

The influence of eating culture, physical activity, smoking habits and gender on the incidence of hypertension to pre late adulthood in Padangsidempuan general hospital

Miskah Afriani<sup>1</sup>, Wahyuni<sup>1</sup>, Milna Chairunnisa Harahap<sup>1</sup>

<sup>1</sup>Faculty of Public Health, Institut Kesehatan Helvetia

Email: [miskahafriani@helvetia.ac.id](mailto:miskahafriani@helvetia.ac.id)

Abstract

Hypertension is a condition with blood pressure exceeding normal limits. If hypertension is not well controlled it can lead to damage to blood vessels and can even lead to the risk of death. According to Indonesia's health profile in 2013, there is an increasing prevalence of hypertension to 9.55%. Data obtained from Padangsidempuan General Hospital, number of hypertension patients increased from 2014-2016. Hypertension ranks 4th out of 10 major diseases in Padangsidempuan General Hospital. This study aims to analyze the influence of eating culture, physical activity, smoking habits and gender on the occurrence of hypertension at Padangsidempuan General Hospital. The type of research used is analytic study with cross sectional design. The population in this study were all pre-hypertension suffering as many as 55 people. The sample is the entire population number used as the sample that is as much as 55 people. Data were obtained from Padangsidempuan General Hospital and through interview result using questionnaire. The method analysis used was univariate, bivariate, and multivariate by using multiple logistic regression method. The results showed statistical test results of independent variables eating culture shows there is a significant influence of independent variables with the dependent variable ( $0,003 < 0,05$ ). Physical activity obtained Sig- value (0,048) means there is a significant influence independent variables with dependent. Smoking habits obtained (0,043) means there is a significant influence independent variables with dependent. Gender variable shows there is no significant influence of independent variable with dependent. The most influence variable is eating culture. It is suggested to respondents to improve their healthy lifestyle to reduce the incidence of hypertension by reducing eating fatty foods, get exercise routine and stop smoking.

Keywords: eating culture, Physical activity, Smoking habits, Gender, Hypertension

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## Background

Hypertension is a condition when blood pressure in blood vessels increases chronically. It can occur because the heart works harder to pump blood to meet the needs of oxygen and body nutrients. If left unchecked, this disease can interfere with the function of other organs, especially vital organs such as the heart and kidneys.<sup>1</sup> A person is declared to suffer from hypertension if the systolic pressure is 140 mmHg or more and diastolic pressure is 90 mmHg or more.<sup>1</sup> Normal adult blood pressure is flat average of 120/80 mmHg. If systolic blood pressure is equal to or higher than 140 mmHg, the risk of coronary heart disease, stroke and kidney disorders will increase.<sup>2</sup>

Hypertension is nicknamed "Silent Killer" or the killer secretly because it is a phenomenon without typical signs and symptoms. People consider hypertension to be normal so that it is only seen if it is severe and causes very dangerous complications such as stroke. Hypertension increases the risk of heart disease twice and increases the risk of stroke eight times compared to people who do not experience hypertension. kidney disorders and retinopathy. This will be very dangerous if not controlled properly.<sup>3</sup>

WHO determines hypertension as the number three risk factor for etiology of death in the world. Hypertension is responsible for 62% of cases of stroke, 49% of heart attacks. Seven million deaths each year due to hypertension. World Health Statistics in 2012 reported about 51% of deaths from stroke and 45% of coronary heart disease due to hypertension. WHO data states that hypertension causes 7.5 million (12.8%) deaths worldwide.<sup>4</sup>

According to the American Heart Association (AHA), Americans over the age of 20 suffering from hypertension have reached 74.5 million or 1 in 3 adults in the United States suffer from hypertension, but nearly 90-95% of the cases are unknown. Hypertension is a silent killer where symptoms can vary in each individual and are almost the same as other symptoms. The symptoms are headache / heaviness in the neck, palpitations, fatigue, blurred vision, ringing in the ears and nosebleeds.<sup>5</sup>

Hypertension can attack almost all groups of people around the world. The number of people with hypertension continues to increase from year to year. From the latest research data, it was stated that there were around 50 million (21.7%) American adults suffering from hypertension. Hypertension also attacks Thailand by 17% of the total population, Vietnam 34.6%, Singapore 24.9%, and Indonesia has a fairly high number of 15%. In this case, it can be concluded from the 230 million population of Indonesia that almost 35 million people in Indonesia are affected by hypertension.<sup>6</sup>

Research shows a positive relationship between age and the prevalence of hypertension. The positive relationship is more visible from systolic blood pressure. The average systolic blood pressure starts to increase significantly from the age of 35 years to 69 years in men and women. Hypertension is common in anyone, but many studies have found that hypertension is more suffered in pre-elderly and elderly compared to younger age groups.<sup>7</sup> Blood pressure naturally tends to increase with age. In the UK, the prevalence of blood pressure in middle age is 20% and increases by more than 50% at the age of 60 years. High blood pressure can also occur at a young age, but its prevalence is low (<20%).<sup>8</sup>

Based on the 2013 Indonesian Health Profile nationally there was an increase in hypertension prevalence from 7.6% in 2007 to 9.5% in 2013. Provinces with the highest prevalence of hypertension in 2013 were North Sulawesi Province (15.2%), then followed South Kalimantan Province (13.3%), and DI Yogyakarta (12.9%), while the prevalence in Papua (3.3%), then followed by West Papua (4.3%), and Riau (6.1%) ) The highest prevalence increase was found in West Sulawesi Province, from 4.7% in 2007 to 9.5% in 2013. While the highest prevalence decline was in Riau Province, from 8.2% in 2007 to 6.1% in the year 2013.<sup>9</sup>

Increasing age increases the risk of high blood pressure. Men or women are equally likely to be at risk of hypertension, especially in pre-elderly aged > 45 years.<sup>9</sup> Lifestyle is an important factor that influences people's lives. Unhealthy lifestyles can be the cause of hypertension.<sup>10</sup> Results of Riskesdas 2013, shows the prevalence of hypertension in women is higher than that of men. In women 28.8% and men 22.8%. Hypertension in women tends to be higher than men.<sup>6</sup>

There are risk factors for hypertension that can be controlled and some that cannot be controlled. Factors that can be controlled are obesity, physical activity, eating habits, smoking and stress. While factors that cannot be controlled include heredity, age and sex. A person whose parents suffer from their child's hypertension will be at risk of developing hypertension.<sup>8</sup>

Diet is one of the factors causing hypertension. Excess fat causes fat levels in the body to increase, especially cholesterol which causes weight gain so that the blood volume experiences a greater increase in pressure. Excess sodium intake will increase blood volume which has an impact on hypertension. Most people in Indonesia do not consume enough fresh fruit and vegetables. Applying a diet that is low in fat, cholesterol and rich in fruits, vegetables and low fat products is clinically proven to reduce high blood pressure.<sup>10</sup> Results of Stefhany's (2012) study say consumption of foods high in fat is associated with increased blood pressure. Based on research, the risk of hypertension is associated with intake diary products (foods derived from mammals, such as milk and the results of their processing). Low-fat diary products contribute to preventing hypertension in old age. In another study that intervened in a low-fat diet (with a ratio of unsaturated fat: saturated fat of 1.2 in the study subjects, after 6 weeks found a decrease in blood pressure.<sup>8</sup>

In North Sumatra alone 2.6% of the population experienced hypertension. The aging population and aging are the main risk factors for the development of hypertension and diabetes, as well as chronic kidney disease. According to data obtained from the North Sumatra Provincial Health Office in 2013, hypertensive patients reached 89,067 and in 2014 increased to 156,383 patients.<sup>11</sup>

According to data obtained from the General Hospital of Padangsidempuan City in 2016, hypertension is the 4th rank disease of the ten biggest diseases, namely the number of hypertensive patients in 2014 as many as 115 hypertensive patients, in 2015 as many as 211 hypertensive patients and in 2016 as many as 221 patients hypertension. Of the 221 hypertensive patients, the majority were pre-elderly (45-59) years with a total of 45 patients (21%).

When viewed from the cause of hypertension at Padangsidempuan General Hospital some are caused by obesity due to eating patterns, eaten by Mandailing people who like to consume fatty side dishes using coconut milk and lots of oil, besides that they like sweet foods which are also accompanied by coconut milk. Walking or sports activities are also rarely done, for men in advanced age are still active smoking. This has an impact on the incidence of hypertension in Padangsidempuan.

Based on the background and initial survey conducted, researchers want to do research on "The influence of eating culture, physical activity, smoking habits and gender on Hypertension in Pre-Late Adulthood at Padangsidempuan General Hospital.

## Methods

The research design used is an analytical survey with a cross sectional approach. This research was carried out at the Padangsidempuan Regional General Hospital. The population in this study were 55 students aged 45-59 years old. The sample in this study were all students aged 45-59 years in Padangsidempuan General Hospital in 55 years. Validity Test

for 30 respondents who have been tested is declared valid where the r-count variable is  $\geq 0.361$ . After that the reliability test of the instrument was stated to be reliable where the value of  $t_{count} > t_{table}$ , 0.60. The data analysis that was carried out was univariate, bivivariate and multivariate data analysis.

## Results

### Bivariate Analysis

Chi square test results showed that eating culture, physical activity, smoking habits were associated with the incidence of hypertension in the pre-elderly ( $p < 0.005$ ), whereas in the sexes it was not related to the incidence of hypertension in pre-cancer ( $p > 0.005$ ).

Table 1. Crosstabulation of Chi Square Analysis

Eating Culture	Incidence of hypertension				sum		<i>p value</i>
	HP I		HP II		F	%	
	f	%	f	%			
Good	6	16,7	5	24	11	20	0,002
Not Good	20	83,3	24	68	44	80	
<b>Sum</b>	<b>26</b>	<b>100</b>	<b>29</b>	<b>100</b>	<b>55</b>	<b>100</b>	

  

Physical activity	Incidence of hypertension				sum		<i>p value</i>
	HP I		HP II		f	%	
	F	%	f	%			
Passive	9	43,4	19	76	28	50,9	0,044
Active	17	56,6	10	24	27	41,9	
<b>Sum</b>	<b>26</b>	<b>100</b>	<b>29</b>	<b>100</b>	<b>55</b>	<b>100</b>	

  

Smoking habits	Incidence of hypertension				Sum		<i>p value</i>
	HP I		HP II		F	%	
	F	%	f	%			
Not to Smoking	16	53,3	9	36	25	45,5	0,046
Smoking	10	46,7	20	64	30	54,5	
<b>Sum</b>	<b>26</b>	<b>100</b>	<b>29</b>	<b>100</b>	<b>55</b>	<b>100</b>	

  

Gender	Incidence of hypertension				sum		<i>p value</i>
	HP I		HP II		F	%	
	F	%	f	%			
Men	16	53,3	15	60	31	56,3	1,493
Women	10	46,7	14	40	24	43,7	
<b>Sum</b>	<b>26</b>	<b>100</b>	<b>29</b>	<b>100</b>	<b>55</b>	<b>100</b>	

### Multivariate Analysis

Based on the results of the bivariate statistical tests included in the multivariate analysis were eating culture, physical activity and smoking habits, then the three research variables these were analyzed using logistic regression analysis.

Based on the results of the study it is known that there are 2 variables that influence the incidence of hypertension, namely eating culture and physical activity with a value of  $p < 0.05$ . The results of multivariate analysis can be seen in Table 2 below:

Tabel 2. Multiple Regression Logistic

Variabel	B	Sig	Exp (B)	95%CI	
				Lower	Upper
Eating Culture	2,083	0,003	8,032	0,273	4,036
Phisycal Activity	1,389	0,048	4,009	1,011	15,903
Smoking Habits	0,921	0,941	2,511	0,686	9,191
Constant	-6,497	0,001	0,002		

## Discussion

### The Effect of Eating Culture on Hypertension Events

Based on the results of a multivariate statistical test with multiple logistic regression test results obtained that the respondent's eating culture affects the incidence of hypertension with a value of  $B = 0.003$  with an  $\text{Exp (B)}$  value of 8.032, which means that poor eating habits have an eight times chance of suffering from hypertension.

Eating culture is individual's choice in choosing foods that will shape a pattern of eating behavior based on willingness and liking.<sup>12</sup> The culture of eating unhealthy foods increases the incidence of various diseases, one of which is hypertension.<sup>13</sup>

This research is also in line with Arif's research with the title Factors related to the incidence of hypertension in Clumpit Village UPT Puskesmas Gribig which states that there is a relationship between consumption habits of fatty foods and salt consumption habits with hypertension, where fatty food consumption habits with value ( $p = 0.029 < 0.005$ ) and salt consumption habits with values ( $p = 0.001 < 0.005$ ).<sup>14</sup>

When looking at the food culture in Padangsidempuan, the tradition is to consume high-fat foods where the side dishes served usually use fat coconut milk, salted fish with high salt content, and even vegetables often use coconut milk. In addition, snacks and snacks also contain coconut milk and lots of sugar such as kolak, cendol, toge (Mandailing's typical drink).

### The Influence of Physical Activity Against Hypertension

Based on the results of a multivariate statistical test with multiple logistic regression test results obtained that the physical activity of respondents affected the incidence of hypertension with a value of  $p = 0.04 < 0.05$  with the  $\text{Exp (B)}$  value of 4.009 means that people who do not do physical activity 4 times. easier to get hypertension.

Lack of movement or lack of physical activity can cause high cholesterol and heart problems. All of this tends to affect increased blood pressure. Experts recommend a minimum of 30 minutes of medium scale physical activity.<sup>15</sup> A sedentary lifestyle can lead to various disease such as high blood pressure (hypertension) and heart disease.<sup>16</sup>

The results of research in the field found that respondents did not do much physical activity or did not often move such as sweeping the house or cleaning the house and cleaning the home page both morning and evening. Some respondents claimed that after each meal, they immediately slept.

Along with the rapid advances in technology that makes respondents do anything in a practical way, such as if there is a need with relatives, the respondent is enough to just call without visiting his relatives' house so that the respondent's physical activity is lacking. Some

respondents said that for outdoor activities such as gathering and going to the mosque they were lazy to walk because they thought it was more practical to ride a motorcycle.

This is also in line with Aripin's research stating that there is an effect of physical activity on the incidence of hypertension at the Sempu Health Center in Banyuwangi Regency in 2015 with a value ( $p = 0.012 < 0.05$ ).<sup>17</sup>

### **The Effect of Smoking Habits on Hypertension**

Based on the results of a multivariate statistical test with multiple logistic regression test results obtained that the smoking habits of respondents did not affect the incidence of hypertension with a value of B 0.921 with an Exp (B) value of 2.511, meaning that a person with smoking habits tend to be twice as risky as those who do not smoke.

In Padangsidempuan, there is a habit of spending time in "Lopo" where men usually only spend time sitting, smoking while drinking coffee or sweet tea throughout the day. This situation can consume several packs of cigarettes in a day whereas when compared to their age, the physical condition is no longer possible to smoke.

Every cigarette butt causes the blood vessels to constrict which results in worsening of the condition of the blood vessels. The correspondents claim that smoking starts from the age of 21 and over with the reason of joining friends, try to add to cigarettes and according to them smoking can reduce dizziness and stress. A smoker will have carboxyhaemoglobin higher than a normal person, around 2-15%.<sup>18</sup> Nicotine in cigarettes also causes constriction of peripheral vasoconstriction and triggers vascular.<sup>19</sup>

According to the analysis of researchers, many respondents smoke, which triggers the incidence of hypertension due to smoking can cause an increase in blood pressure. The results of this study in accordance with the Poniyah study stated that there was no effect of smoking habits on the incidence of hypertension with the results of multiple logistic regression statistical tests showing p value of 0.139 ( $p > 0.05$ ).<sup>20</sup>

### **Conclusion**

Based on the study of the relationship of eating culture, physical activity, smoking habits and gender) the elderly with the incidence of hypertension at the Padangsidempuan General Hospital that can be concluded that the variables that influence the incidence of hypertension at Padangsidempuan General Hospital are eating culture and physical activity while smoking and gender have no effect.

### **Suggestion**

- Based on the above conclusions, suggestions or recommendations can be given to:
1. Health workers at Padangsidempuan General Hospital are expected to conduct health counseling and counseling to the public on how to prevent hypertension, for example by reducing food consumption that triggers hypertension.
  2. To respondents so as to improve a healthy lifestyle, get used to regular exercise for a better lifestyle and reduce the incidence of hypertension.

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