

THE EFFECTIVENESS OF WARM WATER FOOT BATHS MIXED WITH SALT AND LEMONGRASS ON REDUCING BLOOD PRESSURE IN ELDERLY PEOPLE AGED 45-55 YEARS

Kasmawati

Department of Medical-Surgical Nursing, Faculty of Nursing, Universitas Hasanuddin, Jl. Perintis Kemerdekaan No.KM.10, Tamalanrea Indah, Makassar, Sulawesi Selatan 90245, Indonesia
kasmawatiabnur@gmail.com

ABSTRACT

Hypertension is a disorder of the blood vessels resulting in a reduced supply of oxygen and nutrients to the brain. Hypertension can be treated with pharmacological and non-pharmacological treatments. One of the non-pharmacological treatment of hypertension is Hydrotherapy, this study is (quasi-experiment) with a pretest-posttest with an intervention group design. The sampling method was carried out by purposive sampling totaling 20 respondents, divided into two groups, namely 10 people for intervention group 1 warm water bath, and 10 people for intervention group 2 warm water bath mixture of salt and lemongrass. Primary data includes respondents' initial and final blood pressure, while secondary data includes respondents' general data. Data were analyzed using the Paired T Test statistical test. The results showed an average decrease in systolic and diastolic blood pressure in the warm water immersion group of 136 mmHg and 89 mmHg. Paired T-Test results in P-Value 0.000. The warm water bath mixture of salt and lemongrass amounted to 129 mmHg and 85 mmHg. Paired T-Test results in P-Value 0.000. shows that warm water baths mixed with salt and lemongrass are more effective than warm water baths.

Keywords: blood pressure; elderly 45-55 years old; warm water bath; warm water bath mixed with salt and lemongrass

INTRODUCTION

Hypertension is a disorder of the blood vessels caused by reduced oxygen supply and nourishing the brain. Conditions can cause blood pressure in the arteries to get higher, and the heart works very hard to fulfill its needs. High blood pressure is one of the many diseases that do not have typical symptoms, so it is often undiagnosed for a long time (Wijayanti & Khadijah, 2021). The results of research from Akbar and Santoso (2020) found that smoking, obesity, and stress are factors that cause hypertension in the West Passi sub-district of Bolaang Mongondow Regency. The heart works harder and faster during stressful conditions, which causes the body to produce more adrenaline, when it occurs over a long period, it triggers a series of reactions from other organs. Similar to changes in pressure function Blood pressure caused by stress, when repeated intermittently, can cause cardiovascular hypertrophy, blood pressure continues to increase or even tends to increase, worsening the condition of hypertension. Age factors can influence hypertension in the elderly. A study by (Ernawati et al., 2015) The results of the study by Herawati et al. (2021) show that most respondents lack knowledge about how to manage hypertension in clients affected by hypertension in the Cikangcung Health Center working area in 2021. The intended treatment is to change the lifestyle of quitting smoking, eating a low-salt diet, reducing alcohol consumption, exercising frequently, and taking high blood pressure medication regularly.

According to data from the WHO/World Health Organization in 2018 there are around 1.13 billion people worldwide with hypertension, which means that 1 in 3 people in the world will be diagnosed with hypertension. It is estimated that around 1.5 billion people will suffer from hypertension in 2025, and 10.44 million people will die each year due to hypertension and complications (Hidayat

& Agnesia, 2021). In Indonesia, it is recorded that at the age of (25 - 44 years) hypertension is prevalent of 29%, at the age of (45 - 64 years) there are 51% and at the age of over 65 years there are 65%. When compared to age (55- 59 years) and age 60 - 64 years there is an increased risk of hypertension as much as 2. 18 times and age 65 - 69 years 2.45 times and age over 70 years 2. 97 times quoted from (Limobaleh, n.d. 2016). Based on data from the Polewali Mandar Regency Health Office, the prevalence of hypertension in the existing Puskesmas area in Polewali Mandar in 2021 was 24. 966 people, with details of men affected by hypertension recorded as many as 12. 346 people and women affected by hypertension recorded as many as 12. 620 people (Dinas Kesehatan Sulawesi Barat, 2021). Meanwhile, the Campalagian health center area has the most hypertension data in Polewali Mandar Regency in 2021, with as many as 2,402 people with data on men as many as 1. 179 people and data on women as many as 1. 222 people (Dinas Kesehatan Sulawesi Barat, 2021).

Based on data from the Campalagian health center, in 2019 the number of elderly people affected by hypertension was recorded at 270 people and in 2020 the number of elderly people affected by hypertension was recorded at 706 people. While in 2021 it is 908 people with data for men as many as 133 people and women recorded as many as 147 people where hypertension sufferers are increasing from year to year. Hypertension data in Bonde Village recorded 385 elderly sufferers. Humans naturally experience the process of aging. Aging or senescence is a process in which tissues slowly lose their ability to repair themselves. Older people experience a physical, mental, and social decline (Kusumawardani et al., 2018). The elderly are part of family and community members whose numbers increase as their life expectancy increases. "In 2000 the number of elderly people throughout Indonesia increased to 15.1 million, representing 7.2% of the total population with a life expectancy of 64.05" (Eviyanti et al., 2021). Aging is a condition that occurs in human life. Aging is a natural process It means that a person has passed through three life stages: childhood, adulthood, and old age. (Siti Nur Kholifah, 2016).

Hydrotherapy is one of the techniques to function as a means of relieving pain and hydrotherapy has a relaxing effect on the body, stimulating the release of endorphins in the body and dilating blood vessels to improve circulation and allow more oxygen to flow to swollen tissues. Low back pain, rheumatism, fatigue, sciatica, arthritis, insomnia, poor circulation (hypertension), muscle pain, stiffness, cramps, and many other diseases (Nurpratiwi & Novari, 2021). Several types of hydrotherapy methods are commonly used, namely immersing the feet in warm water massaging the feet and compressing with a wet cloth (Wulandari et al., 2016). Scientifically, hot water has a physiological effect on the human body. Warm water can improve blood circulation here. Patients with high blood pressure can not only use medical drugs for treatment but also, more simply and cheaply, foot bath therapy with warm water that can be done at home and is relatively easy to do. Non-pharmacological alternatives, warm water has a physiological effect on the body, so baths with warm water when done with awareness and discipline, can improve blood flow, reduce joint stiffness, and can be used as recovery therapy and stroke healing (Ambarwati et al., 2020), while the way to reduce hypertension is to immerse the feet in warm water, which can increase muscle relaxation and improve circulation and is relatively easy to do, (2020), as for how to reduce hypertension is to immerse the feet in warm water, which can increase muscle relaxation and improve circulation and reduce edema. Immersion can be done by bandaging body parts and wetting them with warm water (Wulandari et al., 2016).

Soaking the feet in warm water is one of the methods based on the body's response to water, commonly referred to as "low-tech," and this treatment uses water as the primary purpose in the treatment or relief of painful conditions for the usefulness of immersing the feet in warm water, namely as well as reducing edema relaxes muscles, improves blood circulation, promotes muscle relaxation, relieves stress and nourishes the heart, relieves muscle pain and relieves pain, It is a kind of natural medicine aimed at giving warm. It is very useful in treating hypertension and lowering blood pressure in the body and increasing capillary permeability (Ambarsari et al., 2020). According to the research results (Harnani, 2017), it shows that of the 20 respondents with hypertension, 16 respondents had blood pressure $<160 / 90$ mmHg, and four respondents had blood pressure. $160 / 80$ mmHg has decreased (but still hypertension). The statistical test results showed the p-value of systole = <0.001 and the p-value of diastole = <0.001 . Therefore, foot baths effectively reduce blood pressure in the elderly with high blood pressure.

According to research results from Biahimo et al., (2020) on "Changes in blood pressure in elderly hypertensive patients with warm foot bath therapy for 15 minutes" found with foot bath therapy with warm water and a decrease in blood pressure. For elderly with hypertension. The study results that the decrease in blood pressure in respondents varied, some were severe and some were mild, could be done very safely. Warm water foot bath therapy can be collaborated with natural ingredients such as salt and lemongrass. Salt is a collection of chemical compounds, the largest of which is NaCl or sodium, chloride. Sodium can also maintain acid-base balance in the body, balancing acidic substances that play a role in muscle contraction and nerve transmission (Fitriana et al., 2021). The chemical content of lemongrass, namely atsyril oil in components, cadinol and citronelal and citrall members of the poacea family, has a warm and spicy taste that functions to improve blood circulation, anti-inflammation, and pain relief. Other benefits are joint pain, muscle bruises, and headaches (Ambarwati et al., 2020).

Naturally warm water foot bath therapy with a mixture of salt and lemongrass has the aim of increasing muscle relaxation and improving blood circulation and nourishing the heart and reducing oedema and relieving pain and relieving stress, increasing capillary permeability and the body feels warm and relaxes muscles. So that it is useful for therapy in lowering blood pressure in people with hypertension, and the principle of this therapy is the transfer of heat from warm water. Into the body so that it can cause dilation of blood vessels and muscle tension can decrease (Fitriana et al., 2021). According to the study results of Ambarwati et al. (2020), according to case management, seven days of "basin therapy using warm water mixed with salt and lemongrass" were carried out on the first and second respondents. Blood pressure from systolic pressure decreased by 15 mmHg in the first respondent, diastolic pressure decreased by 20 mmHg, initially from $155 / 100$ mmHg to $140 / 80$ mmHg, and systolic pressure decreased by 25 mmHg in the second respondent. initial blood pressure $160 / 100$ mmHg to $135 / 90$ mmHg. This is because warm water bath therapy dilates blood vessels to improve circulation allowing more oxygen to flow to swollen tissues. Increased flow.

According to research from Wulandari et al. (2016), warm water foot bath therapy for 15 minutes mixed with salt and lemongrass is one of the simple, inexpensive, non-pharmacological treatments that can be used to lower blood pressure in hypertensive patients. This non-pharmacological treatment involves immersing the feet in warm water and making healthy lifestyle changes at any time. Based on the data above, hypertension is a case that is often found in the community,

especially in the elderly in Bonde village, Campalagian sub-district, where data in the last three years has increased from year to year. Management in patients with hypertension is divided into two parts, namely pharmacological and non-pharmacological, where non-pharmacological use can reduce the side effects of using chemicals in the long term, it is recommended to use non-pharmacological methods by doing warm water bath therapy. You can also use a mixture of salt and lemongrass to lower blood pressure.

METHOD

The type of research that will be used in this study is experimental (quasi-experiment) with the design (pretest-posttest with intervention group design) (Saryono, 2017), which aims to analyze the difference in effectiveness in giving warm water baths and warm water mixed with salt and lemongrass against blood pressure reduction in children. Elderly. Researchers obtained data on people with hypertension in Bonde village, Campalagian sub-district. Researchers obtained the identity of respondents by conducting home visits and asking for respondents' consent to participate in research activities. Then the researcher divided the respondents into two groups, namely the control group (Warm water foot soak), where the researcher asked for agreement with the respondent not to use pharmacological therapy during the intervention for one week every morning, and the intervention group (Warm water foot soak mixture of salt and lemongrass) where the researcher asked for agreement with the respondent not to use pharmacological therapy during the intervention for one week every morning. Then in the first week of the control group the researcher measured the respondent's blood pressure and after doing a warm water foot bath again measured the respondent's blood pressure every morning and in the second week of the intervention group the researcher measured the respondent's blood pressure and after doing a warm water foot bath mixed with salt and lemongrass again measured the respondent's blood pressure every morning. The data from the study were then processed in Univariate and Bivariate using a computer program. The bivariate analysis used in this study is the paired t-test (independent T test). The independent T test is a parametric statistical test to determine whether there is a difference in the mean of two interconnected groups. Researchers compare data before and after intervention (Pamungkas, 2017).

RESULTS AND DISCUSSION

The distribution of respondents based on the control group (which was given a warm water foot soak) who were male as much as 1 (10%) and female as much as 9 (90%), while in the intervention group respondents (who were given a warm water foot soak mixed with salt and lemongrass) who were male as much as 2 (20%) and female as much as 8 (90%). (80%). The distribution of respondents from the 10 respondents in the control group (who were given warm water footbaths), the number of respondents aged 45 years was 1 (10%), at the age of 48 years was 1. (10%), at the age of 49 years as many as 2 (20%), at the age of 51 years as much as 1 (10%), at the age of 52 years as much as 1 (10%), at the age of 53 years as many as 2 (20%), at the age of 54 years as much as 1 (10%), at the age of 55 years as much as 1 (10%). While 10 respondents in the intervention group (who were given a warm water foot soak with a mixture of salt and lemongrass) the number of respondents aged 45 years was 2 (20%), at the age of 47 years as much as 1 (10%), at the age of 48 years as much as 1 (10%), at the age of 50 years as many as 1 (10%), at the age of 51 years as much as 1 (10%), at the age of 52 years as much as 1 (10%), at the age of 53 years as many as 2 (20%), at the age of 55 years as much as 1 (10%).

Table 1.
Distribution of Respondents

Respondent Characteristics	Treatment Group		Control Group	
	f	%	f	%
Gender				
Male	9	45	8	40
Female	11	55	12	60
Age				
55 years old	2	10	4	20
56 years old	2	10	1	5
57 years old	1	5	2	10
58 years old	2	10	4	20
59 years old	4	20	3	15
60 years old	9	45	6	30
Education				
SD	10	50	9	45
SMP	7	35	2	10
HIGH SCHOOL	3	15	5	25
PT	-		4	20
Jobs				
Farmers	4	20	5	25
Breeders	1	5	3	15
PNS	1	5	3	15
Self-employed	3	15	2	10
Not Working	11	55	7	35

The distribution of respondents in the control group (who were given a warm water foot soak) based on education was that 10 respondents in the warm water soak group had graduated from elementary school, as many as 2 (20%), graduated from junior high school as many as 4 (40%), graduated from high school as many as 1 (10%), did not go to school as many as 3 (30%). While 10 respondents in the intervention group (who were given a warm water foot soak with a mixture of salt and lemongrass) education graduated from elementary school as many as 4 (40%), graduated from junior high school as many as 3 (30%). (30%), 1 (10%) completed high school, and 2 (20%) did not go to school. Distribution of control group respondents (who were given warm water foot soak) based on Occupation 10 respondents in the warm water immersion group worked as entrepreneurs as many as 5 (50%), worked as a laborer, and worked as an employee. farmers/planters as much as 1 (10%), URT as much as (40%). 10 respondents in the intervention group (who were given a warm water foot soak with a mixture of salt and lemongrass) worked as entrepreneurs, and as many as 3 (30%) worked as an employee and worked as an employee. farmers/planters as many as 2 (10%), URT as many as (50%). Univariate Analysis of the Effectiveness of Warm Water Foot Soak with Salt and Lemongrass Mixture

Respondents in this study were divided into two groups, namely 10 respondents in the control group (administration of warm water foot bath), where for one week, respondents performed warm water foot bath for seven meetings every morning, with the agreement not to use pharmacological therapy. In this research process, every time before and after doing a warm water foot bath, respondents measured their blood pressure. Then 10 intervention respondents (given warm water footbaths mixed with salt and lemongrass) were respondents with hypertension for one week, and respondents performed warm water footbaths for seven meetings every morning, with an

agreement not to use pharmacological therapy. In this research process, every time before and after doing warm water foot baths, respondents measured their blood pressure. From the beginning to the end of the study, respondents were monitored by the researcher.

Table 2,
 Blood Pressure Characteristics in the Control Group

	155	98	136	89	19	9
Mean	155	98	136	89	19	9
Median	154	100	130	90	20	10
Min.	140	90	120	80	10	0
Max	180	110	160	100	30	10
SD	13,54	7,888	15,05	7,379	7,379	3,162
	0		5			

Table 2 shows that the research shows changes in respondents' blood pressure after a warm water foot bath. The blood pressure value of respondents before the intervention was carried out. The average systolic blood pressure value was 155 mmHg, with the lowest value. 140 mmHg and the highest value was 180 mmHg. Diastolic blood pressure before the intervention was found that the mean value of diastolic blood pressure was 98 mmHg with the lowest value of 180 mmHg. 90 mmHg and the highest value was 110 mmHg. While the respondent's blood pressure value after the intervention found that the average systolic blood pressure was 136 mmHg, with the lowest value of 120 mmHg and the highest value of 160 mmHg. After the intervention, the average diastolic blood pressure value was 89 mmHg, with the lowest value being 80 mmHg and the highest value 100 mmHg. Overall there was a decrease in blood pressure with an average decrease in systolic blood pressure of 19 mmHg and diastolic blood pressure of 9 mmHg. Blood Pressure Characteristics in the Intervention Group

Table 3
 Blood Pressure Characteristics before and after in the intervention group

NORE S	Blood Pressure					
	Pre				Decline	
	Pre		The post			
	Sist	Dias	Sis	Dias	Sis	Dias
1	160	110	150	100	10	10
2	160	100	150	90	10	10
3	140	90	130	80	10	10
4	180	100	160	90	20	10
5	160	110	130	100	30	10
6	150	90	120	80	30	10
7	170	100	150	90	20	10
8	150	90	130	90	20	0
9	140	90	120	80	20	10
10	140	100	120	90	20	10

Table 3 shows that the research shows changes in respondents' blood pressure after a warm water foot bath. The blood pressure value of respondents before the intervention was carried out. The average systolic blood pressure value was 159 mmHg, with the lowest value. 140 mmHg and the highest value was 180 mmHg. Diastolic blood pressure before the intervention was found that the mean value of diastolic blood pressure was 101 mmHg with the lowest value of 180 mmHg. 90 mmHg and the highest value was 110 mmHg. While the respondent's blood pressure value after

the intervention found that the average value of systolic blood pressure was 129 mmHg, with the lowest value of 110 mmHg and the highest value of 150 mmHg. After the intervention, the average diastolic blood pressure value was 85 mmHg, with the lowest value being 70 mmHg and the highest value 100 mmHg. Overall there was a decrease in blood pressure with an average decrease in systolic blood pressure of 30 mmHg and diastolic blood pressure of 16 mmHg.

Bivariate Analysis

Bivariate analysis was conducted to determine the effectiveness of warm water footbaths mixed with salt and lemongrass on lowering blood pressure in elderly people aged 45-55 in Bonde Village, Campalagian District. The statistical test performed was the Paired Sample T Test, with computerization at the confidence level using a p-value <0.05 at a confidence interval of 95.

Table 4.
 Effectiveness of Warm Water Foot Soak with a Mixture of Salt and Lemongrass on Lowering Blood Pressure in Elderly aged 45-55 years in Bonde Village, Campalagian District.

Group	Blood Pressure	Mean (SD)	Mean Difference	P Value	Relationship
Control group	Pre Systole	155-136	19	0,000	Meaningful
	Post Systole	(13.540-15.055)	9		
	Pre Diastole	98-89			
	Post Diastole	7.888-7.379			
Intervention group	Pre Systole	159-129	30	0,000	Meaningful
	Post Systole	(12.867-11.972)			
	Pre Diastole	101-85	16		
	Post Diastole	(8.756-8.498)			

Based on table 4 shows that in the pre systole blood pressure value warm water bath Mean (Std Deviation) value 155 (13.540) and post systole blood pressure value warm water bath Mean (Std Deviation) value 136 (15.055). The mean difference value of warm water bath systole blood pressure is 19 mmHg with a P Value 0.000. While in the pre diastole blood pressure value of warm water bath the Mean (Std Deviation) value is 98 (7.888) and the post systole blood pressure value of warm water bath the Mean (Std Deviation) value is 89 (7.379). The mean difference value of warm water bath diastole blood pressure is 9 mmHg with a P Value 0.000. While the value of blood pressure before systole warm water bath mixture of salt and lemongrass Mean (Std Deviation) 159 (12.867) and the value of blood pressure post systole warm water bath mixture of salt and lemongrass Mean (Std Deviation) 129 (11.972). The mean difference in the systole blood pressure of a warm water bath mixture of salt and lemongrass is mmHg 30 with a P-value of 0.000. while in the pre diastole blood pressure value of warm water bath mixture of salt and lemongrass Mean (Std Deviation) value 101 (8.756) and post systole blood pressure value of warm water bath mixture of salt and lemongrass Mean (Std Deviation) value 85 (8.498). The mean difference value of diastole blood pressure of warm water bath mixture of salt and lemongrass is 16 mmHg with a P Value of 0.000. Paired T-test results showed effectiveness in warm water baths and warm water baths mixed with salt and in lowering blood pressure in Bonde Village, campalagian sub-district, with a significance value of 0.000 (<0.05).

Based on the results of data analysis and adjusted to the research objectives and research conceptual framework, the discussion is presented as follows: Analysis of Mean Blood Pressure in the control group before and after being given a warm water foot bath In the control group, systolic blood

pressure before performing warm water footbaths out of 10 respondents, 1 respondent was categorized as grade III hypertension (> 180mmHg), and 4 respondents were categorized as grade II hypertension (160-180mmHg). 179mmHg), and 5 respondents fell into the category of grade I hypertension (140-159mmHg). While the average diastole blood pressure of the control group before doing a warm water bath of 10 respondents, as many as 2 respondents fell into the category of grade III hypertension (>110 mmHg), 4 respondents fell into the category of grade II hypertension (>100-109 mmHg), 4 respondents fell into the category of stage I hypertension (90-99 mmHg). The research conducted for one week showed that the blood pressure value of respondents in the control group after warm water footbath, there were 10 respondents with systole blood pressure, 1 respondent was in the category of grade II hypertension (160-179mmHg), and 3 respondents were in the category of grade I hypertension (140-159mmHg), and 3 respondents were in the category of Prehypertension (130-139mmHg), and 3 respondents were in the normal category (<120mmHg). While the average diastole blood pressure after doing a warm water foot bath of 10 respondents, there were 2 respondents in the category of grade II hypertension (100-109mmHg), and 5 respondents in the category of grade I hypertension (90- 99mmHg), and 3 respondents in the normal category (<80mmHg).

High blood pressure in general, is high blood pressure It is abnormal and is considered a person who has hypertension when the blood pressure is above 140/90mmHg. (Herawati et al., 2021). The mechanism that controls the constriction and relaxation of blood vessels is in the vasomotor center in the medulla of the brain. Sympathetic nerve pathways from this vasomotor center travel to the spinal cord, pass through the spine, and reach the thoracic and abdominal sympathetic ganglia. Preganglionic neurons release acetylcholine, which stimulates postganglionic nerve fibers in blood vessels, where the release of norepinephrine causes blood vessels to constrict. (Suling, 2018). Fear factors and anxious races can affect the response of blood vessels so that stimulation occurs. People with hypertension are particularly sensitive to norepinephrine, although it is not yet clear why. (Seke et al., 2016). The pathophysiology of blood pressure occurs when the sympathetic nervous system stimulates blood vessels in response to emotional stimuli, and the adrenal glands also stimulate which results in additional vasoconstrictor activity, the adrenal medulla secretes epinephrine, resulting in vasoconstriction. The adrenal cortex secretes cortisol and other steroids that can increase the vasoconstrictive response of blood vessels. Vasoconstrictors stimulate the production of angiotensin 1, which is then converted into the potent vasoconstrictor angiotensin 2, which stimulates the secretion of aldosterone by the adrenal cortex, a hormone that causes sodium and water retention by the renal tubules to increase intravascular volume. All of these factors tend to cause hypertension (Herawati et al., 2021).

In the concept of treatment to reduce blood pressure, it can be treated with non-pharmacological treatment using warm water baths (Harnani, 2017) and warm water baths mixed with salt and lemongrass (Ambarwati et al., 2020). Analysis of Average Blood Pressure in the intervention group before and after being given a warm water foot bath and a warm water bath mixed with salt and lemongrass. In the intervention group, it shows that for systole blood pressure before doing a warm water foot soak with a mixture of salt and lemongrass out of 10 respondents, 2 respondents were included in the category of grade III hypertension (>180 mmHg), and 4 respondents fell into the category of grade II hypertension (160-179mmHg), and 4 respondents fell into the category of grade I hypertension (140-159mmHg), and the average blood pressure of the intervention group in diastole before performing a warm water bath of a mixture of salt and lemongrass out of 10

respondents, as many as 4 respondents fell into the category of grade III hypertension (>110mmHg), 3 respondents fell into the category of grade II hypertension (>100- 100mmHg), and 3 respondents fell into the category of grade II hypertension (>100mmHg). 109mmHg), 3 respondents were categorized as grade I hypertension (90-99 mmHg).

While the research conducted for one week showed the blood pressure value of respondents in the intervention group after soaking the feet in warm water with a mixture of salt and lemongrass, out of 10 respondents, the systole blood pressure was 3 respondents in the category of grade I hypertension (140-159mmHg), and 3 respondents in the prehypertension category (130-139mmHg), and 4 respondents in the normal category (<120mmHg). While the average diastole blood pressure after doing a warm water foot soak with a mixture of salt and lemongrass from 10 respondents, there was 1 respondent in the category of grade II hypertension (100-109mmHg), and 4 respondents in the category of grade I hypertension (90- 99mmHg), and 5 respondents in the normal category (<80mmHg). The research showed that warm water baths mixed with salt and lemongrass can reduce blood pressure in both systole and diastole. Warm water bath therapy According to Biahimo et al. (2020), there is a significant effect of bath therapy using warm water on blood pressure in the elderly. Warm water foot bath therapy stimulates baroreceptors to send cardiac impulses and stimulates parasympathetic activation to reduce the strength of heart contractions and lower blood pressure. While the work of warm water baths mixed with salt and lemongrass used during the foot bath therapy process according to Ambarwati et al. (2020), can increase blood flow by dilating blood vessels, allowing more oxygen to flow to swollen tissues and increasing blood flow can increase lymph circulation, remove toxins from the body, and can reduce blood pressure. Chloride and sodium are in salt, and sodium is the main cation. This is extracellular sodium fluid, which maintains fluid balance in the compartment. Sodium mainly regulates osmotic pressure, which prevents fluid from leaving the blood and the body.

Entering the cell. Normally, the body can maintain a balance between extracellular sodium and intracellular potassium. When blood sodium levels rise, the kidneys remove excess water and sodium from the body. The hormone aldosterone keeps the sodium level in the blood at a normal level. Fluid balance is also disturbed when sodium loss and water enter the cells, diluting intracellular sodium and decreasing extracellular fluid. These changes are where blood pressure can decrease. And lemongrass contains essential oils with lemongrass components, citral and cineol. Members of the grass family are spicy and warming, so lemongrass has anti-inflammatory properties that can reduce pain and increase blood circulation to lower blood pressure.

Analysis of Elderly Blood Pressure Before and After Giving Warm Water Bath and Warm Water Bath Mixed with Salt and Lemongrass

The pre systole blood pressure value of warm water bath Mean (Std Deviation) value 155 (13.540) and post systole blood pressure value of warm water bath Mean (Std Deviation) value 136 (15.055). The mean difference value of warm water bath systole blood pressure is 19 mmHg with a P Value 0.000. while in the pre diastole blood pressure value of warm water bath the Mean (Std Deviation) value is 98 (7.888) and the post systole blood pressure value of warm water bath the Mean (Std Deviation) value is 89 (7.379). The mean difference value of warm water bath diastole blood pressure is 9 mmHg with a P Value 0.000. Whereas in the pre systole blood pressure value of warm water bath mixture of salt and lemongrass the Mean (Std Deviation) value is 159 (12,867) and the post systole blood pressure value of warm water bath mixture of salt and lemongrass the Mean (Std

Deviation) value is 129 (11,972). The mean difference in the systole blood pressure of a warm water bath mixture of salt and lemongrass is mmHg 30 with a P-value of 0.000. while in the pre-diastole, the blood pressure value of a warm water bath mixture of salt and lemongrass is mmHg 30.

The lemongrass Mean (Std Deviation) value is 101 (8.756), and the systole blood pressure value of the warm water bath mixture of salt and lemongrass Mean (Std Deviation) value is 85 (8.498). The mean difference value of diastole blood pressure of warm water bath mixture of salt and lemongrass is 16 mmHg with a P Value of 0.000. TT-tested T-test results in T-test the effectiveness of warm water baths and warm water baths mixed with salt and lemongrass on lowering blood prBonde Villagede vBonde Villagelagian su,b-district with a significance value of 0.000 (<0.05). So, both warm water soak therapy and warm water soak mixture of salt and lemongrass effectively lower blood pressure. However, the decrease in blood pressure in the warm water soak group was lower than the warm water soak group of salt and lemongrass mixture.

According to Lalage (2015), Warm water bath therapy can stimulate the baroreceptors to send cardiac impulses and stimulate the parasympathetic nerves to reduce the strength of heart contractions, reducing blood pressure. It can lower blood pressure. Various types of hydrotherapy include warm baths, soaking feet in warm water, and steam compresses. Scientifically, warm water has physiological effects on the body. First, warm water affects the blood vessels and improves blood circulation. Then, underwater stressors strengthen the muscles and ligaments, which affect the joints. According to Asia Traditional Chinese Medicine (2013), regularly soaking your feet in warm water can improve blood circulation. Soaking in warm water containing a mixture of lemongrass and salt has a more significant reduction because the warm water dilates blood vessels and increases blood flow, allowing more oxygen to reach the swollen tissues. When finished, lymphatic circulation is also improved, which can relieve the body of toxins and blood pressure. Salt is a compound of

compounds, the largest components are sodium and chloride, and the impurities are calcium sulfate, magnesium chloride, and magnesium sulfate. Salt contains chloride and sodium. Therefore, sodium is the only commonly consumed element, such as table salt. Sodium is the main extracellular cation, containing 35–40% of sodium in the body. Gastrointestinal fluids such as bile and pancreas contain much sodium. Sodium is the main cation in extracellular fluid, maintaining fluid balance within the compartment. Sodium mainly regulates the osmosis pressure that prevents fluid from escaping into the blood and entering the cells. In contrast, the osmosis pressure is regulated by potassium to keep fluid from escaping from the cells. Normally, the body maintains a balance between sodium outside the cells and potassium inside the cells. However, both therapies or methods, be it a warm water soak or a warm water soak mixed with salt and lemongrass, are effective in lowering blood pressure. When blood sodium levels increase, the kidneys remove excess water and sodium from the body. The hormone aldosterone keeps sodium levels in the blood at normal levels. Sodium and water enter the cells, diluting the sodium in the cells, disturbing fluid balance, and reducing extracellular fluid. Therefore, these changes can lower blood pressure. Lemongrass also contains volatile oil containing citronella components, such as citral and casinool. Being a member of the grass family with a sharp taste, lemongrass has anti-inflammatory properties, relieves pain, and improves blood circulation so that it can lower blood pressure (Ambarwati et al., 2020). So, both warm water soak therapy and warm water soak mixture of salt and lemongrass effectively reduce

blood pressure in the elderly. However, the decrease in blood pressure in the warm water soak group is lower than the warm water soak group of salt and lemongrass mixture. A warm water soak with a mixture of salt and lemongrass decreased blood pressure. Higher in Bonde village, Campalagian sub-district.

CONCLUSION

Based on the results of research conducted on the effectiveness of warm water footbaths mixed with salt and lemongrass on lowering blood pressure in the elderly aged 45-55 years in the village of Bonde, Campalagian sub-district in 2022, it can be concluded that both warm water soak therapy and warm water soak mixed with salt and lemongrass are both effective in lowering blood pressure. However, the decrease in blood pressure in the warm water soak group is lower than the warm water soak group of a mixture of salt and lemongrass, so it can be concluded that warm water soak mixture of salt and lemongrass is more effective in reducing blood pressure in Bonde Village, Campalagian District.

REFERENCES

- Ahyar, H., Maret, U. S., Andriani, H., Sukmana, D. J., Mada, U. G., Hardani, S.Pd., M. S., Nur Hikmatul Auliya, G. C. B., Helmina Andriani,
- M. S., Fardani, R. A., Ustiawaty, J., Utami, E. F., Sukmana, D. J., & Istiqomah, R. R. (2020). *Buku Metode Penelitian Kualitatif & Kuantitatif (Issue March)*.
- Ambarsari, E. M., Ermiami, E., & Hidayati, N. O. (2020). Pengaruh Rendam Kaki Air Hangat dan Musik Klasik Terhadap Tekanan Darah Ibu Hamil dengan Hipertensi. *Journal of Nursing Care*, 3(3), 221–228. <http://jurnal.unpad.ac.id/jnc/article/view/27284>
- Ambarwati, Uliya, & Ismatul. (2020). Terapi Rendam Kaki Menggunakan Air Hangat Dengan Campuran Garam Dan Serai Untuk Menurunkan Tekanan Darah Pada Penderita Hipertensi. *Jurnal Profesi Keperawatan Academi Keperawatan Krida Husada Kudus*, 7(2), 88–102.
- Arifin¹, M. H. B. M., Weta², I. W., & Ni Luh Ketut Ayu Ratnawati². (n.d.). Faktor- Faktor Yang Kelompok Lanjut Usia Di Wilayah Kerja Upt Puskesmas ...
- Bachrudin, M., & Najib, M. (2016). *Keperawatan Medikal Bedah 1*.
- Biahimo, N. U. I., Mulyono, S., & Herlinah, L. (2020). Perubahan Tekanan Darah Lansia Hipertensi Melalui Terapi Rendam Kaki Menggunakan Air Hangat. 5(1), 9–16.
- Dinkes Sulbar. (2021). Profile Hipertensi Dinas Kesehatan Provinsi Polewali Mandar. 53(9), 1689–1699.
- Ernawati, Santoso, D. A., & Maulana, M. A. (2015). Pengaruh Terapi Rendam Kaki Air Hangat Terhadap Penurunan Tekanan Darah Pada Lansia Penderita Hipertensi Di Wilayah Kerja Upk Puskesmas Khatulistiwa Kota Pontianak.

- Eviyanti, E., Wijayanti, H. N., & Khadijah, S. (2021). Pengaruh Senam Lansia terhadap Penurunan Tekanan Darah pada Lansia. *Jurnal Kebidanan Harapan Ibu Pekalongan*, 8(1), 18–23. <https://doi.org/10.37402/jurbidhip.vol8.iss1.117>
- Fitrina, Y., Anggraini, D., & Anggraini, L. (2021). Pengaruh Terapi Rendam Kaki Air Hangat dengan Garam dan Serai terhadap Tekanan Darah pada Lansia Hipertensi. *Prosiding Seminar ...*, 4(2), 1–10. <https://jurnal.upertis.ac.id/index.php/PSKP/article/view/726>
- Harnani, Y. (2017). Efektifitas Rendam Kaki Menggunakan Air Hangat Terhadap Penurunan Tekanan Darah Pada Lansia Diwilayah Kerja Puskesmas Simpang Tiga Kota Pekanbaru Tahun 2016. *Jurnal Kesehatan Komunitas*, 3(4), 129–132. <https://doi.org/10.25311/keskom.vol3.iss4.127>
- Herawati, A. T., Manaf, H., & Kusumawati, E. P. (2021). Pengetahuan Tentang Penanganan Penyakit Hipertensi Pada Penderita Hipertensi. 10(2), 159–165.
- Hidayat, R., & Agnesia, Y. (2021). Faktor Risiko Hipertensi Pada Masyarakat Di Desa Pulau Jambu Uptd Blud Kecamatan Kuok Kabupaten Kampar. *Jurnal Ners*, 5(1), 8–19.
- Kementerian Kesehatan RI. (2017). Situasi lansia di Indonesia tahun 2017: Gambar struktur umur penduduk indonesia tahun 2017. Pusat Data Dan Informasi, 1--9.
- Khasanah, R. A., Budiyanto, E., & Al, N. W. et. (2011). Pemanfaatan Ekstrak Sereh (Chymbopogon Nardus L.) Sebagai Alternatif Anti Bakteri Staphylococcusepidermidis Pada Deodoran Parfume Spray. *Pelita - Jurnal Penelitian Mahasiswa UNY*, 0(1), 1–9.
- Kusumawardani, D., Andanawarih, P., & Lansia,
- K. (2018). *Jurnal SIKLUS volume 7 Nomor 1 Januari 2018* *Jurnal SIKLUS volume 7 Nomor 1 Januari 2018*. 7(Dm), 273–277.
- Kuswaningsih. (2020). Pengaruh Teknik Relaksasi Nafas Dalam terhadap Kecemasan pada Ibu Hamil dengan Hipertensi.
- M.Bachrudin, & Najib, M. (2016). *Buku Keperawatan Medikal Bedah*.
- Nasrullah, D. (2016). *Buku Ajar Keperawatan GERONTIK Dengan Pendekatan Asuhan Keperawatan NANDA 2015 - 2017 NIC dan NOC Edisi 1*.
- Nurarif, A. H., & Kusuma, H. (2015). *BUKU Asuhan keperawatan berdasarkan diagnosa medis dan nanda NIC-NOC jilid 2*.
- Nurhidayat, S. (2015). *Asuhan Keperawatan Pada Pasien Hipertensi Dengan Pendekatan Riset*.

- Nurpratiwi, & Novari, E. (2021). Pengaruh Rendam Kaki Dengan Air Hangat Terhadap Tekanan Darah Pada Penderita Hipertensi Di Wilayah Sp 4 Setuntung Kecamatan Belitang Kabupaten Sekadau. 2(2).
- Nursalam. (2016). Metodologi Penelitian Ilmu Keperawatan Edisi 4.
- Nursalam. (2017). Ilmu Keperawatan Pendekatan Praktis.
- Pamungkas. (2017). Riset keperawatan & metodologi penelitian kesehatan. Trans Info Media Jakarta, 186.
- Pamungkas, R. A. (2017b). Metodologi Riset Keperawatan (T. Ismail (ed.)). CV Trans Info Media.
- Rahayu, A. et. a. (2017). Kesehatan Reproduksi Remaja & Lansia. In Journal of Chemical Information and Modeling (Vol. 53, Issue 9).
- Rahayu, A., Noor, M. S., Yulidasari, F., Rahman, F., & Putri, A. O. (2020). Kesehatan Reproduksi Remaja dan Lansia. In CV Mine. http://eprints.ulm.ac.id/10048/1/BUKU_AJAR_KRRL.pdf
- Saryono. (2017). Metodologi Penelitian Kesehatan.
- Siti Nur Kholifah. (2016). Buku Keperawatan Gerontik Kementerian Kesehatan Republik Indonesia.
- Suling, F. R. W. (2018). Buku Referensi HIPERTENSI (Issue 2).
- Syamsudin. (2016). Farmakoterapi Kardiovaskular Dan Renal. edisi 5. Aklia Suslia. Jakarta: Salemba Medika.
- Utami, F. P., Matahari, R., & Azis Ikhsanudian. (2018). TOGA manfaat dan cara menggunakannya.
- Wulandari, P., Arifianto, & Sekarningrum, D. (2016). Pengaruh Rendam Kaki Menggunakan Air Hangat dengan Campuran Garam dan Serai Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi di Wilayah Podorejo RW 8 Ngaliyan. Keperawatan, 7(1), 43–47. <http://ejournal.umm.ac.id/index.php/keperawatan/article/viewFile/3918/439>

