypertension include narrowing of the arteries that carry blood and oxygen to the brain, this is caused by a lack of oxygen in the brain tissue due to blockage or rupture of the brain's blood vessels and will result in death in parts of the brain which can

then cause a stroke. Another complication is pain when walking, damage to the kidneys, and damage to the eye organs which can lead to blindness (Beevers, 2007).

Symptoms of hypertension include headaches, palpitations, difficulty breathing after working hard or lifting workloads, fatigue, blurred vision, flushed face, bloody nose, frequent urination, especially at night, ringing in the ears (tinnitus) and the world feels spinning (Sustrani, 2005).

Knowing the most dominant factor in the incidence of hypertension in patients aged 45-75 years at the City Health Center in the North Region of Kediri.

The results of the analysis carried out by statistical tests on the role of activity patterns and eating patterns on the incidence of hypertension using the ordinal regression test, obtained a value of $p = 0.000 < \alpha = 0.05$ so that H0 is rejected and H1 is accepted thus there is a relationship between activity patterns, eating patterns and the incidence of hypertension at the City Health Center in the North Region of Kediri.

After being tested together, it was found that the most dominant factor was diet because many respondents consumed high-salt foods, cholesterol, and fatty foods, thus triggering an increase in high blood pressure with a wald value of 17,248. Here it is said that the main cause of increased high blood pressure is food because many respondents do not understand about healthy foods and unhealthy foods that trigger an increase in high blood pressure.

Based on the description of the facts on the results of the study, the researchers argue that awareness of all hypertensive patients is increased, especially in controlling a good and correct lifestyle. Support from health services and all health workers is very important to provide direction and input in dealing with a good and correct increase in high blood pressure. This can occur due to poor activity patterns that cause an increase in high blood pressure. This can also lead to unhealthy and proper eating patterns, which can lead to high blood pressure. Therefore, a good and correct lifestyle improvement is needed.

IV. Conclusion

Identifying activity patterns in patients aged 45-75 years at the City Health Center in the North Kediri Region, it is known that almost half of the respondents are in the less category, namely 19 (45.2%) respondents out of a total of 42 respondents. Identifying the eating patterns of patients aged 45-75 years at the City Health Center in the North Kediri Region, it is known that almost half of the respondents are in the bad category, namely 27 (64.3%) respondents. Identifying hypertension in patients aged 45-75 years at the City Health Center in the North Kediri Region, it is known that almost half of the respondents are in the Grade I category, namely 17 (40.5%) respondents. Knowing the most dominant factor in the incidence of hypertension in patients aged 45-75 years at the City Health Center in the North Region of Kediri. After being tested together, it was found that the most dominant factor was diet.

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