

# Risk Factors Associated Hypertension of Employees

Risa Herlianita\* and Novika Reza Ajeng Issa Putri

*Department of Nursing, Faculty of Health Science, University of Muhammadiyah Malang, Jalan Bendungan Sutami No. 188A, Malang, East Java, Indonesia*

**Keywords:** Hypertension risk factors, hypertension, employees.

**Abstract:** Hypertension is called the silent killer because this disease is a deadly disease, this disease can give up anyone, both young and old. Risk factors for hypertension include age, gender, family history, obesity, diet, smoking habits, alcohol consumption, and physical activity. The purpose of this study was to determine risk factors related to hypertension to employees in private university located in urban area. This study used a descriptive research design. The sample amount to 93 respondents was taken by the purposive sampling technique. The results of the study showed that risk factors for hypertension include age 18-29 years (46.2%), female sex (52.7%), family history (52.7%), body mass index in the normal category (54.8%), fruit diet and vegetables 1-2 servings (83.9%, 78.5%), smoking in the category of never smoking (64.5%), consuming alcohol in the category of never consuming alcohol (93.5%), physical activity in the category High Level (63.4%). Based on the results of research that has been done, it can be concluded that the risk factors of family history, gender and consumption patterns of fruits and vegetables have the highest percentage in the incidence of hypertension.

## 1 INTRODUCTION

Hypertension is a disorder of blood vessels and the heart which causes the supply of oxygen and nutrients carried by the blood to be blocked to the tissues. Hypertension is defined as an increase in systolic blood pressure at levels > 140 mmHg and diastolic blood pressure at levels > 90 mmHg (Black & Hawks, 2014). Hypertension is also known as a silent killer because this disease is a deadly disease, this disease can affect anyone both young and old (Pudiastuti, 2013).

Based on the World Health Organization (WHO) in 2013, the prevalence of hypertension in the adult population was 35% in developed countries while in developing countries it was 40%. It is predicted that the prevalence of hypertension in the next 2025 will increase by 80% from 639 million cases in 2000 to 1.15 billion cases. This prediction is based on the incidence of hypertension and the increasing population at this time. Based on the Indonesian Ministry of Health in 2013, the prevalence of hypertension in Indonesia reached 31.7% suffered starting from the age of 18 years and over.

The increasing prevalence of hypertension in society is epidemiologically influenced by several

factors, namely increasing age and obesity, other risk factors for hypertension are smoking, alcohol use, and lack of physical activity (WHO, 2016). According to the research of Rysz, Michalska, Pencina, et al (2014) the level of knowledge and awareness of hypertension sufferers in carrying out a healthy lifestyle is still lacking. One effort to overcome the high prevalence of hypertension can be done by increasing patient awareness to identify risk factors and preventive management (Pradono, 2013). According to Darmadi's (2013) research, explaining that an employee spends time in the office for about eight hours a day for one week, many do not engage in regular physical activity on the grounds there is no time to do it. Someone who is not active in physical activity has a 30-50% greater risk of experiencing hypertension.

The results of interviews from several employees found that the average employee has a smoking habit. Based on the above background, the researcher is interested in identifying risk factors associated with hypertension in employees in an urban area.

## 2 METHODS

This research is a descriptive correlational study aimed to reveal the correlation between variables (Nursalam, 2008). This study uses a cross sectional approach which is a study that studies the dynamics of the correlation between risk factors and the effects that occur, using the observation approach or data collection with a point time approach, meaning that each research subject is only observed once (Notoatmodjo, 2012).

This research was conducted in one of the private University located in Malang in January 2019 using a purposive sampling technique. The number of samples in this study was 3 respondents, with inclusion criteria: (1) Muhammadiyah University of Malang employees with increased blood pressure, (2) Willing to be a research respondent. Exclusion Criteria: (1) Not willing to be research respondents.

The research instrument was a questionnaire in the form of questions. The awareness questionnaire consisted of 13 hypertension awareness questions to find out someone's awareness about hypertension. Measurement of awareness uses the Guttman scale with answers to questions YES and NO (Kumar et al, 2016). While the hypertension risk factor questionnaire uses a questionnaire based on the World Health Organization (WHO) in 2014.

The results of the data collection obtained through the questionnaire. Then, Coding is an activity of giving numeric codes (numbers) to data consisting of several categories. Then Enter the data that has been collected into the table.

## 3 RESULTS AND DISCUSSION

A description of the results of research on risk factors associated with hypertension in private university in an urban area located in Malang. Characteristics of respondents based on hypertension risk factors are presented in table 1.

From table 1 shows that from the results of data collection frequency distribution based on age it can be seen that the age of respondents is mostly in the age category 18-29 years as many as 43 (46.2%) respondents. The frequency distribution of sex can be seen that respondents with male sex are 44 (47.3%), while respondents with female sex are 49 (52.7%). Based on the fruit diet it can be seen that the respondents consume fruit in one day are mostly in the 1-2 portion category as many as 78 (83.9%) respondents. Based on the vegetable diet, it can be

seen that the respondents consume vegetables in 1 day mostly in the 1-2 portion category as many as 73 (78.5%) respondents. Based on smoking habits it can be seen that the majority of respondents in the category of never smoked as many as 60 (64.5%) respondents. Based on alcohol consumption it can be seen that the majority of respondents have never consumed alcohol as many as 87 (93.5%) respondents. Based on Physical Activity it can be seen that most of the physical activities in the high-level category are 59 (63.4%) respondents.

Based on the results of research conducted by the majority of respondents aged 18-29 years. The age factor is one of the factors that influence hypertension because the more you age, the higher the risk of hypertension. This is caused by natural changes in the body that affect blood vessels, hormones and the heart (Triyanto, 2014). The study of Sartik et al. (2017) explained that the majority of respondents aged  $\geq 40$  years and those with hypertension were 82 (31.5%). Based on statistical tests between age and the incidence of hypertension, it was found that 31.5% of those aged  $\geq 40$  years who had hypertension and as many as 6.6% of respondents aged  $<40$  years suffering from hypertension. From this it can be seen that the incidence of hypertension at age  $\geq 40$  years is higher than the incidence of hypertension at age  $<40$  years. This means that as we get older the more the risk of suffering from hypertension.

Based on research that has been done, it is found that the majority of respondents are female calamine. Sex is also one of the factors that influence blood pressure. Men and women have different risks for the incidence of hypertension. Men are more at risk than women. But at a certain age, both have a risk that is almost the same as when the age above 45 years, even women can be more at risk (Tilong, 2014).

Based on the research that has been done, the results show that most respondents have a history of hypertension. The results showed that 52.7% of respondents had the risk of hypertension. Supported by other studies explaining that from statistical tests with odds ratios indicate that history of hypertension is a significant risk factor for hypertension with an OR = 6.13. That is, respondents who have a history of hypertension have a 6.13 times greater risk of developing hypertension than respondents who do not have a history of hypertension (Arda et al, 2018).

Table 1: Description of hypertension risk factors based on age, gender, family history, obesity, diet, smoking habits, alcohol consumption, physical activity.

No	Risk Factor	N (%)
1	Age (year):	
	- 18-29	43 (46,2)
	- 30-44	32 (34,4)
	- 45-59	18 (19,4)
	- 60-69	0 (0)
2	Gender	
	- Male	44 (47,3)
	- Female	49 (52,7)
3	Family history	
	- History of hypertension	49 (52,7)
	- No history of hypertension	44 (47,3)
4	Body mass index	
	- Under	13 (14,0)
	- Normal	51 (54,8)
	- Overweight	7 (7,5)
	- Obese	22 (23,7)
5	Fruit diet	
	- $\geq 5$ servings	2 (2,2)
	- 3-4 servings	11 (11,8)
	- 1-2 servings	78 (83,9)
	- Do not consume	2 (2,2)
6	Vegetable diet	
	- $\geq 5$ servings	0 (0)
	- 3-4 servings	20 (21,5)
	- 1-2 servings	73 (78,5)
	- Do not consume	0 (0)
7	Smoking habits	
	- Daily smoker	20 (21,5)
	- Non-Daily Smoker	2 (2,2)
	- Former Smoker	11 (11,8)
	- Never smoked	60 (64,5)
8	Alcohol consumption	
	- Consuming the last 30 days	3 (3,2)
	- Did not consume 12 months	1 (1,1)
	- Consuming the last 12 months	2 (2,2)
	- Never consumed	87 (93,5)
9	Physical Activity	
	- High Level	59 (63,4)
	- Moderate Level	18 (19,4)
	- Low Level	16 (17,2)

Based on research that has been done, the results show that the body mass index mostly has a Body Mass Index in the normal category. However, there are some respondents who have a body mass index in the obesity category. The study showed that as many as 23.7% of respondents had the risk of hypertension. The results of other studies explain that there is a statistically significant relationship between obesity and the incidence of hypertension. Based on statistical tests, the value of OR = 6.47 is obtained. That is, people who are obese have a risk of developing hypertension by 6.47 times compared to people who are not obese. So it can be concluded

that obesity is one of the risk factors for hypertension (Sapitri & Suyanto, 2016).

Based on research that has been done, the results show that for the most fruit diet in the category of consuming fruit 1-2 servings. Study Dietary Approaches to Stop Hypertension (DASH) diet showed that a diet high in fruits and vegetables can lower the systolic blood pressure of 6-11 mmHg and 3-6 mmHg diastolic blood pressure (Rahadiyanti et al, 2015). In the study of Hardati & Ahmad (2017) explained that respondents who consumed fruit <2 servings/day were at risk of hypertension 1.01 times

compared to those who consumed fruit  $\geq 2$  servings/day.

While the results for the vegetable diet most respondents in the category of consuming 1-2 servings of vegetables. The study showed that as many as 78.5% of respondents had the risk of hypertension. In the study of Hardati & Ahmad (2017) explained that respondents who consumed vegetables <3 servings/day were at risk 1.04 times suffering from hypertension compared to consuming vegetables  $\geq 3$  servings/day.

Based on research that has been done, the results show that from the number of male respondents some respondents have smoking habits. This study shows that as many as 22.7% of respondents have a risk of hypertension. This is supported by the research of Sartik et al (2017) explaining that the results of the study showed a statistically significant relationship between smoking habits and the incidence of hypertension. In this study explained that smoking behavior will increase the risk of hypertension up to 6.9 times higher than those who do not smoke.

Based on research that has been done, it is found that the result of alcohol consumption is that most respondents do not consume alcohol. Alcohol consumption will have a bad impact on health for the long term. One result of excessive alcohol consumption will result in increased blood pressure. Alcohol is one of the causes of hypertension because alcohol has the same effect as carbon dioxide which can increase blood acidity, so the blood becomes thick and the heart is forced to pump, besides that excessive alcohol consumption, in the long run, will affect the cortisol levels in the blood thereby resulting in the activity of rennin-angiotensin aldosterone system (RAAS) increases (Komaling, 2013).

Based on the research that has been done, it is obtained that the physical activity of the respondents is mostly in the high-level category. The study showed that as many as 17.2% of respondents had a risk of hypertension. Supported by the results of research Sapitri & Suyanto (2016) explains that there is a statistically significant relationship between physical activity and the incidence of hypertension. Based on statistical tests, the value of OR = 13.47 is obtained. That is, people who do not do regular physical activity have a risk of developing hypertension by 13.47 times compared with people who do regular physical activity.

In this study, the authors found several research limitations. As for some of these limitations are the blood pressure is only measured one time.

## 4 CONCLUSIONS

Based on the results of research that has been done, it can be concluded that the risk factors of family history, gender and consumption patterns of fruits and vegetables have the highest percentage in the incidence of hypertension. Adds an overview and knowledge of hypertension risk factors. For those who have a history of hypertension to be able to control blood pressure by increasing healthy lifestyles, one of which is by consuming fruits and vegetables

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