Indonesian Journal of Applied Health (IJAH)
e-ISSN: 3063-3273
Volume 2 , Number 1, June 2025
https://ojs.poltekkes-malang.ac.id/index.php/IJAH/index

THE RELATIONSHIP BETWEEN SMOKER TYPES AND HYPERTENSION LEVELS IN TAMANHARJO VILLAGE SINGOSARI SUB-DISTRICT, MALANG REGENCY

Evi Arum Erista[1], Imam Subekti[2], Sulastyawati[3], Marsaid[4] (CA)
[1,2,3,4] Poltekkes Kemenkes Malang
*Corresponding author's email (CA): marsaidsaid411@gmail.com

Abstract
Smoking is a common activity in daily life in society. Hypertension is one of the most common cardiovascular system diseases, followed by coronary heart disease, and several other cardiovascular disorders. The purpose of this study was to determine the relationship between smoker types and hypertension levels in Kebonagung Hamlet, Tamanharjo Village, Singosari. This type of research is analytic observational with a cross-sectional research design, with a population of 65 people and a sample of 65 people. The sampling technique used was nonprobability sampling, namely the purposive sampling method. Researchers used data collection methods with unstructured free interviews and observation. Bivariate analysis in this study was carried out using the Chi-square test. The results of this study show: 1. There were 33 smokers as active smokers and 32 people as passive smokers with the highest frequency at the age of 56-65. 2. Among active smokers who experienced mild hypertension were 36.4%, moderate hypertension was 42.4%, and severe hypertension was 21.2%. Meanwhile, for passive smokers who experienced mild hypertension were 46.9%, moderate hypertension was 25%, and there was no severe hypertension 28.1%. 3. The results of the bivariate analysis of the Chi-Square Test showed a p-value sig (2 sided) of 0.332 > α 0.05, indicating that there is no relationship between smoker type and hypertension level in Kebonagung Hamlet, Tamanharjo Village, Singosari.
Keywords: Hypertension, Smoking, Non-Communicable Diseases

INTRODUCTION

Smoking is a common activity in daily life in society. In fact, it has been widely explained that cigarettes are the biggest threat to public health in the world. Of the 8 million deaths caused by smoking, 7 million are caused by direct smokers (active smokers) and 1.2 million are caused by exposure to other people's cigarette smoke or passive smokers (Futri et al., 2022). Smoking causes problems of social, moral, economic and health losses, and even causes death. From a social perspective, smoking can have an impact on the people around the smoker, making passive smokers more at risk than active smokers. In the economic field, smoking can result in wasteful or endless spending to buy a cigarette to satisfy momentary pleasure. Cigarettes are the second largest spending expenditure for poor people, higher than spending on nutritious food. And in terms of health, of course, there are many health problems that are often encountered as a result of smoking activities, one of which is hypertension or increased blood pressure.

According to research, active smoking can cause hypertension, as can passive smoking, which can disrupt heart function (coronary vasoconstriction,

increase heart rate and blood pressure) after acute exposure and of course worsen the complaints of sufferers who have heart disease (Rijal & Suprihatin, 2014). Smoking and hypertension are very risky factors in atherosclerosis, coronary heart disease, acute myocardial infarction, and sudden death (Umbas et al., 2019).

The prevalence of smokers in Indonesia is 50.68%. Wamankes mentioned that one of the causes of the high prevalence of teenage and adult smokers is exposure to cigarette advertisements on the internet. According to the Central Statistics Agency of East Java Province in 2021, the percentage of smokers in Malang Regency is 38.8% with a smoker age range of 25-34 years and Malang Regency is in the top ten highest smoker rates in Indonesia. According to basic health research (Rikesdas), the number of active smokers every day in Malang Regency is 26.8%, occasional smokers 6.0%, former smokers 6.5%, and passive smokers 60.7% (Wahyudi, 2018). Data was obtained during a preliminary study that the total population of men aged 26-65 years in Kebonagung Hamlet, Tamanharjo Village was 1,063 people and approximately 65 people had a history of hypertension.

In Indonesia, hypertension is also a serious health problem. In 2022, the Malang Regency Health Office recorded that the highest non-communicable disease in Malang Regency was hypertension with 86,445 cases or 21.5 percent. Based on previous research, the percentage of hypertension sufferers who have a history of passive smoking is 25.0%, and for the number of hypertension sufferers who have a history of active smoking is 70.0% (Janah & Martini, 2017).

Problems that can arise from smoking or people exposed to cigarette smoke include cancer, cerebrovascular, cardiovascular system disorders, gastrointestinal, and endocrine metabolism reproductive system. Hypertension is one of the cardiovascular system diseases that often occurs, then coronary heart disease, and several other cardiovascular disorders. The mechanism of cardiovascular system problems in a smoker is caused by cigarettes producing nicotine and carbon monoxide, a potent vasoconstrictor that can cause hypertension (Janah & Martini, 2017).

The phenomenon of active and passive smokers has an impact on health, one of which can cause hypertension. This provides a basis for researchers, so researchers are interested in conducting a study on the relationship between smoker type and hypertension level in Kebonagung Village, Tamanharjo Singosari Village. The implication of this research is that it is necessary to implement healthy living behaviors to avoid hypertension. We as nurses provide services to clients, have a responsibility to help clients regain their health and optimal independent living by providing education about the dangers that can be caused by cigarettes and cigarette smoke. This role can be in the form of promotive, preventive, curative and rehabilitative (Potter & Perry, 2010).

RESEARCH METHOD

This research uses an analytical observational research method with a cross sectional research design (research at one time) in which the risk variable or cause (independent variable) or the effect variable (dependent variable) are carried out

in parallel or simultaneously. This study used a population of 65 people who had a history of hypertension and were men aged 26-65 years in Dusun Kebonagung, Tamanharjo Singosari Village, Malang. The technique in sampling uses a nonprobability sampling technique, namely the purposive sampling method using inclusion and exclusion criteria. In this study, the researcher used the entire population of 65 people to be used as a sample. The research was conducted through door to door (house to house) in Dusun Kebonagung, Tamanharjo Village, Singosari District, Malang Regency. The independent variable in this study is the type of smoker, namely active smokers and passive smokers in Dusun Kebonagung, Tamanharjo Singosari. The dependent variable in this study is hypertension blood pressure.

In this study, researchers used data collection methods with unstructured free interviews and observation. The instrument used in this study was an interview sheet which will be carried out directly including general or demographic data, namely respondent characteristics such as initial name, age, occupation, smoker type classification, reasons for smoking in active smokers, and reasons for gathering with active smokers for passive smokers. Meanwhile, for observation data using a manual tensimeter (sphygmomanometer) instrument and research observation sheet in the form of a table that includes respondent data and observation results.

RESEARCH RESULT

General Data on Respondent Characteristics

Table 1. Table of General Data on Respondent Characteristics Based on Age in the Range of 26-65 Years with Hypertension1

	Frequency	Percentage %
26-35 years	4	6.2 %
36-45 years	16	24.6 %
46-55 years	21	32.3 %
56-65 years	24	36.9%
Total	65	100%

Based on table 1, general data on respondent characteristics based on age in the range of 26-65 years with hypertension in Dusun Kebonagung, Tamanharjo Singosari Village in September 2023, it was found that a small proportion were aged 26-35 years and a large proportion were in the range of 56-65 years.

Table 2. Frequency Distribution Data of General Characteristics of Respondents Based on Occupation in Male Respondents Aged 26-65 Years with Hypertension2

		Frequency	Percent
Valid	Laborer	27	41,5%
	Farmer	16	24,6%
	Private employee	9	13,8%
	Civil servant	5	7,7%

Unemployed/retired	8	12,3%
Total	65	100,0%

Based on table 2, the frequency distribution data of general characteristics of respondents based on occupation in male respondents aged 26-65 years with hypertension in Kebonagung Hamlet, Tamanharjo Village, Singosari in September 2023, it was found that most of them have jobs as Laborers.

Smoker Type

Table 3. Frequency Distribution of Smoker Type in Male Respondents with Age Category Range 26-35.3

			Smoker Type		Total
			active smoker	passive smoker	
Age	26-35	Count	3	1	4
		% within Smoker Type	9,1%	3,1%	6,2%
	36-45	Count	6	10	16
		% within Smoker Type	18,2%	31,3%	24,6%
	46-55	Count	12	9	21
		% within Smoker Type	36,4%	28,1%	32,3%
	56-65	Count	12	12	24
		% within Smoker Type	36,4%	37,5%	36,9%
Total		Count	33	32	65
		% within Smoker Type	100,0%	100,0%	100,0%

Based on table 3, the frequency distribution of smoker type in male respondents aged 26-65 years with hypertension in Kebonagung Hamlet, Tamanharjo Village in September 2023, the highest percentage of active smokers occurs in the age between 46-65 years, which is 36.4%. Meanwhile, the highest percentage of passive smokers occurs in the age between 56-65 years, which is 37.5%.

From the description of the table, it can be concluded that the higher or older the age of the respondent, the more likely they are to be in the active smoker category compared to the passive smoker category.

Table 4. Frequency Distribution of Smoker Type in Male Respondents Aged 26-65 Years with Occupation Category4

		Smoker Type	Total

			active smoker	passive smoker	
Occupation	Laborer	Count	12	15	27
		% within Smoker Type	36,4%	46,9%	41,5%
	Farmer	Count	10	6	16
		% within Smoker Type	30,3%	18,8%	24,6%
	Private employee	Count	4	5	9
		% within Smoker Type	12,1%	15,6%	13,8%
	Civil servant	Count	3	2	5
		% within Smoker Type	9,1%	6,3%	7,7%
	Unemployed	Count	4	4	8
		% within Smoker Type	12,1%	12,5%	12,3%
Total		Count	33	32	65
		% within Smoker Type	100,0%	100,0%	100,0%

Based on table 4, the frequency distribution of smoker types among male respondents aged 26-65 years with hypertension in Kebonagung Hamlet, Tamanharjo Village in September 2023 shows that the majority of active smokers are laborers (36.4%), while the majority of passive smokers are also laborers (46.9%).

Blood Pressure

Table 5. Frequency Distribution of Blood Pressure in Hypertensive Patients5

	Frequency	Percent
mild hypertension	27	41,5
moderate hypertension	22	33,8
severe hypertension	16	24,6
Total	65	100,0

Based on table 5, the frequency distribution based on blood pressure in hypertensive patients in Kebonagung Hamlet, Tamanharjo Village, Singosari in September 2023 shows that the majority have mild hypertension (41.5%), 33.8% have moderate hypertension, and 16% have severe hypertension.

Relationship between Smoker Type and Hypertension Incidence in Kebonagung Hamlet, Tamanharjo Village, Singosari

Table 6. Cross-Tabulation of the Relationship between Smoker Type and Hypertension

			Degree of hypertension			Total
			mild hypertension	moderate hypertension	severe hypertension	
Smoker Type	active	Count	12	14	7	33
		% within Smoker Type	36,4%	42,4%	21,2%	100,0%
	passive	Count	15	8	9	32
		% within Smoker Type	46,9%	25,0%	28,1%	100,0%
Total		Count	27	22	16	65
		% within Smoker Type	41,5%	33,8%	24,6%	100,0%

Hypertension Incidence6

Based on table 6, the cross-tabulation of the relationship between smoker type and hypertension level in Kebonagung Hamlet, Tamanharjo Village, Singosari in September 2023 shows that the majority of active smokers (14 people) suffer from moderate hypertension, and the majority of passive smokers (15 people) suffer from mild hypertension.

Relationship between Smoker Type and Hypertension Level in Kebonagung Hamlet, Tamanharjo Village, Singosari in September 2023

Table 7. Relationship between Smoker Type and Hypertension Level7

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2,205[a]	2	,332
Likelihood Ratio	2,227	2	,328
Linear-by-Linear Association	,033	1	,856
N of Valid Cases	65		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 7,88.

Based on table 7 above, the chi-square independence test results indicate that there is no significant relationship between smoker type and hypertension level in Kebonagung Hamlet, Tamanharjo Village, x2(2) = 2,205, p-value= 0,332.

DISCUSSION

Smoker Type in Hypertensive Patients in Kebonagung Hamlet, Tamanharjo Village, Singosari

Based on the research conducted, data was obtained that out of 65 male respondents aged 26-65 years with a history of hypertension, 33 were active smokers and the other half were passive smokers (32 people). In this study, active smokers were defined as respondents who smoked at least 3 cigarettes per day, and passive smokers were defined as respondents who inhaled cigarette smoke in public places.

In the 26-35 age category, there are 3 active smokers and 1 passive smoker; in the 36-45 age category, there are 6 active smokers and 10 passive smokers; in the 46-55 age category, there are 12 active smokers and 9 passive smokers; and in the 56-65 age category, there are 12 active smokers and 12 passive smokers.

The theory written by (Untario, Eric 2017) in the journal "The Relationship Between Smoking and the Incidence of Hypertension" stated that in Tamarunang Village, Mariso District, the research respondents were in the range of 18 to 76 years old. The largest age group was respondents aged 41-50 years, with 32 people, and the smallest age group was in the range of 71-80 years, with 2 people. More respondents did not smoke, with 68 people, compared to those who smoked, with 34 people. In productive age, long-term smoking can cause an increase in blood pressure (hypertension). Heavy smokers can be linked to an increased incidence of malignant hypertension and the risk of renal artery stenosis due to atherosclerosis.

Regarding the relationship between smoker categories and occupation categories, the research data showed that most active smokers were laborers (12 people), while most passive smokers were also laborers (15 people). Specifically,

the data for worker categories are as follows: 12 laborers are active smokers and 15 are passive smokers, 10 farmers are active smokers and 6 are passive smokers, 4 private employees are active smokers and 5 are passive smokers, 3 civil servants are active smokers and 2 are passive smokers, while 4 unemployed or retired individuals are active smokers and 4 are passive smokers.

This is in line with the theory written by Yanti et al., 2021 in the journal entitled "The Relationship between Occupation and Smoking Behavior in the Working Area of Bumi Emas Lampung Timur Health Center," which stated that out of 288 respondents, more smoked than did not smoke. The types of jobs pursued by respondents were generally farmers and laborers, meaning that in addition to being farmers (working for themselves), they were also laborers (working for others) (Yanti et al., 2021). The next group was purely farmers. Meanwhile, the smallest group was retirees. The strength of the relationship between occupation and smoking behavior is weak, with a positive pattern, meaning that job types towards outdoor areas/buildings to fields/plantations/factories tend to have a risk of smoking behavior (D= 0.071).

Based on the description above, according to the researcher's opinion, job types towards outdoor areas or buildings, to fields/plantations/factories, tend to have a risk of smoking behavior because in public places like that, there are no strict regulations prohibiting smoking, and active smokers can freely light up cigarettes at certain times. In addition, the environment or the influence of social interaction with others allows for a stimulus to smoke, so a person will tend to engage in smoking behavior. Similarly, the understanding of work behavior is the result of interaction with others in a work environment, which will affect a person's attitudes and beliefs towards something, and a person's behavior will be formed while they work.

Hypertension Levels in Male Respondents Aged 26-65 Years in Kebonagung Hamlet, Tamanharjo Village, Singosari

Based on the research conducted, it was found that most men aged 26-65 years with a history of hypertension, specifically 14 active smokers, suffer from moderate hypertension, and 15 passive smokers suffer from mild hypertension.

Hypertension is an asymptomatic condition with abnormally high pressure in the arteries, leading to an increased risk of stroke, heart failure, heart attack, and kidney damage (Permatasari & Suriani, 2022). Hypertension, or high blood pressure, is an abnormal increase in blood pressure in the arteries continuously over a period. Hypertension can also be defined as a condition where a person's systolic blood pressure is more than 140 mmHg and diastolic blood pressure is more than 90 mmHg. Riskesdas (2018) shows that non-communicable diseases commonly found in the elderly are cardiovascular diseases, one of which is hypertension, heart disease, and stroke. The emergence of these diseases will certainly have an impact on the health status of an elderly person (Ministry of Health of the Republic of Indonesia, 2018). Risk factors for hypertension include genetics, age, gender, consumption of table salt, and smoking (Maryati, 2017).

This research is in line with research conducted by Kurniawan, 2017 on the relationship between smoking behavior and the incidence of hypertension at the Pajangan Bantul Health Center, with the result that most of the respondents were in the Hypertension Grade I category, namely 33 respondents. Risk factors that trigger hypertension are divided into two, namely factors that cannot be controlled and factors that can be controlled. Factors that cannot be controlled include age, gender, and heredity (genetics). Factors that can be controlled include obesity, dyslipidemia, stress, excessive alcohol consumption, excessive salt consumption, physical activity, an unbalanced diet, and smoking. This is in line with research conducted by Heni (2017) which stated that almost all respondents, totaling 75%, experienced grade 2 hypertension (moderate hypertension), this occurs because of several factors including genetic factors and also the lifestyle of hypertension sufferers (Maryati, 2017).

Based on the description above, according to the researcher's opinion, what can influence the incidence of hypertension in this study is possibly due to factors of age, gender, and smoking habits or inhaling cigarette smoke. Apart from age, according to the researcher, gender can also influence the occurrence of hypertension. In men, blood pressure is higher because men have the hormone testosterone which causes blood vessels to be less elastic than women's blood vessels; in women, blood pressure will tend to be higher if they have experienced menopause.

Analysis of the Relationship between Smoker Type and Hypertension Level in Kebonagung Hamlet, Tamanharjo Village, Singosari

Based on the analysis of the relationship between smoker type and hypertension level in Kebonagung Hamlet, Tamanharjo Village, Singosari, the results show a p-value sig (2 sided) of p = 0.332 (p> 0.05), which means there is no significant relationship between smoker type and hypertension level in Kebonagung Hamlet, Tamanharjo Village, Singosari. At the time of the study, it was found that 14 people with moderate hypertension were active smokers, while 15 passive smokers were mostly sufferers of mild hypertension.

This research is in line with research conducted by which is in cigarettes can affect a person's blood pressure, through the formation of atherosclerotic plaques, the direct effect of nicotine on the release of epinephrine and norepinephrine hormones, or through the effect of CO which can bind to red blood cells,

This research is also in line with that conducted by (Untario, Eric 2017) in the journal Hubungan Merokok Terhadap Kejadian Hipertensi which states that the results of statistical tests using the Chi-Square test show a p-value = 0.761 (p>0.05). This shows that there is no relationship between the degree of smoking and the incidence of hypertension in the community of Tamarunang Village, Mariso District, Makassar City in 2017. The results of this study are in line with research conducted by Thuy et al (2010) and Hafiz et al (2016) which shows that there is no significant relationship between smoking habits and hypertension. The absence of a significant relationship between smoking habits and

hypertension is due to the sample size not being sufficient to show significance in this study. The study explained that the risk of people who are currently smoking (active smokers) is relatively the same as people who have never smoked or are non-smokers (Thuy et al, 2010).

Researchers argue that passive smokers are more likely to suffer from mild and severe hypertension than active smokers. It can be seen that the highest number of active smokers suffer from moderate hypertension. This is what causes the lack of a significant correlation between smoker type and hypertension level. Therefore, researchers are of the opinion that smoking is not a major factor causing many cases of hypertension history. Hypertension can occur due to various main factors such as age, heredity, lifestyle, and smoking is one of these factors, so many theories say that smoking is a secondary factor in the cause of hypertension history.

CONCLUSION

Based on the research entitled "The Relationship between Smoking Behavior Type and Hypertension Level in Kebonagung Hamlet, Tamanharjo Village, Singosari" which was carried out in September 2023 on men aged 26-65 years with hypertension with a total of 65 respondents, it can be concluded that there is no relationship between smoker type and significant hypertension level in Kebonagung Hamlet, Tamanharjo Village, Singosari.

REFERENCES

Futri, C. L., Harahap, E. M., Hidayah, A., Batubara, R. A., Pohan, S. Y., Tampubolon, M. M., Insan, H. N., Napitupulu, N. F., Siregar, H. R., Futri, C. L., Dan, K., Kawasan, L., Di, M., & Sumatera, P. (2022). SMOKING IN SOUTH PADANGSIDIMPUAN DISTRICT Found In Communities And Activities That Are Not Easily Changed In Communities That Are Intensely Obtained From Health Centers Starting From Those Identically Carried Out By Personnel Involving Community Leaders And Figures Still Make Smoking Behavior Still A Health Problem For Smokers Themselves And Families. 5, 2014–2017.

Janah, M., & Martini, S. (2017). Relationship Between Secondhand Smoke Exposure and Prehypertension. Jurnal Manajemen Kesehatan Yayasan RS.Dr. Soetomo, 3(2), 131. Https://Doi.Org/10.29241/Jmk.V3i1.75

Maryati, H. (2017). THE CORRELATION OF CHOLESTEROL LEVELS WITH BLOOD PRESSURE IN HYPERTENSION PATIENTS IN JOMBANG REGENCY The Correlation Of Cholesterol Levels With Blood Pressure Hypertension Patients In Sidomulyo Rejoagung Village District Ploso Jombang Heni Maryati Tahun Terus Mengalami Peningkatan . Dunia P. 8, 128–137.

Permatasari, R., & Suriani, E. (2022). Total Cholesterol with Blood Pressure in Hypertensive Patients Aged ≥ 40. Jlabmed, 6(2022), 16–21.

Rijal, F. Khoiru, & Suprihatin. (2014). Increased Blood Pressure After Drinking Coffee and Smoking. Jurnal STIKES, 7(1), 63–72.

Umbas, I. M., Tuda, J., & Nurmansyah, M. (2019). At Kawangkoan Health Center. E-Journal Keperawatan (E-Kp), 7(1), 1–8.
Yanti, D. E., Aprilia, A., Jaya, A., Pratama, R. Y., & Candesa, N. B. (2021). The Relationship Between Occupation and Smoking Behavior in the Working Area of the Bumi Emas Lampung Timur Health Center. Jurnal Dunia Kesmas, 10(1), 51–55. Https://Doi.Org/10.33024/Jdk.V10i1.3240