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RESEARCH

BLOOD PRESSURE STABILITY IN RELATION TO DIETARY PATTERNS AMONG HYPERTENSIVE PATIENTS AT SUKODONO PUBLIC HEALTH CENTER

Intan Nur Aini, Suprianto, Loetfia Dwi Rahariyani, Moch. Bahrudin
Department of Nursing, Poltekkes Kemenkes Surabaya, Surabaya, Indonesia

*Correspondence : intann.naa@gmail.com

ABSTRACT

Hypertension, a highly prevalent non-communicable disease, can lead to serious complications including kidney failure and stroke. It is well recognized that unhealthy dietary patterns significantly influence blood pressure stability. This study aimed to examine the correlation between dietary habits and blood pressure stability among individuals with hypertension at Sukodono Primary Health Center. A cross-sectional methodology with a quantitative descriptive design was employed. The sample, obtained through consecutive sampling, consisted of 43 respondents. Data were collected using a Food Frequency Questionnaire (FFQ) and direct blood pressure measurements taken during three visits. Descriptive analysis with frequency and percentage distributions was applied. The findings showed that 17 respondents (40%) had unhealthy dietary habits, while 26 respondents (60%) reported healthy dietary patterns. Sixteen respondents (37%) experienced unstable blood pressure, whereas 27 respondents (63%) had stable blood pressure. The majority of respondents with healthy dietary patterns generally maintained stable blood pressure (96%), while most of those with unhealthy dietary patterns demonstrated unstable circulation (88%). This study concludes that nutritious food intake is strongly correlated with blood pressure stability in hypertensive patients. At the primary care level, modifying diets to reduce saturated fat and salt while increasing the intake of fruits and vegetables represents an essential strategy for managing hypertension.

Keywords: Hypertension, dietary patterns, blood pressure stability.

INTRODUCTION

Hypertension, also known as high blood pressure, is a medical condition that typically presents without symptoms until it leads to major complications such as stroke, kidney failure, and coronary heart disease. High blood pressure, defined as a blood pressure value of ≥140/90 mmHg, is often referred to as the "silent killer." The prevalence of this condition continues to rise, making it a global health concern. According to the World Health Organization (WHO), more than 1 billion people worldwide were living with hypertension in 2023, and this number is projected to increase over the next decade.

The 2023 Indonesian Health Survey reported that 29.2% of the population aged over 15 years suffers from hypertension. East Java Province recorded a relatively high prevalence, approximately 28.07% of the total population, while Sidoarjo District showed an even higher prevalence, reaching nearly 30%. Data from Sukodono Primary Health Center in 2024 indicated that more than one-fourth of its residents were affected by hypertension, with 33,644 registered patients. These findings highlight that hypertension remains a persistent public health problem requiring continuous and focused attention Diet is a modifiable risk factor. It is widely recognized that excessive consumption of salt, saturated fats, and processed foods increases the risk of unstable blood pressure. Conversely, adherence to a healthy dietary pattern, such as the Dietary Approaches to Stop Hypertension (DASH), has been shown to significantly improve both systolic and diastolic blood pressure. Several studies have reported that hypertensive patients who regularly adhere to dietary recommendations generally maintain more stable blood pressure compared to those who are less compliant.

This study was conducted to examine the relationship between dietary patterns and blood pressure stability among hypertensive patients in the working area of Sukodono Primary Health Center, considering the high prevalence of hypertension and the importance of dietary management as a non-pharmacological strategy. It

is expected that this research will contribute to improving health education methods, provide practical empirical insights for the advancement of nursing science, and lay the foundation for future studies on the prevention and management of hypertension.

The study was conducted at Sukodono Primary Health Center, Sidoarjo District, considering the high prevalence of hypertension in the area and the extensive utilization of health services by the community. The research was carried out from January to April 2025, allowing sufficient time for data collection, processing, and analysis.

The study population consisted of all hypertensive patients attending Sukodono Primary Health Center, totaling 869 individuals. The sample was determined using a consecutive sampling technique, in which respondents were selected based on their order of arrival and according to the inclusion criteria until the required sample size was achieved. The Slovin formula with a 15% margin of error was applied, resulting in a total sample of 43 respondents.

All hypertensive patients visiting the primary health center were considered the study population. Each hypertensive patient attending the facility was regarded as part of the study community. In this study, blood pressure stability was the dependent variable, while dietary patterns served as the independent variable. To assess dietary trends, a Food Frequency Questionnaire (FFQ) was utilized, covering types of foods rich in sodium, fats, and carbohydrates along with their consumption frequency. Data on blood pressure stability were obtained through direct measurements using a digital sphygmomanometer and medical record documentation across three visits. Blood pressure was categorized as stable when both systolic and diastolic values remained within the normal range without fluctuations of ≥20 mmHg across visits.

The collected data were processed through editing, coding, entry, and tabulation. Analysis was conducted using frequency and percentage distributions to describe the relationship between dietary patterns and blood pressure stability. All stages of the research were carried out in accordance with ethical principles, including obtaining informed consent from respondents, maintaining confidentiality of their identities, and ensuring voluntary participation.

RESULT

This study was conducted from May to June 2024 at Sukodono Public Health Center, Sidoarjo Regency. The research involved 43 respondents, all of whom met the The inclusion criteria required participants to be willing to complete the entire data collection process. The results of the study were organized into three sections: an overview of the research setting, general characteristics of the respondents, and specific information related to dietary patterns and blood pressure stability.

Table 1
Distribution of Dietary Pattern Characteristics among Hypertensive Respondents at Sukodono Primary Health Center

No.	Characteristics	Description	n	%
1.	Age	Young Adult (40–44 years)	11	26
		Middle-Aged Adult (45–59 years)	21	49
		Elderly (≥60 years)	11	26
2.	Gender	Male	19	44
		Female	24	56
3.	Employment Status	Employed	33	77
		Unmployed	10	23
	Score		43	100

The majority of respondents were middle-aged adult women (45–59 years) who were still actively engaged in informal or household sectors, which enables them to participate in decision-making related to daily food consumption.

Table 2
Distribution of Blood Pressure Characteristics Among Hypertensive Respondents at Sukodono Public Health Center

No.	Kategori Hipertensi	n	%
1.	Stage 2 Hypertension	35	81
2.	Stage 1 Hypertension	7	16
3.	Prehypertension	1	2
	Score	43	100

Sebagian besar responden (81%) termasuk dalam kategori Hipertensi Derajat 2, sedangkan hanya 2% yang tergolong prehipertensi berdasarkan hasil pengukuran tekanan darah langsung dan dicatat saat kunjungan pemeriksaan berkala di Puskesmas Sukodono.

Table 3
Distribution of Dietary Pattern Characteristics among Hypertensive Respondents at Sukodono Public Health Center

Dietary Pattern	n	%
Healthy	26	60
Unhealthy	17	40
Score	43	100

A total of 26 respondents (60%) demonstrated a healthy dietary pattern, while 17 respondents (40%) exhibited an unhealthy eating style based on the results of the questionnaire administered during the data collection process. These findings indicate a tendency toward unhealthy dietary habits among some respondents, which may contribute to the stability of their blood pressure in the long term.

Table 4
Distribution of Blood Pressure Stability Characteristics Among Hypertensive Patients at Sukodono Health Center

Stability	n	%
Stable	20	46
Unstable	23	53
Score	43	100

The number of respondents with stable blood pressure was 20 individuals (46%), while 23 respondents (53%) were recorded as experiencing unstable blood pressure based on measurements taken during the study period. These findings indicate the need for special attention to factors influencing blood pressure stability, such as medication adherence, dietary patterns, and respondents' daily lifestyle.

Table 5
Distribution of Blood Pressure Stability by Dietary Patterns among Hypertensive Patients at Sukodono Public Health Center

Dietary Pattern	Stability				Score	
	Stable		Unstable			
	n	%	n	%	n	%
Healthy	24	69	11	31	35	100
Unhealthy	3	33	5	67	8	100
Score	27	63	16	37	43	100

The results indicated that the majority of respondents with a healthy dietary pattern (96.1%) exhibited stable blood pressure. In contrast, those with an unhealthy dietary pattern tended to experience unstable blood pressure (88.2%). These findings suggest a strong association between healthy dietary patterns and blood pressure stability among individuals with hypertension. Respondents with poor bed hygiene practices were recorded at 256 students (74.4%).

DISCUSSION

According to the research findings, most participants who adhered to a healthy diet had stable blood pressure, while the majority of those following an unhealthy lifestyle experienced unstable blood pressure. These results support the notion that nutrition is one of the modifiable risk factors in managing hypertension. While the consumption of fruits, vegetables, and fiber is known to help maintain the body's hemodynamic balance, excessive intake of processed foods, salt, and saturated fats contributes to elevated blood pressure.

The Dietary Approaches to Stop Hypertension (DASH), which emphasizes increasing the intake of fiber, potassium, and magnesium while reducing salt consumption, is supported by this study. Previous research has shown that the DASH diet can lower systolic blood pressure by up to 11 mmHg and diastolic blood pressure by up to 6 mmHg. These findings reinforce the results of the present study, indicating that participants who followed a healthy diet were more likely to have stable blood pressure.

In addition to dietary patterns, blood pressure stability is also influenced by other variables such as medication adherence, physical activity, stress management, and genetic history. However, this study specifically highlights the role of diet as one of the non-pharmacological strategies that can be relatively easily implemented in daily life. Similar findings were reported by Khasanah and Susanti (2019), who demonstrated that respondents with unhealthy diets had a higher prevalence of unstable blood pressure compared to those who maintained healthy dietary habits.

Therefore, the findings of this study provide direct evidence that a healthy diet not only contributes to lowering blood pressure but is also important for maintaining its stability. Implementing nutrition education–based interventions at the primary care level, such as in community health centers, can serve as a strategic effort to raise public awareness and support the sustainable management of hypertension

CONCLUSION

Among hypertensive patients at Sukodono Primary Health Center, this study demonstrated a tendency toward an association between dietary patterns and blood pressure stability. Blood pressure remained consistent for the majority of respondents who consumed a healthy diet, whereas it was more likely to be unstable among those with poor dietary habits. These findings indicate that a balanced diet is crucial for managing hypertension, and dietary modifications that emphasize high-fiber, low-saturated-fat, and low-salt foods can help patients prevent complications and lead healthier lives.

SUGGESTION

Based on the study findings, it is recommended that individuals with hypertension pay greater attention to their daily dietary habits by limiting the

intake of salt, saturated fats, and processed foods, while increasing the consumption of fruits, vegetables, and other fiber-rich sources that support blood pressure stability. The role of healthcare professionals, particularly nurses at Sukodono Primary Health Center, is crucial in providing ongoing nutrition education and assisting patients in implementing healthy dietary patterns as part of non-pharmacological hypertension management. Future research is expected to examine additional variables such as physical activity levels, medication adherence, and psychological factors to provide a more comprehensive understanding of hypertension control

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