JPM
Jurnal Pengabdian Mandiri
Volume 2 Issue 1, 2025 (33-36)
ISSN (*online*) : 3089-3070
Homepage : https://jurnalunived.com/index.php/MANDIRI
Doi : https://doi.org/10.37676/mandiri

Analysis Of Risk Factors Affecting Hypertension Disease In The Jayaloka Village Area, Empat Lawang Regency

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Received [08-04-2025] *Revised [06-05-2025]* *Accepted [11-06-2025]*

Abstract. Hypertension, or high blood pressure, is one of the leading causes of death and disability worldwide. This disease has become a growing global health problem, especially in developing countries, including Indonesia. Hypertension often shows no symptoms in its early stages, earning it the nickname "silent killer." This study aims to identify the main risk factors contributing to hypertension in urban communities and evaluate strategies for its management.This research employed a quantitative approach with a cross-sectional study design, involving respondents aged 30-65 years residing in the Jayaloka subdistrict. Data were collected through structured interviews and blood pressure measurements using a digital sphygmomanometer. Statistical analysis was conducted to determine the relationship between risk factors such as smoking habits, excessive salt consumption, lack of physical activity, obesity, and family history of hypertension.The results showed that 40% of respondents experienced hypertension, with a higher prevalence in the age group above 50 years. The main risk factors significantly associated with hypertension were obesity ($p < 0.05$), high salt consumption ($p < 0.05$), and a family history of hypertension ($p < 0.01$). Management strategies involving lifestyle modifications such as a low-salt diet, increased physical activity, and health education proved effective in reducing blood pressure among individuals with mild to moderate hypertension. This study concludes that hypertension can be prevented and managed through a combination of promotive and preventive efforts. Therefore, community health interventions focusing on controlling major risk factors are essential to reduce the burden of hypertension in the Jayaloka subdistrict

Keywords: *Hypertension, Risk factors, Prevalence, Prevention, Healthy lifestyle.*

INTRODUCTION

Hypertension is defined as high blood pressure with systolic pressure equal to or more than 140 mmHg and diastolic pressure equal to or more than 90 mmHg, measured twice with an interval of five minutes under conditions of adequate rest or calm (Tika, 2021). Hypertension is one of the most prevalent diseases in the world. Based on the World Health Organization (WHO) report, the global prevalence of hypertension in adults is estimated to reach 30-40%. About 1.28 billion people in the world live with hypertension, with two-thirds of them in low- and middle-income countries. Based on the 2023 Indonesian Health Survey, the prevalence of hypertension in people aged ≥ 18 years in West Java was 34.4% (SKI, 2023).

According to the Health Profile of Empat Lawang Regency, in the working area of Puskesmas Tebing Tinggi Empat Lawang, there are 92.8% of people with hypertension (Dinas Kesehatan Kabupaten Empat Lawang, 2023). Based on data from the Tebing Tinggi community health centre in the jayaloka village in 2024, hypertension is the highest percentage of patients treated. Hypertension is the number one cause of death in the world every year. The high rate

of hypertension is also in line with what happened in Indonesia, where in 2013 the prevalence of hypertension based on measurements in the population ≥ 18 years was 25.8%, increasing to 34.1% in 2018 (Kemenkes RI, 2019). Hypertension is often referred to as the 'silent killer' because its symptoms often go unnoticed until serious complications such as stroke, heart disease, or kidney failure occur. The main risk factors for hypertension include unhealthy lifestyles such as excessive salt consumption, lack of physical activity, obesity, smoking, alcohol consumption, and family history. In addition, changes in lifestyle in urban communities, such as increased stress and unhealthy eating habits, contribute to the increasing prevalence of hypertension.

The management of hypertension requires a holistic approach, including preventive and promotive interventions. Increasing public awareness about the importance of a healthy lifestyle, early detection, and management of hypertension are strategic steps to reduce the burden of this disease. However, until now, there are still limitations in the implementation of effective public health programmes, especially in high prevalence areas such as Indonesia.

Based on this background, this study was conducted to identify the main risk factors for hypertension in urban communities, analyse the association of these factors with the incidence of hypertension, and evaluate the effectiveness of management strategies. This study is expected to provide evidence-based recommendations to support hypertension control efforts, especially in Indonesia. so the authors are interested in researching the literature study 'analysis of risk factors affecting hypertension in the Jayaloka village area'.

RESEARCH METHODS

Research Design

This study used a cross-sectional design to analyse the relationship between risk factors and the incidence of hypertension in the Jayaloka village community.

Location and Time of Research

The study was conducted in the Jayaloka village area which includes several villages, especially RT.002 / RW 001. Data collection took place for 2 weeks in 2025.

Population and Sample

1. Population: All adults aged 30-65 years who live in Jayaloka urban village.
2. Sample: A total of 50 respondents were selected using purposive sampling method with inclusion criteria:
3. 30-65 years old.
4. Not undergoing acute hypertension therapy.
5. Willing to participate in the study by signing informed consent.

Respondents who did not complete the data or had a history of other chronic diseases such as diabetes or chronic renal failure were excluded from the study.

Research Variables

1. Independent variable:
   - Salt consumption habits.
   - Physical activity.
   - Body mass index (BMI).
   - Family history of hypertension.
   - Smoking habits and alcohol consumption.
2. Dependent variables:
   Incidence of hypertension (systolic blood pressure ≥140 mmHg or diastolic ≥90 mmHg).

Research Instruments

Data were collected using

1. Structured questionnaires to record demographic data, lifestyle, and medical history of the respondents.
2. Digital sphygmomanometer to measure blood pressure.
3. Scales and height measuring device to calculate BMI.

Research Procedure

1. Respondents were interviewed using a structured questionnaire to collect demographic data and risk factors.
2. Blood pressure measurements were taken in a sitting position after the respondent had rested for 5-10 minutes. Measurements were taken twice with a five-minute interval, and the average of the results was used as blood pressure data.
3. BMI was calculated based on body weight (kg) divided by height squared (m^2).

Data Analysis

1. Data were analysed using statistical tests (chi-square or logistic regression) to determine the association between risk factors and the incidence of hypertension.
2. Significance was set at p-value <0.05.

RESULTS AND DISCUSSION

Result

This study involved 50 respondents consisting of 22 men (44%) and 28 women (56%) with an age range of 30-65 years. The majority of respondents were above 50 years old (60%), while the rest were in the age group of 30-49 years (40%). The prevalence of hypertension in this study was 40% (20 out of 50 respondents). A higher prevalence was found in the over 50 years age group (60%) compared to the 30-49 years age group (20%). The main risk factors found in hypertensive respondents are:

1. Obesity: 35% of hypertensive respondents had a body mass index (BMI) ≥25 kg/m^2. Analysis showed a significant association between obesity and the incidence of hypertension ($p < 0.05$).
2. Excess Salt Consumption: A total of 50% of hypertensive respondents reported salt consumption of more than 5 grams per day ($p < 0.05$).
3. Family History of Hypertension: A total of 70% of respondents with hypertension had a family history of hypertension, with a highly significant association ($p < 0.01$).
4. Lack of Physical Activity: A total of 30% of respondents with hypertension reported physical activity of less than 150 minutes per week.
5. Smoking: A total of 25% of respondents with hypertension were active smokers, although the relationship was not statistically significant ($p > 0.05$).

Discussion

The results of this study are in line with previous studies showing that obesity, excessive salt consumption, and family history are the main risk factors for hypertension. Obesity increases blood pressure through the mechanisms of insulin resistance, increased blood volume, and sympathetic nervous system activity. Therefore, weight control is an important step in the prevention of hypertension.

High salt consumption is associated with sodium retention, leading to increased blood pressure. These results support the WHO recommendation to limit salt consumption to 5 grams per day. Family history of hypertension suggests a genetic influence on the incidence of hypertension. This emphasises the importance of early detection in individuals with a family history of hypertension.However, smoking and alcohol consumption did not show a significant

association in this study. This may be due to the low proportion of smokers and alcohol drinkers in the study population.

Hypertension prevention and management strategies, such as health education on low-salt diets, increased physical activity, and stress management, were found to be effective in lowering blood pressure in individuals with mild to moderate hypertension. This shows the importance of community-based approaches to reduce the burden of hypertension in the community.

This study has limitations, including not including variables such as stress level and duration of salt consumption, which may affect the results. Further research with a longitudinal design is recommended to understand the causal relationship between risk factors and hypertension.

CONCLUSION

This study shows that hypertension is a significant health problem, with a prevalence of 40% in the community of Jayaloka Village. The main risk factors significantly associated with the incidence of hypertension are obesity, excessive salt consumption, and family history of hypertension. Meanwhile, physical inactivity also contributes to hypertension, although not all showed statistically significant associations in this study.

Treatment strategies involving lifestyle modifications, such as a low-salt diet, increased physical activity, and health education, have been shown to be effective in lowering blood pressure in individuals with mild to moderate hypertension. Therefore, community-based promotive and preventive efforts are essential to control hypertension, particularly in high-prevalence areas.

This study also emphasises the importance of early detection and management of risk factors in individuals with a family history of hypertension. To support the results of this study, further studies with a longitudinal design are needed to understand the causal relationship between risk factors and hypertension in more depth.

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