

The Related Factors to Hypertension among Young Adults in Pakis Village, Jember East Java

Kholid Rosyidi MN¹ , Bagus Arditya Husadha²

e-mail: *kholidrosyidi@yahoo.com*

^{1,2}Faculty of Nursing University of Jember
Jl. Kalimantan No. Kampus Tegal Boto Jember 37 Telp./Fax. (0331) 323450

ABSTRACT. This study aims to determine the associated factors with the incidence of hypertension among young adults in Pakis village. This study used an observational analytic design by using a cross-sectional approach. The total sample of 368 respondents was taken by purposive sampling technique from young adult groups in Pakis village, Panti sub-district. The research used questionnaires and direct observation as the instruments. The data were analyzed by the chi-square test. Based on the results of the study it could be seen that factors that associated with the prevalence of hypertension among young adults were age, family history with hypertension, nutritional status, and physical activity. However, there was no relationship between gender, smoking habits and the incidence of hypertension among young adults in village orphanage. It is expected to the community of Pakis Village, Panti sub-district, to check their health regularly. Health centers should provide health education consistently, and periodic supervision should be applied to the patient with high blood pressure so that they could maintain their health.

Keywords: hypertension, young adults, hypertension risk factors

1. Introduction

Hypertension is an asymptomatic disorder accompanied by an increase of systolic and diastolic blood pressure, and people often called it "the silent killer" [1] [2]. Based on data from the World Health Organization (WHO) [3], the number of uncontrolled hypertensive clients increase from 600 million in 1980 to 1 billion in 2008 [3] (WHO, 2013). The 2013 Basic Health Research (Riskesdas) data, the prevalence of hypertension in the elderly occupies the first position from a list of degenerative diseases that often occur in the elderly. The prevalence of hypertension in Indonesia obtained based on measurements is at the age of ≥ 18 years. East Java is one of the provinces with a high prevalence of hypertension at 26.2% [4].

A critical risk factor for hypertension among young adults is lifestyle such as smoking, lack of exercise, consuming less nutritious foods, and stress [5]. Lacking socioeconomic statuses is the primary factor that influences the high incidence of hypertension in Pakis village. The data is supported by population in Pakis village with middle to lower socioeconomic status, where the majority of the population are farmers and entrepreneurs.

Based on the description above, non-communicable diseases (NCDs) still become a problem in developing countries. In Indonesia, hypertension is still quite high and becomes a dilemma. So the researchers are interested in researching the related factors to hypertension among young adult in the Pakis Village.

2. Method

The research method used an observational analytic research design with a Cross-Sectional approach. This research was conducted in November - December 2018 in the Pakis village, Panti District. The population in this study were all residents of Pakis village with the development stage of young adult families during the 2018 period totaling 4554 people. The sample size based on the Yamane Taro calculation was 368 respondents. The sampling technique in this research used purposive sampling.

Primary data were obtained using a questionnaire. These data included characteristics of young adults such as age, sex, nutritional status, physical activity, smoking habits, blood pressure measurement, and body weight. Univariate data were analyzed descriptively while bivariate data used chi-square test with a 95% ($p < 0.05$) confidence level. If $p < 0.05$ then there was a significant relationship between the dependent and independent variables.

3. Results

Characteristic of Respondent

Table 1. Characteristics of young adult respondents in Pakis village, Panti Sub-district (n = 368)

No	Characteristics	f	%
1.	Age		
	20 - 32	259	70,38
	33-44	109	29,62
2.	Gender		
	Male	153	41,6
	Female	215	58,4
3.	Education		
	Not School	46	12,5
	Not Graduated from elementary school	121	32,9
	Elementary	77	20,9
	Middle School	94	25,5
	High School	30	8,2
4.	Employment		
	Unemployed	51	13,9
	Entrepreneur	110	29,9
	Farmers	86	23,4
	Labor	100	27,2
	Others	21	5,7
5.	Family History		

	Yes	262	71,2
	No	106	28,8
6.	Nutritional status		
	Obese	263	71,5
	Not obese	105	28,5
7.	Physical activity		
	Mild	298	81,0
	Moderate	50	13,6
	Heavy	20	5,4
8.	Smoking Habit		
	Do not smoke	240	65,2
	Ever smoked	128	34,8

Based on table 1, the age distribution of respondents in this research is mostly 26-30 years old, with 129 people (35.1 %), while the smallest proportion is at the age of 41-44 years with a total of 21 people (5.7%). More than half are women, with 215 respondents (58.4%). The proportion of the most significant respondents based on recent education is not graduating from elementary school as many as 121 (32.9%). 110 respondents (29.9%) are entrepreneurs as the majority followed by labor with 100 respondents (27.2%) in second position. Out of 368 respondents in the Pakis village, 262 (71.2%) people have a family history of hypertension, and 263 obese (71.5%). It can be seen that 298 respondents (81.0%) do mild physical activity, and 240 people (65.2%) do not smoke.

Analysis of the related factors to hypertension among young adults in Pakis

Tabel 2. Analysis of the related factors to hypertension among young adults in Pakis

No	Related factors	Hypertension				Total		p	OR*(95%CI)
		Yes		No		f	%		
		f	%	f	%				
1.	Age							0.000	2,832 (1,609-4,987)
	20-32	93	64,1	166	35,9	259	100		
	33-44	91	83,5	18	32,9	109	100		
2.	Gender								
	Male	111	72,5	42	27,5	153	100	0,339	0,801(0,507-1,263)
	Female	146	67,9	69	32,1	215	100		

3. Family history									
No	65	61,3	41	38,7	106	100	0,024	1,730(1,499-2,788)	
Yes	192	73,3	70	26,7	262	100			
4. Nutritional status									
Not Obese	63	60	42	40	105	100	0,009	1,874 (1,163-3,021)	
obese	194	73,8	69	26,2	263	100			
5. Physical activity									
Inadequate	216	72,5	82	27,5	298	100	0,022	0,537 (0,313-0,920)	
Adequate	41	58,6	29	41,4	70	100			
6. Smoking Habits									
No Smoking	166	69,2	74	30,8	240	100	0,701	1,096(0,685-1,755)	
Ever smoked	91	71,1	37	28,9	128	100			

Based on table 2 above, it can be seen that 83.5% hypertension occur in respondent age 33-44 and 64.1% found in the age 20-32 year group. The statistical analysis shows that there is a significant relationship between age and the occurrence of hypertension (OR= 4,987, CI 95%= 1,609-4,987, p value= 0,000).

The proportion of hypertension in the male is 72.5%, while in the female group is 67.9%. The results of statistical analysis obtained that there is no significant relationship between gender with the occurrence of hypertension (OR= 0.39, CI 95%=0.57-1.263, p value= 0.339).

The proportion of hypertension higher in the respondent with family history being 73.3% than without family history is 61.3%. Statistical test shows that there is a significant relationship between family history and the occurrence of hypertension (OR= 1,730, CI 95%=1,499-2,788, p-value = 0.024).

It can be seen that the proportion of hypertension is higher in obese with 73.8% than not obese adults for 60%. There is a significant relationship between nutritional status and the incidence of hypertension (OR=1.874, CI 95%=1,163-3,021, p value= 0.0009).

The proportion hypertension in insufficient physical activity was 72.5% and in sufficient physical activity was 58.6%. Statistical test shows there is a significant relationship between physical activity and the incidence of hypertension (OR=0.537, CI 95%=0.313-0.920, p value= 0.022).

The prevalence of hypertension in the respondent with smoking habit higher than not smoked with 71.1% and 69.2% respectively. The results of statistical analysis using the chi-square test, represent that there is no significant relationship between smoking habits and the occurrence of hypertension (OR=1.096, CI 95%=0.685 - 1.755, p value=0.701).

4. Discussion

Based on the results of statistical analysis, it was concluded that there was a relationship between age and incidence of hypertension in adult in the Pakis village with a value of $p = 0,000 < 0.05$.

This was supported by a theory that said that as we get older, the prevalence of hypertension was increasing [7]. This situation is caused by changes in blood vessel structure and function that occurred due to an aging process, where blood vessels lost their elasticity and reduced the blood vessel strain [8]. Decreased strain strength of the arteries and aorta caused a decrease in the ability to accommodate the volume of blood pumped by the heart. Thus, it resulted in a reduction in cardiac output and an increase in peripheral resistance [9].

The results of this study indicated that there was no relationship between gender and the incidence of hypertension. This also showed that both men and women had relatively the same risks.

Results of a research conducted by Wahyuningsih and Astuti in Kabregan Hamlet, Yogyakarta, showed that there was no significant relationship between sexes and hypertension ($p = 0.979$) [10].

Basically, the prevalence of primary hypertension that occurred between males and females was the same. However, before experiencing menopause, women tended to be protected from cardiovascular disease because of the activity of the hormone estrogen, which played a role in increasing levels of High-density Lipoprotein. High HDL cholesterol levels were one of the protective factors in the prevention of arteriosclerosis. In premenopausal, women began to lose estrogen hormone little by little. This process proceeded according to age [11].

The result of this study shows that family history with hypertension is correlated with hypertension among young adults. The adult who has family history was at risk of hypertension 1.730 times than those who have not family history.

This result was in line with the theory revealed by Dalimartha [12], in 2008 who said that if a history of hypertension was obtained in both parents of essences hypertension in mono-zygotic twins and one of them suffered hypertension, the person was most likely to suffer from hypertension.

The presence of genetic factors in certain families would cause the family to have the risk of suffering from hypertension. This was related to an increase in intracellular sodium levels and a low ratio between potassium and sodium [13]. Sodium reabsorption in the renal tubules will increase in the participants of primary hypertension. It caused by the stimulation of several transporters of sodium located in the basolateral membrane and providing energy for transport. In patients with primary hypertension, digitalis levels, such as factors that caused sodium retention, were found by increasing sodium pump activity in the kidneys. [14].

The results of this study were also supported by the theory expressed by Lany Gunawan in 2001, who said that statistical data proved that someone would have a higher probability of around 70-80% to suffer hypertensive health problems if their parents were hypertensive victims [15].

Based on the results, there was a significant relationship between nutritional status and the incidence of hypertension. Young adults with obese have a risk for hypertension 1.8 times than non-obese. It meant that obesity was a risk factor for hypertension.

Obesity was an imbalance between the consumption of calories with energy needs stored in the form of fat in the subcutaneous tissue of the intestine, heart, lungs and liver so that it caused an increase in active fat tissue and an increase in fetal work.

The results of this research also supported by the results of a study conducted by Smith in 1992, which found that a 15% increase in body weight could raise systolic blood pressure by 18% compared to someone with a healthy weight category. A person with an overweight of 20% had an eight times greater risk of developing hypertension.

Based on the WHO expert commission report in 2011, Obesity was associated with the risk of getting hypertension by 2-6 times than the healthy person. The increase in the occurrence of hypertension caused by obesity could be affected by several reasons, such as the more massive body mass, the more blood was needed to meet the needs of oxygen and food to the body's tissues. The volume of blood circulating through the blood vessels increased, giving higher pressure to the arterial wall. If the weight increased above ideal body weight, the risk of hypertension also increased [16].

Based on the results of statistical analysis, it can be seen that there is a significant relationship between physical activity and the incidence of hypertension. Young adults with inadequate physical activity have at risk for hypertension than those who have adequate physical activity.

Regular physical activity helps the heart in increasing pumped blood to all bodies [17]. The functioning of muscles and joints better in individuals who have adequate physical activity. Through regular physical activity, peripheral resistance can reduce, and it could prevent the occurrence of hypertension [18].

This study revealed that there is no significant relationship between smoking habits and hypertension. It can be seen that smoking habits in young adults were not risked factors the incidence of hypertension.

Chemical substances contained in cigarettes such as nicotine and carbon monoxide can damage arteries and can cause blockages of blood vessels, which is known as atherosclerosis. Due to the blockage, the heart cannot pump blood optimally, increased blood pressure, and caused hypertension.. In an autopsy study, it was proven that the close association between smoking habits and the presence of arteriosclerosis in all blood vessels. Smoking also increases the heart rate and the need for oxygen to be supplied to the heart muscles. Smoking also enhances the heart rate and oxygen supply to the heart muscles. Smoking in people with high blood pressure increases the risk of damage to arterial blood vessels. Smoking a single day will raise the systolic pressure by 10-25 mmHg and increase the heart rate from 5-20 times per minute, and over time it will cause hypertension [19].

5. Conclusion

There was significance relationship between age, family history of hypertension, nutritional status, physical activity and hypertension among young adults in Pakis village. But there was no correlation between gender and smoking habit to hypertension.

It was expected to public health services provided health education about hypertension in a community setting through posters, leaflets, and booklets. Health workers are expected to provide promotive and preventive efforts continuously related to the importance of controlling hypertension by giving information about proper diet to patients or the public in general. Besides that, health workers need to motivate the patients to keep on doing a proper diet to prevent an increase in blood pressure or complications. For the community, it is essential to control hypertension in order to motivate hypertensive patients in the surrounding environment through dietary arrangements by reducing consumption of salty foods, preserved foods, snack consumption, reducing the use of cooking ingredients, improving the consumption of vegetables and fruits, especially bananas. Further research was needed to explore other factors that affect blood pressure, such as the consumption of fatty foods, alcohol, and caffeine.

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Hypertension is a growing public health problem in many developing countries including Ethiopia. Determining the prevalence of hypertension and identifying the associated factors is crucial. Objective . To assess the prevalence of hypertension and associated factors, among adult population of Arba Minch town, Gamo Zone, Southern Nations, Nationalities and Peoples Region, Ethiopia. Methods . A cross-sectional study design was conducted from December 1 to 30, 2017 among adults.Â H. Asresahegn, F. Tadesse, and E. Beyene, "Prevalence and associated factors of hypertension among adults in Ethiopia: a community based cross-sectional study," BMC Research Notes, vol. 10, no. 1, p. 629, 2017. View at: Publisher Site | Google Scholar. Arterial hypertension (AH) is one of the most widespread diseases in whole the world. AH in youth is associated with high cardiovascular mortality in middle age. Objectives: The study objectives were to studied prevalence of AH and risk factors in young adults. Methods. We studied prevalence of AH and risk factors in 981 young adults aged 20-29 years old ($22,3 \pm 2,26$) in cross-sectional epidemiological study. Results. Prevalence of AH was 14,2%, it was significantly higher in men (22,2%) then in women (4,5%), $p > 0,05$.Â By its morbidity and mortality arterial hypertension occupies a leading place among diseases of the adult population. Objective: to study the prevalence and gender structure of arterial hypertension in children of the Grodno region. Exposures: Confirmed severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection by positive result on polymerase chain reaction testing of a nasopharyngeal sample among patients requiring admission. Main outcomes and measures: Clinical outcomes during hospitalization, such as invasive mechanical ventilation, kidney replacement therapy, and death. Demographics, baseline comorbidities, presenting vital signs, and test results were also collected. Results: A total of 5700 patients were included (median age, 63 years [interquartile range {IQR}, 52-75; range, 0-107 years]; 39.7% female) Hypertension - or elevated blood pressure - is a serious medical condition that significantly increases the risks of heart, brain, kidney and other diseases. An estimated 1.13 billion people worldwide have hypertension, most (two-thirds) living in low- and middle-income countries.Â What are the risk factors for hypertension? Modifiable risk factors include unhealthy diets (excessive salt consumption, a diet high in saturated fat and trans fats, low intake of fruits and vegetables), physical inactivity, consumption of tobacco and alcohol, and being overweight or obese.Â A review of current trends shows that the number of adults with hypertension increased from 594 million in 1975 to 1.13 billion in 2015, with the increase seen largely in low- and middle-income countries. This means that someone could have tested positive in March, with no symptoms of Covid at all, and who then died in July, would be recorded in the official figures, as having died of Covid-related causes. Even if they were hit by a bus. Even more weird is the fact that there does not seem to be any time limit to this. So, you could test positive in March 2020, then die in March 2040, and still be recorded as having died of Covid. I doubt this will happen, but it could. To be honest, I have known something very strange has been going on with the UK data for some time. The UK has not provided an