



Analysis of Relationship between Habits of Gorontalo Community Food Consumption with Hypertension

Herlina Jusuf^{a*}, Sitti Rahma^b, Edwina R Monayo^c

^a*Public Health Department, FOK UNG*

^{b,c}*Nursing Department, FOK UNG*

^a*Email: herlina_jusuf@yahoo.co.id*

^b*Email: rahmasyam82@gmail.com*

^c*Email: ewi_doc@yahoo.co.id*

Abstract

Hypertension is also called silent killer, because hypertension can kill someone suddenly without known the symptoms first. Hypertension is a risk factor of cardiovascular disease, especially coronary heart disease. The habit of Gorontalo people consuming grilled, fatty and salty foods can due to cardiovascular heart disease. This study aims to analyze the relationship of habitual behavior of Gorontalo people in consuming sweet, fatty, baked, spicy, seasoned and salted food with the incidence of hypertension. This research used analytic survey method. The time approach used is cross sectional. The population in this study was all patients who visited the internal and heart polyclinics of RSUD Aloe Saboe, RSUD MM Dunda, and RSUD Toto Kabila with a sample of 360 people with accidental sampling technique. Data were collected by using observation sheet and analyzed by Chi Square test. The results showed that female respondents more suffering from hypertension as many as 145 people than men. The age range of 46 - 60 years more hypertension as much as 196 than the age range 25 - 45 years. There is a significant relationship between the habitual behavior of salt food with p-Value (0.000), fat foods with p-Value (0,043), grilled foods with p-Value (0.000) and seasoning foods with p-Value (0.000) with the incidence of hypertension in Province of Gorontalo Indonesia. It is suggested to the public to better control the bad eating habits that can cause hypertension.

Keywords: food consumption habit; Gorontalo people; metabolic syndrome.

* Corresponding author.

1. Introduction

Hypertension or better known as high blood pressure disease is a condition where there is an increase in systolic blood pressure greater than 140 mmhg and / or diastolic greater than 90 mmhg in two measurements with an interval of 5 minutes in a state of rest (calm). In Indonesia, the prevalence of hypertension has decreased from 31.7% in 2007 to 25.8% in 2013. The assumption of decrease can vary from different measuring devices to the possibility that people have started to come to health facilities. However, there was an increased prevalence of hypertension based on interviews from 7.6% in 2007 to 9.5% in 2013 [1]. Based on data from the Provincial Office of Gorontalo, the number of cases of hypertensive patients has increased. In 2013 the number of hypertension participants is 14,634 inhabitants. While in 2014 the number of cases of hypertensive patients is 14,915 inhabitants. According [2], that: "Currently the cause of hypertension is definitely not known clearly. Data show, almost 90% of people with hypertension is not known the exact cause. However, experts have revealed that there are two risk factors of a person exposed to hypertension, ie factors that can not be controlled and factors that can be controlled. Some risk factors that can not be controlled such as genetics, age, gender, and race. While the risk factors that can be controlled related to environmental factors such as behavior or lifestyle such as obesity, lack of activity, stress and food consumption. Consumption of foods that trigger the occurrence of hypertension include the consumption of salty foods, consumption of sweet foods, consumption of fatty foods and consumption of caffeinated beverages ie coffee or tea ". The habit of consuming Gorontalo people's food is very diverse in line with the development of the number and types of food. Communities are often irregular in daily diet, the bad consequences of this habit can interfere with health. The most effective way to get rid of bad habits is to replace them with better habits. Hypertension problems can not be separated from changes in the behavior of one's eating habits. The behavior of eating habits is closely related to the frequency of eating a person and the type of food consumed. Excessive frequency of food will lead to obesity which is the trigger factor of hypertension. In addition, high consumption of cholesterol and fat will trigger the occurrence of arterosclerosis and excessive salt intake (Sodium Chloride) will result in hypertension. Excess consumption of food and low physical activity is a factor that can cause obesity. If a person's weight increases, then the blood volume will increase too, so the burden of the heart to pump blood also increases. The greater the burden, the greater the work of the heart in pumping blood throughout the body so that the peripheral pressure and cardiac output can increase then cause hypertension. Excessive consumption of food will increase energy intake, which then stored the body as fat reserves. According to Syahrini and Erlina [3], "The accumulation of body fat in the stomach will cause central obesity, while the buildup in blood vessels will clog blood circulation and form plaque (atherosclerosis) that affects hypertension." The purpose of this study is to identify and analyze the relationship of habitual behavior of Gorontalo people in consuming foods in the form of sweet foods, fatty foods, spicy foods, baked goods, salty foods and seasoned foods with the incidence of hypertension.

2. Materials and Method

This type of research is an analytic survey using cross sectional research design where independent variable or independent variables are sweet foods, fatty foods, spicy foods, baked goods, seasoned food and salty foods while dependent variable or dependent variable is hypertension. This research was conducted in three major hospitals in Gorontalo Province, namely Prof. RSUD. Aloe Saboe, RSUD MM Dunda Limboto, RSUD Toto

Kabila.

The population in this study was all non-infectious non-infectious patients treated in the internal poly and 25- to 60-year-old heart and looked healthy to obtain 360 respondents sampling with accidental sampling technique. The sample is then given a question about the regular consumption of antihypertensive drugs and food consumption habits of sweet, fatty, salty, grilled, spicy and seasoned flavor foods. The collected data was then analyzed by chi square test using SPSS 21

3. Results and Discussion

Table 1: Distribution of Respondents Character

Character	n	%
Gender		
Men	148	41,1
Women	212	58,9
Age		
25 – 45 old	84	23,3
46 – 60 old	276	76,7
Profession		
Government employees	45	12,5
Entrepreneur	49	13,6
Laborers	15	4,2
Farmer	69	19,2
Housewife	152	42,2
Retired	30	8,3

Table 2: Distribution of Respondent Hypertensive Occurrence

Hypertension	n	%
Yes	253	70,3
No	107	29,7

Characteristics of respondents obtained results based on table 1 where the respondents are more female than male. Respondents age range 46-60 years more than the age range of 25-45 years and the work of housewives more than other professions. While the incidence of hypertension based on table 2 shows the results where respondents who suffer from hypertension more than respondents who do not suffer from hypertension

Table 3: Cross Tabulation Between Respondent Characteristics With Hypertension

	Hypertension	
	Yes	No
Gender		
Men	108	40
Women	145	67
Age		
25 – 45 old	57	27
46 – 60 old	196	80
Profession		
Government employees	29	16
Entrepreneur	35	14
Laborers	5	10
Farmer	56	13
Housewife	108	44
Retired	20	10

Based on the above table 3 results obtained where the age range of 46-60 years who suffered most hypertension compared with the age range 25-45 years and female gender who suffer more hypertension than men. This is in line with the WHO study in France found that the prevalence was greater in the male population (23%) than in the female population (12%), whereas by age group, the prevalence was highest in the age group of 55-64 men (34%) and women (21%). According to Hanafi [4], with age, the risk of hypertension increases. This is because the age range of 46-60 years is a period of pralansia where there are changes physiology, especially in the blood vessels. The blood vessels will begin to decrease the elasticity of the blood vessels resulting in stiffness as well as the blood will have a high viscosity resulting in thick blood and eventually cause the pressure in the blood to become high. This increases the risk of hypertension and atherosclerosis.

In addition the gender of women more suffering from hypertension than men. According Haryono and Setianingsih [5], hypertension is more common in men when it occurs in young adulthood. But more attacking women after the age of 55 years, about 60% of hypertensive patients are women. This is often associated with hormonal changes after menopause This is because the female respondents in this study more that the age range of 45-60 years where some of them have menopause. Menopause plays an important role in the development of hypertension because women with menopause have decreased estrogen and progesterone hormones where this hormone serves to maintain the elasticity of the blood vessels and blood viscosity so that resistance and blood vessel resistance increases which in turn increases blood pressure. In addition, women have a tendency to store fat under the skin of the abdomen is higher than men, making it easier for women to experience central obesity which will eventually lead to hypertension [6].

Table 6: Analysis of the relationship between habitual behavior in consuming food with the incidence of Hypertension

	Hypertension		Non Hypertension		P	OR
	n	%	n	%		
Sweet Foods						
Often	221	87,4	99	92,5	0,154	0,558
Rarely	32	12,6	8	7,5		
Fatty Foods						
Often	220	87,0	84	78,5	0,043	1,825
Rarely	33	13,0	23	21,5		
Spicy Foods						
Often	225	88,9	96	89,7	0,826	0,921
Rarely	28	11,1	11	10,3		
Grilled Foods						
Often	209	82,6	51	47,7	0,000	5,216
Rarely	44	17,4	56	52,3		
Seasoning Foods						
Often	216	85,4	63	58,9	0,000	4,077
Rarely	37	14,6	44	41,1		
Salty Foods						
Often	246	97,8	92	90,7	0,000	5,730
Rarely	7	3,2	16	9,3		

In terms of food consumption, the results of the habitual behavior of Gorontalo people in consuming foods significantly related to the incidence of hypertension are fatty foods, salty foods, grilled foods and seasonings, while the sweet foods and spicy foods that are the habit of Gorontalo people are not significantly related statistically with the incidence of hypertension based on the results of chi square test. The habit of consuming food that is categorized often if consumed $\geq 3x$ / week and categorized rarely if only $\leq 2x$ / week consuming fatty, sweet, grilled and spicy foods while for salty and seasoned food is said to often consume more than one half tablespoon per day and rarely if consume less than one and a half tablespoons per day.

Eating foods that contain lots of fat more than three times a week will have a risk of 1,825 times to suffer from hypertension than fat consumption is only once a week. The majority of people Gorontalo consume fat every day because of the habit of this community consume fried foods, cuisine bersantan and bugis gravy which is a typical food Gorontalo people who contain lots of fat. High consumption of fat can cause blood pressure to rise. Excessive fat consumption will increase cholesterol levels in the blood, especially LDL cholesterol and will be buried in the body. The accumulation of fat caused by cholesterol will stick to the old blood vessels-the age will

form a plaque. The formation of plaque can cause a blockage of blood vessels or atherosclerosis. Blood vessels affected by atherosclerosis will be reduced elasticity and blood flow throughout the body will be disrupted and can lead to increased blood volume and blood pressure. Increased blood pressure can lead to hypertension [7]. Several studies have shown an association between fat consumption and increased blood pressure or hypertension. Research conducted by [8] in Karanganyar District showed a significant relationship between fat consumption with hypertension proved by p value = 0,024. Similarly, research conducted by [9] in Outpatient Clinic at RSI Kodia Semarang that there is significant relationship ($p = 0,00$) between fat intake with hypertension, fat intake can increase diastolic blood pressure and sistolik

The results of this study indicate that consume salty food is the consumption of salt more than one and a half tablespoon per day is associated significantly with the incidence of hypertension and at risk 5.730 times suffer from metabolic syndrome than those who rarely consume salty foods. High salt intake will cause sodium to enter arterial vascular endothelial cells. The existence of such sodium can attract chloride ion (Cl) with electric power so as to form NaCl compound. This newly formed compound will attract water with osmotic forces so that water will enter the endothelial cells causing the cell to swell and vasoconstriction also causes an increase in stroke volume, which in turn will all result in increased blood pressure and hypertension [10].

The results of chi square analysis showed that spiced seasoned food had a probability value of 0,000 with an odd ratio (OR) of 4,077 which means that there was a significant relationship of seasoned food with hypertension and spices consumed more than one tablespoon per day had a risk of 4,077 times of hypertension than those who rarely consume seasoned food. Seasoning spice known as "vetsin" is a monosodium glutamate (MSG) salt which has the same mechanism as salt in increasing blood pressure. So if often consume salt and flavorings that contain MSG hence will accelerate the rise of blood pressure that ultimately leads to hypertension. Most Gorontalo food has a high and savory taste due to the salt and flavoring spices that many besides other spices. There is even a typical food Gorontalo namely milu siram where seasoning only salt and MSG. This is why the Gorontalo people suffer from hypertension

The results also show that grilled foods have a significant relationship with hypertension where the probability value is 0,000 with an OR value of 5,216 which means that eating more than three meals a week is at risk 5,216 times will suffer from hypertension than those who rarely consume roasted foods. Roasted food is a habit of the majority of Gorontalo people such as tuna satay, grilled chicken iloni, grilled fish. The result of incomplete combustion of roasted food may cause the food to contain free radical compounds that cause damage to the membranes of cells in the body tissues including blood vessel endothelial cells. In addition, these free radicals will also oxidize LDL so it will form atherosclerosis plaque which will eventually decrease the elasticity of the blood vessels that will increase blood vessel resistance so that blood pressure will rise and there hypertension [11].

4. Conclusion

Patients with hypertension 70.3% more than those who did not suffer from hypertension 29.7%. The incidence of hypertension in Gorontalo is associated with frequent consumption of fatty foods, seasoned foods, excessive

salt foods, and baked or baked cooking with charcoal, whereas the habit of the Gorontalo people consuming spicy food is not significantly related to the incidence of hypertension.

References

- [1] Ministry of Health of the Republic of Indonesia. 2013. Basic health research (Basic Health Research). Ministry of Health of the Republic of Indonesia. Jakarta. P12
- [2] Rawasiah A.B., Wahiduddin., Rismayanti., 2014. Relationship Factors of Food Consumption with Hypertension Incidence in the Elderly at Pattingallong Public Health Center. Downloaded at <http://repository.unhas.ac.id/bitstream/handle/123456789/10836>. Retrieved on 21 October 2017.
- [3] Syahrini, Erlyna Nur. 2012. Primary Hypertension Risk Factors in Puskesmas Tlogosari Kulon Kota Semarang. [Scientific Thesis]. Semarang: Faculty of Public Health Diponegoro University
- [4] Hanafi, et al. 2016. Lifestyle History of Hypertension In Sub Sumowono, Semarang Regency
- [5] Haryono and Setianingsih. 2013. Your enemies after 40 years of age. Yogyakarta: Goseyen Publishing
- [6] Bustan, M. N. 2007. Epidemiology of Non-Communicable Diseases. Jakarta: Rineka Cipta
- [7] Jansen, S. 2006. Functional Food. Yogyakarta
- [8] Sugiharto, A. 2007. Risk Factors of Hypertension Grade II in Society (Case Study in Karananyar District). Semarang University Diponegoro Thesis
- [9] Fathina, UA. 2007. Relationship of Fat Source and Body Mass Index (BMI) with Blood Pressure Patients with Hypertension. Thesis Semarang UNDIP
- [10] Drapeau V, Després JP, Bouchard C, Allard L, Fournier G, Leblanc C, et al. 2004. Modifications in food-group consumption are related to long-term body-weight changes. *American Journal of Clinical Nutrition*. 80 (1): 29-37
- [11] Almatier, S. 2004. Basic Principles of Nutrition Science. Jakarta . Gramedia Pustaka Utama.