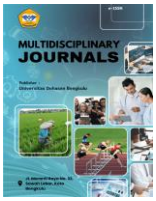
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Factors Associated With The Incidence Of Hypertension In Young Adults At Pasar Ikan Community Health Centre, Bengkulu City, 2024

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Abstract. Hypertension is a condition where systolic blood pressure ≥ 140 mmHg and diastolic pressure ≥ 90 mmHg. In general, hypertension does not provide typical complaints and symptoms so that many sufferers are not aware of it. Therefore, hypertension is said to be the silent killer. This study aims to determine the factors related to the incidence of hypertension in young adults. The method used was descriptive quantitative with a cross sectional design, data were collected by distributing questionnaires to 66 respondents who visited the general clinic of Pasar Ikan Health Center in Bengkulu City, the sampling technique used purposive sampling. The results of the univariate test analysis that most of the respondents (56.1%) were aged 18-40 years, most of the respondents (66.7%) had a family history, most of the respondents (57.6%) did not smoke and most of the respondents (56.1%) were hypertensive. Bivariate analysis results Age gets a p value (0.620) which shows no correlation, family history gets a p value (0.035) which shows there is a correlation, smoking habits get a p value (0.804) which shows no correlation. Researchers suggest that the Pasar Ikan Health Center be able to provide services and provide counseling on factors related to the incidence of hypertension.

Keywords: *Hypertension, Age, Family History, Smoking Habits.*

INTRODUCTION

The cardiovascular system is a body system that plays an important role in regulating blood circulation. This system works because humans are still in the form of fetuses in the mother's body from birth to the end of human life. The cardiovascular system certainly does not stand alone, but works dynamically and in synergy with other body systems to maintain the balance of human life. However, there is one common cardiovascular problem, namely high blood pressure. Hypertension is one of the non-communicable diseases that is a very serious health problem today.

Uncontrolled hypertension can cause a 7 times greater chance of stroke, 6 times greater chance of congestive heart disease, and 3 times greater chance of heart attack. The incidence of hypertension increases with age. A person with a family history of hypertension has a two times greater risk of suffering from hypertension than a person who does not have a family history of hypertension. Hypertension is a degenerative disease that occurs frequently and has a fairly high majority rate and affects a person's quality of life and productivity. Hypertension (High Blood Pressure) is a condition where systolic pressure is >140 mmHg and/or diastolic >90 mmHg (Nursing, 2022); (Amalia et al., 2022); (Mayasari et al., 2019).

According to general medical guidelines used by various health organizations such as (American Heart Association or British Heart Foundation, 2017) Hypertension in young adults is a condition of high blood pressure above 140/90 mmHg that occurs in young adults aged 18 to 40 years. Research shows that hypertension in young adults can be caused by genetic factors,

unhealthy lifestyles such as high-salt and low-fiber diets, lack of physical activity, obesity, stress, and alcohol consumption and smoking. Recent research also highlights the relationship between hypertension in young adults with poor sleep patterns and exposure to air pollution. According to (World Health Organization (WHO), 2023) estimates the current prevalence of hypertension at the global level is 22% of the total population in the world. African countries are the regions with the highest cases of hypertension in the world, namely 27%, while Southeast Asia ranks third in hypertension prevalence with a prevalence of hypertension of 25% of the total population and the lowest prevalence of hypertension reported in the Americas, namely 18%.

Deaths from non-communicable diseases, one of which is caused by hypertension, have continued to increase every year throughout the world. Deaths from non-communicable diseases, one of which is caused by hypertension, have continued to increase every year throughout the world. According to data (World Health Organization (WHO), 2015) shows that one of the main causes of premature death worldwide is hypertension where almost 8 billion people every year in the world and worldwide around 972 million people or 26.4% of people worldwide suffer from hypertension, 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.

The estimated number of hypertension sufferers in Bengkulu Province is estimated to reach 899,010 people, receiving standard services as many as 83,193 people (9%). With the most cases found in Rejang Lebong Regency, namely 201,045 people and the lowest case findings in Kaur Regency, namely 14,786 people (Bengkulu Provincial Health Office, 2019). Based on data (Bengkulu Provincial Health Office, 2020) shows that of the 20 public health centers in Bengkulu City, the incidence of hypertension in Pasar Ikan public health with a prevalence of 20.6%, Anggut Atas public health center 9.89%, Kandang public health center 7.82%, and Sukamerindu public health center 7.29%.

From the data above, it can be seen that the incidence of hypertension in each public health center increases and decreases every year. Lingkar Barat Health Center has the lowest level of hypertension in Bengkulu City with a prevalence of 4.99%. Recently, the incidence of hypertension and its complications has increased and can be fatal if not prevented and treated immediately, especially in adulthood. Adulthood starting from the age of over 18 years has a high risk of experiencing hypertension which is closely related to lifestyle. This adult age will be divided into three stages of age range, namely young adults (18-40 years), middle adults (40-65 years) and finally old adults with ages over 56 years (Ekarini et al., 2020). The underlying objective of this study was to determine the factors that cause hypertension in the fish market health center. The incidence of hypertension in the Fish Market public health center with a prevalence of 20.6% (A et al., 2022)

LITERATURE REVIEW

Hypertension

Some experts say about the definition of hypertension, including: Hypertension is a degenerative disease that occurs frequently and has a fairly high majority rate and affects a person's quality of life and productivity. Hypertension (High Blood Pressure) is a condition where systolic blood pressure is> 140 mmHg and/or diastolic> 90 mmHg. Hypertension is a disorder of the blood circulation system that causes an increase in blood pressure above normal values or blood pressure ≥140/90 mmHg. (Mayasari et al., 2019); (A et al., 2022).

According to general medical guidelines used by various health organizations such as (American Heart Association or British Heart Foundation, 2017) Hypertension in young adults is a condition of high blood pressure above 140/90 mmHg that occurs in young adults aged 18 to

40 years. In the case of hypertension, this is a health problem that is very often faced by many people in Indonesia and it is a non-communicable disease with the first trigger of death throughout the year globally. This increased blood pressure rarely shows any symptoms, so it is often termed the silent killer.

However, hypertension attacks the elderly more, but that does not mean that teenagers are free from the possibility of hypertension (Silvy Ariny, 2023). Based on the understanding of hypertension, several studies have concluded that hypertension is a disease that usually occurs in the circulatory system which causes an increase in blood pressure above the normal value, namely exceeding 140/90 mmHg.

Pathophysiology

Essential hypertension involves a very complex interaction between genetic and environmental factors linked by host neurohormonal mediators. In general, hypertension is caused by increased peripheral resistance and/or increased blood volume. Genes that affect primary hypertension (hereditary factors are estimated to account for 30% to 40% of primary hypertension) include the angiotensin II receptor, angiotensin and renin genes, endothelial nitric oxide synthetase genes; protein kinase G receptor genes; adrenergic receptor genes; calcium transport and sodium hydrogen antiporter genes (affecting salt sensitivity); and genes associated with insulin resistance, obesity, hyperlipidemia, and hypertension as an inherited group (wineka media, 2018).

Current theories of primary hypertension include increased sympathetic nervous system (SNS) activity, a maladaptive response to sympathetic stimulation and genetic changes in receptors plus persistent serum catecholamine levels, increased renin-angiotensin-aldosterone (RAA) system activity, directly causing vasoconstriction, but also increasing SNS activity and decreasing levels of vasodilatory prostaglandins and nitric oxide, mediating arterial remodeling (structural changes in the blood vessel wall), mediating end-organ damage to the heart (hypertrophy), blood vessels, and kidneys. Defects in salt and water transport result in impaired activity of brain natriuretic peptide (BNF), atrial natriuretic peptide (ANF), adrenomedullin, urodilatin, and endothelin and are associated with low dietary intake of calcium, magnesium, and potassium.

Complex interactions involving insulin resistance and endothelial function, hypertension is common in people with diabetes, and insulin resistance is found in many hypertensive patients who do not have clinical diabetes. Insulin resistance is associated with decreased endothelial release of nitric oxide and other vasodilators and affects kidney function. Insulin resistance and high insulin levels increase SNS and RAA activity (wineka media, 2018).

Hypertension Classification

Experts have created a classification of hypertension to make it easier to study and diagnose the type of hypertension suffered by patients. Hypertension is characterized by an increase in blood pressure above the required number which is measured using a tensiometer. A person's blood pressure will increase with age. Systolic pressure can continue to increase until the age of 80 years while diastolic pressure can continue to increase until the age of 55-60 years, then it will decrease again slowly or even drastically.

People who have blood pressure above 130/80 mmHg are suspected of having diabetes mellitus or kidney disease. Therefore, there is a direct relationship between kidney disease and hypertension. Other classifications of hypertension can be mild, moderate and severe classifications. This classification is usually used by WHO. This is because both mild, moderate and severe hypertension have a high risk of complications.

Symptoms of Hypertension

Hypertension is difficult for someone to realize because hypertension does not have specific symptoms. According to (yanita nur indah sari, 2022), common symptoms that occur in people with hypertension include:

a. Mild symptoms such as dizziness or headache
b. Often restless
c. Red face
d. Neck feels sore
e. Easily irritated
f. Ringing in the ears
g. Difficulty sleeping
h. Shortness of breath
i. A feeling of heaviness in the neck
j. Easily tired
k. Eyes flashing
l. Nosebleeds (blood coming out of the nose).

Complications of hypertension

Hypertension can potentially become a complication of various diseases including hemorrhagic stroke, hypertensive heart disease, coronary artery disease anuerism, heart failure, and hypertensive encephalopathy (Anih kurnia, 2020)

Stroke

Stroke is damage to brain tissue caused by a sudden reduction or cessation of blood supply. Brain tissue that experiences this will die and can no longer function. Sometimes stroke is also called CVA (cerebrovascular accident). Hypertension causes greater pressure on the walls of blood vessels, so that the walls of blood vessels become weak and blood vessels are prone to rupture. However, hemorrhagic stroke can also occur in people who do not suffer from hypertension. In cases like this, blood vessels usually rupture due to a sudden spike in blood pressure due to a certain reason, such as food or emotional factors. Rupture of blood vessels somewhere in the brain can cause brain cells that should receive a supply of oxygen and nutrients carried through the blood vessels to become malnourished and eventually die. Blood that sprays from the ruptured blood vessels can also damage the brain cells around it.

Heart disease

Increased systemic blood pressure increases resistance to left ventricular blood pumping, resulting in ventricular hypertrophy to increase the force of contraction. The need for oxygen by the myocardium will increase due to ventricular hypertrophy, this results in an increase in the workload of the heart which ultimately causes angina and myocardial infarction. In addition, it is also simply said that increased blood pressure accelerates atherosclerosis and arteriosclerosis.

Coronary Artery Disease

Hypertension is generally recognized as a major risk factor for coronary artery disease, along with diabetes mellitus. Plaque forms at the branching of the arteries leading to the left coronary artery, right coronary artery and rarely in the syromflex artery. Distal blood flow can be permanently or temporarily obstructed due to plaque accumulation or clotting. Collateral circulation develops around the atheromasus obstruction which inhibits gas and nutrient exchange to the myocardium. Failure of collateral circulation to provide adequate oxygen supply to cells results in coronary artery disease.

Aneurysm

Blood vessels consist of several layers, but some are separated so that blood can enter. Dilation of blood vessels can occur because the walls of the aorta blood vessels are separated or called aortic dissection. This incident can cause aneurysm disease where the symptoms are severe headaches, pain in the stomach to the back of the waist and in the kidneys, aneurysm in the stomach and chest, the main cause is hardening of the blood vessel walls due to the aging process (atherosclerosis) and high blood pressure triggers the onset of aneurysm.

METHODS

This study is a type of quantitative descriptive research with a cross-sectional design, namely measuring the independent variables of age, family history, smoking habits, and dependent variables (hypertension) at a certain time simultaneously (Muhammad Ramdhan, 2021). The population in this study were all patients who visited the internal medicine polyclinic in 2022 totaling 196. The sampling technique used purposive sampling, which is a random sampling technique by selecting samples from the population according to what the researcher wants based on the objectives and problems in the study and meeting the inclusion requirements, namely the general characteristics of research subjects from a target population that is affordable and will be studied (Juhana Nasrudin, 2019). The instrument in the study was a questionnaire containing questions about age, family history and smoking habits. Respondents were asked to choose by putting a cross on one of the 3 (three) alternative answers provided (a, b and c). Blood pressure measurements were carried out independently using a blood pressure measuring device (Spygnomanometer and stethoscope).

RESULTS

Table 1 Frequency distribution data based on age factors, family history, smoking habits, hypertension incidence at the Pasar Ikan Health Center, Bengkulu City are as follows:

Table 1 Frequency distribution data

Variables	Frequency (f)	Percentage (%)
Age		
<18.40> Years	29	43.9
18-40 Years	37	56.1
Total	66	100.0
Family History		
Yes	44	66.7
No	22	33.3
Total	66	100.0
Smoking Habit		
Yes	28	42.4
No	38	57.6
Total	66	100.0
Hypertension Incident		
Hypertension	37	56.1
No Hypertension	29	43.9
Total	66	100.0

Based on table 1 shows the results that from 66 respondents, most of the respondents are aged 18-40 years as many as 37 respondents (56.1%). From table 5.2 shows the results that from 66 respondents, most of the respondents have a family history as many as 44 respondents (66.7%). Table 5.3 shows that out of 66 respondents, the majority of respondents did not

smoke, namely 38 respondents (57.6%). Table 5.4 shows that out of 66 respondents, the majority of respondents had hypertension, namely 37 respondents (56.1%).

Table 2 Relationship Between Age and Hypertension Incidence

Age	Hypertension Incident				Total		*P-Value*
	Hypertension		No Hypertension				
	F	%	F	%	F	%	
<18.40> Years	15	22.7	14	21.2	29	43.9	0.620
18-40 Years	22	33.3	15	22.7	37	56.1	
Total	37	56.1	29	43.9	66	100	

The table above shows that the p value = 0.620 > 0.05 , which means that there is no significant relationship between age factors and the incidence of hypertension in young adults at the Pasar Ikan Health Center in Bengkulu City.

Table 3 Relationship between Family History and Hypertension Incidents

Family History	Hypertension Incident				Total		*P-Value*
	Hypertension		No Hypertension				
	F	%	F	%	F	%	
Yes	29	45.5	15	22.7	44	68.2	0.035
No	8	10.6	14	21.2	22	31.8	
Total	37	56.1	29	43.9	66	100	

The table above shows that the p value = 0.035 < 0.05 , which means that there is a significant relationship between family history factors and the incidence of hypertension in young adults at the Pasar Ikan Health Center in Bengkulu City.

Table 4 Relationship between Smoking Habits and Hypertension Incidence

Smoking Habit	Hypertension Incident				Total		*P-Value*
	Hypertension		No Hypertension				
	F	%	F	%	F	%	
Yes	15	22.7	13	19.7	28	42.4	0.804
No	22	33.3	16	24.2	38	57.6	
Total	37	56.1	29	43.9	66	100	

The table above shows that the p value = 0.804 > 0.05 , which means that there is no significant relationship between smoking habits and the incidence of hypertension in young adults at the Pasar Ikan Health Center in Bengkulu City.

DISCUSSION

Relationship Between Age Factors and Hypertension Incidence

The relationship between age factors and the incidence of hypertension in young adults at the Pasar Ikan Health Center in Bengkulu City, obtained p = 0.620 which shows there is no relationship between age and the incidence of hypertension in young adults. The results of this study are in line with research (Kaol, 2017) that there is no relationship between age and the cause of hypertension. The results of the analysis show that based on the results of the chi-

square test, a p value of 0.501 (p> 0.05) was obtained. This value shows that there is no relationship between age and the incidence of hypertension in young adults. The older a person is, the higher their blood pressure, so older people tend to have higher blood pressure than younger people (Listyana et al., 2022). The elderly are more at risk of developing hypertension. This is because the accumulation of collagen causes atherosclerosis which results in increased blood pressure (Dusun et al., 2023). One of the non-modifiable risk factors for hypertension is increasing age, so that the elderly with hypertension have a higher risk of heart disease, stroke, and kidney failure (Wicaksono, 2019).

Relationship Between Family History Factors and Hypertension Incidence

The relationship between family history factors and the incidence of hypertension in young adults at the Pasar Ikan Health Center in Bengkulu City, obtained p = 0.035 which shows that there is a relationship between family history and the incidence of hypertension in young adults. The results of this study are in line with research (Nursari & Batubara, 2023) that there is a relationship between age and the cause of hypertension. The results of the analysis showed that based on the results of the chi-square test, a p value of 0.005 (p <0.05) was obtained. This value indicates that there is no relationship between family history and the incidence of hypertension in young adults. The presence of genetic factors in certain families will cause the family to have a risk of suffering from hypertension. This is related to increased intracellular sodium levels and a low ratio of potassium to sodium. Individuals with parents with hypertension have twice the risk of developing hypertension than people who do not have a family history of hypertension (Jannah & Sodik, 2018).

Relationship Between Smoking Habits and Hypertension Incidence

The relationship between smoking habits and hypertension in young adults at the Pasar Ikan Health Center in Bengkulu City, obtained p = 0.804 which shows there is no relationship between smoking habits and hypertension in young adults. The results of this study are in line with research (Kaol, 2017) that there is a relationship between age and the cause of hypertension. The results of the analysis showed that based on the results of the chi-square test, a p value of 0.686 (p> 0.05) was obtained. This value shows that there is no relationship between smoking habits and hypertension in young adults. An unhealthy lifestyle such as smoking behavior can cause hypertension, as well as components in cigarettes such as nicotine which can increase the release of epinephrine which can cause narrowing of the artery walls. In addition, there is also Carbon monoxide (Co) which affects the heart to work harder to provide enough oxygen to the body's cells. So that cigarettes play a role in the formation of atherosclerosis by increasing the clumping of blood cells. Smoking habits cause various diseases in our bodies, such as heart disease and blood vessel disorders, lung cancer, oral cavity cancer, laryngeal cancer, high blood pressure, impotence and pregnancy disorders and fetal defects (Nurhaeni et al., 2022).

CONCLUSION

1. Most of the respondents aged 18-40 years as much as (56.1%).
2. Most of the respondents experienced hypertension on average had a family history of (66.7%).
3. Most of the respondents did not smoke as much as (57.6%).
4. Most of the respondents experienced hypertension as much as (56.1%) at the Pasar Ikan Health Center, Bengkulu City in 2024
5. There is no relationship between age and the incidence of hypertension in young adults at the Pasar Ikan Health Center, Bengkulu City in 2024.

6. There is a relationship between family history and the incidence of hypertension in young adults at the Pasar Ikan Health Center, Bengkulu City in 2024.
7. There is no relationship between smoking habits and the incidence of hypertension in young adults at the Pasar Ikan Health Center, Bengkulu City in 2024.

SUGGESTIONS

1. For Further Researchers
   Research can be further developed on factors related to the level of hypertension in the elderly. In terms of research, it is recommended to conduct interviews and observations to obtain more in-depth data and be more selective in respondent research.
2. For Institutions
   After conducting research on factors related to the level of hypertension in the elderly, the results of this study can be used as further references. Institutions can reduce the number of hypertension sufferers in the elderly by knowing what factors cause hypertension.
3. For Pasar Ikan Health Center
   To further increase health promotion about hypertension to the community to find out whether this hypertension disease is widely known by the community about how to prevent and treat hypertension.

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