



**The Relationship of Family History, Usage of Wasted
Cooking Oil, Alcohol Consumption, Smoking Habit the
Incidence of Essential Hypertension at Two Areas of
Health Center of North Buton Regency, Province of South
East Sulawesi**

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Abstract

Hypertension or high blood pressure is a condition which is characterized by the raise of blood pressure against artery. A normal blood pressure can be measured in condition 120/80 mmHg. The aim of this study was to identify relationship family history, use cooking oil, consumption of alcohol and smoking habits with the incidence of hypertension essential in two work area health district Buton North South East Sulawesi. Research method used observational, by using cross-sectional approach. Technique of sampling was proportional random sampling, took 170 samples. The study result pointed that smoking habits has history family with value ($p=0,000$) and smoking habits with value ($p=0,000$) associated with the incidence of hypertension essential. Based on the result of study, it is suggested for people to prevent whole risk factors of hypertension essential in order to avoid the hypertension incidents.

Keywords: hypertension; family history; cooking oil; alcohol consumption and smoking habits.

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1. Introduction

Hypertension is one of the many degenerative diseases occur and have a fairly high mortality rate and affects the quality of life and a people productivity. Hypertension means increased blood pressure unreasonably and continuously because of damage to one or several factors that contribute to maintain a normal blood pressure. Blood pressure was the pressure that blood distributed to the walls of blood vessels [1]. Hypertension causes around 7.1 million deaths worldwide reaching 13% of the total deaths. The increase in cases of hypertension in developing countries was estimated at around 80%. Pressure of high blood often referred to as assassin / silent killer because it includes the deadly disease. Hypertension is a disease that can affect anyone both young people or older. Hypertension is one of the most deadly diseases in the world. 1 billion people or 1 in 4 adults suffer from this disease. In 2025 estimated the number of patients with hypertension will increase to 1.6 billion [2].

WHO define hypertension as a risk factor number three cause of death in the world. Hypertension is responsible for 62% of the incidence of strokes, 49% of the incidence of heart attack. Seven million premature deaths each year are caused by hypertension. In 2002's World Health Statistics (WHO) reported that 51% of deaths from stroke and 45% of coronary heart disease due to hypertension. Data WHO states that hypertension causes 7.5 million (12.8%) deaths worldwide [3]. In Southeast Asia hypertension was major health risk factors. Each year hypertension kills 2.5 million people in Southeast Asia. The number of hypertensive patients worldwide continues to increase. In 2002 patients with hypertension in India as many as 60.4 million people and is expected to increase to 107.3 million people in 2025, patients with hypertension in China as many as 98.5 million people and will increase to 151.7 million people in 2025 [4].

Hypertension is still occupying the top 10 major diseases compared to the number of non-communicable diseases as a whole. Based on data from the Department of health in South East Sulawesi Province in 2013 the patient of hypertensive reach 2.95% and 1.74% patients in 2014 (Profile Southeast Sulawesi health department). Data Office of North Buton patients with hypertension in 2012 reach 2.5%, in 2013 reach 1.99%, then the in 2014 reach 2.3% (Profile Buton Utara Health Department).

In Kulisusu Health Center flawed as a patient in the 2012 reach 3.4%, in 2013 reach 2.15%, in 2012 reach 2.84% and 2.62% in 2014. (Profile PHC Kulisusu), While in Health Center of Bonerombo flawed as patient year in 2011 reach 3.37% ,in the year 2012 with 3.9%, in year 2013 with 2.2%, and 2.7% in the 2014 (Profile PHC Bonerombo)

2. Materials and Methods

The research design used was observational with cross sectional approach Study. Sample is people who suffer from hypertension with number 170 Sampling orang. The method used was proportional random sampling. Data analyzed by univariate, bivariate and multivariat. Analysis chi-square used to look the relationship between the two variables and determine which variables are most influential.

3. Results

Univariate analysis

3.1 The relation family history with the incidence of hypertension

Table 1 shows that a family history which have family with hypertension 41.8% with essential hypertension and 11.2% suffer from non-essential hypertension. Family history of hypertension who do not have children suffering from essential hypertension 22.9% and 24.1% suffer from non-essential hypertension.

Chi-Square test Analysis values obtained X^2_{count} (15.552) was greater than X^2 table (3,841) and p Value (0,000) is smaller than α (0.005). It means that family history plays a role on the incidence of hypertension in two Health Centre in North Buton.

Table 1: The analysis of relationship family history with the incidence of hypertension at two areas of Health Center North Buton Regency

No	Family history	The incidence of hypertension				Total		X^2_{hit}	p Value
		Essential hypertension		Non-Essential hypertension		n	Percent		
		freq	Percent	freq	Percent				
1	Descent Hypertension	71	41,8	19	11,2	90	52,9	15,55 2	0,000
2	Didn't have Descent Hypertension	39	22,9	41	24,1	80	47,1		
Total		110	64,7	60	35,3	170	100		

3.2 The relationship usage of wasted cooking oil with the incidence of hypertension

Table 2: The Analysis relationship usage of wasted cooking oil with the incidence of hypertension at two areas Health Center of North Buton regency

No	The usage of wasted cooking oil	The incidence of hypertension				Total		X^2_{hit}	p Value
		Essential hypertension		Non-Essential hypertension		n	Percent		
		freq	Percent	Freq	Percent				
1	Always	41	24,1	16	9,4	57	33,5	1,51 3	0,219
2	Rarely	69	40,6	44	25,9	113	66,5		
Total		110	64,7	60	35,3	170	100		

Table 2 shows that 24.1% of respondents who frequently use waste cooking oil suffer from essential hypertension and 9.4% suffer from non-essential hypertension. While 40.6% of respondents who do not often use wasted cooking oil had essential hypertension and 25.9% of the respondents suffered non-essential hypertension.

Test Chi-Square Analysis values obtained was X2count (1,513) was smaller than X2 table (3,841) and ρValue (0.219) was greater than α (0.005) This means that the use of wasted cooking oil does not contribute to the incidence of essential hypertension in two Health Center of North Buton regency.

3.3 The relationship of alcohol consumption with the incidence of hypertension

Table 3: The analysis relationship of alcohol consumption with the incidence of hypertension at two areas of Health Center of North Buton regency

No	The consumption of alcohol	The incidence of hypertension				Total		X ² _{hit}	ρValue
		Essential hypertension		Non-Essential hypertension		n	Percent		
		freq	Percent	Freq	Percent				
1	drinking	37	21,8	23	13,5	60	35,3	0,198	0,657
2	Non drinking	73	42,9	37	21,8	110	64,7		
Total		110	64,7	60	35,3	170	100		

Table 3 shows that 21.8% of respondents who consume alcohol suffer from essential hypertension and 13.5% had non-essential hypertension. While 42.9% of respondents who did not consume alcohol suffer from essential hypertension and 21.8 % suffered non-essential hypertension.

Test Chi-Square Analysis values obtained was X2 count (0.198) smaller than X2 table (3,841) and ρValue (0.657) is greater than α (0.005) This means that alcohol consumption did not contribute to the incidence of hypertension in two Health Center of North Buton.

3.4 The relation the habit of smoking with the incidence of hypertension

Table 4 shows that 35.9 % of respondents who smoker suffer from essential hypertension and 7,1 % had non-essential hypertension. While 28,8 % of respondents are nonsmoker suffer from essential hypertension and 28,2 % suffered non-essential hypertension.

Test Chi-Square Analysis values obtained was X2 count (18,497) bigger than X2 table (3,841) and ρValue (0.000) is smaller than α (0.005) This means that the habit of smoking contribute to the incidence of hypertension in two Puskesmas North Buton.

Table 4: The analysis the habit of smoking with the incidence of hypertension at two areas of Health Center of North Buton regency

No	The habit of Smoking	The incidence of hypertension				Total		X ² _{hit}	ρ _{Value}
		Essential hypertension		Non-essential hypertension					
		fre q	Percent	Fre q	Percent	n	Percent		
1	Smoker	61	35,9	12	7,1	73	42,9	18,49 7	0,000
2	Non-Smoker	49	28,8	48	28,2	97	57,1		
Total		110	64,7	60	35,3	170	100		

Analysis of Multivariate

Table 5: The result of logistic regression with Method of Backward Wald Several variables that contribute with the incidence of hypertension of two areas of Health Center of North Buton.

No	The contributing variables	B(Beta)	Df	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
1	The family history	1,376	1	.000	3,958	1,941	8,070
2	The habit of smoking	1,621	1	.000	5,014	2,322	10,287

Table 5 of Logistic regression analysis results obtained only two variables (family history and smoking habits) that contribute to the incidence of hypertension with a value of p <0.05. Results of the analysis showed that the variables that most contribute to hypertension was smoking habit with the value of Exp (B) (5.014) and family history with the value of Exp (B) (3,958).

4. Discussion

4.1 The relationship of family history with the essential hypertension

Family history was referred to in this research were the father, mother, uncle and aunt who suffered from hypertension based on direct interviews at the time of the study. Individuals with parents and close relatives with hypertension had a two times greater risk to suffer hypertension .beside of that it was obtained 70-80% of cases of essential hypertension with a family history of hypertension [5].The role of genetic factors to the onset of hypertension evidenced by the discovery that the incidence of hypertension more on monogozit twins (one

egg) from the heterozygote (different egg). A person who has a genetic trait primary hypertension (essential) if allowed to naturally without therapeutic intervention, together with its environment will cause his hypertension develops and within about 30-50 years there will be signs and symptoms of hypertension with possible complications.

Results of statistical test by Chi Square in Health Center of Kulisusu obtained value (p Value = 0,000), this shows that the history of family become factors that influence the onset of essential hypertension. Genetic factors related to levels of intracellular sodium was suspected greatly affect a person's risk for hypertension. The Multivariate analysis in Health Center of Kulisusu obtained that the p -value (0.000) is smaller than $\alpha = 0.005$, $p < 0.005$ and the value obtained by the lower and upper limit on Confidence Interval (CI) 95% respectively (11.284) and (257.207) because the value is more than 1, it can be concluded that there was a significant association between family history with the incidence of hypertension. The analysis showed that the strength of the relationship with a family history of hypertension seen from the value of Exp (B) = 53.769, which means that have a family history with hypertension have an increased risk of hypertension 53.769 times compared with a family history who do not have the descent of hypertension.

The existence of genetic factors in certain families would cause the family was at risk of suffering from hypertension. It was associated with increased levels of sodium and low intracellular between potassium to sodium. Individuals with a history of parental hypertension have a risk two times more likely to suffer from hypertension than those who do not have a family history of hypertension. This is consistent with the research of [6] obtained 70-80% of cases of essential hypertension with a family history of hypertension. The number of people who live in the working area of Kulisusu Health Center approximately 18, 066 inhabitants spread across 5 sub-districts and 7 villages consisting of various ethnic, religious, cultural, and educational level. Respondents in Health Center of Kulisusu majority have a family history of hypertension. So that respondents who have hypertension family tend potentially suffer from hypertension. In addition due to genetic factors, lifestyle also influences the occurrence of hypertension. The eating habits of parents who are at risk of developing hypertension tend to be followed so that the child's family or the family has a risk factor for hypertension. And there was no lack of support from parents in order to change lifestyle to prevent the occurrence of essential hypertension.

Results of statistical test by Chi Square in Health Center of Bonerombo obtained value (p Value = 0.500), this shows that family history does not affect the onset of hypertension. This is not in line with the results of research conducted by [7] which states that a family history of hypertension gives a risk 7.9 times the incidence of hypertension. Reference [8] States that hypertension tends to be a hereditary disease. If someone from our parents have hypertension then all our lives to have a 25% chance to suffer it too. If both our parents have hypertension our chances of getting the disease become 60%.

4.2 *The relationship of usage of wasted cooking oil with essential hypertension*

The results of statistical test by Chi Square in Health Center of Kulisusu obtained value (p Value = 0.424). It shows use waste cooking oil does not contribute to the incidence hypertension. The result of statistical test Chi

square in Health Center of Bonerombo obtained value (p Value = 0.564). This shows the use of waste cooking oil does not contribute to the incidence of hypertension.

This research results contrary to research of [7] which states that consumption of wasted cooking oil have risk with the incidence of hypertension 5.34 times compared to those not consume wasted cooking oil. These results are not in line with the opinion of some experts such as Ali Komsan, stating that the use of oil as a medium frying pan could be damaged because cooking oil was not resistant to heat.

Cooking oil which has high content of ALTJ have added value only on the first fried the rest of the oil to be damaged. Foodstuffs rich in Omega-3 was known to lower blood cholesterol levels, will not be efficacious when heated and given a chance to cool then re-used for frying, because the composition of the double bonds have been broken. Ali Komsan suggestion, for those who do not want to suffer hiperkolesterolomi to limit the use of wasted cooking oil because it can increases the formation of excessive cholesterol that can lead to arterosklorosis and certain diseases, such as heart disease, high blood pressure and others ,

Respondents in Health Center of Kulisusu for those who are married have the mindset and experience of the people who can distinguish between good cooking oil and poor cooking oil. Respondents can know the content of the cooking oil from the written composition wrapped or place where the cooking oil, or from their families and neighbors who know the dangers of saturated fat for the body, as well as the experience of getting information from television, radio, newspapers, magazines and others that can be improve public knowledge about the dangers of saturated fats for the body. Respondents in Health Center of Bonerombo consume less fried food. Most respondents in this research did not wasted cooking oil.

4.3 *The relation of alcohol consumption with with essential hypertension*

The results of statistical test by Chi Square in Health Center of Kulisusu obtained value (p Value = 0.593) and in Health Center of Bonerombo obtained value (p Value = 1.000). It shows that alcohol consumption did not contribute to the incidence of hypertension. However, it does not mean that alcohol consumption was not risky for hypertension. Alcohol consumption is a modern lifestyle become favourof adolescents and adults in urban and rural areas.

The results are consistent with previous studies of [7] and Fauzia (2011) which states in the multivariate analysis that habits of drinking alcohol was not proven to be a risk factor for hypertension. There are only a few of the respondents of the overall hypertensive patients who drink alcohol so cannot be categorized drinking alcohol as a risk factor for patients.[9]says that the consumption of excessive alcohol and caffeine contained in coffee drinks, tea and cola will increase the risk of hypertension in a person. Alcohol increase sympathetic nerve activity because it can stimulate the secretion of Corticotripon Releasing Hormone (CRH), which resulted in an increase in blood pressure. While caffeine can stimulate the heart to work faster so that more blood flow at every second. The same statement was also in line with research of [10] which states that consume large amounts of alcohol can increase blood pressure.

4.4 The relationship of Smoking Habit with Essential Hypertension

The results of statistical test by Chi square in Health Center of Kulisusu obtained value (p Value = 0.025). It shows that smoking does not contribute to the incidence of hypertension. The study is consistent with research of [8,9] who showed that smoking can lower blood pressure. According to the study, reduction in blood pressure in smokers associated with weight loss. In addition kotinin as the major metabolite of nicotine also play a role in lowering blood pressure because it is a vasodilator. Thus, the relationship of smoking with the blood pressure is still controversial [11].

The results of statistical test by Chi square in Health Center of Bonerombo obtained value (p Value = 0.000). It shows that smoking affects the incidence of hypertension. The study was in line with the expert opinion: apart from a smoking length of the biggest risks of smoking depends on the number of cigarettes per day. Someone who more than one pack of cigarettes a day 2 times more susceptible likely than those who did not smoke [12].

This study was in line with research of [12] states that people who have the habit of smoking likely to suffer from essential hypertension risk by 38 times compared with those who do not smoke. Nicotine derived from cigarette can raise systolic and diastolic blood pressure.[13] said toxic chemicals, such as nicotine and carbon monoxide was inhaled through a cigarette, into the bloodstream can damage the endothelial lining of the arteries, resulting in arterioklrosis process and hypertension. Nicotine in tobacco causes increased blood pressure immediately absorbed by the very small blood vessels in the lungs and circulated into the bloodstream. In just a few seconds nicotine has reached brain. The brain reacts to nicotine to give a signal to the adrenal glands to release epinefrin (adrenaline). This powerful hormone that constricts blood vessels and force the heart to work harder because of developing high blood pressure. After smoking two bars both systolic pressure and diastolic will pressure increased until 10 mmHg.

Blood pressure will remain at this height until 30 minutes after quitting smoking cigarettes. While the effects of nicotine gradually disappeared, blood pressure will also decline slowly. However, in heavy smokers blood pressure will be at a high level throughout the day. Directly after contact with nicotine will arise stimulant to the adrenal gland that causes release of epinefrin the release of adrenaline stimulates the body to release glucose suddenly and it can increase blood sugar levels and blood pressure also improved, in addition to the breathing and heart rate will increase.

The research of [12] conducted on 28.236 women in the Women's Health Study, Massahussets which initially do not suffer from hypertension, after observation during the 8.9 year obtained significantly increase against the risk of hypertension in women who smoke more of 15 cigarettes / day. The mechanisms underlying the relationship of cigarettes with blood pressure based on the study was inflammatory process. Either ex-smokers or current smokers an increasing number of proteinC-reactive and agent of natural inflammation lead to dysfunction of the endothelium, or blood damage the formation of plaque, and the strength of the walls of the arteries that lead to the increase in blood [13, 14].

5. Conclusion

1. The history of family ($p_{\text{value}}0,000$) become the influential factor in the incidence of essential hypertension in two areas of North Buton Health Center.
2. The use of waste cooking oil ($p_{\text{Value}} .219$) becomes the influential factor in the incidence of essential hypertension in two areas of North Buton Health Center.
3. The consumption of alcohol ($p_{\text{Value}} 0.657$) becomes the influential factor in the incidence of essential hypertension in two areas of North Buton Health Center.
4. The habit of smoking ($p_{\text{value}}0,000$) become the influential factor in the incidence of essential hypertension in two areas of North Buton Health Center.
5. The factor that most contribute to the incidence of of essential hypertension in two Health Center of North Buton was habit of smoking with value of Exp (B) (5.014).

6. Recommendations

1. Conducting counseling individuals, families and community groups for patients with essential hypertension
2. For people who have a family history of essential hypertension more carefully because of the risk factors cannot be changed and make changes to a healthy lifestyle, reducing alcohol consumption, smoking, use of waste cooking oil as well as reducing the consumption of sodium and its use in food processing.

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