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RELATIONSHIP BETWEEN LIFESTYLE AND THE INCIDENCE OF HYPERTENSION AT PRIMA HEALTH CENTER IN GUDANG VILLAGE SITUBONDO

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Abstract

Introduction: Hypertension commonly occurs in middle-aged to elderly individuals and, if left untreated, can lead to fatal outcomes. It is often triggered by lifestyle factors such as physical inactivity, poor diet, lack of sleep, and smoking. **Purpose:** This study aimed to examine the relationship between lifestyle and the incidence of hypertension at the Prima Health Center in Gudang Village, Situbondo Regency. **Methods:** A cross-sectional correlational design was used. The study population consisted of 130 individuals, with a sample of 98 hypertensive patients selected through stratified sampling. Data were collected using a lifestyle questionnaire and observation sheet. Univariate analysis was conducted using frequency and percentage, while bivariate analysis used the Spearman rank test. **Results:** The majority (62.3%) of respondents had unhealthy lifestyles, and most (58.2%) were diagnosed with stage one hypertension. The Spearman rank test showed a p-value of $0.001 \leq 0.05$, indicating a significant correlation. The contingency coefficient of 0.538 suggests a moderate relationship between lifestyle and hypertension. **Conclusion:** Unhealthy lifestyles are associated with higher stages of hypertension. A significant correlation exists between lifestyle and the incidence of hypertension in Gudang Village.

Keywords: Lifestyle, Hypertension, Pre-Elderly, Prima Health Center

Background

Hypertension is a major global problem, increasing significantly every year. Hypertension, which occurs in middle age and old age, if left untreated, can lead to complications such as heart disease, stroke, and even death. Hypertension can be triggered by lifestyle changes and unhealthy eating habits, including consuming foods high in salt, high in calories, high in fat, and low in fiber. Factors such as psychological stress, excess weight, smoking, insufficient fruit intake, lack of physical activity, and alcohol consumption also contribute to the development of hypertension. People who frequently ignore the importance of a healthy lifestyle are at risk of experiencing various health problems, including hypertension, stroke, heart disease, kidney failure, and even death (Maykurnia, 2020).

World Health Organization(WHO) according to reports 54% of adults have diagnosed hypertension (Karioet al., 2024). The Southeast Asian region has a prevalence of over 45% of people suffering from hypertension. The prevalence of hypertension according to the Indonesian Health Survey, the incidence of hypertension measurement results show a distribution according to age groups, namely in the 45-54 year age range reaching 39.6%, the 55-64 year age group reaching 49.5%, the 65-74 year group reaching 57.1% and in the 75 year and above age group reaching 64.0%. Meanwhile, East Java Province shows a prevalence rate of hypertension based on measurement results of 33.7% of the population suffering from hypertension (SKI, 2023). Situbondo Health Service data in 2023 explains cases of hypertension in Situbondo Regency 148,678 people who experience hypertension. The results of a preliminary study conducted in November 2024 at the Prima Posyandu in Gudang Village, Situbondo Regency regarding the high results of hypertension using a lifestyle questionnaire sheet and observation sheet.

Hypertension is a condition in which blood pressure rises above normal limits. This condition is characterized by an increase in systolic pressure of 140 mmHg or more, and a diastolic pressure of around 90 mmHg or more. Uncontrolled, prolonged high blood pressure can trigger various serious complications, such as kidney damage (kidney failure), cardiovascular problems (coronary heart disease), and cerebrovascular disorders (stroke). If not detected and treated early, this condition can lead to death (Irawan, 2023). Increasing age is directly proportional to the increased risk of developing high blood pressure. Both men and women have an equal chance of developing hypertension, especially in the age group approaching old age, namely 45 years. Hypertension is influenced by two groups of risk factors. Non-modifiable factors include age, gender, and family history. Meanwhile, modifiable factors include physical activity, dietary patterns, quality of rest, and smoking habits (Damanik, 2020).

Lifestyle is a crucial aspect to study because it is one of the factors that influences life and reflects a person's daily behavior. Lifestyle consists of various components related to the occurrence of hypertension, such as eating habits, physical activity, rest patterns, and smoking habits. Eating habits can trigger hypertension due to frequent consumption of high-fat, high-salt foods, as well as processed or preserved foods, which generally contain high sodium, which plays a role in increasing blood pressure. Lack of physical activity can increase the risk of hypertension, because individuals who rarely move tend to have a faster heart rate and cause the heart muscle to work harder with each contraction. Physical activity, especially in increasing blood pressure, because the nicotine in cigarettes increases the heart rate and reduces the supply of oxygen to the brain and heart.

A previous study found a correlation between lifestyle and hypertension at the Sabutung Community Health Center in Pangkep Regency. The study analyzed diet and physical activity as variables (Arifin, Zaenal, and Irmayani, 2020). A previous study also found a correlation between lifestyle behavior and hypertension in the elderly, analyzing sleep patterns as variables (Kartika, Subakir, and Mirsiyanto, 2021). An unhealthy lifestyle, including physical activity, diet, sleep patterns, and smoking, can contribute to hypertension. Lifestyle plays a vital role in improving a person's quality of life. Implementation of a healthy lifestyle is still considered suboptimal in the Asembagus Community Health Center area, especially in Gudang Village. Therefore, this study aims to examine this issue to determine whether there is a relationship between lifestyle and hypertension at the Integrated Health Post (Posyandu) in Gudang Village, Situbondo Regency.

Method

This research uses the method *cross-sectional* with a correlational design (Nursalam, 2020). This study was conducted at the Prima Integrated Health Post (Posyandu) in Gudang Village, Situbondo Regency for 2 weeks in March 2025. The population was 130 people. The sample in this study were individuals aged 45-75 years. The sampling technique for this study applied the stratified sampling method. The inclusion criteria in this study were Posyandu members who suffered from hypertension in Gudang Village, Situbondo Regency, aged 45-75 years, elderly who were able to communicate well, willing to participate as respondents and complete the entire questionnaire.

In this study, the lifestyle variable was categorized into four key behavioral domains: physical activity, diet, sleep, and smoking behavior. These categories were selected based on their relevance to cardiovascular health and their established roles as modifiable risk factors for hypertension. Each domain reflects a specific dimension of daily habits that can influence blood pressure regulation and overall well-being. The research instrument was a lifestyle questionnaire aimed at measuring lifestyle behavioral characteristics consisting of physical activity, diet, sleep, and smoking. This questionnaire has been tested and proven to be reliable with a reliability value of 0.380. The hypertension instrument used an observation sheet consisting of hypertension classifications (Harahap, 2021). This research has obtained ethical approval from the KEPK UDS Team on February 24, 2025, with No. 814/KEPK/UDS/II/2025. After the data was collected, the researcher processed the data using the SPSS version 22. Univariate and bivariate statistical analysis were used in this study. Respondent characteristics were determined by univariate analysis, while bivariate analysis used statistical

analysis. *Spearman Rank* to determine lifestyle variables and the incidence of hypertension. The basis for decision-making is obtained from the results of the research hypothesis, which indicates that the hypothesis is accepted or indicates a relationship.

Results

Table 1. Characteristics Based on Gender at Posyandu Prima, Gudang Village, Situbondo

Gender	(f)	Percentage (%)
Man	22	22.4
Woman	76	77.6
Total	98	100

Source: Primary data 2025

Table 1. Based on the data, it shows that of the 98 respondents, almost all (77.6%) were female respondents.

Table 2. Characteristics Based on Age at Posyandu Prima, Gudang Village, Situbondo

Age	(f)	Percentage (%)
45-59 years (pre-elderly)	56	60,2
60-75 years (elderly)	39	39,8
Total	98	100

Source: Primary data 2025

Table 2. Based on the data, it shows that of the 98 respondents, the majority (60.2%) are in the 45-59 year age range.

Table 3. Characteristics Based on Educational History at Posyandu Prima, Gudang Village, Situbondo

Education	(f)	Percentage (%)
No School	10	10.2
Elementary	58	59.2
Junior High School	9	9.2
Senior High School	18	18.4
College	3	3.1
Total	98	100

Source: Primary data 2025

Table 3. Based on the data, it shows that of the 98 respondents, the majority (59.2%) have a certain level of education.

Table 4. Characteristics Based on Employment History at Posyandu Prima, Gudang Village, Situbondo

Work	(f)	Percentage (%)
Farmer	24	24.5
Trader	19	19.4
Civil servants/Police/TNI	1	1.0
Housewife	52	53.1
Others	2	2.0
Total	98	100

Source: Primary data 2025

Table 4. Based on the data, it shows that of the 98 respondents, the majority (53.1%) work as housewives.

Table 5. Characteristics Based on Hypertension History at the Prima Posyandu in Gudang Village, Situbondo

History of Hypertension	(f)	Percentage (%)
Yes	36	36.3
No	62	62.3
Total	98	100

Source: Primary data 2025

Table 5. Based on these data, it shows that of the 98 respondents, the majority (62.3) did not have a history of hypertension.

Table 6. Characteristics Based on Comorbidities at Posyandu Prima, Gudang Village, Situbondo

Comorbidities	(f)	Percentage (%)
Yes	22	22.4
No	76	76.6
Total	98	100

Source: Primary data 2025

Table 6. Based on these data, it shows that of the 98 respondents, almost all (76.6%) did not have a history of comorbidities.

Table 7. Lifestyle at the Prima Posyandu, Gudang Village, Situbondo

Lifestyle	(f)	Percentage (%)
Good	36	36.7
bad	62	62.3
Total	98	100

Source: Primary data 2025

Table 7. Based on the data, it shows that of the 98 respondents, the majority (62.3%) experienced a bad lifestyle.

Table 8. Hypertension Groups at Posyandu Prima, Gudang Village, Situbondo According to ESH Clasification

Hypertension	(f)	Percentage (%)
Grade 1 (systolic 140-159 / diastolic 90-99 mmHg)	57	58.2
Grade 2 (systolic 160-179 / diastolic 100-109 mmHg)	23	23.5
Grade 3 (systolic ≥ 180 / diastolic ≥ 110 mmHg)	18	18.4
Total	98	100

Source: Primary data 2025

Table 8. Based on these data, it shows that of the 98 respondents, the majority (58.2%) experienced grade one hypertension.

Table 9. Relationship between Lifestyle and Hypertension Incidence at thePosyandu Prima in Gudang Village, Situbondo

No.	Lifestyle	Hypertension						Total	Percentage (%)
		G1	%	G2	%	G3	%		
1.	Good	23	63.9%	6	16.7%	7	19.4%	36	100
2.	Bad	34	54.8%	17	27.4%	11	17.7%	62	100
	Total	57	63.9%	6	16.7%	7	19.4%	98%	100
Spearman Rho						0.000			
Contingency Coefficient						0.538			

Source: Primary data 2025

Table 9. Based on the data, it shows that of the 36 respondents who lived a healthy lifestyle, they had grade one hypertension. There were 62 respondents who lived a poor lifestyle, with the majority (54.8%) experiencing grade one hypertension. *Rank Spearman Rho* shows that the

p value $(0.001) \leq (\alpha) (0.05)$, which means there is a correlation between lifestyle and hypertension. A value of 0.538 for the Contingency Coefficient suggests a moderately strong relationship.

Discussion

Lifestyle at the Prima Integrated Health Post in Gudang Village, Situbondo Regency

The research findings show that of the 98 respondents, 62.3% had a poor lifestyle. This research aligns with Awin's study, which showed that the majority of respondents had a poor lifestyle at the Bualemo Community Health Center in Banggai Regency (Awin Lakora, Hadian Feriana, and Susanti, 2023). An unhealthy lifestyle can lead to health problems, particularly hypertension. Various factors such as gender, age, and lifestyle, including eating habits, smoking habits, and lack of physical activity and sleep, influence a person's lifestyle. In this study, the majority of respondents were male. There is a relationship between gender and lifestyle. Lifestyle and gender are related, as shown by research by Tirmawati Sembiring, which shows that women tend to have less healthy lifestyle patterns than men. Although only a small portion of the 206 respondents were female. The lifestyle of pre-elderly and elderly people is also influenced by increasing age, such as those aged 65 and over, resulting in a lack of proper self-care (Sembiring, Sepeh, and Adu, 2023).

An unhealthy lifestyle impacts hypertension, affecting both physical and mental health. Unhealthy lifestyle and behavioral changes that trigger these factors include a lack of physical activity, smoking habits, poor sleep patterns, and unhealthy eating habits. Members of the Prima Integrated Health Post (Posyandu) in Gudang Village, Situbondo Regency, consume fried tempeh, fried eggs, and stir-fried vegetables as side dishes almost daily, and consume excessive amounts of salt. This research aligns with previous studies that showed more than half of respondents consumed foods high in sodium and fat. Respondents consumed more than four to five servings of fried foods daily (Agustina, Latifin, and Muharyani, 2024). Based on these results, most housewives who are members of the Prima Integrated Health Post (Posyandu) in Gudang Village, Situbondo Regency still do not engage in adequate physical activity. Physical activity plays a vital role in regulating blood pressure. Individuals who are less active typically have a faster heart rate. Furthermore, a lack of physical activity also increases the risk of being overweight or obese, which is a trigger for hypertension (Yunawati, 2024). *et al.*, 2024). The results of this study are in line with Hasanudin's study which showed a relationship between the level of physical activity and blood pressure in hypertension sufferers in the Tlogosuryo area, Tlogomas Village, Lowokwaru District, Malang City, with a

p-value of 0.000 (Hasanudin, Adriyani and Perwiraningtyas, 2020). The results of the analysis of the community at the integrated health post (posyandu) in Gudang Village, Situbondo Regency, showed that their quality of rest was relatively low. This was caused by not taking a nap for 1-2 hours a week, frequently waking up due to extreme weather conditions (hot or cold), religious activities at night, and irregularities in meeting the need for 6-8 hours of sleep per week. The results of this study are in line with a study conducted by Alfian and Yuliwar, which showed that most hypertension sufferers in the 41 - 60 years age group had poor sleep quality. Smoking is a major trigger for hypertension. Cigarettes contain nicotine, which stimulates the release of catecholamines, causing myocardial irritation in the form of vasoconstriction and an increased heart rate. This can lead to increased blood pressure and higher-than-normal blood hormone levels (Al Rasyid, Hutauruk, and Katuuk, 2024).

The above description demonstrates a significant relationship between hypertension and lifestyle. Research suggests that unhealthy lifestyles can be influenced by various lifestyle factors, such as eating habits, sleep patterns, physical activity, and smoking. These factors include a lack of health knowledge, limited access to health information, and a lack of awareness of the importance of regular check-ups. Therefore, the public must participate in activities such as health education, attending community health posts (Posyandu), and making lifestyle changes to be healthier.

Hypertension at the Prima Integrated Health Post in Gudang Village, Situbondo Regency

The results of the study above show that 98 respondents, 57 (58.2%) experienced grade one hypertension with a systolic range of 140 to 159 mmHg and/or diastolic pressure between 90 and 99 mmHg. Hypertension sufferers generally show various clinical symptoms, such as cephalagia (headache), vertigo, body weakness, dyspnea (shortness of breath), anxiety, nausea, vomiting, epistaxis (nosebleeds), and impaired consciousness (Siswanto *et al.*, 2020). This demonstrates the importance of identifying and managing hypertension early to avoid serious complications. This study aligns with Ofian's findings, which revealed that hypertension is most common in the elderly and pre-elderly (Ismana *et al.*, 2025). Hypertension can be triggered by non-modifiable factors, such as an unhealthy lifestyle, lack of physical activity, smoking, and unhealthy eating habits. The results of the study showed that some respondents had genetic or hereditary factors for hypertension, namely 36 respondents. There is an opinion that genetic factors in families can increase the risk of hypertension. High sodium levels in cells and a lower potassium-to-sodium ratio are associated with a family history of hypertension. If a family member or parent suffers from hypertension, the child has a greater risk of developing hypertension as well. Genetic factors play a significant role in influencing

the likelihood of hypertension in children. There is an opinion that genetic factors in families can increase the risk of hypertension. High sodium levels in cells and a lower potassium-to-sodium ratio are associated with a family history. Family members or parents who suffer from hypertension put the child at a greater risk of developing hypertension as well. Genetic factors play a significant role in influencing the likelihood of hypertension in children (Hasanudin, Adriyani and Perwiraningtyas, 2020). The results of the study, which included 98 respondents, showed that more than half, 22, had a history of comorbidities. This research aligns with a study conducted by Pratiwi, which showed that the majority of patients, 87 respondents, had comorbidities. Comorbidities are a contributing factor to an increased risk of hypertension. With increasing age, the physiological function of various organs and the immune system declines, making the elderly more susceptible to various diseases, both infectious and non-infectious (Pratiwi, Untari, and Robiyanto, 2020).

Researchers argue that many of the pre-elderly to elderly groups adopt unhealthy lifestyles ranging from minimal physical activity such as exercise, not maintaining good eating habits such as consuming fatty foods, high-salt foods, caffeinated drinks and consuming less fruit and vegetables, lack of rest and almost all elderly men have a smoking habit where in a day they can finish a pack of cigarettes. The measurement results found blood above 140/90 mmHg which is included in the category of grade one hypertension, lifestyle greatly influences someone to experience hypertension if the lifestyle implemented will experience hypertension.

The Relationship Between Lifestyle and the Incidence of Hypertension at the Prima Integrated Health Post in Gudang Village, Situbondo Regency

Statistical analysis showed that of the 62 respondents with poor lifestyles, (54.8%) had grade I hypertension. *Spearman Rho Rank test* shows that the p value $(0.001) \leq (\alpha) (0.05)$, which means there is a relationship between lifestyle and hypertension with a value *Contingency Coefficient* of 0.538, indicating a moderate relationship. This study is in line with Tiarmawati Sembiring's finding that an unhealthy lifestyle is the first risk factor significantly associated with hypertension (Sembiring, Sepeh, and Adu, 2023). Ismana stated that a healthy lifestyle prevents hypertension, but an unhealthy lifestyle can worsen it (Ismana, 2025). This study aligns with the results of a study conducted by Awin, which showed a significant correlation between lifestyle and hypertension, with a p-value of 0.016. Based on these results, it can be concluded that there is a significant relationship between lifestyle and hypertension. The coefficient (r) value of 0.311 indicates a moderate relationship between lifestyle variables and hypertension in the Bualanemo Community Health Center Work Area, Banggai Regency (Awin Lakora, Hadian Feriana, and Susanti, 2023).

Researchers assume that a poor lifestyle causes hypertension. A poor lifestyle encompasses various aspects, including diet, insufficient sleep, physical activity, and a history of smoking, which have been shown to significantly increase blood pressure. Modifying a healthier lifestyle is vital in preventing and controlling hypertension. Research suggests that heredity, gender, and age are closely related to a person's lifestyle, and these three factors can contribute to hypertension, particularly in the pre-elderly (45-59 years) to the elderly (60 years and older) age group. First, from a hereditary perspective, individuals with parents or other family members who suffer from hypertension tend to have a greater risk of developing the same disease. This occurs due to genetic or family-based factors. Even if someone has a family history of hypertension, this disease can be prevented by adopting a healthy lifestyle, such as consuming nutritious food, exercising regularly, and not smoking. This means that even though there are hereditary factors, lifestyle still plays a major role in determining whether someone will develop hypertension or not. In terms of gender, men and women have different risks. Men generally develop hypertension more quickly due to unhealthy lifestyles, such as smoking, alcohol consumption, or lack of exercise. Meanwhile, women are usually more protected during their childbearing years because the hormone estrogen helps maintain normal blood pressure. After menopause (the cessation of menstruation), estrogen levels decrease, and the risk of hypertension in women increases if they have unhealthy eating habits, are inactive, and are stressed. Age is also a significant factor. As a person ages, their blood vessels become stiffer and less elastic than when they were younger. This naturally causes blood pressure to rise. In pre-elderly and elderly people, the body also loses its ability to regulate blood pressure optimally. If a person does not maintain a healthy lifestyle from a young age, the risk of hypertension increases with age. Researchers confirm that heredity, gender, and age play a role in the development of hypertension, but lifestyle is the key. Although a person cannot change their lifestyle to become healthier, it is important for pre-elderly and elderly people to pay more attention to their daily habits to prevent or control high blood pressure.

Conclusion

The majority of respondents at the Prima Integrated Health Post (Posyandu Prima) in Gudang Village, Situbondo Regency, exhibited poor lifestyle habits, and most had grade one hypertension. There was a significant relationship between lifestyle and the incidence of hypertension.

The researchers recommend that future research be conducted with more appropriate respondents to generalize to a broader population. Healthcare workers, particularly nurses,

should also provide educational nursing interventions on proper dietary habits for hypertension patients, such as a low-salt diet, low-fat and low-cholesterol diet, and a nutrient-rich diet.

Author Contributions

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Rinta Amaliatus Soleha	Bachelor of Nursing Study Program, Dr. Soebandi University, Jember, Indonesia	Develop background, collect data, conduct univariate analysis, and interpret preliminary results.
Achmad Ali Basri	Bachelor of Nursing Study Program, Dr. Soebandi University, Jember, Indonesia	Developing research methodology, validating instruments, conducting bivariate analysis, and testing hypotheses.
Moh Wildan	Health Insurance Study Program, Ministry of Health Polytechnic of Health, Jakarta, Indonesia	Conducting a literature review, developing a theoretical basis, and providing an overview from a public health and health insurance perspective.
Yugi Hari Chandra Purnama*	Bachelor of Nursing Study Program, Dr. Soebandi University, Jember, Indonesia	Corresponding author. Drafts the abstract, discussion section, and conclusion, and coordinates the writing and revision of the manuscript based on input from journal reviewers.

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Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request

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