Nusantara Journal of Public Health
NJoPH, Vol. 1, No. 2
ISSN 3163-8392
September 2026

Nusantara Journal of Public Health

The Relationship Between Sodium Intake and Stress Levels with the Incidence of Hypertension at the Upper Market Traders in Bukittinggi

Wiwi Yuliana [1], Dwi Mutia Wenny [2] , Rahmi Kurnia Gustin, Yuhendri Putra
Faculty of Nursing and Public Health, Prima Nusantara University Bukittinggi, Jl. Kusuma Bhakti No. 99, Kubu Gulai Bancah, Mandiangin Koto Selayan District, Bukittinggi City, West Sumatra 26111
e-mail : wiwiyuliana15168@gmail.com

ABSTRACT

Abstract : Hypertension is a blood vessel disorder characterized by systolic pressure ≥140 mmHg and/or diastolic pressure ≥90 mmHg. According to the WHO, in 2025 hypertension will remain a major global health problem, with approximately 1.5 billion cases. Indonesia has 30.8 % of hypertension sufferers. West Sumatra has around 25.6% and Bukittinggi City has 8,329 cases of hypertension in 2025. This study aims to analyze the relationship between sodium intake and stress levels with the incidence of hypertension in traders at the Upper Market Building, Bukittinggi City Tourism Area. An observational analytical quantitative study with a cross-sectional design was conducted in June–July 2026. The population consisted of 365 traders with a sample of 79 respondents selected using accidental sampling. The instruments used were the *Semi Quantitative Food Frequency Questionnaire* (SQ-FFQ), *Perceived Stress Scale* (PSS-10), and digital sphygmomanometer. Univariate and bivariate analyses were performed using the Chi-square test with a 5% significance level. Fifty-nine percent of respondents had sodium intake below the recommended levels, 60.8 percent experienced stress, and 55.7 percent had hypertension. There was a relationship between sodium intake and the incidence of hypertension ($p<0.001$; OR=7.454) and between stress levels and the incidence of hypertension ($p=0.027$; OR=3.168). Sodium intake and stress levels were associated with the incidence of hypertension among Pasar Atas traders. It is hoped that the public, especially traders, will remain disciplined in following a hypertension diet using *the Dietary Approaches to Stop Hypertension* (DASH) method as an effort to control blood pressure.

Keywords : Sodium intake, hypertension, traders, and stress levels.

Submitted: May, 18, 2026
Reviewed: Agustus 3, 2026
Accepted: September 30, 2026

INTRODUCTION

Background: Hypertension is a condition characterized by persistently elevated blood pressure and is a major risk factor for cardiovascular disease. The high burden of hypertension at global, national, and regional levels demonstrates that blood pressure prevention and control remain a public health need. Globally, hypertension remains a major health problem and a significant risk factor for cardiovascular disease, stroke, and kidney disease. The World Health Organization (WHO) reports that by 2024, approximately 1.4 billion adults aged 30–79 will have hypertension, or approximately 33% of the population in that age group. The burden of hypertension remains particularly high in low- and middle-income countries, while blood pressure control in hypertensive patients remains suboptimal. Hypertension is also a problem in Asia and Indonesia. The 2023 Indonesian Health

Survey (SKI) showed a prevalence of hypertension among residents aged 18 years and older of 30.8 % . In Bukittinggi City, data from the Bukittinggi City Health Office in 2025 showed 8,329 cases of hypertension in 2025. The Guguak Panjang Community Health Center recorded 1,998 cases, the highest number compared to other community health centers in the city.

One of the community groups that has special work environment characteristics are traders in tourist market areas. The Upper Market Building is one of the trade centers and tourist areas in Bukittinggi City which is in a strategic location and close to the Jam Gadang area. Trading activities in the area involve traders with relatively long working hours and dealing with diverse environmental conditions and work demands. In addition, the market environment provides various types of food and drinks that are easily obtained during trading activities. This condition can affect the eating habits and lifestyle of traders, so it is important to pay attention to this group in efforts to prevent hypertension.

One of the factors related to hypertension is food consumption patterns, including sodium intake. Excessive sodium consumption can be associated with increased blood pressure through the mechanisms of fluid retention and increased blood volume. In everyday life, sodium can come from salt added to food or from various processed foods and ready-to-eat foods. In a market environment, the presence of foods such as soups, processed foods, snacks, and the use of additives such as salt and soy sauce can make it easier for someone to consume foods with high sodium content. Therefore, assessing sodium intake in traders is important to obtain an overview of consumption patterns that are potentially related to the occurrence of hypertension (World Health Organization, 2023).

Apart from dietary factors, psychological conditions can also be related to blood pressure. Stress is a person's response to the demands or pressures felt in everyday life. Traders can face various job demands, such as income uncertainty, competition between sellers, service demands to buyers, and changing work environment conditions. This situation can be a source of stress, which, if sustained, can be associated with changes in the body's physiological responses, including increased nervous system activity and blood pressure. Therefore, stress levels are an important factor to consider when understanding factors associated with hypertension in traders . (Valencia-Florez et al., 2023; Walther & Wirtz, 2023)

Research on hypertension in the community has been widely conducted by examining dietary and psychological factors. However, the characteristics of traders in tourist market areas have a different work environment context and activity patterns from other community groups. Based on the study in this study, information regarding the relationship between sodium intake and stress levels with the concurrent occurrence of hypertension among traders in the Pasar Atas Building, Bukittinggi City Tourism Area, is still limited. This study has the novelty of selecting traders in the tourist market environment as the research population and examining two modifiable factors, namely sodium intake and stress levels, with the occurrence of hypertension within the same measurement period .

Based on these conditions, this study is important to obtain an overview of the relationship between sodium intake and stress levels with the incidence of hypertension among traders at the Pasar Atas Building, Bukittinggi City Tourism Area. This research is expected to provide contextual

information regarding factors related to hypertension in groups of traders and to be used as consideration in promotive and preventive efforts in the market environment. Thus, the research question asked is whether there is a relationship between sodium intake and stress levels with the incidence of hypertension in traders at the Upper Market Building, Bukittinggi City Tourism Area in 2026?

Literature review: Hypertension is a condition where blood pressure is above normal limits and can increase the risk of various cardiovascular diseases (World Health Organization, 2025). Theoretically, the incidence of hypertension is influenced by various interrelated factors, including consumption patterns and psychological conditions. Sodium intake is related to the regulation of fluid balance and blood pressure in the body. Sodium is an electrolyte needed to maintain the body's physiological functions, but excessive consumption can cause an increase in sodium concentration in extracellular fluid. This condition can increase water retention so that fluid volume and blood volume increase. Previous studies have provided mixed results regarding the relationship between sodium intake and hypertension. Utami et al.'s (2024) research on sodium intake in the elderly in Hutaimbaru Village, Padangsidimpuan City examined the relationship between sodium consumption and the incidence of hypertension. Rahmadhani et al.'s (2024) research also examined the relationship between sodium, potassium, and calcium intake and blood pressure in outpatients with hypertension at Prima Hospital Pekanbaru. The results of this previous study showed that sodium intake is one of the factors associated with blood pressure.

Stress also has a theoretical basis in relation to changes in blood pressure. Stress is an individual's response to demands or circumstances that are perceived as pressure. When a person experiences stress, the body provides a physiological response through activation of the sympathetic nervous system and the release of hormones related to the stress response. This response can cause an increased heart rate and constriction of blood vessels, which can lead to increased blood pressure (Valencia-Florez et al., 2023). Previous research on stress and hypertension has also been conducted in various community groups. Pebriyani and Triswanti (2022) examined the relationship between stress levels and the incidence of hypertension in productive- age individuals at the Kedaton Community Health Center in Bandar Lampung. Research by Alwi and Mahmud (2023) examined work stress and psychological conditions in employees. These studies provide the basis that psychological aspects and stress related to daily activities and work need to be considered in the study of hypertension. Based on previous theories and research, sodium intake and stress levels are two factors that can be modified and are relevant to study in relation to hypertension.

Research Gap: Although previous studies have examined the relationship between sodium intake and stress with hypertension in various groups. However, the characteristics of traders in the tourist market area have different work contexts and food environments which are still limited. Traders are a specific group of workers whose daily environment is closely related to food consumption patterns and work-related stress.

Research Novelty: This research's novelty lies in its focus on the vendor population in the Upper Market Building, a trade and tourism area, and its assessment of two modifiable factors—sodium intake and stress levels—on the incidence of hypertension. This approach provides contextual information that can be used to support promotive and preventive efforts in the market environment.

Research Objective: This study aims to analyze the relationship between sodium intake and stress levels with the incidence of hypertension among traders at the Pasar Atas Building, Bukittinggi City Tourism Area in 2026.

METHOD

Research Design: This study is an observational analytical quantitative study with a cross-sectional design. This study examines the relationship between the independent variables of sodium intake, stress levels, and the dependent variable of blood pressure, conducted during the same data collection period .

Place and time of research: The research was conducted at the Pasar Atas Building, Bukittinggi City Tourism Area, in June–July 2026.

Population and Sample: The study population consisted of 365 active traders registered with the Bukittinggi City Trade Office in 2025. The sample consisted of 79 traders using the Slovin formula (Machali, 2021) and was selected using non-probability sampling with the accidental sampling technique. Inclusion criteria included traders who were actively selling, selling every day, had worked as traders for ≥6 months, and were willing to be respondents by signing an informed consent. Traders who were not present at the time of the study and had a history of hypertension and were taking antihypertensive medication were excluded from the study.

Data Collection Procedures and Instruments: Data collection was conducted directly after respondents received an explanation of the study and provided informed consent. Sodium intake was measured using the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ), and nutrient content was processed using NutriSurvey according to research procedures. Stress levels were measured using the Perceived Stress Scale (PSS-10) by paying attention to the reversal of scores on positive items. Blood pressure was measured using a digital sphygmomanometer.

Statistical Analysis: Univariate analysis was used to describe the distribution of respondent characteristics, sodium intake, stress levels, and hypertension incidence. Bivariate analysis was used to assess the association between sodium intake and stress levels with hypertension incidence using the Chi-square test at a 95% confidence level. Because the cross table is 2×2, the p value uses continuity correction according to the research analysis procedure. The magnitude of the association is presented with the Odds Ratio (OR) and 95% confidence interval.

Scope and Limitations: The cross-sectional design allows for the assessment of relationships between variables within a single period; it cannot establish temporal sequence or causality. Data on sodium intake and stress levels were obtained from questionnaires, the results of which may be influenced by respondents' ability to recall food consumption frequency and their understanding of their daily stress levels.

RESULTS

Respondent Characteristics

The frequency distribution of respondent characteristics includes age, gender, education, and marital status. The number of respondents in this study, namely 79 trader respondents in the Upper Market Building, Bukittinggi City Tourism Area in 2026, can be seen in the following table:

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics	Category	Frequency	Percentage
Age	20-23	23	29.1
	36-50	27	34.2
	51-75	28	35.4
	76 years and above	1	1.3
Gender	Man	39	49.4
	Woman	40	50.6
Education	Elementary School	2	2.5
	JUNIOR HIGH SCHOOL	3	3.8
	SENIOR HIGH SCHOOL	56	70.9
	College	18	22.8
Marital status	Single	18	22.8
	Marry	60	75.7
	Widow/widower (divorced due to death)	1	1.3

Source: Primary Data 2026

Based on table 1. Shows that as many as 79 traders in the Upper Market of Bukittinggi City Tourism Area. It is known that the majority of respondents are aged 51–75 years as many as 28 respondents (35.4%), the gender of the respondents is mostly female as many as 40 people (50.6%), then the majority of respondents' education is high school as many as 56 people (70.9%) and the majority of marital status is married as many as 60 people (75.9%).

Univariate Analysis

Table 2. Frequency Distribution of Research Variables

Variables	Category	Frequency	Percentage
Sodium Intake	As Recommendations	32	40.5
	Not According to	47	59.5

	Recommendations		
Stress Level	No Stress	31	39.2
	Stres	48	60.8
Hypertension	No Hypertension	35	44.3
	Hypertension	44	55.7

Source: Primary Data 2026

Based on table 2. It shows that the results of the frequency distribution of the research variables are 47 respondents or (59.5%) who have sodium intake that does not comply with recommendations, namely > 2000 mg/day, respondents who experience stress are 48 respondents or (60.8%) and respondents who experience hypertension are 44 respondents or (55.7%).

Bivariate Analysis

Table 3. Bivariate Analysis

Variables	Hypertension Incident				Total		p-value	OR (CI 95%)
	No Hypertension		Hypertension					
	n	%	n	%	n	%		
Sodium intake								
As recommended	23	71.9	9	28.1	32	100	0,000	7,454 (2,710 - 20,502)
Not according to recommendations	12	25.5	35	74.5	47	100		
Stress level								
No stress	19	61.3	12	38.7	31	100	0.027	3,167 (1,238 - 8,102)
Stres	16	33.3	32	66.7	48	100		

Source : Primary Data 2026

Based on table 3. Shows that the results of the analysis above were obtained in respondents with sodium intake not according to recommendations, 35 people (74.5 %) experienced hypertension and 12 people (25.5%) did not experience hypertension. In respondents with sodium intake according to recommendations, 9 people (28.1 %) experienced hypertension and 23 people (71.9%) did not experience hypertension. The Chi-square test produced p <0.001 with OR 7.454 (95% CI: 2.710–20.502). In respondents who experienced stress, 32 people (66.7 %) experienced hypertension and 16 people (33.3%) did not experience hypertension. In respondents who did not experience stress, 12 people (38.7 %) experienced hypertension and 19 people (61.3%) did not

experience hypertension. The Chi-square test produced p = 0.027 with OR 3.168 ((95% CI: 1.238 - 8.102).

DISCUSSION

The Relationship between Sodium Intake and the Incidence of Hypertension in Traders

The results of the study showed that the p-value = 0.000 (p < 0.05) showed a relationship between sodium intake and the incidence of hypertension in traders at the Upper Market Building, Bukittinggi City Tourism Area. Respondents with sodium intake that did not meet the recommendations experienced hypertension more often than respondents with sodium intake that met the recommendations. The results of the study are in line with research conducted by Hawa (2026) which showed that 33 people (55.0 %) experienced hypertension. The results of the statistical test obtained a p-value <0.000, meaning that there is a relationship between high-sodium foods and the incidence of hypertension in the elderly at the Glugur City Health Center. The results of this study are in line with research conducted by Safitri (2023) on convection workers which showed that the p-value was <0.001 (p <0.05) , meaning that there is a relationship between the level of sodium adequacy and the incidence of hypertension in convection workers. And the results of this study are not in line with the research conducted by Aprilliyanti and Budiman (2020) which showed a P value (> 0.895 > 0.05) , so H0 is accepted, which means there is no relationship between sodium intake and the incidence of hypertension at the Elderly Posyandu in Tegowangi Village, Plemahan District, Kediri Regency.

Physiologically, this relationship can be explained through the role of sodium in the body's fluid balance. Excessive sodium consumption can increase the concentration of sodium in extracellular fluid so that the body retains more water. This condition increases fluid volume and blood volume which can ultimately increase pressure on the blood vessels. WHO (World Health Organization, 2023) also states that excess sodium is associated with increased blood pressure and recommends sodium consumption of less than 2 grams per day or the equivalent of less than 5 grams of salt per day in adults. Thus, the results of the study on traders at the Upper Market Building have a physiological basis that is in accordance with the evidence regarding the relationship between sodium consumption and blood pressure.

The consumption habits of the respondents in this study may also explain this relationship. Interviews revealed that some respondents frequently consumed foods such as soy sauce, anchovies , white bread, chicken noodles, chicken, and potato chips. These foods are relatively readily available in retail environments, and some are convenient for consumption while working. These findings align with research by Rahmadhani et al. (2024) on outpatients with hypertension at Prima Pekanbaru Hospital, which found consumption of several sodium-rich foods, including white bread. Research by Istigomah and Astawan (2021) also found high consumption of sodium sources such as salted fish, instant noodles, soy sauce, sauces, and flavorings among respondents.

However, there are still respondents whose sodium intake does not meet recommendations but do not experience hypertension. This shows that the incidence of hypertension is not determined by sodium intake alone. Based on the interview results in this study, some of the respondents also consumed fruit and vegetables and monitored their blood pressure at home. Consuming fruits and vegetables can be part of a diet that supports blood pressure control, while blood pressure monitoring can help someone know their blood pressure condition earlier. WHO, 2023

also recommends reducing sodium accompanied by increasing consumption of potassium-rich foods such as fruits and vegetables.

Thus, the results of this study confirm previous research findings that sodium intake is associated with hypertension, but this relationship needs to be understood in the context of overall dietary patterns and individual characteristics. Differences in results between studies may be influenced by respondent characteristics, the type of food consumed, the method of measuring intake, and other factors that influence blood pressure. For vendors in the Pasar Atas Building, the availability of ready-to-eat food near the workplace may be a factor that needs to be considered in hypertension control efforts. Preventive efforts can be directed at reducing the use of salt, soy sauce, salty foods, and processed foods, as well as increasing the consumption of fruits and vegetables. (World Health Organization, 2023)

The Relationship Between Stress Levels and Hypertension Incidence in Traders

The results of the study showed a p-value = 0.027 ($p < 0.05$) indicating a relationship between stress levels and the incidence of hypertension among traders at the Pasar Atas Building, Bukittinggi City Tourism Area. Respondents who experienced stress were more likely to experience hypertension than respondents who did not experience stress. The results of this study are in line with research conducted by Ervina (2022) which obtained a p value of 0.003, which means there is a significant relationship between work stress and the incidence of hypertension in informal sector workers in the Jagakarsa District Health Center Work Area in 2022. The results of this study are in line with research conducted by Millah et al. (2024) which showed that the results of the statistical test found a P value = 0.028 < 0.05. that there is a significant relationship between stress levels and the incidence of hypertension . And the results of this study are also inconsistent with those conducted by Agustina et al. (2024) who showed that there was no relationship between stress levels and the incidence of hypertension in adults at the Sei Selincah Community Health Center, Palembang City with a p-value of 0.288. This is possible because most respondents had stress levels that fell into the moderate and mild categories.

This relationship can be explained through the body's physiological response to stress. When a person faces a condition that is perceived as stressful, the sympathetic nervous system can become more active and trigger the release of hormones related to the stress response. This condition can increase the heart rate and cause narrowing of the blood vessels so that blood pressure increases. If this response occurs repeatedly or persists for a long period of time, blood pressure increases can become more frequent. Therefore, psychological conditions are one aspect that needs to be considered in blood pressure control . (Valencia-Florez et al., 2023; Walther & Wirtz, 2023).

According to Robbin in Aristina, et al (2024) stress experienced by entrepreneurs is conceptualized from the point of view, namely stress as a stimulus, changes in business situations that create economic uncertainty. When the economy declines, people become more concerned about their well-being and it is detrimental to the person to experience stress as a response and stress as a stimulus response. Stress as a stimulus is an approach that focuses on the work and economic environment of entrepreneurs.

The level of stress in traders can be related to the various demands that arise during trading activities. Traders not only face work demands, but can also face pressures related to income, business competition, work environment conditions, and time management with family responsibilities. This condition is relevant to the characteristics of the research respondents, most of whom are women and married. In the discussion of the thesis, this condition is seen as increasing the demands felt by respondents, especially when trading activities need to be carried out simultaneously with household responsibilities. This could be one of the contexts that explains why stress was found in most respondents.

Thus, stress in traders needs to be seen as one of the conditions that can be related to blood pressure, although it is not the only factor that determines the occurrence of hypertension. Stress management can be done through efforts that support overall health, such as regular physical activity, adequate sleep, a healthy diet, and utilizing health support and services when psychological stress is felt to be interfering with daily activities. In the trader group, this approach can be carried out in conjunction with regular blood pressure checks so that changes in blood pressure can be detected early.

IMPLICATIONS

The results of this study specifically for traders must implement a healthy diet to maintain stable and controlled blood pressure and can be used as input for community health centers and health managers in market areas to strengthen blood pressure screening and hypertension prevention education. Education can emphasize the implementation of the DASH eating pattern, limiting high-sodium foods such as salt, soy sauce, salted fish, chicken noodles, white bread, and potato chips, and increasing the consumption of fruits and vegetables. Stress management education and regular blood pressure monitoring can also be done as part of health promotion.

RESEARCH CONTRIBUTION

This study contributes to enriching the evidence regarding factors related to the incidence of hypertension in groups of traders, especially traders in the Upper Market Building, Bukittinggi City Tourism Area. This study examines sodium intake and stress levels simultaneously with the incidence of hypertension in a group of traders who have specific work environment characteristics and trading activities. The results of the study show that both variables have a relationship with the incidence of hypertension, so they can be additional empirical evidence in public health studies regarding factors related to hypertension in informal worker groups.

Practically, the research results can be used as consideration for Community Health Centers and related stakeholders in developing efforts to prevent and control hypertension in traders. Interventions can be directed at education on limiting sodium consumption, choosing healthier foods, increasing fruit and vegetable consumption, as well as stress management and regular blood pressure checks. Thus, this study can support promotional and preventive efforts for hypertension that are more appropriate to the characteristics of traders in tourist market areas.

LIMITATIONS

The study used a cross-sectional design so it cannot establish a cause-and-effect relationship. Measuring sodium intake using the SQ-FFQ also relies on respondents' ability to remember food

consumption frequency. Furthermore, the study only examined two primary factors, meaning other factors such as physical activity, smoking habits, body mass index , sleep quality, and heredity were not simultaneously analyzed.

SUGGESTION

Community health centers are advised to increase health promotion in market environments through education on the DASH diet, sodium restriction, regular blood pressure checks, and stress management. Future research could use different variables, such as physical activity, smoking habits, body mass index , sleep quality, and other risk factors, to obtain a more comprehensive picture. Future researchers could also use different variables, such as physical activity, smoking, and obesity.

CONCLUSION

This study concludes that there is a relationship between sodium intake and stress levels with the incidence of hypertension in traders at the Upper Market Building, Bukittinggi City Tourism Area in 2026. Traders with sodium intake that does not meet recommendations and traders who experience stress have a higher proportion of hypertension. These findings demonstrate the importance of promotive and preventive efforts through limiting sodium intake, implementing a healthy diet, managing stress, and regularly checking blood pressure in traders.

AUTHOR CONTRIBUTION

Wiwi Yuliana contributed to the conceptualization of the research, data collection, data processing and analysis, interpretation of the results and preparation of the manuscript. Tika Ramadanti contributed research guidance and methodological direction. Cici Apriza Yanti and Dwi Mutia Wenny contributed to the critical review and evaluation of the research as reviewers .

THANK-YOU NOTE

The author would like to thank Prima Nusantara University Bukittinggi, the supervisor and board of examiners, the Bukittinggi City Health Office, the Bukittinggi City Trade Office, and all the traders who participated in this research. He also thanks all those who assisted in the data collection and processing and provided support throughout the research and writing process.

BIBLIOGRAPHY

Agustina, I., Latifin, K., & Muharyani, PW (2024). The relationship between stress levels and dietary patterns with the incidence of hypertension in adults at the Sei Selincah Community Health Center, Palembang City. Proceedings of the National Nursing Seminar, 10(1), 145–150.

Aprilliyanti, DR, & Budiman, FA (2020). The relationship between sodium intake and the incidence of hypertension at the Elderly Posyandu in Tegowangi Village, Plemahan District, Kediri Regency. Nutriology: Journal of Food, Nutrition, and Health, 1(1), 7–11. https://doi.org/10.30812/nutriology.v1i1.729

Bukittinggi City Health Office. (2025). Data on hypertension sufferers in 2025.

Epel, E.S., & Crosswell, A.D. (2018). More than a feeling: A unified view of stress measurement for population science. Frontiers in Neuroendocrinology, 49, 146–169. https://doi.org/10.1016/j.yfrne.2018.02.001

Ervina. (2022). Factors related to the incidence of hypertension in informal sector workers in the Jagakarsa District Health Center work area in 2022 [Thesis, Syarif Hidayatullah State Islamic University Jakarta].

Hawa, MD (2026). The relationship between high-sodium foods and the incidence of hypertension in the elderly at the Glugur City Community Health Center. JONS: Journal of Nursing, 3(2), 1–6.

Istiqomah, N., & Astawan, M. (2021). Assessment of sodium content of processed food available in Indonesia. Journal of Nutrition and Food, 16(3), 129–138.

Machali, I. (2021). Quantitative research methods: A practical guide to planning, implementing, and analyzing quantitative research. Faculty of Islamic Education and Teacher Training, UIN Sunan Kalijaga Yogyakarta.

Millah, I., Kemalasari, E., & Veronica, E. (2025). Analysis of the relationship between work stress and the incidence of hypertension in office workers at PT X Jakarta. Malahayati Nursing Journal, 7(10), 4282–4290. https://doi.org/10.33024/mnj.v7i10.22244

Pebriyani, U., & Triswanti, N. (2022). The relationship between stress levels and the incidence of hypertension in productive- age residents at the Kedaton Community Health Center in Bandar Lampung. Journal of Health Sciences, 12, 261–267.

Rahmadhani, A., Afrinis, N., & Zurrahmi. (2024). The relationship between sodium, potassium, and calcium intake and blood pressure in outpatients with hypertension at Prima Hospital Pekanbaru in 2023. SEHAT: Integrated Health Journal, 3(4), 591–599. https://doi.org/10.31004/s-jkt.v3i4.31652

Safitri, EE (2023). The relationship between nutritional status, sodium adequacy level, and work stress with the incidence of hypertension in garment workers in Sendang Village, Kalinyamatan District, Jepara Regency.

Indonesian Health Survey. (2023). 2023 Indonesian Health Survey in figures.

Utami, AP, Lukukaningsih, Z., Yunitasari, R., & Widya, U. (2024). The effect of sodium intake on the incidence of hypertension in the elderly in Hutaimbaru Village, Padangsidimpuan City. Indonesian Scientific Health Journal, 9(1), 34–42.

Valencia-Florez, K.B., Sánchez-Castillo, H., Vázquez, P., Zárate, P., & Delgadillo, P. (2023). Stress, a brief update. International Journal of Psychological Research, 16(2), 105–121.

Walther, L.M., & Wirtz, P.H. (2023). Physiological reactivity to acute mental stress in essential hypertension: A systematic review. Frontiers in Cardiovascular Medicine, 10.

World Health Organization. (2023a). WHO global report on sodium intake reduction.

World Health Organization. (2025). Hypertension. https://www.who.int/news-room/fact-sheets/detail/hypertension