

## **THE EFFECT OF DIET HYPERTENSION ON THE EVENT OF HYPERTENSION IN THE ELDERLY**

**Musta'in<sup>1</sup>, Ikrima Rahmasari<sup>1</sup>, Carlos Filipe da Costa Nunes<sup>2</sup>, Tri Yuniarti<sup>3</sup>, Lestari Eko Darwati<sup>4</sup>**

<sup>1</sup>Universitas Duta Bangsa Surakarta, Jl. K.H Samanhudi No.93, Sondakan, Kec. Laweyan, Kota Surakarta, Jawa Tengah 57147, Indonesia

<sup>2</sup>Instituto Superior Cristal, Dili, Timor Leste

<sup>3</sup>STIKES Mamba'ul 'Ulum Surakarta, Yayasan Perguruan Tinggi Islam Surakarta, Jalan Ringroad Utara, Mojosongo, Kec. Jebres, Kota Surakarta, Jawa Tengah 57127, Indonesia

<sup>4</sup>Sekolah Tinggi Ilmu Kesehatan Kendal, Jln Laut 31 Kendal, Jawa tengah 51311, Indonesia

\*[mustain@udb.ac.id](mailto:mustain@udb.ac.id)

### **ABSTRACT**

Hypertension diet is one way to treat hypertension without serious effects, because of its natural control method. It's just that many people consider a hypertension diet to be troublesome and unpleasant (Purwati, 1997). Hypertension is a condition where the systolic blood pressure exceeds 140 mmHg and diastolic exceeds 90 mmHg, the normal number of blood pressure is systolic pressure 120 mmHg and diastolic 80 mmHg occurs at the age < 60 years. In the elderly population, hypertension is defined as a systolic pressure of 160 mmHg and a diastolic pressure of 90 mmHg. Currently, the mortality rate due to hypertension in Indonesia is very high. The prevalence rate of hypertension in Indonesia based on riskesdas (basic health research) 2018 reached 34.1 percent of the population. Hypertension is divided into 2, namely essential hypertension and secondary hypertension. The cause of hypertension in the elderly is due to changes in the valve; the heart valves thicken and become stiff, the heart's ability to pump blood decreases by 1% every year after the age of 20, so contractions and volume also decrease. Clinical manifestations of hypertensive patients include: Complaining of headache, dizziness, weakness, fatigue, restlessness, nausea and vomiting, epistaxis, decreased consciousness. Supporting examinations for hypertension include: laboratory examination, CT Scan, ECG, IUP, and chest photo. The purpose of this study was to determine the effect of dietary hypertension on the incidence of hypertension in the elderly in Manang Village, Grogol District, Sukoharjo Regency. This study used a cross-sectional study design. The sample of this study amounted to 30 elderly people. The instrument of this study used a questionnaire and measurement of hypertension using a sphygmomanometer and a stethoscope. The analytical method used is Person Chisquare. with a p value of 0.001  $p < 0.05$ , with a Prevalence Ratio (PR) of 8.250. there is a significant effect between diet hypertension and The incidence of hypertension in the elderly in Manang Village, Grogol District, Sukoharjo Regency. where a good hypertension diet increased 8,250 times the bad hypertension diet compared to hypertension.

Keywords: elderly; hypertension; hypertension diet

### **INTRODUCTION**

The term hypertension is taken from the English hypertension which comes from the Latin "hyper" and "tension". "Hyper" means super or extraordinary and "tension" means pressure or tension. Hypertension eventually became a popular medical term to refer to high blood pressure. Blood pressure is the energy used by the blood pumped from the heart to fight against the resistance of the blood vessels, if a person's blood pressure increases sharply and then stays high, the person can be said to have high blood pressure or hypertension (Gunawan, 2001). Hypertension or high blood pressure is an abnormal increase in blood pressure in the arteries continuously over a period of time. This occurs when the arterioles constrict. Arteriole constriction makes it difficult for blood to flow and increases the pressure against the artery walls. Hypertension increases the workload of the heart and arteries which, if continued, can cause damage to the heart and blood vessels (Udjianti, 2011).

Hypertension is a disorder of the circulatory system that is often found in middle age or older. Another limitation of hypertension, namely an increase in systolic blood pressure of more than 150 mmHg and diastolic more than 90 mmHg is considered high, but for those aged 60-70 years, systolic pressure of 150 -155 mmHg is considered normal (Sudarta, 2013). Hypertension is an abnormal condition of hemodynamics, according to WHO systolic pressure 140 mmHg and diastolic pressure > 90 mmHg (for age <60 years) and systolic pressure 160 mmHg and diastolic pressure > 90 mmHg (for age > 60 years) (Nugroho, 2012 ).

The three definitions above can be concluded that hypertension is a condition in which systolic blood pressure exceeds 140 mmHg and diastole exceeds 90 mmHg, the normal number of blood pressure is systole 120 mmHg and diastolic 80 mmHg occurs at the age of <60 years. The etiology of hypertension nursing according to (Sudarta, 2013). Hypertension according to its cause there are 2 types, namely: Primary or essential hypertension: 90% of hypertension in the community belongs to this hypertension group, and the cause is unknown, the client does not show any complaints. Secondary Hypertension: This type of hypertension has known causes and

Complications of hypertension nursing according to Corwin (2009) Stroke can occur as a result of high-pressure bleeding in the brain, or as a result of an embolus that is released from a long, high-pressure non-brain vessel. Stroke can occur in chronic hypertension when the arteries that supply the brain are hypertensive and thickened, so that blood flow to the area being supplied is reduced. Atherosclerotic brain arteries can weaken, increasing the chance of an aneurysm forming. Myocardial infarction, when atherosclerotic coronary arteries cannot supply enough oxygen to the myocardium or when a thrombus forms that blocks blood flow through these vessels.

Renal failure, Progressive damage due to high blood pressure of the renal capillaries, glomerulus. With damage to the glomerulus, blood will flow to the functional units of the kidney, the nephrons will be disrupted and can progress to hypoxia and death. With damage to the glomerulus, protein will be excreted in the urine so that the plasma colloid osmotic pressure is reduced, causing the edema that is often seen in chronic hypertension. Encephalopathy (damage to the brain), May occur especially in malignant hypertension (rapidly increasing hypertension). The very high pressure in this disorder causes an increase in capillary pressure and pushes fluid into the interstitial spaces throughout the central nervous system. The surrounding neurons collapse and coma and death ensues.

The nursing management of hypertension according to Muttaqin (2009). The goal of management for hypertensive clients is to prevent comorbid morbidity and mortality by achieving and maintaining blood pressure below 140/90 mmHg. Non-pharmacological therapy, techniques to reduce stress, weight loss, restriction of alcohol, sodium, and tobacco, exercise, relaxation are mandatory interventions that must be carried out in every antihypertensive therapy. Pharmacological Therapy, Diuretics, sympathetic suppressants, direct arteriolar vasodilators, angiotensin antagonists, calcium channel blockers. Diet is one of the effective non-pharmacological strategies, but changing and maintaining behavior is not easy because the big responsibility of diet compliance depends on the patient and self-care is important to control blood pressure (Kamran et al, 2015). treat hypertension without serious effects, because of its natural

control methods. It's just that many people consider a hypertension diet as something that is inconvenient and unpleasant (Purwati, 1997).

The following are dietary goals for people with hypertension as follows: Reducing salt intake, Reducing salt is often also balanced by intake of more calcium, magnesium, and potassium. Fasting salt for certain cases can lower blood pressure significantly. Generally we consume more salt than the body needs. The recommended consumption of sodium from food for people with hypertension is 2,4 grams of sodium or 6 grams of sodium chloride per day. Consumption of 2 tablespoons of table salt a day is still considered safe for Indonesians. Increase fiber, Consuming more vegetables that contain lots of fiber will facilitate bowel movements and hold some sodium intake. People with hypertension should avoid canned food and fast food from restaurants, which are feared to contain many preservatives and lack fiber, for example a bowl of cereal contains about 7 grams of fiber.

Quitting bad habits Quitting cigarettes, coffee, and alcohol can reduce the burden on the heart, so the heart can work properly. Cigarettes can increase the risk of blood vessel damage by depositing cholesterol in the coronary arteries, so the heart works harder. While alcohol can increase blood pressure. In addition, coffee can stimulate the heart rate. Stopping coffee means loving the heart so that it is not burdened more. Increase the intake of potassium, showing that consuming 3500 mg of potassium can help overcome excess sodium, so that the ideal blood volume can be achieved back to normal blood pressure. Foods that are high in potassium include bananas, orange juice, corn, and broccoli. Meet the needs of magnesium, Research shows that a high intake of magnesium according to the RDA (Recommended Dietary Allowance) is about 3500 mg can reduce blood pressure in someone who has hypertension. Food sources that are high in magnesium include peanuts, spinach, peas, and seafood. Complete calcium needs, The calcium content needed in daily life is 800 mg which is equivalent to three glasses of milk can prevent complications in hypertension. Foods high in calcium include low-fat cheese and fish such as salmon. Take advantage of vegetables and herbs, vegetables and kitchen spices that are useful for controlling blood pressure, such as: tomatoes, carrots, celery, garlic and turmeric.

Foods high in saturated fat, Foods containing saturated fat such as fat in beef, lamb, and palm oil are strictly prohibited for people with hypertension. Excessive intake of trans or saturated fat can increase the risk of obesity which can trigger hypertension. In addition, people with hypertension are strictly prohibited from consuming fried foods because they can increase the risk of heart attacks. Processed food, Processed food or fast food is strictly prohibited for people with hypertension. Usually all types of packaged food and fast food contain a lot of salt and various other additives. It also increases the risk of high blood pressure.

Preparation of food composition in patients with hypertension is expected to reduce blood pressure. The average decrease in sodium consumption as much as  $\pm 1.8$  grams / day can cause systolic blood pressure to decrease by 4 mmHg and diastolic 2 mmHg. In people with hypertension, consumption of table salt should be less than 1/4 – 1/2 teaspoon/day. Recommendations for a low-salt diet I (200-400 mg sodium) for severe hypertension and not adding salt to food. Low-salt diet II (600-800 mg sodium) for hypertension that is not too severe. Whereas for severe hypertension applies salt diet III (1000-1200 mg sodium) (Wahyuningsih, 2013).

Types of low-salt diet according to Ignatius as follows: Low Salt Diet I (200-400 mg Na), Low Salt Diet I is given to patients with edema, ascites and or severe hypertension. No salt is added to food processing. Avoid foods that are high in sodium. Low Salt Diet II (600-1200 mg Na), Low Salt Diet II is given to patients with edema, ascites and/or non-severe hypertension, daily feeding is the same as Low Salt Diet I. In processing, you may use half a teaspoon of table salt. (2g). Avoid foods that are high in sodium. Low Salt Diet III (1000-1200 mg Na), Low Salt Diet III is given to patients with edema, ascites and/or mild hypertension. Giving food a day is the same as the Low Salt Diet I in food processing, it may use 1 tsp (4) of kitchen grams.

## METHOD

This research is a qualitative research with a cross-sectional study design conducted at a certain time. The data collection technique used quota sampling 30 samples of elderly living in Manang Village, Grogol District, Sukoharjo Regency. The method used in collecting data is using a questionnaire and also conducting a direct blood pressure check using a spigmamonometer and a stethoscope. The variables measured were age, gender, hypertension diet, and the incidence of hypertension.

## RESULTS AND DISCUSSION

Table 1.

Characteristics of respondents based on age, gender, and occupation of the elderly		
Characteristics of Respondents	f	%
Age		
55-60	9	30
61-65	21	30
Gender		
Man	13	43,3
Woman	17	56,7
Job		
Laborer	7	23.3
Housewife	6	20.0
Farmer	7	23.3
Self-Employer	9	30.0
Civil Servant	1	3.3

Table 1 shows that the characteristics of the most elderly respondents at the age of 61-65 years amounted to 21 elderly (30%). The majority of the sexes were female, namely 17 elderly (56.7%). The majority of the elderly in Manang Village had the most jobs as entrepreneurs, namely 6 people (30%). The work of laborers and farmers are 7 elderly (23.3%), IRT are 6 elderly (20%) and civil servants are 1 elderly (3.3%)

Table 2.

Distribution of Dietary Hypertension in the Elderly		
Hypertension Diet	f	%
Good	14	46.7
Bad	16	53.3

Table 2 shows that the hypertension diet in the elderly in Manang Village, Grogol District, Sukoharjo Regency is bad by 16 elderly people (53.3%).

Table 3.  
 Distribution of Hypertension Incidence in the Elderly

Hypertension Incidence	f	%
No Hypertension	8	26.7
Hypertension	22	73.3
Total	30	100

Table 3, it is stated that the distribution of the incidence of the elderly suffering from hypertension is more than 22 elderly (73.3%). And 8 elderly people (26.7%) did not have hypertension.

Table 4.  
 Effect of Dietary Hypertension and the incidence of hypertension in the elderly

Hypertension Incidence	Hypertension Diet				Total		PR95%CI	Nilai P=Value
	Baik		Buruk		f	%		
	f	%	f	%				
No Hypertension	6	75.0	2	25,0	8	100.	8.25	P= 0,001
Hypertension	2	9.1	20	90,9	22	100	(2.07-32.8)	

Table 4 from the cross tabulation, it can be conveyed that there is an influence between diet hypertension and the incidence of hypertension in the elderly in Manang Village, Grogol District, Sukoharjo Regency with a p value of 0.001  $p < 0.05$ , with a Prevalence Ratio (PR) of 8.250, meaning that there is a significant effect between diet hypertension and The incidence of hypertension in the elderly in Manang Village, Grogol District, Sukoharjo Regency. where a good hypertension diet increased 8,250 times the bad hypertension diet compared to hypertension.

General description Manang Village is located in the Grogol District, Sukoharjo Regency. Manang village has a population of 6470 people, consisting of 3229 men and 3241 women. The public infrastructure in Manang Village includes 2 public elementary schools, 1 private elementary school, 8 mosques and prayer rooms, 1 church, 1 temple, 1 multipurpose field, 1 multipurpose building,'. Most of the population is Muslim 95.5%. Christian 3.1%, Catholic 1.4% and Buddhist 0.1%. The elderly in Manang Village aged 55-64 were 10.4%, 65-74 were 5.4% and aged >74 were 3.7%. The area of Manang Village is 143.00Ha.

### Individual Characteristics

The characteristics of the elderly in Manang Village are mostly dominated by the elderly aged 61-65 years. This is contrary to research conducted by (Subkhi Mahmasani, 2016) which states that 77.3% of the elderly in Sangubanyu Village, Purworejo Regency are 55-60 years old. Because the elderly who were present when the research was carried out were the elderly who came to the elderly posyandu and the majority were mothers.

### Hypertension Diet

Hypertension diet is one way to treat hypertension without serious effects, because it is a natural control method by the body. Regulating a diet or so-called diet is one way to treat hypertension

without serious side effects, because the control method is more natural, when compared to blood pressure-lowering drugs that can make patients dependent on these drugs (Sustrani, 2006). From the results of the study in table 4.2 that the elderly who live in Manang Village have a bad hypertension diet. The results of this study are in accordance with the results of previous studies. With the results, the eating pattern of the elderly in Karangdoro Village is dominated by a bad diet. Poor eating patterns were obtained from the results of a research questionnaire which stated that the elderly in Blokseger Village liked salty food so that it could cause an increase in high blood pressure (Irianto Koes, 2014).

### **Hypertension Incidence in the Elderly**

The results of observations that have been carried out state that the majority of the elderly in Manang Village have hypertension as much as 73.3%. The results of this study are in accordance with research conducted by Pratiwi (2018) which stated that the elderly in Blokseger Village had the highest number of elderly people suffering from hypertension compared to the elderly who did not suffer from hypertension. The incidence of hypertension experienced by the elderly in Blokseger Village is known from the results of observations and also direct blood pressure checks for the elderly in Blokseger Village. This is in accordance with research conducted by (Rawasiah, 2012) which states that the incidence of hypertension occurs in the elderly at the Pattingalong Health Center.

### **The Effect of Dietary Hypertension with Hypertension Incidence in the Elderly**

Hypertension Diet is a non-pharmacologic hypertension therapy which in theory can reduce hypertension. From the results of the cross tabulation table 4.4 there is an influence between diet hypertension and the incidence of hypertension in the elderly Manang Village, Grogol District, Sukoharjo Regency with p value  $0.001 p < 0.05$ , which means that there is a significant influence between diet hypertension in the elderly and the incidence of hypertension in Manang Village. , Grogol District, Sukoharjo Regency. The prevalence ratio (PR) for establishing a good hypertension diet increased 8,250 times for a bad hypertension diet compared to hypertension. This is in accordance with research conducted by (Subkhi, 2016) which states that there is a relationship between diet and the incidence of hypertension in the elderly at the Sangubanyu Posyandu, Purworejo Regency. Another similar study that supports this research is a study conducted by (Sewriah, 2012) which states that there is a relationship between eating a salty food pattern of  $p = 0.000$  with the incidence of hypertension in the elderly at the Pattingalloang Health Center.

### **CONCLUSION**

Characteristics of the elderly in Manang Village, the majority of the 30 respondents aged 61-65 years were 21 elderly (30%). the most gender are women as many as 17 elderly (56.7%), the most occupations are entrepreneurs as many as 6 elderly (30%). Of the 30 respondents, the hypertension diet in the elderly in Manaang Village was poor, as many as 16 elderly (53.3%), the majority of the elderly in Manang Village had hypertension, as much as 73.3%. Based on the results of the study, it can be concluded that there is an influence between diet hypertension and the incidence of hypertension in the elderly in Manang Village, Grogol District, Sukoharjo Regency with a p value of  $0.001 p < 0.05$ , with a Prevalence Ratio (PR) of 8.250, meaning that there is a significant effect between diet hypertension and the incidence of hypertension in the elderly in Manang Village, Grogol District, Sukoharjo Regency. where a good hypertension diet increased 8,250 times the bad hypertension diet compared to hypertension.

## REFERENCES

- Eka Claudia. (2017). Identifikasi dukungan keluarga terhadap kepatuhan diet pada penderita hipertensi di poli penyakit dalam Rumah Sakit Bahteramas Propinsi Sulawesi Tenggara, Politeknik Kesehatan Kendari
- Ekarini, Ni Luh Putu, Heryati Heryati, and Raden Siti Maryam. (2019). “Pengaruh Terapi Relaksasi Otot Progresif Terhadap Respon Fisiologis Pasien Hipertensi.” *Jurnal Kesehatan* 10 (1): 47. <https://doi.org/10.26630/jk.v10i1.1139>.
- Exa Puspita. (2016). Faktor - faktor yang berhubungan dengan kepatuhan berobat penderita hipertensi dalam berobat di Puskesmas Gunung pati Kota Semarang, Universitas Negeri Semarang
- Fredy, Akbar, Syamsidar, and Widya Nengsih. (2020). “Karakteristik Lanjut Usia Dengan Hipertensi Di Desa Banua Baru.” *Bina Generasi : Jurnal Kesehatan* 11 (2): 6–8. <https://doi.org/10.35907/bgjk.v11i2.141>.
- Gunawan, Lanny. (2001). *Hipertensi Tekanan Darah Tinggi*. Yogyakarta: Kanisius
- Hanum, Parida, and Rahayu Lubis. (2017). “Hubungan Karakteristik Dan Dukungan Keluarga Lansia Dengan Kejadian Stroke Pada Lansia Hipertensi Dirumah Sakit Umum Pusat Haji Adam Malik Medan Support Fro.” *Jumantik* 3 (1): 72–88.
- Haswan, Azri. (2017). “Gambaran Karakteristik Penderita Hipertensi Dan Tingkat Kepatuhan Minum Obat Di Wilayah Kerja Puskesmas Kintamani I.” *Intisari Sains Medis* 8 (2): 130–34. <https://doi.org/10.1556/ism.v8i2.127>.
- Hirdayanti, Faiqoh. (2017). “Hubungan Antara Dukungan Keluarga Dalam Penatalaksanaan Hipertensi Dengan Tekanan Darah Pada Lansia Hipertensi Di Wilayah Kerja Puskesmas Purwokerto Selatan.” *Skripsi volume 3 n: 16–49*.
- Ika Rusita, dkk. (2018). Implementasi Proses Asuhan Gizi Terstandar Pada Pasien Rawat Inap di Rumah Sakit Umum Bahteramas (online). Tersedia dalam [ojs.ho.ac.id/index.php/JIMKESMAS/article/view/5443](http://ojs.ho.ac.id/index.php/JIMKESMAS/article/view/5443).
- Irianto, et al. (2014). *Penyakit Hipertensi dan Pencegahannya*. Jakarta: EGC.
- Irmayanti. (2014) Identifikasi Faktor Resiko terjadinya hipertensi pada penderita hipertensi diwilayah kerja puskesmas poasia kota kendari.
- Kamran, A., Azadbakht, L., Sharifirad, G., Mahaki, B., dan Sharghi, A. (2014). Sodium Intake, Dietary Knowledge, and Illness Perceptions of Controlled and Uncontrolled Rural Hypertensive Patients. *International Journal of Hypertension*, Vol. 2014
- Kemenkes RI. (2017). “Lansia & Hipertensi,” no. 2015: 1–10.
- Kemenkes RI. (2018). *Profil Kesehatan Indonesia Tahun 2017*. Vol. 53, *Journal of Chemical Information and Modeling*.
- Nugroho. (2012). *Keperawatan gerontik & geriatrik*, edisi 3. Jakarta : EGC
- Profil Desa Manang, Kecamatan Grogol, Kabupaten Sukoharjo, Tahun 2021*.

Purwati, S. (1997). *Perencanaan Menu Untuk Penderita Tekanan Darah Tinggi*. Jakarta: Penebar Surabaya

Rawasiah Andi Basse, dkk. (2012). Hubungan Faktor Konsumsi Makanan Dengan Kejadian Hipertensi Pada Lansia Di Puskesmas Pattingalloang. Tersedia di <https://core.ac.uk/download/pdf/25496177.pdf> [Accessed 14 Juli 2020].

Riset Kesehatan Dasar. (2013). Jakarta: Badan Penelitian dan Pengembangan Kesehatan, Departemen Kesehatan, Republik Indonesia.

Subkhi, Mahmasani. (2016). Hubungan Pola Makanan Penyakit Hipertensi Pada Lansia di Posyandu Mawar Desa Sangubanyu Kabupaten Purworejo. Tersedia di <http://digilib.unisayogya.ac.id/2137/1/NASKAH%20PUBLIKASI%20MAHMASANI%20SUBKHI%20%28201210201175%29.pdf>.

Sudarta, W. 2013. *Asuhan Keperawatan Dengan Gangguan Sistem Cardiovasculer*. Yogyakarta : Gosen Publishing

Suwarsa. (2006). *Kiat Sehat Bagi Lansia*. Bandung: MQS Publishing

Udjianti, Wajan. (2011). *Keperawatan Kardiovaskular*. Jakarta: Salemba Medika

Wahyuningsih R. (2013). *Penatalaksanaan Diet pada Pasien*. 1st ed. Yogyakarta: Graha Ilmu