Dominant Factors Barriers to Hypertension Diet Management in Hypertension Sufferers

Dela Amanda Nisdayanti[1], Diana Tri Lestari[2*], Ashri Maulida Rahmawati[3]
[1,2,3]*Universitas Muhammadiyah Kudus, Kudus*
Email: dianatri@umkudus.ac.id

ABSTRACT

Hypertension is a serious problem because it causes high morbidity and mortality. One indicator of successful management is diet management. Diet management is often an obstacle for hypertension sufferers. This study aimed to determine the dominant factors that inhibit hypertension diet management in hypertension sufferers in the working area of the Juwana Health Center. This research method used a correlation study with a cross-sectional design. The number of samples in this study was 65 respondents, using a total sampling technique with the inclusion criteria of hypertensive patients who were routinely checked on prolongs, hypertensive patients who implemented hypertension diet management, and hypertensive patients without comorbidities. The instruments used in this research are HKT (Hypertension Knowledge Test), FFQ (Food Frequency Questionnaire), FFS (Family Support Scale), PSS (Perceived Stress Scale), and HSMBQ (Hypertension Self Management Behavior Questionnaire). Data analysis used chi-square and simple logistic regression. The results of data analysis show that hypertension diet management is affected by knowledge (p: 0.003, OR: 2.764), dietary habits (p: 0.001, OR: 7.986), income (p: 0.004, OR: 2.098), family support (p: 0.001, OR: 9.986), and stress (p: 0.001, OR: 3.874). The most dominant factors are family support (p: 0.001, OR: 9.986, 95% CI: 0.653 < OR < 23.98). Family support is the most dominant factor affecting hypertension diet management. Positive system support is necessary for the patient's success in controlling blood pressure. Conclusion: There are factors that affected diet management of the hypertension: knowledge, dietary patterns, income, family support, and stress, with the dominant factor being family support.

Keywords: hypertention, diet management behavior, factors

INTRODUCTION

Hypertension is one of a non-communicable disease that is currently a serious concern in the world of health and is caused by high levels of morbidity and mortality. A person can be diagnosed with hypertension if the systolic blood pressure is 140 mmHg or higher and the diastolic blood pressure is 90 mmHg or higher (Meo et al., 2023). Chronic increases in blood pressure characterize this condition. This condition has a broad impact on global health and is the main cause of premature death throughout the world. Hypertension is also often referred to as the "silent killer" because many individuals experience it without realizing it because the symptoms generally do not appear clearly. Hypertension sufferers often report symptoms such as headaches, visual disturbances, higher frequency of urination than usual, difficulty sleeping

(insomnia), nausea, vomiting, and a sensation of numbness in certain parts of the body, such as the neck, hands, and feet (Wirakhmi & Novitasari, 2021).

World Health Organization (WHO) word on hypertension estimates that by 2023, the number of adults suffering from hypertension will almost double worldwide over the last 30 years. This number increased from 650 million adults in 1990 to 1.3 in 2019. The increasing trend of high blood pressure has significant health impacts, including 10.8 million avoidable deaths each year and 235 million years of life lost or lived with a disability. Globally, almost 1 in 3 adults suffer from hypertension, with the prevalence in men being slightly higher than in women under the age group of 50 years. Over five to 50 years old, almost 49% of people or every 1 in 2 suffer from hypertension, with the prevalence in men and women being almost the same. Two-thirds of them live in low- and middle-income countries. Across WHO regions, the sex differences in the age-specific prevalence of hypertension among adults are very different. In 2019, the Eastern Mediterranean had the highest prevalence at 37.8%, followed by Europe at 36.9%, Africa at 35.5%, and America at 35.4%. The western Pacific region has the lowest prevalence at 28.3% (WHO, 2023).

The prevalence of hypertension in Indonesia and throughout the world continues to increase every year. Based on Indoensian Health Survey, the prevalence of hypertension is increased from 31,78% at 2018 to 34,1% at 2023 will reach 34,1%. This shows that almost 1 in 3 adults in Indoenesia suffer from hypertension (Survey Kesehatan Indonesia, 2023). In addition, the estimated incidence of death due to hypertension are 427,218 people (P2PTM Kemenkes RI, 2019). In Central Java Province, the most common non-communicable disease is hypertension. According to the 2018 Riskesdas results in Central Java province, the prevalence of hypertension was (37.57%), with the prevalence of women (40.17%) higher than men (34.83%), and the prevalence in urban areas was slightly higher (38 .11%) compared to rural areas (37.01%). Prevalence increases with age (Dinas Kesehatan Provinsi Jawa Tengah, 2021). Based on data from Pati Regency shows that 101,579 hypertension sufferers are over 15 years old, especially men (46,680), fewer than women (54,899). According to data from the Pati District Health Service in 2022, the highest hypertension in Pati Regency was in the youth health center, with a figure of 23,989 people (Dinas Kesehatan Kabupaten Pati, 2022).

Hypertension sufferers must be treated and prevented immediately because this disease can cause complications. Controlling hypertension is crucial to prevent complications like kidney failure, heart failure, and stroke, as this incurable disease necessitates lifelong treatment (Unger et al., 2020). Due to the length of the treatment process and the large number of complications,

the cost of treating hypertensive patients is high. The costs incurred by the government through the BPJS health program for hypertension services for 1 patient are 16,900 per month for 2 control times.

Several lifestyle factors such as diet (salt intake), physical activity, and smoking can cause high blood pressure, making the heart work harder and destroying blood walls more quickly. Several lifestyle factors can cause a higher prevalence in hypertension sufferers. Hypertension also causes heart disease, kidney problems, blindness, and, worst of all, sudden death. Apart from that, hypertension increases the risk of stroke eight times compared to people who suffer from hypertension (Cristovao, 2021).

Dietary management failure in hypertension patients as a whole reached 62.5%, with an urban distribution of 59.3%, while in rural areas the prevalence reached 67.2% (Survey Kesehatan Indonesia, 2023). The DASH (Dietary Approaches to Stop Hypertension) diet is a dietary approach to manage hypertension, emphasizing healthy eating and reducing consumption of salt, sugar, and saturated fat. The hypertension diet or diet for high blood pressure is influenced by several important factors, including lack of awareness and knowledge, eating habits that are difficult to change, costs of carrying out examinations, lack of family support, stress, and emotional habits. In hypertension diets, some barriers can influence patient acceptance and maintenance of dietary intervention retention, including understanding dietary recommendations, multiple sources of nutritional information, and recommendations for managing comorbidities and geographic barriers (Jones et al., 2022).

Approach Self-Care Deficit Nursing Theory (SCDNT) can be used to treat chronic diseases. Dorothea Orem's theory of self-care can be applied to treat hypertension and other chronic diseases. This theory emphasizes how important it is for each person to have the ability to care for themselves so that they can achieve optimal well-being and health. Several aspects such as knowledge, diet, stress, costs, family support, and barriers to diet management, can be used in the context of hypertension (Khotimah et al., 2023).

In a preliminary study conducted on July 23, 2024, based on data from the Juwana Community Health Center, hypertension is the disease most dominated by the surrounding community. The prevalence of people suffering from hypertension in the Juwana sub-district is 12,061 people. Hypertension is more dominant in women, with 6,210 people higher than in men. Men 5,851 people. Based on the results of interviews with health workers at the Juwana Community Health Center, it was explained that hypertension sufferers were aged 50 years and over. Five

of the ten respondents who visited the youth health center did not comply with the diet. The patient cannot reduce foods containing salt, eats foods containing coconut milk, and still often drinks coffee. Only a few hypertension sufferers know the importance of routine blood pressure checks once at the hospital. The program carried out at the Juwana Community Health Center for PRB for hypertension sufferers can take medication at the Juwana Community Health Center if their blood pressure is still high, and the Community Health Center provides a referral.

According to previous research by Cristovao (2021) non-compliance with the diet of older adults suffering from hypertension in Yogyakarta, stated that were in the moderate category. Because the food available at home is unsuitable for a hypertension diet, it is difficult to limit the salty taste. According to Wahyudi et al. (2020), factors influencing a person's compliance with a hypertension diet include family support, level of education, understanding of instructions, treatment, beliefs, attitudes, traits, and personality. Another study by Ekawati et al. (2021) showed that hypertensive patients in the working area of the Malati II Community Health Center had optimal results in their hypertension diet management when they received full support from family, health workers, and peers to continue to control their blood pressure. They also found that when they faced challenges or difficulties in the process of healing their hypertension, one of them was the lack of self-motivation to exercise.

As health workers, nurses carry out duties as educators and counselors who help patients to recognize their health problems. People with hypertension will better understand how to live a healthy lifestyle if they have the right information (Sulistyowati, 2022). Suppose some patients experience difficulty complying with diet management or other therapeutic regimens. Nurses must provide consultations to identify what obstacles the patient is experiencing. Studies on the dominant factors influencing the management of the hypertension diet have never been conducted. This study aims to analyze the dominant factors that affect the management of the hypertension diet.

METHODS

This research used quantitative methods with correlation research and cross-sectional design, uisng 65 respondent and total sampling technique. The inclusion criteria are hypertensive patients who were routinely checked on prolongs, hypertensive patients who implemented hypertension diet management (mild, moderate, and severe), hypertensive patients without comorbidities, willing to be respondents. The exclusion criteria include patients who are not willing to become respondents. The instruments used in this research are HKT (Hypertension

Knowledge Test), FFQ (Food Frequency Questionnaire), FFS (Family Support Scale), PSS (Perceived Stress Scale), and HSMBQ (Hypertension Self Management Behavior Questionnaire). Data analysis used chi-square and simple logistic regression. This research has been declared to have passed ethical review from the health research ethics commission of Muhammadiyah University of Kudus with number 55/Z-7/KEPK/UMKU/IX/2024.

RESULTS

The research results can be seen in the following table:

Table 1. Distribution of Respondent Demographic Data

Characteristics	Frequency (f)	Percentage (%)
Age		
18-40 (Adult)	38	58,5
41-60 (Young Middle Age)	27	41,5
Gender		
Man	35	53,8
Woman	30	46,2
Income		
< low income	48	73,8
≥ high income	17	26,2
Education		
Elementary school	16	24,6
Junior high school	6	9,2
High school	38	58,5
Bachelor/Diploma	5	7,7
Occupation		
Not working/ housewife	28	43,1
Farmer	8	12,3
Laborer	5	7,7
Trader /Self Employed	10	15,4
Civil Servants/TNI/ Polri	3	4,6
Private	5	7,7
Fisherman	6	9,2

Based on Table 1 show that most of the respondents are 18-40 years old (adults), which is 38 respondents (58,5%), 35 respondents (53,8%) were male. Respondents with a low income (under Rp 2.190.000.00) is 48 respondents (73,8%). The most education is high school/vocational school graduation with a total of 38 respondents (58,5%). The occupation is non-working/housewife with 28 (43,1%) respondents.

Table 2. The Relationship between Knowledge and Diet Management Behavior

Knowledge	Diet Management Behavior						p-value
	Bad		Good		Total		
	n	%	n	%	n	%	
Bad	33	50,8	2	3,1	35	53,8	0,003
Good	9	13,8	21	32,3	30	46,2	
Total	42	64,6	23	35,4	65	100,0	

Based on Table 2, it shows from the results of the analysis between knowledge and diet management behavior that out of 65 respondents, 33 respondents (50,8%) had bad knowledge, the majority of whom behaved poorly in diet management, 21 respondents (32,3%) who had good knowledge mostly behaved in good diet management. The results of the analysis of the chi square statistical test to determine the relationship of knowledge to diet management behavior, the significance of p-value is 0,003 (<0,05), it can be concluded that there is a significant relationship between knowledge and diet management behavior at the Juwana Health Center in 2024.

Table 3. The Relationship between Dietary Patterns and Diet Management Behavior

Dietary Patterns	Diet Management Behavior						p-value
	Bad		Good		Total		
	n	%	n	%	n	%	
Bad	33	50,8	3	4,6	36	55,4	0,001
Good	1	1,5	28	43,1	29	44,6	
Total	34	52,3	31	47,7	65	100,0	

Based on Table 3, it shows from the results of the analysis between diet and diet management behavior that out of 65 respondents, 33 respondents (50,8%) had a bad diet, the majority had bad diet management behavior, while 28 respondents (43,1%) who had a good diet majority behaved in good diet management. Based on the results of the analysis of the chi square statistical test to determine the relationship between diet and diet management behavior, the significance of p-value is 0,001 (<0,05), it can be concluded that there is a significant relationship between diet and diet management behavior at the Juwana Health Center in 2024.

Table 4. The Relationship between Income and Diet Management Behavior

Income	Diet Management Behavior						p-value
	Bad		Good		Total		
	n	%	n	%	n	%	
High income	20	30,8	28	43,1	48	73,8	0,004
Low income	14	21,5	3	4,6	17	26,2	
Total	34	52,3	31	47,7	65	100,0	

Based on Table 4, it shows from the results of the analysis between income and diet management behavior that out of 65 respondents, 28 respondents (43,1%) low income of Rp 2.190.000.00 are mostly good diet management behavior, while 14 respondents (21,5%) of hight income of Rp 2.190.000.00 are mostly bad diet management behavior. The results of the analysis of the chi square statistical test to determine the relationship between income and diet management behavior with a p significance of 0,004 (<0,05), it can be concluded that there is a significant relationship between income and diet management behavior at the Juwana Health Center in 2024.

Table 5. The Relationship between Family Support and Diet Management Behavior

Family Support	Diet Management Behavior						p-value
	Bad		Good		Total		
	n	%	n	%	n	%	
Bad	34	52,3	0	0	34	52,3	0,001
Good	8	12,3	23	35,4	31	47,7	
Total	42	64,6	23	35,4	65	100,0	

Based on Table 5, it shows from the results of the analysis between family support and diet management behavior that out of 65 respondents, 34 respondents (52,3%) had bad family support, the majority had bad diet management behavior, while 23 respondents (35,4%) who had good family support mostly had good diet management behavior. The results of the analysis of the chi square statistical test to determine the relationship between family support and diet management behavior, a p significance of 0,001 (<0,05) was obtained, so it can be concluded that there is a significant relationship between family support and diet management behavior at the Juwana Health Center in 2024.

Table 6. The Relationship between Stress and Diet Management Behavior

Stress	Diet Management Behavior						p-value
	Bad		Good		Total		
	n	%	n	%	n	%	
Bad	36	55,4	0	0	36	55,4	
Good	6	9,2	23	35,4	29	44,6	0,001
Total	42	64,6	23	35,4	65	100,0	

Based on Table 6, it shows from the results of the analysis between stress and diet management behavior that out of 65 respondents, 36 respondents (55,4%) had bad stress, the majority of whom behaved poorly in diet management, while 23 respondents (35,4%) who had good stress behaved in good diet management. The results of the analysis of the chi square statistical test to determine the relationship between stress and diet management behavior, a p significance of

0,001 (<0,05) was obtained, so it can be concluded that there is a significant relationship between stress and diet management behavior at the Juwana Health Center in 2024.

Table 7. Logistic Reggresion Dominant Factors of Diet Management Behavior

Variable	P-value	OR	95% CI	
			Lower	Upper
Knowledge	0,003	2,764	0,430	34,965
Dietary habit	0,001	7.986	0,795	46,329
Income	0,004	2,098	0,769	27,643
Family Support	0,001	9,986	0,653	23,987
Stress	0,001	3,874	0,569	28,487

Based on Table 7, it is the last step of logistic regression analysis and the last modeling of multivariate analysis which shows that the most influential variable is seen from the OR value. The higher the OR value, the higher the level of influence. This analysis focuses on the most influential is family support with a p-value of 0,001 and an OR value = 9,986, then other factors are diet, stress, knowledge, income with the provision of P-value < 0,05.

DISCUSSION

Demographic Data

According to Departemen Kesehatan Republik Indonesia (2021), the age category of 18-40 years is said to be mature and 41-60 years old is said to be young, middle-aged. The majority of respondents were in the adult age range of 58,5%. The biggest risk factor for developing hypertension occurs in adulthood because the body's abilities and mechanisms decline with age. A person belongs to the early adult group between the ages of 18-40 years. At this stage, a person's ability to think abstractly, logically, and rationally is able to overcome health problems. In addition, in early adulthood, a person can usually master science and talent. At this age, health problems can be solved by implementing proper diet management (Ekarini et al., 2020). Data shows that the male gender participated the most in this study with a percentage of 53.8%. Some diseases are often found in men and women. However, men and women have differences in many things, one of which is life habits. Women are more compliant than men when it comes to therapy or treatment for their illnesses. Men having an unhealthy lifestyle such as smoking and using drugs at work can cause hypertension (Jauhari et al., 2023).

Based on the characteristics of monthly income, as many as 73,8% of respondents have an income < UMR of Rp 2.190.000 rupiah. This can happen because some respondents are non-working/IRT whose income is less than the UMR of Juwana city. The health and ability of the

economy to meet its needs is influenced by monthly income. In line with the research of Darmin et al. (2023) with salaries below the UMR of Indramayu Regency, the majority of respondents are farmers, traders, and workers. Hypertension is more common in low-income respondents. Respondents prefer to use their income to meet their daily needs rather than get check-ups and improve their health.

The majority of respondents in this study were high school or high school/vocational school respondents, which was 58,5%. According to research conducted by Pebrisiana et al. (2022) on the characteristics of respondents who sought the last education history, almost most of the respondents in this study had a high school or high school education of 34.7%. The degree of education a person has can affect how they receive and acquire knowledge; a person with a high level of education will find it easier to gain information. A person's knowledge and comprehension will increase with the amount of information they possess. The majority of respondents in this study are not working/IRT, which is 43.1%. This is in line with research conducted by Rachmatullah (2022) that the majority of respondents are housewives (IRT). Women who work as housewives often experience blood pressure due to lack of activity and exercise that can increase blood pressure.

The Relationship between Knowledge and Hypertension Diet Management Behavior

Based on the results of research on the relationship between knowledge and hypertension diet management behavior, it was found that the p-value was $0,003 < 0,05$. It can be said that there is a relationship between knowledge and hypertension diet management behavior. In the knowledge variable, there is a relationship between knowledge and hypertension diet management behavior, with bad knowledge being greater than good knowledge. This research is in line with Hia and Astrid (2023) who stated that respondents with poor knowledge were not compliant in diet management behavior. Lack of knowledge can inhibit compliance behavior in health because it will be difficult for patients to follow the rules so that good knowledge is more understanding and understanding of the rules and procedures for managing hypertension diet management. The results of this study are also in line with the research of Siregar et al. (2022) where the study showed a significant relationship between knowledge and adherence to a hypertensive diet. The result showed that higher knowledge was associated with adherence to a hypertensive diet, while lower knowledge was associated with adherence to a hypertensive diet.

The Relationship between Dietary Patterns and Hypertension Diet Management Behavior

Based on the results of research on the relationship between diet and hypertension diet management behavior, it was found that the P-value was $0.001 < 0.05$. It can be said that there is a relationship between diet and hypertension diet management behavior. According to research by Bahtiar et al. (2022), an irregular diet, such as eating foods high in sodium, cholesterol, fat, and purines, can enter the circulatory system and cause plaques in blood vessels. High sodium levels can also thicken the blood, resulting in poor blood circulation and increased blood pressure. By following a proper diet, you can reduce blood pressure. If people do not pay attention to this, it will have bad impacts, such as complications from other diseases and even death. This study is in line with research conducted by Widianto et al. (2019) in addition, a relationship between diet and the number of hypertension cases in adults and parents who follow prolanis at the Kembaran I health center. Related to lifestyle arrangements, namely reducing salt intake or a low-salt diet. The management of hypertension, a low-salt diet is indispensable. Limiting sodium intake in the form of a low-salt diet is one of the dietary therapies carried out to control blood pressure (Prihatin et al., 2020).

The Relationship between Income and Hypertension Diet Management Behavior

Based on the results of research on the relationship between income and hypertension diet management behavior, it was found that the p-value was $0,004 < 0,05$. It can be said that there is a relationship between income and hypertension diet management behavior. Income is one of the factors that affect dietary non-compliance of hypertensive patients. Based on the results of the research by Kim et al. (2019) there is a meaningful relationship between income and hypertension diet management behavior, which is as much as 43,1% of income below the regional minimum wage with good diet management behavior. The respondent's insufficient income causes respondents to be disobedient in carrying out the diet because they cannot buy food according to the diet rules. The results of this research are by Darmin et al. (2023) which explains a significant relationship between patient compliance and family income, where very low family income can determine patient non-compliance.

The Relationship between Family Support and Hypertension Diet Management Behavior

Based on the results of research on the relationship between family support and hypertension diet management behavior, it was found that the p-value was $0,001 < 0,05$. It can be said that there is a relationship between family support and hypertension diet management behavior.

Sutini et al. (2022) found a positive relationship between family support and hypertension diet management behavior, focusing on appreciation and emotional support. The results are also supported by research from Prihatin et al. (2020) which states that family support has a relationship with patients' dietary adherence. The study showed that the proportion of dietary management compliance in respondents who had a good family role was higher than that of respondents who had a poor family role. Because respondents who have good family support always supervise the management of hypertension in accordance with the advice of health workers such as providing continuous motivation for hypertension patients to adhere to a routine diet that has an impact on blood pressure. Family support can be realized by sharing attention, empathy, advice, encouragement, and knowledge.

The Relationship of Stress to Hypertension Diet Management Behavior

Based on the results of research on the relationship between stress and hypertension diet management behavior, it was found that the p-value was 0,001 < 0,05. It can be said that there is a relationship between stress and hypertension diet management behavior at the Juwana Tahun Community Health Center. This is in accordance with the research results of Sasti et al. (2022) where stress can influence the dietary management of hypertension by disturbing blood pressure levels, influencing food choices, and ignoring eating patterns. Stress as a stimulus views stress as a force that pressures individuals to respond to stressors. Stress can affect blood pressure, as the body produces waves of hormones when in stressful situations. That when a person experiences feelings of stress such as anger, guilt, depression, depression, fear, or resentment the kidney glands release the hormone adrenaline, which makes the heart beat faster and stronger (Windarwati et al., 2020).

Dominant Factor Affecting Hypertension Management Diet

Multivariate analysis in this study using logistic regression produced the most influential variable, namely family support, with a p-value of 0,001 and an OR value = 9,986, meaning that family support has a 9.9 times chance of carrying out hypertension diet management behavior in the work area of the Juwana Health Center. So, the logistic regression analysis and the final modeling of the multivariate analysis in this study show that the variable that has the most influence on diet management is family support, with a p-value of 0,001 and an OR value = 9.986. Research results Sari et al. (2020) show that family support is very influential in the management of hypertension diets. Forms of family support include spending time together and listening to hypertension patients' complaints about how to follow their hypertension diets.

Lack of family support can cause someone to feel uncared for and even cause other negative factors. Families can manage high blood pressure with family support, which can boost self-confidence, encourage to follow a hypertensive diet, and improve compliance. Families can manage high blood pressure with a healthy diet, exercise, and accompany and strengthen regular blood pressure checks (Torar et al., 2020).

CONCLUSION

The chi-square results shows that hypertension diet management is affected by knowledge (p: 0.003, OR: 2,764), dietary habits (p: 0.001, OR: 7,986), income (p: 0.004, OR: 2,098), family support (p: 0.001, OR: 9,986), stress (p: 0.001, OR: 3,874). It can be concluded that the most dominant factor is family support (p: 0.001, OR: 9.986, 95% CI: $0,653 < OR < 23,98$)

LIMITATION

This research only examines hypertensive patients' knowledge, eating patterns, family support, stress, income, and diet management behavior. This researcher should have also paid more attention to other factors that influence the diet management behavior of hypertensive patients and not made direct observations to see the diet management behavior of hypertensive patients carried out by respondents. There may be other factors that are not yet known to influence the diet management behavior of hypertensive patients, so further research can be carried out regarding other factors that can influence the diet management behavior of hypertensive patients.

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