

Factors Associated with the Occurrence of Hypertension in Bonegunu Public Health Centers, North Buton Regency

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Abstract

Introduction: Hypertension is a major public health problem and is ranked fourth in the world based on its prevalence. Hypertension often occurs due to several factors, namely age, education, work, family history, obesity, exercise habits, and so on. **Objectives:** The aim of this study was to determine the relationship between age, occupation, and diet on the incidence of hypertension in the Bonegunu Community Health Center working area, North Buton Regency. **Methods:** This type of analytical observational research with a Cross-Sectional Study design. The sampling technique used purposive sampling with a sample size of 38 people. The research instruments were a questionnaire and Frequency Questionnaire Form sheet as well as a 24-hour Food Recall Form. Data analysis was carried out univariately and bivariately using the chi-square statistical test (significant if the p-value <0.05). **Results:** The research results showed that age and the incidence of hypertension p value = 0.000 < α = 0.05, which means there is a relationship between age and the incidence of hypertension. Occupation and the incidence of hypertension p value = 0.002 < α = 0.05, which means there is a relationship between employment and the incidence of hypertension. Dietary patterns and the incidence of hypertension p value = 0.007 < α = 0.05, which means there is a relationship between dietary patterns and the incidence of hypertension. **Conclusion:** There is a need for education through regular health promotions to the community or through monthly posbindu activities for early detection.

Keywords:

Age, Occupation, Diet, Occurrence Hypertension



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INTRODUCTION

Hypertension is one of the main causes of mortality and morbidity in Indonesia. A person is considered to have hypertension when their systolic

blood pressure is ≥ 140 mmHg and/or diastolic blood pressure is ≥ 90 mmHg, in repeated examinations (Arifin, et al., 2016). The high incidence of hypertension is influenced by unchangeable factors, namely age, type, gender, and race (Sartik et al., 2017). Modifiable factors such as obesity, alcohol consumption, lack of exercise, excessive salt consumption and smoking habits (Setyanda et al., 2015). Lifestyle changes are the cornerstone of the prevention and treatment of hypertension and both government and industry are very supportive of the importance of supporting and implementing these changes (Cheema et al., 2022). While lifestyle changes are effective, they are difficult to implement and maintain in the long term as many people live in environments that are not conducive to achieving and maintaining a healthy lifestyle (Charchar et al., 2024).

According to the World Health Organization (WHO) data in the Global Status Report on Non-Communicable Diseases, the prevalence of hypertension in adults aged 18 and above in 2014 was around 22%. Meanwhile, Hypertension is responsible for 40% of deaths due to heart disease and 51% of deaths due to stroke (Ansar et al., 2019). In Indonesia, the estimated number of hypertension sufferers is around 15 million, but only 4% are considered to have controlled hypertension. Controlled hypertension refers to those who have hypertension and are aware that they are undergoing treatment. Conversely, about 50% of sufferers are unaware that they have hypertension, leading them to potentially experience more severe hypertension (Tarigan & Syarifah, 2018). Research findings by Buntaa et al., (2018) indicate that hypertension is more prevalent among male respondents and is most commonly found in the age group of 40-50 years.

Age is a non-modifiable risk factor for hypertension. In Indonesia, the prevalence of hypertension is higher in women (8.6%) compared to men (5.8%) after the age of 56-65 years. The occurrence of hypertension in women increases more than in men due to hormonal factors (Kemenkes, 2017).

Busyness, hard work and heavy burdens lead to stress and high pressure. The feeling of pressure makes blood pressure rise. Busy people also do not have time to exercise. As a result, more body fat is accumulated which can obstruct blood flow. Vessels are crushed by piles of fat so that blood pressure becomes high (Sinubu RB et al, 2015). Sinaga (2021) in (Sulistiyono and Modjo, 2022) states that office workers are more prone to hypertension than non-office workers. This can be caused by environmental factors that affect the incidence of hypertension, such as work shifts, work stress, and worker behavioural factors, such as smoking and drinking alcohol.

Poor dietary habits, with modern food choices being a major contributor to hypertension. Preserved foods, high salt, and seasoning in large quantities

can elevate blood pressure due to their excessive sodium content (Ansar et al., 2019). According to the Basic Health Research (Risikesdas) data from the Health Research and Development Agency in 2007, the prevalence in Indonesia was recorded at 31.7%, which decreased to 25.8% in 2013. In 2016, the National Health Indicator Survey (Sirkesnas) reported an increase in the percentage of the population with hypertension to 32.4%, and in 2018, it further increased to 34.1%.

Based on the Health Department Profile of Southeast Sulawesi Province, hypertension is the most common disease among the top 10 most prevalent diseases in Southeast Sulawesi. In 2013, the number of hypertension cases was 24.419 with a prevalence of 0.01%. Then in 2014, there were 34.419 cases with a prevalence of 14.26%. In 2015, the number of cases decreased to 19.743 with a prevalence of 7,16%. However, in 2016, the number rose to 31.817 cases with a prevalence of 14.60%, and 8% of them resulted in fatalities. In 2017, the number of Hypertension patients in Southeast Sulawesi increased by 54.127 people or 33.62%.

Bonegunu Health Centre is one of the health centers in North Buton Regency. Data on hypertension cases at the Bonegunu Health Centre from 2021 are 223 cases (22.7%), in 2022 are 337 cases (36.12%) and hypertension data for January - June 2023 are 147 cases (19.11%). Based on the results of interviews with several hypertensive patients due to unhealthy lifestyles such as consumption of salt, coconut milk, and smoking, due to the current age which demands a variety of busy work and other activities that increase workload. In addition, interviews with the non-communicable disease program manager at the Bonegunu Health Centre, and efforts to control hypertension have been made through weekly blood pressure monitoring at posbindu which is carried out routinely, counseling, and treatment according to standards for hypertensive patients. Despite these efforts, the incidence of hypertension continues to increase (Puskesmas Bonegunu, 2023)

This research aims to identify factors associated with the incidence of hypertension in the working area of the Bonegunu Public Health Centers in North Buton Regency. This research specifically aims to investigate the relationship between Age, Occupation, and Dietary Patterns in relation to the risk of Hypertension in outpatient patients.

METHOD

The type of research used is a quantitative method with analytical observational research with a Cross-Sectional Study design. The research was conducted in the work area of the Bonegunu Community Health Center, North Buton Regency, and carried out from September 1 to September 12, 2023. The population of this study was all patients who came to the health center and were recorded in the medical record as hypertensive patients in the

Bonegunu Health Center working area, totaling 129 people. The sample for this study consisted of 38 outpatients suffering from hypertension at the Bonegunu Health Center aged between 42 and 80 years. The sampling technique used was purposive sampling and met several inclusion criteria, namely being willing to be a respondent, living in the Bonegunu Community Health Center area. The sample size was determined using the Lameshow formula, resulting in 38 samples. The sample size was determined with a precision set at 10% and a confidence level of 90%. The research instrument used a questionnaire, before the questionnaire was used, validity and reliability tests were carried out. For dietary pattern variables, use the Frequency Questionnaire Form and the 24-hour Food Recall Form. Data processing includes editing, scoring, coding, tabulating, and entry. Data analysis was carried out univariately to describe all variables by compiling frequency distribution variables for each variable. Bivariate analysis uses the chi-square statistical test with independent variables and dependent variables. Correlation results are said to be significant if the p-value <0.05.

RESULT

The research results show that the gender of outpatients suffering from hypertension in the working area of the Bonegunu Public Health Centers, North Buton Regency, consists of 22 male

respondents (57.9%) and 16 female respondents (42.1%). Regarding the occupations of outpatients suffering from hypertension in the working area of the Bonegunu Public Health Centers, North Buton Regency, there are 3 civil servants (7.9%), 16 private sector workers (42.1%), 9 farmers (23.7%), and 10 housewives (26.3%). Of the 38 respondents age 31-45 years there were 6 respondents (15.8%), age 46-60 years there were 28 respondents (73.7%) and > 60 years old there were 4 respondents (10.5%). Regarding dietary patterns, 14 respondents (36.8%) had a sufficient diet while 24 respondents (63.2%) had an insufficient one. Lastly, concerning hypertension occurrences, 25 respondents (65.8%) had hypertension while 13 respondents (34.2%) were normal (Table 1).

The results showed that age with hypertension was 19 respondents (90.5%) and age at risk and normal were 2 respondents (9.5%). Age that is not at risk but hypertension is 6 respondents (35.3%), age is not at risk and normal blood pressure is 11 respondents (64.7%). The statistical test results obtained p value is 0.000. These results indicate there is a relationship between age and hypertension. The level of closeness of the relationship between these variables obtained by the coefficient ϕ (phi) is 0.449 (Table 2).

Table 1. Characteristics Respondents' According to Gender, Occupation, Age, Diet and Incidence of Hypertension (n=38)

Respondent Characteristics	n	(%)
Gender		
Male	22	57.9
Female	16	42.1
Job Status		
Civil Servant (PNS)	3	7.9
Entrepreneur	16	42.1
Farmer	9	23.7
Housewife (IRT)	10	26.3
Age		
< 30 year	0	0.0
31-45 year	6	15.8
46-60 year	28	73.7
> 60 year	4	10.5
Diet		
Enough	14	36.8
Less	24	63.2
Occurrence of hypertension		
Hypertension	25	65.8
Normal	13	34.2

Source: Primer Data, 2023

The results showed that occupations at risk of hypertension were 15 respondents (93.8%) and occupations at risk and not hypertensive or normal

were 1 respondent (6.3%). There were 10 respondents (45.5%) with non-risky jobs and hypertension, and 12 respondents (54.4%) with

normal jobs. The statistical test results obtained p value is 0,002. These results indicate there is an association between age and hypertension. The level of closeness of the relationship between these variables obtained by the coefficient ϕ (phi) is 0.501 (Table 2).

The results showed that an adequate diet was at risk of hypertension for 13 respondents (92,9%) and an adequate diet and no hypertension

or normal was 1 respondent (7.1%). There are 12 respondents (50.0%) who have a poor diet and suffer from hypertension, and 12 people (50.0) have a poor diet and are normal. The statistical test results obtained p value is 0.007. These results indicate there is a relationship between age and hypertension. The level of closeness of the relationship between these variables obtained coefficient ϕ (phi) is 0.399 (Table 2).

Table 2. Analysis of the Relationship between Age, Occupation, Diet with Occurrence of Hypertension

Variable	Occurrence of hypertension				Total		p-value	Contingency Coefficient (ϕ)
	Hypertension		Normal		n	%		
	n	%	n	%				
Age								
Risk	19	90.5	2	9.5	21	100	0.000	0.449
No risk	6	35.3	11	64.7	17	100		
Total	25	65.8	13	34.2	38	100		
Job								
Risk	15	93.8	1	6.3	16	100	0.002	0.501
No risk	10	45.5	12	54.5	22	100		
Total	25	65.8	13	34.2	38	100		
Diet								
Enough	13	92.9	1	7.1	14	100	0.007	0.399
Less	12	50.0	12	50.0	24	100		
Total	25	65.8	13	34.2	38	100		

Source: Primer Data, 2023

DISCUSSION

Age is a non-modifiable risk factor for hypertension. The prevalence of hypertension in Indonesia is higher in women (8.6%) compared to men (5.8%) after the age of 65, with an increasing incidence of hypertension in women compared to men due to hormonal factors. The majority of outpatients with hypertension in the working area of the Bonegunu Public Health Centers in North Buton Regency are at risk age groups, indicating that as one ages, blood pressure tends to increase due to factors such as decreased blood vessel elasticity, diminished kidney function as a blood pressure regulator, and a higher risk of developing hypertension (Arifin, et al., 2016). According to Titin (2016) that respondents aged 56 years and older are at a higher risk of developing hypertension compared to those younger than 56. It is in line with the theory that after the age of 55, arterial walls thicken due to collagen accumulation in the muscle layer, leading to narrowing and stiffening of blood vessels.

Most of the outpatient patients with hypertension in the Bonegunu Public Health Centers working area in North Buton Regency have low-risk occupations, indicating a vulnerability to heart disease and hypertension due to decreased physical activity. Men in high-pressure jobs, such as those with significant responsibilities but lacking decision-

making authority, tend to experience higher blood pressure during working hours compared to their counterparts in less demanding positions. Moreover, the modern busy lifestyle often leads people to be less physically active and resort to coping with stress through smoking, alcohol consumption, and other behaviors, all of which are factors contributing to an increased risk of hypertension.

Most of the dietary patterns of outpatient patients suffering from hypertension in the working area of the Bonegunu Public Health Centers, North Buton Regency are inadequate. This is due to the fact that the average modern diet no longer contains complete nutrients because of various processing methods and the addition of various chemicals. Nutritious food is natural food that is not contaminated by chemicals such as pesticides. However, most of the current agricultural produce comes from infertile soil layers, improper storage methods, prolonged transportation processes, and inappropriate processing methods, leading to the loss of nutrients. Consequently, the dishes served mainly contain flavor enhancers, sugar, and salt (Puspita, 2013). According to Cahyani et al., (2019), a healthy diet is reflected in the selection of balanced and varied menu options. A healthy diet contains balanced, diverse, varied, and proportional nutrients. One of the factors affecting the dietary pattern can be seen in excessive sodium consumption. Consuming foods with salt (sodium)

can lead to increased sodium levels in the blood, requiring the intracellular fluid to be drawn out to normalize it, leading to an increase in extracellular fluid volume, which in turn impacts the development of hypertension.

Most cases of hypertension in the working area of the Bonegunu Community Health Center in North Buton Regency are due to poor lifestyle habits such as unhealthy diet and lack of exercise, which contribute to the occurrence of. According to Syanindita & Muwakhidah (2021), risk factors for hypertension include age, gender, heredity, obesity, excessive salt consumption, lack of exercise, smoking, and alcohol consumption. Individuals with systolic blood pressure above 170 mmHg and diastolic blood pressure above 110 mmHg are not recommended to exercise. For individuals over the age of 45, regular exercise can improve cardiovascular function and slow down the decline in body function.

The results of the study between the variables of age, occupation and diet there is a significant relationship with the incidence of hypertension, meaning that the age variable obtained from the coefficient ϕ (phi) states a sufficient correlation or contribution of 44.9% to hypertension, variable of job obtained from the coefficient ϕ (phi) states a sufficient correlation or contribution of 50.1% to hypertension. Variabel of dietary obtained from the coefficient ϕ (phi) states a sufficient correlation relationship or a contribution of 39.9% to hypertension.

Research by (Hidayat and Agnesia, 2021) The average age of the research subjects was also in the age range that is prone to hypertension, namely between 30 to 50 years, thus proving that age is a risk factor associated with the incidence of hypertension. The age-related increase in risk largely explains isolated systolic hypertension and is associated with increased peripheral vascular resistance in the arteries. With age, there is a decline in physiological function and immune response due to the aging process, making it more susceptible to diseases such as hypertension. Risk Factors for Hypertension in Puskesmas Basuki Rahmat Palembang found that respondents aged \geq 56 years had a higher risk of developing hypertension compared to respondents aged $<$ 56 years. This is in line with the theory that states that after the age of 55 years, the arterial wall thickens due to the accumulation of collagen in the muscle layer, so that the blood vessels narrow and stiffen.

In high-risk jobs for hypertension, the occurrence of hypertension is mostly due to non-working mothers having a higher likelihood of success in managing hypertension occurrences because non-working mothers have more time with their babies. According to Gito et al., (2022), hypertension is partly caused by modern lifestyle factors; people nowadays prioritize work to achieve success. The busyness, hard work, and heavy goals

lead to stress and high pressure. Feeling pressured increases blood pressure. Furthermore, busy individuals also lack time for exercise. As a result, accumulated body fat can block blood vessels, leading to high blood pressure, which is one of the causes of hypertension. This aligns with the research findings of explaining the link between work and the occurrence of hypertension.

When it comes to the occurrence of hypertension, it is primarily attributed to the food consumed by individuals. A higher intake of salt, such as in salted fish, can lead to hypertension. Increasing salt consumption raises fluid volume in the blood vessels, causing the heart to work harder to pump blood throughout the body, thus increasing a person's blood pressure. Hypertension can occur in individuals consuming more than 1.4 grams of salt per day. The American Heart Association (AHA) recommends a daily salt intake of less than 1.5 grams.

An individual's knowledge is influenced by both internal and external factors. External factors, including information from mass media, affect one's knowledge. Information obtained from daily life, data, and observations of the surrounding world through communication can come from formal or informal education, leading to immediate impacts and resulting in changes or increased knowledge.

CONCLUSION

The conclusion of this study is that there is a relationship between age and the incidence of hypertension obtained p value 0.000; there is a relationship between employment and the incidence of hypertension obtained p value 0.002; there is a relationship between diet and the incidence of hypertension obtained p value 0.007; It is expected to increase health promotion regarding the importance of hypertension prevention. Efforts can be made by providing education through regular health promotion to the community or through monthly posbindu activities for early detection. Future research is recommended to use more varied variables and cover a wider study, thus allowing continued development in hypertension research.

Conflict of Interest

There are no conflicts of interest among the authors.

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