MINH
MALAHAYATI INTERNATIONAL JOURNAL OF NURSING AND HEALTH SCIENCE
ISSN 2620-9152 (Print)
ISSN 2621-4083 (Online)
DOI: 10.33024
Nomor: 79/E/KPT/2023

ARTICLE INFORMATION
Received: December, 18, 2024
Revised: January, 30, 2025
Available online: January, 30, 2025
at : https://ejurnal.malahayati.ac.id/index.php/minh

Determinants of hypertension among productive age population

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Abstract

Background: Hypertension is one of the non-communicable diseases that is a health problem. The incidence of hypertension is generally found in the elderly, but it does not rule out the possibility that the adolescent to adult population can also experience hypertension. Hypertension may be a silent killer where symptoms can vary in each individual and are almost equivalent to the symptoms of other diseases.
Purpose: To determinants of hypertension among productive age population.
Method: Quantitative research using a cross-sectional study approach. The population used as respondents in this study were all productive age individuals in the Parik Rantang Health Center working area. The sampling technique is systematic random sampling, while the number of samples required is 190 samples.
Results: The proportion of hypertension in the productive age population in the working area of the Parit Rantang Health Center is (43.7%). The most dominant factor is salt consumption on the incidence of hypertension in the productive age population in the Parit Rantang Health Center working area in 2024.
Conclusion: Many factors influence the risk of hypertension in the productive age population including age, gender and salt consumption. Therefore it is recommended to the productive age population to pay attention to salt consumption so that the incidence of hypertension can be prevented and controlled in the productive age population.

Keywords: Hypertension; Hypertension Services; Productive Age Population.

INTRODUCTION

Hypertensive disease is one of the most common health problems in the world. characterized if a person has a systolic blood pressure of ≥140 mmHg and or diastolic blood pressure of ≥90 mmHg, on repeated examinations. The prevalence of hypertension in Indonesia reached 34.1% in 2018. Hypertensive disease for some people does not have any complaints but if hypertensive disease is not well controlled, it can arise several specific complications in organs such as the brain, eyes, kidneys, heart, blood vessels, or other vital organs. blood vessels, or other vital organs (Tiara, 2020).

There has been a dramatic transition from communicable diseases to the burden of non-communicable diseases (NCDs) in low- and middle-income countries (LMICs). NCDs are mistakenly thought to affect only the rich, yet the majority of deaths in LMICs are due to NCDs. In Ethiopia, NCDs were the leading cause of death in 2015 after adjusting for differences in population age distribution. Ethiopia adopted the World Health Organization (WHO) global action plan on NCDs (2013-2020), which includes increasing public awareness and reducing the incidence of behavioral risk factors (Chuka, Gutema, Ayele, Megersa, Melketsedik, & Zewdie, 2020**).** Hypertension is one of the non-communicable diseases that is a health problem. Hypertension is generally found in the elderly, but it does not rule out the possibility that adolescents and adults can also experience hypertension (Firmansyah, Ernawati, & Prawiro, 2020).

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Seventy percent of Korean adults have at least one risk factor, 41% have ≥ 2 risk factors, and 19% have ≥ 3 risk factors including hypertension, diabetes, hypercholesterolemia, obesity, and smoking. Exposure to multiple risk factors increases with age, with 65% of senior citizens over 70 having ≥ 2 risk factors and 34% having ≥ 3 risk factors. As the elderly population, especially those with multiple risk factors and chronic disorders, is increasing, the management of this high-risk group will be an important challenge to prevent CVD in Korea (Kim, 2021).

Salt sensitivity refers to the physiological trait present in mammals, including humans, by which the blood pressure (BP) of some members of the population exhibits changes parallel to changes in salt intake. It is commoner in elderly, females, Afro-Americans, patients with chronic kidney disease (CKD) and insulin resistance. Increased salt intake promotes an expansion of extracellular fluid volume and increases cardiac output (Balafa, & Kalaitzidis, 2021).

Data from 2015 stated that around 1.13 billion people in the world suffer from hypertension, which means that 1 in 3 people in the world are diagnosed with hypertension and only 36.8% of them take medication, and WHO also predicts that in 2025 there will be 1.5 billion people who will suffer from hypertension.(World Health Organization, 2013).

In Indonesia itself, there has been an increasing trend in hypertension sufferers, namely in 2007 it was 31.7%, in 2013 it dropped significantly by 25.8% and in 2018 it increased and exceeded 2007, namely 34.1% (Ministry of Health of the Republic of Indonesia, 2018). previous research results showed the prevalence of hypertension in the community as much as 49.5%. Bivariate analysis there is a relationship between the incidence of hypertension with the consumption of salty risk foods (p = 0.023; PR = 1.841; 95% CI: 1.062-3.192), consumption of fatty risk foods (p = 0.018; PR = 2.000; 95% CI: 1.079-3.706, BMI (p = 0.007; PR = 1.882; 95% CI: 1.172- 3.022) and family history (p = 0.006; PR = 2.807; 95% CI: 1.672-4.714). Conclusion: There is a relationship between, consumption of risky foods (salty) (Rosaima, 2022).

Overweight and obese adolescents have more body fat and higher blood pressure than normal adolescents. In addition, the relationship between nutritional status and blood pressure in male and female students was also determined. The higher the BMI, the higher the prevalence of hypertension (Menacho, Campos, da Silva, Abella, & de Arruda, 2014).

Hypertension is a common non-communicable disease, chronic in nature, and the leading cause of death worldwide. The national prevalence of hypertension in 2018 in the productive age population of the 18-24 age group (13.2%), 25-34 years (20.1%), 35-44 years (31.6%), 45-54 years (45.3%), and 55-64 years (55.2%). The prevalence of hypertension in Kendal Regency has always increased from year to year. There were 23,638 cases of hypertension at the Pageruyung Health Center in 2021 (Hintari, & Fibriana, 2023).

Based on preliminary data from interviews with non-communicable disease program holders at Puskesmas Parit Rantang, obstacles in achieving hypertension service programs are caused by suboptimal planning, limited budget, lack of commitment from health workers, high workload of health workers, not all officers and cadres understand posbindu non-communicable diseases, recording and reporting systems that have not been integrated, targets that are too high, residents who move do not report, and low community participation to visit posbindu non-communicable diseases (Parit Rantau Community Health Center, 2022).

RESEARCH METHOD

This type of quantitative research uses a cross-sectional study approach. The population used as respondents in this study were all productive age individuals in the Parik Rantang Health Center working area. The number of productive age population in the working area of Puskesmas Parik Rantang is 9550 people. The sample in this study was part of the productive age population who suffered from hypertension in the working area of Puskesmas Parit Rantang Payakumbuh City. The sampling technique is systematic random sampling, the number of samples needed is 190 people. This research was conducted from May 2024 to completion in the Parik Rantang Health Center Working Area of Payakumbuh City.

The independent variables are age, gender, family history of hypertension, salt consumption, nutritional status and smoking status. The dependent

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variable in this study is the incidence of hypertension. The research instrument used is a questionnaire related to the research that must be answered by respondents and used to see and assess the factors associated with the incidence of hypertension in the productive age population at the Parik Rantang Health Center, Payakumbuh City. This study uses data analysis consisting of univariate data and bivariate data. then blood pressure checks are carried out 2 times with a pause of 1-2 minutes and additional measurements or 3rd measurements (done if the second measurement has a difference of > 5 mmHg). It is said to be hypertensive if the blood pressure with the results of systolic ≥140 mmHg and diastolic ≥90 mmHg and not hypertensive if systolic <140 mmHg and diastolic <90 mmHg. Age at risk if at risk, if age ≥ 40 years and not at risk < 40 years. Salt consumption is said to be deficient if Normal: <80% RDA, said to be more if: 110% RDA and said to be normal if 80-110% RDA.

After obtaining data from interviews with respondents. The available data will be processed and analyzed. The data processing process includes editing, codding, data entry, and cleaning. After the data processing stage is carried out, it is continued with the data analysis process using SPSS, namely by conducting univariate, bivariate, multivariate analysis. The final stage of this research is the preparation of the final research report.

This study was conducted after obtaining ethical approval from the Research Ethics Commission Team of the Faculty of Medicine, Andalas University No. 311/UN.16.2/KEP-FK/2024.

RESEARCH RESULTS

Table Distribution of Respondents (N=190)

Variables	Results	p-value	OR (95% CI)
Age (n/%)			
(Mean±SD) (Range) (Year)	(40.46±12.844) (15-59)		
(≥ 40 years)	111/58.4	0.001	6.747 (3.419 – 13.314)
(< 40 years)	79/41.6		
Gender (n/%)			
Male	73/38.4	0.001	3.034 (1.655 – 5.564)
Female	117/61.6		
Blood Pressure Categories (n/%)			
Hypertension	83/43.7		
Normal	107/56.3		
Salt Consumption (n/%)			
Less	22/11.6	0.001	29.395 (10.020 – 86.237)
More	100/52.6		
Normal	68/35.8		

Table above shows the characteristics of the participants' mean age and standard deviation (40.46 ± 12.844) in the age range of 15-59 years. The majority of respondents did not have hypertension, as many as 107 respondents (56.3%). Based on gender, the majority of respondents were female, namely 117 (61.6), and based on salt consumption, the majority were excess salt, namely 100 (52.6%) respondents with an age at risk (≥ 40 years) have a higher proportion of hypertension incidents (61.3%) with a p-value = 0.001 < 0.05 indicating a significant relationship between age and the incidence of hypertension in the productive age population in the Parit Rantang Health Center work area. When

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viewed from the gender perspective, there is a difference in the proportion of hypertension cases in male respondents which is higher (60.3%) with a p-value = 0.001 <0.05, which means there is a significant relationship between gender and the incidence of hypertension in the productive age population in the Parit Rantang Health Center work area. The proportion of hypertension incidence was higher in the population with abnormal salt consumption (64.8%) with a p-value = 0.001 < 0.05 which indicates a significant relationship between salt consumption and the incidence of hypertension in the productive age population in the Parit Rantang Health Center work area.

DISCUSSION

The results showed that the age of respondents was the age most at risk of developing hypertension, namely ≥ 40 years as much as 58.4%. The results of this study are in line with previous research that age ≥ 40 years is a variable that is a risk factor for hypertension (Katanna, Agustina, & Afiif, 2022). The results showed that there was a significant relationship between age and the incidence of hypertension in the productive age population in the Parit Rantang Health Center working area. Based on the results of the study, it was found that the prevalence of hypertension was greater in residents aged ≥ 40 years with a POR value of 6.747 (95% CI: 3.419-13.314), which means that residents aged ≥ 40 years had a 6.747 times greater chance of developing hypertension compared to residents aged < 40 years.

The results showed that the female gender was more, namely 61.6%. This is in line with previous research which states that gender is one of the factors that influence the increase in blood pressure that causes hypertension, this is because women who have experienced menopause experience a decrease in estrogen levels (Nurhayati, Ariyanto, & Syafriakhwan, 2023). The results showed that there was a significant relationship between gender and the incidence of hypertension in the productive age population in the Parit Rantang Health Center working area. Based on the results of the study, the POR value was 3.034 (95% CI: 1.655-5.564), which means that male respondents are protective against hypertension.

The results showed that respondents with abnormal salt consumption had a higher percentage (64.2%). The results of the analysis showed that there was an association between respondents who consumed abnormal salt and the incidence of hypertension. The results of the analysis show that respondents who consume abnormal/excessive salt have a POR value of 39.690 (95% CI: 11.768-133.857), which means that respondents who consume excessive salt have a 39.690 times greater chance of developing hypertension compared to respondents who consume salt normally. This study is in line with the results of other studies which state that the percentage of elderly people who consume inappropriate salt has a percentage of 100% suffering from hypertension compared to elderly people who consume appropriate salt and suffer from hypertension (26.9%). The results of the analysis using the chi square test obtained a calculated x2 value of 24.031 and an ρ value of 0.000 (Adam, 2019).

Previous research results showed that variables related to the incidence of hypertension were physical activity (p=0.000 and OR=5.723), smoking habits (p=0.000 and OR=2.049), excessive salt consumption (p=0.000 and OR=2.071), and alcohol consumption (p=0.000 and OR=2.165). Lifestyles that have been shown to be significantly related to the incidence of hypertension are physical activity. Smoking habits, excessive salt consumption and alcohol consumption (Halim, & Sutriyawan, 2022).

Hypertension is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg on two measurements with an interval of 5 minutes in a state of sufficient rest/calm. Increased blood pressure that lasts for a long period of time can cause damage to the kidneys, heart and brain (stroke), if not detected early and receive adequate hypertension treatment (Marlita, Lestari, & Ningsih, 022).

Hypertension increases the risk of premature death and reduces work productivity. We estimated the burden of hypertension in Australia in terms of productivity lost over the working lifetime of the Australian population. Life table models were used to estimate excess mortality, life years lost, and productivity-adjusted life years lost among Australians with hypertension and of working age (20

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to 69 years), with simulated follow-up to age 70 years. In 2017, an estimated 4.1 million Australians of working age (25.9%) had hypertension, of which approximately 21.6% were treated and controlled, 17.0% were treated but not controlled, and 61.4% were untreated (Hird, Zomer, Owen, Magliano, Liew, & Ademi, 2019).

Excessive dietary salt (sodium chloride) intake is associated with an increased risk for hypertension, which in turn is especially a major risk factor for stroke and other cardiovascular pathologies, but also kidney diseases. Besides, high salt intake or preference for salty food is discussed to be positive associated with stomach cancer, and according to recent studies probably also obesity risk (Rust, & Ekmekcioglu, 2017).

The prevalence of hypertension has been increasing, especially in low- and middle-income countries (LMICs). An estimated 31.1% of adults (1.39 billion) worldwide had hypertension in 2010. The prevalence of hypertension in adults was higher in LMICs (31.5%, 1.04 billion people) compared to high-income countries (28.5%, 349 million people). Variations in the levels of hypertension risk factors, such as high sodium intake, low potassium intake, obesity, alcohol consumption, lack of physical activity and unhealthy diet, may explain some of the regional heterogeneity in hypertension prevalence (Mills, Stefanescu, & He, 2020).

Hypertension can also accelerate atherogenesis and may lead to favorable changes in aortic dissection and cerebrovascular hemorrhage. Although hypertension and its associated complications are common, only 29% of hypertensive patients are treated, and only 45% of those treated with antihypertensive drugs have their disease controlled (Holm, Cunningham, Bensadoun, & Madsen, 2006).

CONCLUSION

Banyak faktor yang mempengaruhi risiko hipertensi pada penduduk usia produktif antara lain usia, jenis kelamin, dan konsumsi garam. Oleh karena itu, disarankan kepada penduduk usia produktif untuk memperhatikan konsumsi garam agar kejadian hipertensi dapat dicegah dan dikendalikan pada penduduk usia produktif.

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