

RISK FACTORS THAT ASSOCIATED WITH HYPERTENSION IN POPULATION OF TLATAH VILLAGE, PURWOSARI, BOJONEGORO
Faktor Risiko Yang Berhubungan Dengan Kejadian Hipertensi Pada Penduduk Di Desa Tlatah, Purwosari, Bojonegoro

Ayu Sekar Pawening¹, Dani Nasirul Haqi¹

¹Public Health Faculty, Universitas Airlangga, Indonesia
ayu.sekar.pawening-2017@fkm.unair.ac.id

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ABSTRACT

Background: Hypertension or also known as high blood pressure is one of the major health problems in society especially in developing countries like Indonesia. As happened in Tlatah Village, Purwosari, Bojonegoro, hypertension case reached 3rd highest cases that reported in reports of village health service visits in 2019 with so many factors cause hypertension where these factors are divided into modified factor and cannot be changed factor. **Purpose:** This aimed of this study was to determine the risk factors that associated with the incidence of hypertension in Tlatah Village, Purwosari District, Bojonegoro Regency. **Method:** This type of research was a descriptive analytic analysis with a cross-sectional study design. The population in this study was the entire population of 557 people and the sample was taken using simple random sampling technique of 83 people. **Result:** The results of the analysis showed that the variable which was statistically significant and had a significant relationship was the variable of exercise habits with p -value < 0.05 ($p = 0.000$; $OR = 0.528$ $CI = 0.767-0.239$). **Conclusion:** The conclusion of this study was that exercise habit was a risk factor associated with hypertension incidence in Tlatah Village, Purwosari, Bojonegoro.

Keywords : exercise habit, hypertension, hypertension factor

ABSTRAK

Latar Belakang: Hipertensi atau tekanan darah tinggi, yaitu salah satu masalah kesehatan yang cukup besar yang terjadi masyarakat khususnya di negara berkembang seperti Indonesia. Seperti halnya yang terjadi di Desa Tlatah, Purwosari, Bojonegoro, kasus terkait hipertensi menempati urutan ke 3 dalam kasus tertinggi yang dilaporkan dalam laporan kunjungan layanan kesehatan desa pada tahun 2019 dengan banyak faktor yang menyebabkan terjadinya hipertensi dimana faktor tersebut terklasifikasikan menjadi faktor yang bisa diubah dan tidak bisa diubah. **Tujuan:** Penelitian ini mempunyai tujuan guna mencari tahu faktor risiko yang berhubungan terhadap kejadian hipertensi di Desa Tlatah, Purwosari, Bojonegoro. **Metode:** Jenis penelitian ini ialah analisis deskriptif analitik yang memanfaatkan desain studi *cross-sectional*. Populasi pada penelitian ini ialah seluruh penduduk sejumlah 557 orang serta pengambilan sampel mempergunakan teknik *simple random sampling* sejumlah 83 orang. **Hasil:** Hasil analisis menunjukkan bahwa variabel yang secara statistik memiliki hubungan signifikan dan memiliki hubungan yang bermakna ialah variabel kebiasaan olahraga dengan nilai $p < 0,05$ ($p=0,000$; $OR=0,528$ $CI=0,767-0,239$). **Kesimpulan:** Kesimpulan dari penelitian ini ialah kebiasaan olahraga sebagai faktor risiko yang berhubungan dengan kejadian hipertensi di Desa Tlatah, Purwosari, Bojonegoro.

Kata kunci: kebiasaan olahraga, hipertensi, faktor hipertensi

INTRODUCTION

Hypertension or can be known as high blood pressure is a condition of blood vessels that often increases pressure (WHO, 2020). Hypertension is a degenerative type of disease: a disease caused by a decrease in the performance of the body's organs (Alifariki, 2019). Hypertension is diagnosed if the systolic blood pressure is ≥ 140 mmHg for two days and the diastolic blood pressure is ≥ 90 mmHg (WHO, 2019) for the two days. Hypertension is one of problems in the public health sector which is quite large. According to WHO, around 1.13 billion people worldwide in 2015 suffers from high blood pressure. One of three people in the world is identified to have hypertension. Every year, hypertension sufferers have increased quickly. It is predicted that people with high blood pressure will reach 1.5-billion in 2025 and it is predicted that there are 9.4 million people every year who lose their lives because they have high blood pressure and the complications that they suffer simultaneously (Kemkes, 2019). The prevalence of hypertension in people who is over 18 years old in East Java shows a number of 3.5%, which is quite high when compared to other provinces in Indonesia (Risesdas, 2018). Hypertension is called as the "silent killer" because there are no symptoms that can be felt by the sufferer, which makes most people unaware of the presence of the disease (WHO 2019). Many factors cause hypertension. Reporting from the Ministry of Health, the background of high blood pressure risk can be classified into two, including risk factors that cannot be changed, such as age, gender, and family history, as well as risk factors that can be changed, such as smoking behavior, consuming less fruits, consuming excessive amounts of salt, excess body weight, lack of physical activity, consuming alcohol, stress, and dyslipidemia.

Researchers want to conduct research for several variables of risk factors that cannot be changed and risk factors that can still be changed. One of the several unavoidable risk factors for hypertension is age. The incidence of high blood pressure increases with increasing age. Based on previous research conducted by Sartik et al (2017), the results of the study prove that age has an important relationship and affects cases of high blood pressure ($p = 0.000$; OR = 6.55). The results also show that the ratio of high blood pressure

that occurs in individuals at the age of more than 40 years is higher than the ratio of high blood pressure at the age of less than 40 years. This explains that the older you are, the more risk you are developing hypertension. Besides that, exposure to cigarette smoke can be a risk factor for hypertension. Cigarette smoke exposure can occur anywhere, one of them comes from inside the house that comes from family members. There are 85.4% who smoke while at home in the national scope, when gathering or having contact with other family members. Previous research conducted by Arista (2017), showed that passively exposure smoke has a relationship to high blood pressure events ($p = 0.000$). Kim et al (2019) also revealed by showing that exposure to cigarette smoke was significantly associated with hypertension, exposure to cigarette smoke exposure that only occurs at work or at home regardless of whether exposure to cigarette smoke in the workplace or not is also associated with hypertension.

Physical exercise also has a good influence on the various systems that work in it, one of them is cardiovascular. Physical activity that is often performed, such as sports, needs to be performed due to its enormous health benefits. In hypertension, people who are not active coupled with less physical activity will make the heart muscle work harder (Fauzan, A & Qariati, N.I, 2018). Based on the examination conducted in the work area of Big River Public Health Center for men aged 18 to 44 years showed that many people did not exercise (Sriani et al, 2016). The harder and the more frequent it is performed, the greater the pressure on the arteries. It can affect the potential for hypertension. Librianti's research (2016) showed that if there is an important relationship in exercise habits to hypertension events, exercise habit becomes one of the risk factors that cause hypertension.

As happened in the villages of Tlatah, Purwosari, Bojonegoro, there are still case reports related to hypertension. Hypertension is one of the cases that appears every year and still untreated. This can be seen from the records reported in the report of public health service visits in 2019. Based on hypertension data obtained in Purwosari Public Health Center work area, researchers are interested in examining in order to observe the association with various risk factors related to high blood pressure events, consisting of age, exposure to

cigarette smoke, as well as sports habits practiced by people in Tlatah Village, Purwosari Puseksmas Work Area, Bojonegoro Regency.

METHOD

The research method used was a descriptive analytic research that employed a cross-sectional study design. The review process was undertaken from December 2019 to January 2020 in Tlatah Village, Purwosari, Bojonegoro. The population of this study were all residents of Tlatah Village with 557 inhabitants. This study utilized a sampling technique using simple random sampling method. Sampling was taken 10 - 15% of the total population thus total sample size of 83 people with inclusion criteria was physically and mentally healthy, residing in Tlatah Village, Purwosari, Bojonegoro, and willing to be respondents. Meanwhile, the special characteristic of this study was the people who are less physically and mentally healthy. The types of data collected were secondary data and primary data. Media / tools used was a questionnaire which the respondents filled in themselves related to personal data, family members who smoke, and exercise habits were part of the primary data. Where the instrument has been tested for validity and reliability. Secondary data were obtained through data reports at the Puskesmas Desa Tlatah, Purwosari, Bojonegoro. This research has passed the ethical review at the Faculty of

Nursing, Airlangga University, Surabaya (No : 1769-KEPK)

RESULTS

The frequency distribution of the characteristics of respondents showed that the majority of respondents were male with 51 people (60.7%), while 33 (39.3%) were female. According to level of education, as many as 42 people (50%) completed education up to the primary school level, 28 people (21.4%) at the junior high school level, 21 people (25%) at the high school level, and 3 people (3.6) at the diploma / college level. According to occupation, 31 people (36.9%) worked as farmers, 15 people (17.9%) worked as farm laborers, 13 people (15.5%) worked as self-employed, 11 people (13.1%) were unemployed, and 14 people (16.7%) worked in other fields. The results also showed that out of 87 respondents, 67 people (79.8%) were hypertensive patients and 17 people (20.2%) were not hypertensive. Most of the respondents came from groups aged ≤ 40 years as many as 40 people (47.6%) and 44 people (52.4%) were > 40 years old. In the variable exposure to cigarette smoke, the majority of participants were exposed to cigarette smoke as many as 56 people (66.7%) and 28 people (33.3%) were not exposed to cigarette smoke. Furthermore, most of the respondents or 45 people (66.7%) did not exercise habits and the remaining 39 people (46.4%) did exercise habits. It was shown in the exercise habits variable.

Table 1. Distribution Based on Participant Characteristics in Tlatah Village, Purwosari, Bojonegoro

Participant Characteristics	Frequency (f)	Percentage (%)
Sex		
Male	51	60.7
Female	33	39.3
Level of Education		
Primary school	42	50.0
Junior High School	18	21.4
Senior High School	21	25.0
Diploma / College	3	3.6
Occupancy		
Farmer	31	36.9
Farm laborer	15	17.9
Entrepreneur	13	15.5
Unemployed	11	13.1
Others	14	16.7
Incidence of Hypertension		
Hypertension	67	79.8

Participant Characteristics	Frequency (f)	Percentage (%)
No Hypertension	17	20.2
Age		
≤ 40 years	40	47.6
> 40 years	44	52.4
Exposure to Cigarette Smoke		
Yes	56	66.7
No	28	33.3
Exercise Habit		
Yes	18	21.4
No	66	78.6
Total	84	100.0

Table 2 showed the analysis results using the cross-sectional test: there were 1 variable that has an equation related to high blood pressure in the residents of Tlatah, Purwosari, Bojonegoro, which was exercise habit variable ($p = 0.000$; $OR = 0.528$ $CI = 0.767-0.239$). It can be concluded that the group that does not have exercise habit was 0.528 times more likely to have hypertension.

On the other hand, the other two variables did not have a significant correlation with the incidence of high blood pressure: age ($p = 0.767$) and exposure to cigarette smoke ($p = 0.922$). The variables that fulfill the criteria were variables that have statistical meaning ($p < 0.05$) and that was merely the exercise habit variable.

Table 2. Correlation of Variables to the Incidence of Hypertension in Tlatah Village, Purwosari, Bojonegoro.

Risk Factor	Hypertension		No Hypertension		Total		P-Value	OR 95% CI
	f	%	f	%	f	%		
Age								
≤ 40 years	27	47,6	13	15,5	40	63,1	7,113	0,644 (0,705 – 0,061)
> 40 years	40	32,1	4	4,8	44	36,9		
Total	67	79,7	17	20,3	84	100,0		
Exposure to Cigarette Smoke								
Yes	43	51,2	13	15,5	56	66,7	0,922	(1,104 – 0,727)
No	24	28,5	4	4,8	28	33,3		
Total	67	79,7	17	20,3	84	100,0		
Exercise Habit								
Yes	7	8,3	11	13,1	18	21,4	0,000	(0,767 – 0,239)
No	60	71,5	6	7,1	66	78,6		
Total	67	79,8	17	20,2	84	100,0		

DISCUSSION

The test results using cross-sectional showed that the age factor is not a factor that contribute a significant correlation to the incidence of hypertension in the Tlatah, Purwosari, Bojonegoro ($p = 0.767$). This was irrelevant to the theory presented by the Ministry of Health in Sartik (2017) which stated that high blood pressure is in line with increasing age thus it results in structural changes in large blood vessels. These changes caused the lumen to shrink and caused the blood vessels to stiffen and ultimately increase systolic blood pressure. The results of this study were relevant to Wicaksono's (2015) study in Dusun 1 Kembangseri Village, Talang Empat District, Bengkulu, which explains that there were no significant correlation between age and hypertension cases ($p = 0.0944$). However, the results of the study were in accordance with a study conducted by Sartik et al (2017), showing that the ratio of high blood pressure at the age of 40 years tends to be higher than the ratio of hypertension suffered by someone who was less than 40 years old. The results of the age variable test showed the dominance of hypertension sufferers in the >40 years age group with 40 people (47.6%). This was since age affected hypertension in the form of narrowing of blood vessels as a person ages. However, a person's blood vessels did not experince narrowing with age if during his lifetime the person lives a good lifestyle. This could prevent changes in the structure of the blood vessels.

The results showed that exposure to cigarette smoke did not have a significant correlation with the incidence of hypertension in Tlatah, Purwosari, Bojonegoro ($p = 0.922$). This was different from Arista's (2017) study, explaining that exposure to passive cigarette smoke correlated with the incidence of high blood pressure / hypertension ($p = 0,000$). That previous study stated that the part in cigarette smoke contains a composition of harmful substances (poison), consisting of nicotine that was absorbed by the caliper blood vessels in the lungs, then sent to the blood and to the brain. In general, cigarette exposure received by individuals tends to have an impact and made it one of the risk factors for hypertension incidence. However, exposure to cigarette smoke was shown to have no correlation with the incidence of prehypertension in a study

conducted by Janah, et al (2017). This showed that the risk factors for the population in Tlatah Village, Purwosari, Bojonegoro to experience hypertension do not derived from exposure to cigarette smoke or other risk factors that cause it.

The results showed that the exercise habit factor had a significant and statistically significant relationship to the incidence of hypertension in the village of Tlatah, Purwosari, Bojonegoro ($p = 0.000$; OR = 0.528 CI = 0.767-0.239) where the odds rate was 0.528 which meant that the group that was not having exercise habits will be 0.528 times more at risk of developing hypertension than the group who has exercise routinely. This explanation is in accordance with a previous study conducted by Karim (2018) in the work area of the Tagulandang Health Center, Sitaro Regency, which showed that there is a relationship in physical activity to the degree of hypertension ($p = 0.039$). Previous research also stated that strenuous physical activity will have a more influence on the incidence of hypertension compared to low and moderate activities, where these activities depend on the type of activity, how often they are, the term, and the frequency of activities (Karim, 2018). Where the frequency of the heart rate in someone who does not do physical activity will experience an increase which triggers the heart muscle to overwork. However, the exercise factor is not a definite factor that has a relationship and influence every incidence of hypertension because previous studies showed that each region has different risk factors for hypertension. This is evidenced by the results of a previous study conducted by Hartanti et al. (2015) in Rembang Regency, which stated that if there is no relationship that occurs in exercise habits to the incidence of hypertension because there are other variables that are stronger than the risk factors for hypertension in each study.

CONCLUSION

Based on the results of this study, the conclusions obtained state that there is a statistically significant relationship between the risk factors for sports habits ($p = 0.000$; OR = 0.528 CI = 0.767-0.239) to the incidence of hypertension in the population in Tlatah Village, Purwosari, Bojonegoro where the odds value a rate of 0.528 means that the group that does not have excercise habits will be

0.528 times more likely to experience hypertension than the group that has a prevalence of exercise.

SUGGESTION

The suggestion that researchers can convey through the results of research for the health center is to carry out activities that can minimize the occurrence of hypertension, especially initial screening in order to find out the presence of hypertension in the population, besides that the population also needs to be given an understanding of how important it is to carry out routine checks on their health status. Other health promotion can also be done by using the media in the form of posters in certain places where residents pass. Residents are also advised to do regular exercise as an effort to avoid hypertension, considering that sports factors have a relationship with the incidence of hypertension in Tlatah Village, Purwosari, Bojonegoro. The need for counseling related to the risk of exposure to cigarettes that residents get during their daily activities as a preventive measure before cigarette exposure is a major risk that has a relationship with the incidence of hypertension. The local health center is also advised to monitor and evaluate hypertensive patients.

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