KESANS: International Journal of Health and Science
e-ISSN: 2808-7178, p-ISSN: 2808-7380
Web: http://kesans.rifainstitute.com/index.php/kesans/index

The Effect of Dayak Onion Water (*Eleutherin Palm folia)* to Reduction of Blood Pressure on Hypertension Patients

Veronika Susanti, Diah Setiani, Rahmawati Shoufiah
Student of Bachelor of Applied Nursing Program, Lecturer of Nursing Department
Politeknik Kesehatan Kementerian Kesehatan Kalimantan Timur, Indonesia
vsusanti2@gmail.com

Article Information
Submitted: **04 April 2023**
Accepted: **06 April 2023**
Online Publish: **20 October 2023**

Abstract
Introduction: *Efforts to control hypertension by consuming antihypertensive drugs in the long term can cause Drug Related Problems, an unexpected condition experienced by the patient concerned, which may be caused by involving medication therapy given to the patient, which can actually or potentially affect the patient's condition. patient such as non-compliance, drug interactions, allergies to prescribed drugs, so it is necessary to look for treatments made from natural plants, one of which is Dayak onion.* ***Objective:*** *To determine the effect of dayak onion steeping water (Eleutherine-palmifolia) on reducing blood pressure in hypertensive patients in the working area of the Gemuhan Asa Auxiliary Public Health Center.* ***Methods:*** *The type and research design used in this study was a quasi-experimental or quasi-experimental because the experiment was carried out in the community.* ***Result and Discussion:*** *p-value 0.000 (< 0.05) means that there is an effect of giving Dayak Onion (Eleutherin Palm folia) Brewed Water on Blood Pressure Reduction in Hypertension Patients in the Working Area of Pembantu Gemuhan Asa Health Center.* ***Conclusion:*** *There is an effect of giving Dayak Onion (Eleutherin Palm folia) Brewed Water on Blood Pressure Reduction in Hypertension Patients in the Working Area of Pembantu Gemuhan Asa Health Center.*
Keyword: Dayak Onion; Blood Pressure; Hypertension; Blood Pressure;

How to Cite **Veronika Susanti, Diah Setiani, Rahmawati Shoufiah/The Effect of Dayak Onion Water (*Eleutherine Palmifolia)* to Reduction of Blood Pressure on Hypertension Patients, Vol. 3, No. 1, 2023**
DOI https://doi.org/10.54543/kesans.v2i7.158
e-ISSN/p-ISSN **2808-7178 / 2808-7380**
Published by **Rifa'Isntitute**

Introduction

Non-communicable diseases (NCDs) are diseases that are not caused by infection with microorganisms such as protozoa, bacteria, fungi, or viruses (Sirajudin et al., 2023). This type of disease is responsible for at least 70% of deaths in the world. Although it cannot be transmitted from person to person or from animal to person, weak control of risk factors can contribute to the increase in cases every year. This is in line with the results of Basic Health Research (Riskesdas) in 2007, 2013, and 2018 which showed a tendency to increase the prevalence of NCDs such as diabetes, hypertension, stroke, and joint/rheumatism/gout diseases (Riskesdas, 2018) (Riskesdas, 2018)

The Ministry of Health of the Republic of Indonesia said that before the pandemic, Non-Communicable Diseases (NCDs) were catastrophic diseases with the highest cause of death in Indonesia (Gunawan, 2022). This results in the loss of productive days for sufferers and companions. Meanwhile, research conducted by the Health Research and Development Agency shows that currently the development of NCDs in Indonesia is increasingly worrying. The increase in NCD trends is followed by a shift in disease patterns, if in the past, this type of disease was usually experienced by the elderly group, then now it is starting to threaten the productive age group (Maryani et al., 2021). If the trend of young NCDs rises, then Indonesia's efforts to produce the nation's next generation who are healthy and smart towards advanced Indonesia in 2045 will be difficult to achieve (P2PTM of the Indonesian Ministry of Health, 2019) in (Soesanto &; Olina, 2023). Some types of Non-Communicable Diseases include heart and blood vessel disease, stress, immunological disorders, metabolic disorders, thalassemia, sensory & functional disorders, diabetes mellitus, cancer and blood disorders, obesity, and chronic lung disease.

One of the NCDs that is becoming a very serious health problem today is hypertension. Hypertension or high blood pressure, often referred to as "the silent killer" because it often occurs without complaints (Rohma &; Lundy, 2021). Hypertension is a public health threat because of its potential to lead to complication conditions such as stroke, coronary heart disease, and kidney failure. The World Health Organization (WHO) in 2011 stated that hypertension is the number one cause of death in the world. The prevalence of hypertension will continue to increase sharply and is predicted in 2025 to be as many as 1.15 billion cases, this prediction is based on the number of people with hypertension and population growth (Handayani et al., 2021).

WHO also states that hypertension attacks 22% of the world's population, and reaches 36% of the incidence rate in Southeast Asia. Hypertension is also the cause of death with a rate of 23.7% of the total 1.7 million deaths in Indonesia in 2016 (P2PTM Kemenkes RI, 2019) in (Khamid &; Fauzi, 2022). Based on WHO data in 2019, the African region has the highest prevalence of hypertension at 27%. Southeast Asia is in the 3rd highest position with a prevalence of 25% of the total population. WHO also estimates that 1 in 5 women worldwide has hypertension. This number is greater among the male group, which is 1 in 4 people (Ministry of Health RI, 2019).

Based on data from Riskesdas (2018), the prevalence of hypertension in Indonesia rose from 25.8% in 2013 to 34.1% in 2018. It is estimated that only 1/3 of cases of hypertension in Indonesia are diagnosed, the rest are undiagnosed. For the proportion of hypertension, based on Riskesdas measurements in 2013 and 2108 showed that the female group had a greater proportion of hypertension than men. This pattern occurred where in 2103 the proportion of hypertension in women was 28.80% and in 2018 it increased to 36.85%. While the proportion of hypertension in men was 22.80% in 2013 and became 31.34% in 2018.

Specifically for East Kalimantan Province, the prevalence of hypertension per district based on a doctor's diagnosis in the population aged > 18 years according to Riskesdas data in 2018 shows data on people with hypertension in Paser Regency 9.70%, West Kutai Regency 11.33%, Kutai Kartanegara Regency 10.14%, East Kutai Regency 8.12%, Berau Regency 9.75%, North Penajam Paser Regency 8.49%, Mahakam Ulu Regency 13.77%, Balikpapan City 12.66%, Samarinda City 11.19%, Bontang City 9.23%. In West Kutai Regency, especially Barong Tongkok District, based on data from the Barong Tongkok Public Health Center until October 2021, 561 people with hypertension consisted of 190 men and 371 women in the age group of 15 - 59 years. This shows that hypertension sufferers at the age of 15-59 years in the Barong Tongkok District area are quite high.

High blood pressure or hypertension is a medical condition when a person experiences an increase in blood pressure above normal or chronic (Sudarmoko, 2015). Hypertension is one of the diseases of the cardiovascular system or heart system that often occurs in adulthood. Hypertension often causes changes in blood vessels that can result in higher blood pressure. Hypertension that is not treated immediately has an impact on the emergence of degenerative diseases, such as heart disease, kidney failure and peripheral vascular disease. Hypertension is often called the silent killer because most sufferers do not experience signs or symptoms, so they do not realize that their bodies have been affected by hypertension. In some cases, sufferers only find out after complications occur. Therefore, it is undeniable that hypertension is one of the highest causes of death in Indonesia. Of all people with hypertension, 90-95% report essential hypertension or premier hypertension whose cause is unknown. This if not handled properly, this situation tends to increase (Setyawan &; Ismahmudi, 2018)

Increased blood pressure is usually caused by a combination of several disorders (multifactorial). Epidemiological evidence points to genetic factors, psychological stress, as well as environmental and dietary factors (increased salt use and reduced potassium or calcium intake) that are suspected causes of hypertension. Hereditary factor in hypertension is estimated at about 30%. In general, signs and symptoms of hypertension are headaches, anxiety, heart palpitations, dizziness, blurred vision, chest pain, and fatigue (Ministry of Health RI, 2019).

Not all people with hypertension are aware of the disease they suffer. This is what makes hypertension often referred to as the "silent killer" or "silent killer".

Paying attention to the dangers of hypertension, it is necessary to make efforts to control hypertension. Control of hypertension aims to prevent and lower the probability of pain, complications, and death. These control measures are grouped into pharmacological and non-pharmacological approaches. Management of hypertensive patients can be done with two approaches, namely pharmacologically and non-pharmacologically. Pharmacological management for hypertension is carried out by administering antihypertensives with the aim of preventing complications of hypertension with the smallest possible side effects. Types of antihypertensive drugs that are often used include diuretics, alpha-blockers, betablockers, vasodilators, calcium antagonists, ACE-Inhibitors, angiotensin-II-Blockers. While the provision of non-pharmacological therapy can be in the form of lifestyle modifications, weight loss, sodium intake restrictions, low-fat diet modifications, alcohol restrictions, caffeine restrictions, relaxation techniques, stopping smoking, and herbal therapy.

Efforts to control hypertension by taking antihypertensive drugs in the long term can cause Drug Related Problems. Drug Related Problems is an unexpected condition experienced by the patient involved, which may be caused in involving drug therapy given to the patient, which can actually or potentially affect the patient's condition such as non-adherence, drug interactions, allergies to prescribed drugs. Meanwhile, long-term treatment can cause drug side effects that cause damage to certain organs (Ainurrafiq et al., 2019)

Dayak onion (Eleutherin palm folia) is one plant that has a myriad of benefits but is often forgotten (Indrawati et al., 2013). The Dayak onion (Eleutherin palm folia) that is often used is the bulb part, besides that the leaves can also be used as an alternative. Dayak onion bulbs have been used by local people to treat wounds and ulcer medicine (Puspadewi et al., 2013). Dayak onion (Eleutherin palm folia) can be used as a medicinal herb for cancer, diabetes mellitus, coronary heart, hypertension, hepatitis.

Dayak onion (Eleutherin palm folia) is also used by the community as a puerperal medicine for women by consuming its leaves. According to research (Aditia, 2017) on the Effect of Dayak Onion Extract on Blood Pressure Changes in Hypertensive Patients in Tangkahen Village, Banama Tingang District, Pulang Pisau Regency, Central Kalimantan, stated that there is an effect of Dayak Onion extract on blood pressure changes in hypertensive patients.

Likewise, in a study conducted by Handayani et al (2021) on the Effect of Dayak Onion Tea on Blood Pressure Reduction in Hypertensive Patients, it was found that Dayak Onion tea has an influence on reducing blood pressure in people with hypertension, meaning that Dayak Onion tea has an influence on blood pressure. Based on the studies described above, and paying attention to the facts that hypertension sufferers in the Gemuhan Asa work area are quite high, and Dayak onion plants are easily found in the Gemuhan Asa village area, researchers are interested in conducting research on the Effect of Dayak Onion Steeping Water (Eleutherin palm folia) on Blood Pressure Reduction in Hypertensive Patients in the Working Area of the Gemuhan Asa Auxiliary Public Health Center.

Method

This research was carried out from March 18 to March 20, 2022 in the Working Area of the Gemuhan Asa Auxiliary Public Health Center. The type and design of research used in this study is pseudo-experiment or Quasi Experimental because the experiment is carried out in the community, so that control of variables that affect the experiment is not carried out (Nuristia, 2014). This study used a time series design approach with a comparison group (control time series design). This design is a time series design, using only comparison (control) groups

The population in this study was hypertensive patients at the Gemuhan Asa Auxiliary Public Health Center as many as 67 people, while the sample in this study was 30 people using *consecutive sampling* techniques where the samples taken were subjects who dated and met the inclusion criteria that had been determined. The data collected were analyzed univariately with frequency distribution and bivariate with paired t test. Data analysis is assisted by using SPSS.

Results and Discussion

Result

1. Characteristics of Respondents

Table 1

Characteristics of Hypertensive Patient Respondents at the Gemuhan Asa Auxiliary Public Health Center in 2022

Characteristic	Intervention		Control	
	Frequency	%	Frequency	%
Age				
21-35 years	3	20.0	2	13.3
36-45 years	8	53.3	9	60.0
46-55 years old	4	26.7	4	30.7
Gender				
Man	5	33.3	3	20.0
Woman	10	66.7	12	80.0
Medications you have taken				
Amlodipine	6	40.0	7	46.7
Captopril	9	60.0	8	53.3
Control to Health Facilities				
Yes	10	66.7	12	80.0
Do not	5	33.3	3	20.0
Avoiding Food Abstinence				
Exist	11	73.3	9	60.0
None	4	26.7	6	40.0
History of the disease				
Exist	13	86.7	11	73.3
None	2	13.3	4	26.7
Total	**15**	**100**	**15**	**100**

Source: Primary Data 2022

Based on table 1, it can be seen that the age of respondents in the intervention group is mostly with the age of 36-45 years as many as 8 people (53.3%), while in the control

group most with the age of 36-45 years as many as 9 people (60.0%), the gender of respondents in the intervention group is mostly with women as many as 10 people (66.7%), and in the control group also mostly with women as many as 12 people (80.0%), but at that had been taken in the intervention group mostly drank captopril as many as 9 people (60.0%), while in the control group most drank captopril as many as 8 people (53.3%).

2. Analyzes Univariate

Table 2

Systolic and Diastolic Blood Pressure of Hypertensive Patients in the Intervention Group at the Gemuhan Asa Auxiliary Public Health Center in 2022

Day	Group	Variable	Average	Maximum	Minimum
Day 1	Pre Intervention	Systolic	163.33	173	153
		Diastolic	116.87	127	104
	Post Intervention	Systolic	154.27	164	144
		Diastolic	101.73	114	90
Day 2	Pre Intervention	Systolic	150.27	161	140
		Diastolic	96.27	110	88
	Post Intervention	Systolic	145.47	153	138
		Diastolic	92.00	103	85
Day 3	Pre Intervention	Systolic	142.93	150	137
		Diastolic	89.93	99	84
	Post Intervention	Systolic	139.80	145	135
		Diastolic	86.73	93	82

Source: Primary Data 2022

Based on table 2, systolic blood pressure in hypertensive patients at the Gemuhan Asa Auxiliary Public Health Center in the blood pressure intervention group after dayak onion steeping water decreased by an average of 163.33 to 139.80, then diastolic blood pressure decreased after dayak onion steeping water on average from 116.87 to 86.73.

3. Bivariate Analysis

Table 3

The effect of dayak onion steeping water (Eleutherin palm folia) on lowering blood pressure in patients with hypertension in the working area of the Gemuhan Asa Auxiliary Public Health Center

	Variable			
	Systolic		**Diastolic**	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**
Average±SD	163.33±5.108	139.80±3.121	116.87±7.661	86.73±3.453
Min-Max	153-173	135-145	104-127	82-93
p-value	0.000		0.000	

Based on table 3, it was found that the results of the paired t-test statistical test on systolic and diastolic blood pressure obtained a p value of 0.000 (<α 0.05), meaning that there was an effect of giving Dayak onion steeping water (Eleutherin palmifolia) on reducing blood pressure in hypertensive patients in the working area of the Gemuhan Asa Auxiliary Public Health Center**.**

Discussion

1. Characteristics of Respondents

The characteristics of respondents can be seen that the age of respondents in the intervention group is mostly with the age of 36-45 years as many as 8 people (53.3%), while in the control group mostly with the age of 36-45 years as many as 9 people (60.0%). At the age of 36-45 years is included in the category of old adults where hypertension is obtained due to stress at work and due to lifestyle factors that are too busy to work so forget about exercise. In addition, along with age, the prevalence of hypertension also increases so that most people with hypertension come from the age group of 35-44 years by 21.25% (Riskesdas, 2018).

The sex of respondents in the intervention group was mostly with 10 women (66.7%), and in the control group also mostly with 12 women (80.0%). One of the reasons why the risk of hypertension in women increases over time is the levels of estrogen and progesterone hormones that are still available. Estrogen and progesterone can protect blood vessels from oxidative reactions due to pollution, food, and so on, and prevent vessels from inflammation. In addition, the hormone estrogen also affects the balance of the renin angiotensin system in the kidneys which functions to maintain blood pressure stability (Smeltzer et al., 2008)

The drugs that had been taken in the intervention group mostly took captopril as many as 9 people (60.0%), while in the control group most took captopril as many as 8 people (53.3%). Captopril drugs are most easily found in Public Health Centers, including at the Gemuhan Asa Auxiliary Public Health Center. Captopril is a drug to treat high blood pressure (hypertension). Captopril belongs to a group of heart drugs called ACE inhibitors. This drug works by inhibiting angiotensin-converting enzymes which then decreases the amount of angiotensin II. In addition to treating hypertension, captopril also helps prevent stroke, heart attack, diabetic nephropathy, and kidney problems. How to use, dosage of captopril and side effects of captopril will be explained further below

Then control to the respondents' health facilities in the intervention group was mostly yes to the Public Health Center Health facility as many as 10 people (66.7%), while in the control group most of the yes to the Public Health Center Health facility as many as 12 people (80.0 %). Control to health facilities can have a positive effect on knowing the development of hypertension. Adherence to hypertension therapy is measured by the frequency of visits to health care facilities either to obtain antihypertensive drugs or just blood pressure checks, some people with hypertension must visit regularly because of the Public Health Center (Emiliana et al., 2021)

Avoiding food abstinence respondents in the intervention group mostly avoided food abstinence by 11 people (73.3%), while in the control group there were mostly avoiding food abstinence by 9 people (60.0%). Hypertension can get worse if you eat foods that are high in cholesterol, sugar, and salt. So, it is important to maintain food restrictions. A balanced diet and avoiding foods that have an adverse impact on heart health can prevent the long-term consequences of high blood pressure.

The history of disease in the intervention group was mostly a history of disease as many as 13 people (86.7%) and in the control group there was mostly a history of disease as many as 11 people (73.3%). The presence of a history of disease in certain families will cause the family to have a risk of suffering from hypertension. This is associated with increased intracellular sodium levels and the low ratio between Potassium to Sodium, individuals with parents suffering from hypertension have twice the risk of developing hypertension than people who do not have a family history of hypertension

2. Analyzes Univariate

Based on univariate analysis, it was seen that systolic blood pressure in hypertensive patients at the Gemuhan Asa Auxiliary Public Health Center in the blood pressure intervention group after giving Dayak onion steeping water decreased on average on the first day from 163.33 to 139.80, then diastolic blood pressure decreased after giving Dayak onion steeping water on the first day from 116.87 to 86.73.

Treatment of hypertension can be done in two ways, namely pharmacologically and non-pharmacologically. Some non-pharmacological ways include changing the diet of people with diabetes, obesity, or high blood cholesterol levels, reducing salt use to less than 2.3 grams of sodium or 6 grams of sodium chloride per day (accompanied by adequate intake of calcium, magnesium, and potassium), reducing alcohol consumption, quitting smoking, aerobic exercise that is not too strenuous (people with essential hypertension do not need to limit their activities as long as their blood pressure is under control) and with dayak onion (Mulyani et al., 2021)

The plant has a red tuberous color with ribbon-shaped green leaves and white flowers. Dayak onion bulbs contain phytochemical compounds namely alkaloids, glycosides, flavonoids, phenolics, steroids and tannins. Empirically, Dayak onions have been used by local people as a medicine for various types of diseases such as breast cancer, high blood pressure drugs (hypertension), diabetes (diabetes mellitus), lowering cholesterol, ulcer drugs, colon cancer and preventing stroke. The content of Alisin in Dayak Onion is believed to reduce blood pressure and reduce blood viscosity (Wahyuni, 2019)

Based on research conducted by Febyan, et al (2015) allicin works through the inhibition of angiotensin converting enzyme (ACE) and the effect of organic polysulfide on Ca ions in the K-ATP channel which results in a decrease in the concentration of Ca2+ cell ions, causing vasodilation of blood vessels and a decrease in blood pressure. Another study Arnida (2017) Dayak Onion extract can reduce urine calcium levels, increase urine volume for 24 hours (diuretic that can lower blood pressure) and lower urine pH.

3. Bivariate Analysis

Based on bivariate analysis, it was found that the results of paired t-tests on systolic and diastolic blood pressure obtained p values of 0.000 (<α 0.05), meaning that there was an effect of dayak onion steeping water (Eleutherin palm folia) on reducing blood pressure in patients with hypertension in the working area of the Public Health Center Asa's thunderous helper. The results of this study are in accordance with Setyawan's research (2019) with a p value of 0.001 which shows that the effectiveness of dayak onion tea has proven effective for lowering blood pressure in hypertensive patients (Setyawan, 2019).

Efforts to control hypertension by taking antihypertensive drugs in the long term can cause Drug Related Problems. Drug Related Problems is an unexpected condition experienced by the patient involved, which may be caused in involving drug therapy given to the patient, which can actually or potentially affect the patient's condition such as non-adherence, drug interactions, allergies to prescribed drugs.

Meanwhile, long-term treatment can cause drug side effects that cause damage to certain organs (Prabasari et al., 2021). Ismiyati (2018) states that dayak onions have antioxidant activity and help in preventing or slowing the progress of various oxidative stressors associated with disease. Consumption of Dayak onion extract is known to reduce blood pressure in people with hypertension, significantly reduce blood glucose levels and can reduce ureal and creatinine levels in the kidneys. In research conducted by Ojewole, it was stated that dayak onions contribute to the reduction of blood pressure through the vasorelaxant effect it has. Dayak onions have a high potassium content. Potassium is necessary for electrolyte balance and blood pressure control. This can be the basis for using dayak onions to cure high blood pressure (Widharto, 2017).

Allisin in dayak onions works like a β blocker that has negative inotropic and chronotropic effects on the heart so that cardiac output and heart rate frequency are reduced which causes blood pressure to decrease. Saponins in dayak onions have a diuretic effect by inhibiting the enzyme Na + K + ATPase which can reduce sodium and water reabsorption causing an increase in diuresis which Flavonoids contained in dayak onions have an influence as angiotensin I inhibitors into angiotensin II which causes a vasodilating effect so that there is a decrease in total peripheral resistance which causes blood pressure to decrease (Arnida, 2017).

According to the researchers' assumptions, giving Dayak onion steeping water to hypertensive patients can reduce blood pressure so that it can be used as a nonpharmacological treatment for hypertensive patients.

Conclusion

An effective influence on patients with hypertension by giving Dayak Onion Steeping Water (*Eleutherin Palm folia)* on lowering blood pressure in patients with hypertension in the working area of the Public Health Center Auxiliary Gemuhan Asa

Reference

Aditia, A. (2017). *Pengaruh Pemberian Ekstrak Bawang Dayak Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensi Di Desa Tangkahen Kecamatan Banama Tingang Kabupaten Pulang Pisau Kalimantan Tengah Tahun 2017*. STIKES Bethesda Yakkum Yogyakarta.

Ainurrafiq, A. Azhar, M. U. (2019). Terapi non farmakologi dalam pengendalian tekanan darah pada pasien hipertensi: Systematic review. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, *2*(3), 192–199.

Emiliana, N. Fadlilah, D. R. (2021). Analisis Kepatuhan Kontrol Berobat Pasien Hipertensi Rawat Jalan Pada Pengunjung Puskesmas Pisangan Tahun 2019. *AN-NUR: Jurnal Kajian Dan Pengembangan Kesehatan Masyarakat*, *1*(2), 119–132.

Gunawan, L. S. (2022). DETEKSI DINI PENYAKIT TIDAK MENULAR DI ERA PANDEMI PADA MASYARAKAT RW XI KELURAHAN SUMBER KOTA SURAKARTA. *Jurnal Pengabdian Mandiri*, *1*(11), 2251–2256.

Handayani, S. Fitria, C. N. (2021). Pengaruh Pemberian Teh Bawang Dayak terhadap Penurunan Tekanan Darah pada Penderita Hipertensi. *Jurnal Perawat Indonesia*, *5*(2), 724–730.

Indrawati, N. L. Razimin, S. S. (2013). *Bawang Dayak: Si Umbi Ajaib Penakluk Aneka Penyakit*. AgroMedia.

Khamid, A., & Fauzi, A. (2022). PENGARUH TERAPI RELAKSASI BENSON TERHADAP HIPERTENSIPADA LANSIA DI PUSKESMAS JATIBENING TAHUN 2021. *JURNAL ANTARA KEPERAWATAN*, *5*(1).

Maryani, H. Izza, N. (2021). Pengelompokan Provinsi berdasarkan Penyakit Menular dan Penyakit Tidak Menular untuk Upaya Pengendalian Penyakit dengan Pendekatan Multidimensional Scaling (MDS). *Buletin Penelitian Sistem Kesehatan*, *24*(3), 213–225.

Mulyani, S. Setiowati, L. (2021). THE RELATIONSHIP OF KNOWLEDGE AND ATTITUDE WITH STROKE PREVENTION MEASURES IN HYPERTENSION PATIENTS IN NGUMPAKDALEM VILLAGE DANDER DISTRICT BOJONEGORO REGENCY. *Asuhan Kesehatan: Jurnal Ilmiah Ilmu Kebidanan Dan Keperawatan*, *12*(2), 28–34

Prabasari, N. A. Marcello, S. A. (2021). Pelatihan Dan Pendampingan Kader Posyandu Lansia Dalam Pencegahan Hipertensi Dengan Terapi Non Farmakologi Di Wilayah Kerja Puskesmas Kenjeran. *Jurnal Pengabdian Masyarakat*, *2*(1), 7–11.

Puspadewi, R. Menawati, R. (2013). Khasiat umbi bawang dayak (Eleutherine palmifolia (L.) Merr.) sebagai herbal antimikroba kulit. *Kartika: Jurnal Ilmiah Farmasi*, *1*(1), 31–37.

Riskesdas, K. (2018). Hasil Utama Riset Kesehata Dasar (RISKESDAS). *Journal of Physics A: Mathematical and Theoretical*, *44*(8), 1–200.

Rohma, E. M., & Lundy, F. (2021). PENGARUH SENAM YOGA TERHADAP PERUBAHAN TEKANAN DARAH PADA PENDERITA HIPERTENSI DI WILAYAH KERJA PUSKESMAS PANDANWANGI KOTA MALANG. *Journal of Applied Nursing (Jurnal Keperawatan Terapan)*, *7*(1), 23–29.

Setyawan, A. B., & Ismahmudi, R. (2018). Promosi kesehatan sebagai usaha menurunkan tekanan darah penderita hipertensi. *Jurnal Abdimas PHB: Jurnal Pengabdian Masyarakat Progresif Humanis Brainstorming*, *1*(2), 119–124.

Sirajudin, B. T. Hiariej, G. C. (2023). Pelaksanaan Program Skrining Untuk Pengendalian Penyakit Tidak Menular Di Desa Hunuth. *Pattimura Mengabdi (Jurnal Pengabdian Kepada Masyarakat)*, *1*(1), 137–141.

Smeltzer, S. C. Gould, B. (2008). *Brunner and Suddarth*[illegible]*s textbook of medicalsurgical nursing 10th edition*. Philadelphia: Lipincott Williams & Wilkins.

Soesanto, E., & Olina, Y. Ben. (2023). Upaya Peningkatan Derajat Kesehatan Masyarakat Kampus melalui Pemeriksaan Kesehatan di Posyandu Institusi. *Jurnal Pengabdian Kesehatan*, *6*(1), 1–11.

Wahyuni, S. (2019). *Pengaruh Pemberian Ekstrak Bawang Dayak Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensi Di Desa Tangkahen Kecamatan Banama Tingang Kabupaten Pulang Pisau Kalimantan Tengah*.