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Research Articles

The Differences in the Effectiveness of Indonesian Bay Leaves and Cucumbers in Elderly with Hypertension

Perbedaan Efektivitas Daun Salam dengan Mentimun pada Lansia Hipertensi

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Abstract

During the last 10 years, it is estimated that there has been a significant increase in hypertension patients, which has contributed to the death of approximately 8 million people annually worldwide. The purpose of this study was to analyze the differences in the effectiveness of Indonesian bay leaves solution and cucumbers in elderly with hypertension at Puskesmas Moncobalang, Gowa Regency in 2019. The research method was quantitative with Quasi Experimental design and Non-Equivalent Control Group Design. The results of the Wilcoxon statistical test on Indonesian bay leaves solution with a value of P_{value} 0,005 <0,05, this means that Ho has been rejected and Ha has been accepted. The average pretest score of 3,80 is smaller than the average posttest score of 1,80. Thus, there is the effectiveness of boiled Indonesian bay leaves solution in elderly with hypertension. Likewise, the Wilcoxon statistical test results on cucumbers showed a value of P_{value} 0,004 <0,05, this means that Ho has been rejected and Ha has been accepted. The means of blood pressure pretest is 3.80 which is smaller than the posttest average value of 2,50. This research inferred that the juiced cucumber is effective in treating elderly with hypertension. In conclusion, there is no difference in effectiveness between boiled Indonesian bay leaves solution and juiced cucumber in treating elderly with hypertension at Moncobalang Health Center, Gowa Regency.

Keywords: Indonesian bay leaf, cucumber, hypertension

Abstrak

Selama kurun waktu 10 tahun terakhir, diperkirakan telah terjadi kenaikan penderita hipertensi yang signifikan hingga menyumbang angka kematian kurang lebih dari 8 juta setiap tahunnya diseluruh dunia. Tujuan penelitian ini menganalisis perbedaan efektivitas daun salam dengan mentimun pada lansia hipertensi di Puskesmas Moncobalang Kabupaten Gowa Tahun 2019. Metode penelitiannya adalah kuantitatif yang desainnya *Quasi Eksperimen* serta *Non-Equivalent Control Group Design*. Hasil uji statistik Wilcoxon pada daun salam dengan nilai P_{value} 0,005 < 0,05 hal ini berarti Ho telah ditolak dan Ha telah diterima. Nilai rata-rata *pretest* sebesar 3,80 lebih kecil dari nilai rata-rata *posttest* sebesar 1,80. Sehingga ada efektivitas dari daun salam yang direbus pada lansia hipertensi. Demikian juga hasil uji statistik Wilcoxon pada mentimun yang menunjukkan nilai P_{value} 0,004 < 0,05 hal ini berarti Ho telah ditolak dan Ha telah diterima. Hasil rata-rata (*mean*) tekanan darah nilai rata-rata *pretest* sebesar 3,80 lebih kecil dari nilai rata-rata *posttest* sebesar 2,50. Sehingga ada efektivitas mentimun yang dijus pada lansia hipertensi. Kesimpulannya tidak ada perbedaan efektivitas antara daun salam yang direbus dengan mentimun yang dijus pada lansia hipertensi di Puskesmas Moncobalang Kabupaten Gowa.

Kata Kunci: daun salam, mentimun, hipertensi

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INTRODUCTION

The non-communicable diseases, including international, national to regional (local) have affected global health. In 2015 it was reported that this non-communicable disease is likely to have killed an estimated 40 million people nearly every year. When in perspective, it will be up to 70% of the death rate worldwide. The most common cause is cardiovascular disease. It is estimated that about more than 16 million people each year. The next place is occupied by tissue diseases which infect more than 7 million people. Followed by respiratory disease more than 2 million and diabetes more than 1 million (WHO, 2017).

WHO revealed that the increase in blood pressure to high levels has contributed to more than 8 million deaths related to heart problems. The increase in the number of people with high blood pressure is getting sharper, which is estimated until 2025 (Ministry of Health, 2013).

According to Riskesdas (2018), in 2013 to 2018, Indonesia experienced an increase in the prevalence of hypertension from 25.8% to more than 20%. The highest incidence in South Kalimantan was more than 30%. Meanwhile, the lowest occurred in Papua, amounting to more than 20%. The incidence of high blood pressure of more than 20% indicated that more than 7% are diagnosed with hypertension. More than 12% were diagnosed with hypertension but did not seek treatment. More than 30% were diagnosed with hypertension but were not diligent in seeking treatment. These figures show that there are those who are sick but do not realize their condition, thus, they do not feel the need to seek treatment (Ministry of Health, 2018).

From data from the Gowa Health Office in 2017, it was stated that the prevalence obtained through measuring blood pressure for patients aged ≥ 18 years in 2015 was 142,571 and an increase of 163,330 in 2016. As for Gowa Regency, in 2015 this district was located rank 7 of the 10 largest diseases with the number of cases of 958. In 2016, Gowa Regency rose to rank 4 with the number of cases of 975. The visits of hypertension patients in 2017 were 546 people consisting of 163 elderly, then in 2018 it decreased by 539 people consisting of 161 elderly. From March to May 2019, there were 84 elderly people with hypertension who had sought treatment at the Moncobalang Community Health Center, Barombong District, Gowa Regency. Most of the patients came from Moncobalang village as many as 40 people, 9 men and 31 women (Puskesmas Moncobalang, 2017).

Increased blood pressure is influenced by several risk factors, including age, gender, family history, genetics (risk factors that cannot be changed / controlled) and lifestyle such as smoking, salt consumption, saturated fat consumption, use of waste, drinking-consumption habits. alcoholic drinks, obesity, lack of physical activity, stress, use of estrogen (Ministry of Health, 2014).

Indonesian bay leaf (*Syzigium Polyanythum*) is a plant that has many benefits besides being used for cooking spices, Indonesian bay leaves solution are also used as herbal medicine where bay leaves are able to overcome various diseases, one of which is hypertension where the essential oils (citrate, euganol), tamin and the flavoids in Indonesian bay leaves solution have a function to lower blood pressure in people with hypertension (Nurcahyati E, 2014). Lebalado and Mulayati (2014) examined the use of cucumber (*Cucumis Sativus L*) in systolic and diastolic measurements. Consumption of 150 ml of juiced cucumber for 7 days can reduce blood pressure quickly.

This explanation then led researchers to see what is needed to introduce herbal medicines such as Indonesian bay leaves solution and cucumber as non-pharmacological treatments. The price is cheap and they are easy to get. Herbal medicine can also reduce the effects of using pharmacological drugs that cause dependence, especially if the drug

is expensive, it will cost the patient more money to buy the blood pressure medication. Researchers then decided to conduct research on the differences in the effectiveness of indonesian bay leaves and cucumbers in elderly with hypertension.

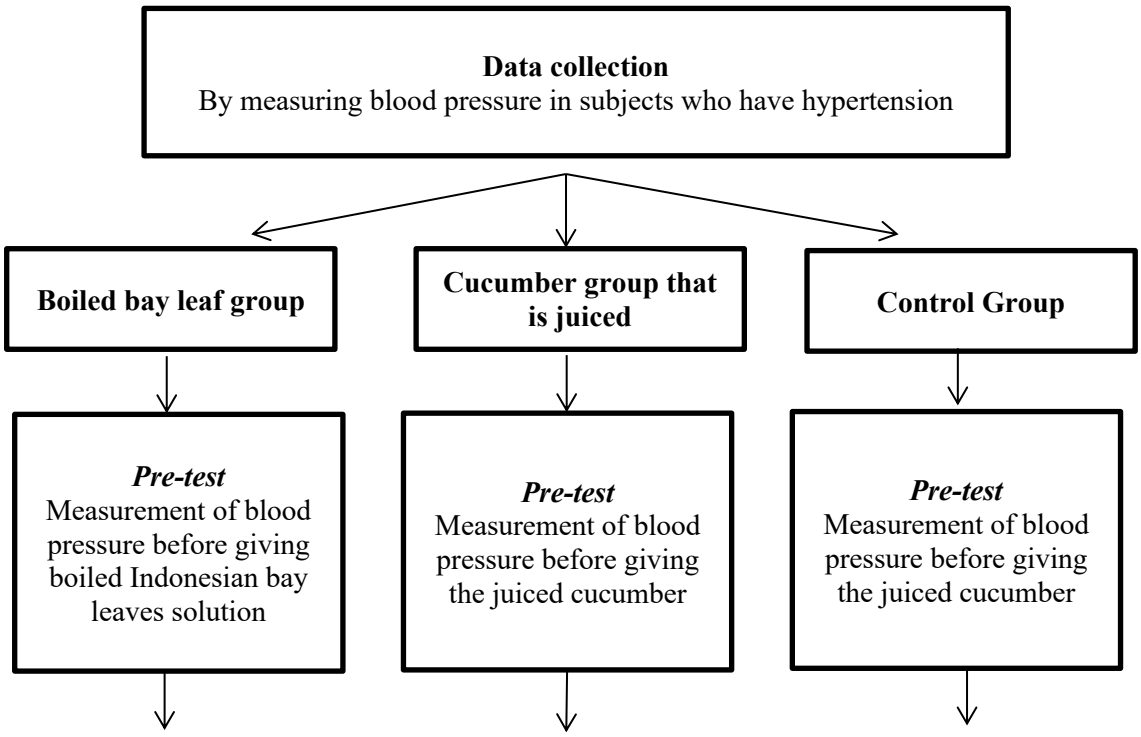
METHODS

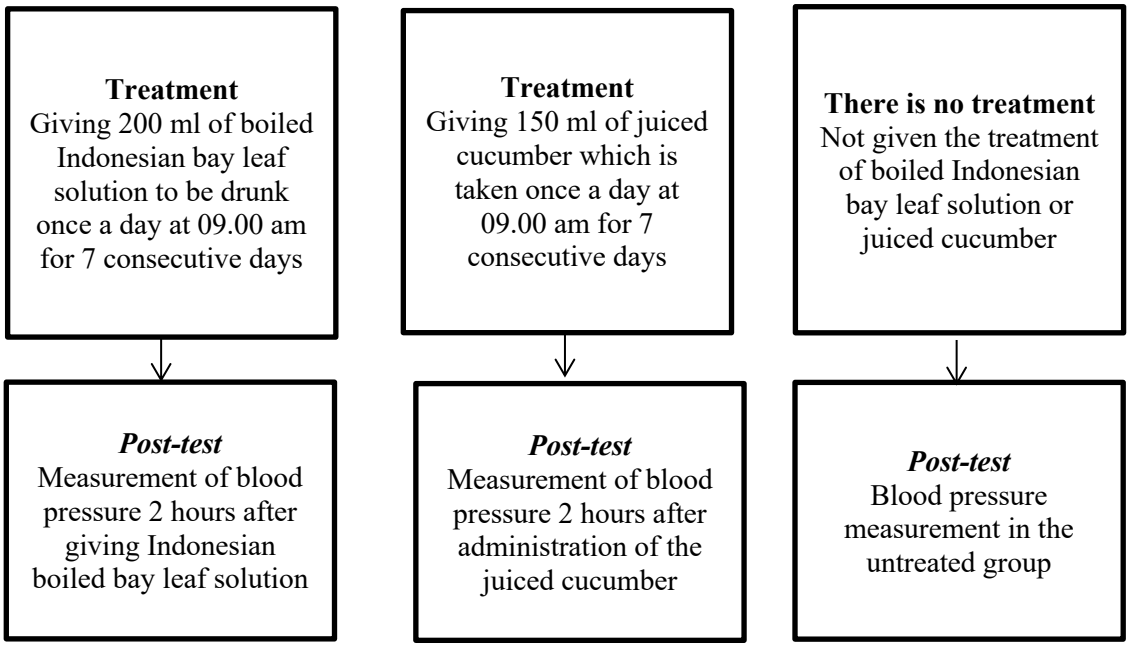
The research used a quantitative study with a Quasi Experiment design and a Non-Equivalent Control Group Design which is similar in design to the pretest-posttest control group design, which designed both the experimental group and the control group to be selected instead of random groups. Both groups, both experimental and control groups, were carried out pretest and followed by intervention (X). Then the posttest was carried out in the two groups. The research scheme is:

Subject	*Pretest*	Treatment	*Postest*
Experiment Group	O1	X	O3
	O2	X	O4
Control Group	K1	-	K2

Figure 1. Research Scheme

Information :
O1: The first measurement in the boiled Indonesian bay leaf group
O2 : The first measurement in the juiced cucumber group
K1 : The first measurement in the control group
X : Giving boiled Indonesian bay leaf solution and juiced cucumber
O3 : The second measurement in the boiled Indonesian bay leaf group
O4 : The second measurement in the juiced cucumber group
K2 : The second measure in the control group
The research flow is:





The research was located at the Puskesmas Moncobalang, Gowa Regency between July and August 2019. The population was the elderly who suffered from hypertension who visited the Moncobalang Puskesmas, Gowa Regency, amounting to 30 people. While the research subjects were elderly hypertension at Puskesmas Moncobalang, Gowa Regency, as many as 30 people who were taken based on data on visits of hypertension sufferers in 2019. The sampling technique is total sampling where the population is the same as the sample. The instruments used were tensimeter / sphygmomanometer, stethoscope, blood pressure observation sheet, balpoint, boiled bay leaf water, juiced cucumber, scale, measuring cup, and cellphone or camera. Data was collected by:

1. Interview
   Researchers interviewed respondents only verbally and also answered verbally. Before that, a trusting relationship is needed so that interviews and blood pressure measurement before and after the intervention can run smoothly.
2. Observation
   Researchers made observations using a tensimeter or shygmomanometer so that the location of the effectiveness of each boiled bay leaf and juiced cucumber in hypertensive elderly people could be found after intervention.
3. Observation sheet
   The observation sheet showed records of patient monitoring results. Measurement of blood pressure during pre and post intervention which consisted of:

a. Indonesian bay leaf solution
   Data collection was carried out by observing the elderly with hypertension, then drinking the Indonesian bay leaves solution solution to drink 200 ml / 1x a day for 7 days, after 2 hours of treatment, then measuring the blood pressure again using a tensimeter or sphygmomanometer.
b. Juiced cucumber
   Data collection is carried out by observing elderly people with hypertension, then giving juice to drink as much as 150 ml / 1x a day for 7 days, after 2 hours of treatment, then measuring blood pressure again using a tensmeter or sphygmomanometer.

4. Documentation
   In this study, the researcher carried out documentation by journals, various books related to the research conducted, pictures taken during the production process, and

including the names of the participants.

RESULTS AND DISCUSSION

Subject Characteristics

There were 30 subjects which consist of 22 female (73,3%), 8 male (26,7%). Based on age, the subjects aged 60-69 years old were 23 (76,7%), those aged > 70 years old were 7 (23,3%). The subjects who did not work were 14 (46,7%), housewives were 6 (20,0%), self-employed 4 (13,4%) and farmers 6 (20,0%).

Table 1. Subject Characteristics

Subject Characteristics	Frequency (n)	Percentage (%)
Gender		
Man	8	2,7
Women	22	73,3
Total	**30**	**100,0**
Age		
60-69 years old	23	76,7
> 70 years old	7	23,3
Total	**30**	**100,0**
Profession		
Does not work	14	46,7
Housewife	6	20,0
Self-employed	4	13,3
Farmer	6	20,0
Total	**30**	**100,0**

Source: Primary Data, 2019

Moncobalang Village with a population of as much 4,610 people where the research subjects were mostly unemployed. Old age was the reason they no longer work besides the fact that the majority of subjects were women, who on average were housewives. Meanwhile, those who work as farmers are because geographically Moncobalang Village is in an area that has a lot of rice fields. Farming has also been a hereditary job. Most of the men who work as farmers are also men. In addition to unemployment and farmers, the subjects studied were also housewives and self-employed.

Measurement of blood pressure in the subjects of the Indonesian bay leaves solution Group which was boiled in Pre and Post-Test at the Puskesmas Moncobalang, Gowa Regency.

These results indicate that of the 10 subjects before drinking the bay leaf decoction, there were 2 (20,0%) subjects who had mild hypertension and 8 (80,0%) subjects who had moderate hypertension. After drinking the bay leaf decoction, there were 5 (50,0%) subjects with normal blood pressure and 2 (20,0%) subjects with high blood pressure and 3 (30,0%) subjects with mild blood pressure.

Table 2. Frequency distribution of blood pressure measurement in the subjects of Indonesian bay leaves solution group pre and post-test (n = 10)

Hypertension	Subject			
	Pre-test		*Post-test*	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Normal	0	0	1	10,0
Normal High	0	0	3	30,0
Light	2	20,0	6	60,0
Moderate	8	80,0	0	0
Total	**10**	**100,0**	**10**	**100,0**

Source: Primary Data, 2019

Measurement of blood pressure in the subject of juiced cucumber group pretest and posttest at Puskesmas Moncobalang, Gowa Regency

The results showed that out of 10 respondents before being given juiced cucumber, there were 2 (20,0%) respondents who had mild hypertension, and 8 (80,0%) respondents who had moderate hypertension. After giving juiced cucumber there were 1 (10,0%) respondent who had normal blood pressure, 3 (30,0%) respondents who had normal high blood pressure and 6 (60,0%) respondents who still had mild hypertension.

Table 3. Blood pressure measurement in the subject of juiced cucumber group pretest and posttest

Hypertension	Respondents			
	Pre-test		*Post-test*	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Normal	0	0	1	10,0
Normal High	0	0	3	30,0
Light	2	20,0	6	60,0
Moderate	8	80,0	0	0
Total	**10**	**100.0**	**10**	**100,0**

Source: Primary Data, 2019

Measurement of blood pressure in Pre and Post-Test Control Group Subjects

The results showed that of the 10 subjects in the control group before and after being given the test all had mild hypertension 2 (20,0%) and moderate hypertension 8 (80,0%). After drinking juiced cucumber, there were 2 (20,0%) who had mild hypertension, and 8 (80,0%) who had moderate hypertension. After drinking juiced cucumber, there were 1 (10,0%) with normal blood pressure, 3 (30,0%) with abnormally high blood pressure and 6 (60,0%) who still had mild hypertension.

Table 4. Frequency distribution of subject blood pressure measurement in the group pre and post-test control (n = 10)

No.	Hypertension	Subject			
		Pre-test		*Post-test*	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1	Normal	0	0	0	0
2	Normal High	0	0	0	0
3	Light	2	20,0	2	20,0
4	Moderate	8	80,0	8	80,0
Total		**10**	**100,0**	**10**	**100,0**

Source: Primary Data, 2019

The effectiveness of boiled Indonesian bay leaves solution and juiced cucumber on elderly with hypertension

Table 5 showed that the results of the Wilcoxon statistical test where the value of P value is 0,005 <0,05, this means that Ho has been rejected and Ha has been accepted. This means that there are differences in measurements both pre-test and post-test. The mean obtained by the pretest average value of 3,80 is smaller than the posttest average value of 1,80. It can be concluded that there is an effective use of Indonesian bay leaf water in hypertensive elderly at Moncobalang Health Center, Gowa Regency.

Table 5. Distribution of blood pressure measurement pretest and posttest given boiled Indonesian bay leaves solution in elderly with hypertension (n = 10)

	Mean	Std.Deviation	n	*P value*
Pretest	3,80	0,422	10	0,005
Posttest	1,80	0,919	10	

Source: Wilcoxon Data, 2019

Through Table 6, the Wilcoxon statistical test shows the results of the value of P value 0,004 <0,05. This means that Ho has been rejected and Ha has been accepted. This means that there is different effectiveness in blood pressure at pretest and posttest. The results of the mean (mean) blood pressure obtained an average pretest value of 3,80 which is smaller than the average posttest score of 2,50. The conclusion is there is the effectiveness of juiced cucumber in treating elderly with hypertension at Puskesmas Moncobalang, Gowa Regency.

Table 6. Distribution of blood pressure measurement pretest and posttest given juiced cucumber to elderly with hypertension (n = 10)

	Mean	Std.Deviation	n	*P value*
Pretest	3,80	0,422	10	0,004
Posttest	2,50	0,707	10	

Source: Wilcoxon data, 2019

The results of Table 7 show that the Wilcoxon statistical test results in a P value of 1,000> 0,05. This means that Ha has been rejected and H0 has been accepted, which is not the same blood pressure measurement both at pretest and at posttest, because this group was not given the treatment of boiled bay leaves or juiced cucumber.

Table 7. Distribution of blood pressure measurement pretest and posttest given juiced cucumber to elderly with hypertension (n = 10)

	Mean	Std.Deviation	n	*P value*
Pretest	3.80	0,422	10	1,000
Posttest	3.80	0,422	10	

Source: Wilcoxon data, 2019

Table 8 showed that the Wilcoxon statistical test produces a value of 0,068> 0,5, this means that Ha has been rejected and H0 has been accepted. This means that there is no difference in effectiveness between boiled Indonesian bay leaves solution and juiced cucumber in treating elderly with hypertension at Puskesmas Moncobalang, Gowa Regency

Table 8. Distribution of differences in the effectiveness of boiled bay leaf water and juiced cucumber for hypertensive elderly

	Mean	Std.Deviation	n	*P value*
Boiled bay leaves	2,00	0,160	10	0,068
Juiced cucumber	1,30	0,483	10	

Source: Wilcoxon data, 2019

Analysis of the effect of boiled Indonesian bay leaf and juiced cucumber on elderly with hypertension

Through a door-to-door interview on the initial data collection conducted by researchers in July 2019 on 5 elderly people with hypertension, 3 out of 5 subjects took antihypertensive drugs to treat their blood pressure and 2 out of 5 subjects used herbal medicines to treat high blood pressure. Researchers at that time asked questions about the herbal medicine used in which 2 of the 5 subjects answered that what had been used was a decoction of soursop leaves and papaya fruit. When asked about Indonesian bay leaves solution and cucumbers, the elderly said they did not know that they could lower blood pressure.

Indonesian bay leaf solution

The nutritional ingredients in bay leaves shows how beneficial it is for reducing hypertension. However, people still figured out about it. Apart from being used to lower blood pressure, Indonesian bay leaves solution are also used to treat stomach pain, diarrhea, gout, stroke, high cholesterol, inflamed stomach, itching and diabetes (Harismah and Chusniatun, 2016).

Table 5 shows the results of the Wilcoxon statistical test with a value of P value 0,005 <0,05, this means that Ho has been rejected and Ha has been accepted, which means that there is a difference in pretest and posttest blood pressure. Based on the results average blood pressure, the pretest average value was 3.80, which was smaller than the posttest average value of 1.80. It can be concluded that there is effectiveness from drinking boiled Indonesian bay leaf solution in treating elderly with hypertension at Puskesmas Moncobalang Health Center, Gowa Regency.

Rahayu (2017) revealed that boiled 10 sheets of Indonesian bay leaves solution with 3 cups of water until reduced to 1 cup when drunk in the morning or evening, ½ cup every time for 7 days shows a systolic blood pressure of 172,4 mmHg and then drops to 155,6 mmHg. While the diastole before drinking the Indonesian bay leaves solution solution was 97,6 mmHg and after being given the solution, it decreased by 84.9 mmHg. With a p value = 0,000 <0,05, which means that boiled Indonesian bay leaf has a very effective effect on the reduction of blood pressure in the elderly with hypertension.

Hidayat (2018) showed that subjects drank 100 ml of Indonesian bay leaf solution in

the morning and evening before eating for 7 days, showing the effect of on elderly with hypertension. The drop in blood pressure is due to the diuretic effect of Indonesian bay leaves solution which can increase the acceleration of the formation of urine so that they function as a stimulant for urine. Besides that, it has an important function in carrying out the movement of the edema fluid that balances the extracellular fluid.

The decrease in blood pressure occurs due to the presence of flavonoids, the mechanism of which is the result of stimulation of the excretion of bile that comes out with cholesterol through the intestines, including stimulating the work of blood circulation to reduce fat deposits in blood vessels. Indonesian bay leaves solution have been proven to be able to treat patients with hypertension; they are able to reduce blood pressure. This condition must be supported by the obedience of respondents in consuming boiled Indonesian bay leaf solution and reducing consumption of foods that contain lots of salt. Although many other researchers stated that bay leaves are very effective at lowering blood pressure, if the trigger factor of hypertension is not avoided, there will be no decrease in blood pressure (Sumekar and Utami, 2017).

The procedure for making and giving Indonesian bay leaf solution as a therapy for hypertension patients is putting 10 Indonesian bay leaves solution into a pot filled with water, and bring to boil until the remaining 200 ml is left. Filter the water and put it in a glass. Then serve it to the patient. Drink boiled Indonesian water 1x a day in the morning for 7 days. (Nurcahyati, 2014).

Juiced cucumber

The next herb for hypertension is cucumber (*Cucumis sativus L*) in the *cucurbitaceae* family. This plant produces fruit which when ripe can then be eaten after being harvested. Even when it's not ripe, it can be used as a vegetable or freshener. The water content is quite a lot and functions to cool the body, it is also used to moisturize the face and reduce high blood pressure (Tjiptaningrum and Erhadestria, 2016).

The data Table 6 shows that the results of the Wilcoxon statistical test show the value of Pvalue 0.004 <0.05, this means that Ho has been rejected and Ha has been accepted, which means there is a difference in pretest and posttest blood pressure. Based on the results of the average blood pressure, the pretest average value was 3.80, which was smaller than the posttest average value of 2,50. Thus, it can be seen that there is an effectiveness of drinking juiced cucumber in treating elderly with hypertension at Puskesmas Moncobalang, Gowa Regency.

It is in line with Ponggohong (2015) who stated that juiced cucumber is consumed by 16 subjects with hypertension by drinking 1 time a day in the afternoon at 15.00 WITA (Central Indonesia Time) for a week. Obtained the mean value before juiced cucumber therapy of 167,50 mmHg decreased to 113.13 mmHg after being given therapy. The results of the dependent t test showed a p value of 0.000 < 0.05, which means that there is an effect of juiced cucumber on patients with hypertension. The substances in cucumber are also useful for replacing water because of their high water content. Besides increasing potassium in the blood so that the natrium is excreted.

This study was also supported by Zahlimar and Yuniati (2017) which was carried out by 30 subjects by consuming it for 10 days. And the results of statistical tests showed that the systole before consuming the juiced cucumber was 165,5 mmHg and decreased by 159 mmHg after consuming the juiced cucumber. Meanwhile, diastole before consuming 102,6 mmHg juiced cucumber and after consuming juiced cucumber decreased 99 mmHg. P value = 0,001 <0,05, which means that there is an effect of cucumber consumption on systolic and diastolic blood pressure in elderly with hypertension.

This shows that there is a way to treat high blood pressure which is to drink juiced cucumber regularly. Where juiced cucumber contains a lot of substances, one of which is

potassium and is a diuretic. Diuretics function to reduce sodium reabsorption in the body. So, to be more effective, people have to maintain their diet, where some of the people, even though they consume juiced cucumber, do not experience a significant decrease, this is due to their poor diet. So the researchers suggest that people with hypertension consume more cucumbers and other fruits and vegetables (Jin et al. 2011).

The procedure for making and giving juiced cucumber is 100 grams of cucumber, 50 ml of boiled water. Wash the cucumber then remove the seeds and cut the cucumber. Enter the cucumber and water then blend until smooth. If using grater, grate the cucumber, pour it into the water after it is crushed then strain it and put it in a glass. Then let the patient drink it. Drink it once a day in the morning for 7 days (Syam, 2016).

The difference in effectiveness of boiled bay leaves and juiced cucumber in hypertensive elderly

Research conducted from 31 July to 31 August 2019, there were 30 subjects who had hypertension. In Table 1, there were 30 subjects with 22 subjects (73.3%) and aged 60-69 years as many as 23 subjects (76.7%). The older a person the weaker their physical endurance and their thinking power, therefore the health of the elderly is very important to pay more attention to. Lack of attention to elderly groups can cause complex problems for these elderly people. Given that health is a very important aspect that needs to be considered in the life of the elderly, therefore the health of the elderly needs special attention (Widuri H, 2010).

High Density Lipoprotein (HDL) is able to be protected by the hormone estrogen which plays a role in increasing levels, which this hormone is only owned by women. However, when women are pre-menopausal, women slowly lose the hormone estrogen which is protective against damage to blood vessels (Wahyuni and Pratiwi, 2011).

Pharmacology is the main treatment in hypertension cases. However, due to the relatively high price and not all levels of society could afford the medicine, the community choose healing and alternative treatments. This is also because therapy using pharmacology can cause various diseases due to side effects of these chemical drugs such as anemia, asthma and sleep disorders in people with hypertension. There are various types of plants in Indonesia to become herbal medicine, for example, bay leaves and cucumber. (Nurcahyati, 2014)

Based on table 8, the Wilcoxon statistical test shows a P value of 0,068> 0,05, this means that Ha has been rejected and Ho has been accepted, meaning that there is no difference in effectiveness between boiled Indonesian bay leaves solution and juiced cucumber in elderly with hypertension at Moncobalang Health Center, Gowa Regency. This study found that there was no difference in effectiveness between the two therapies, because the same process was both considered very effective in overcoming hypertension. However, both therapies will be ineffective if people with hypertension are irregular and disciplined in consuming boiled bay leaf water or juiced cucumber, including avoiding foods that contain lots of sodium. However, if it is seen from the systolic and diastolic subjects, it shows that there is a difference in effectiveness between boiled bay leaves and juiced cucumber. The most effective is boiled bay leaves (Badrujamaludin et al, 2020).

Margowati et al. (2016) said that bay leaf stew is more effective than boiled avocado leaves solution. Containing chemicals that can stimulate blood circulation, Indonesian bay leaves are proven to be able to reduce fat deposits on blood vessel walls. Most of the subjects who like to consume fatty foods such as fried foods and other fatty foods with poor diet, of course, will accumulate fat in the body.

CONCLUSION

There was no difference in effectiveness between boiled Indonesian bay leaves solution and juiced cucumber on reducing blood pressure in hypertensive elderly at Moncobalang Public Health Center, Gowa Regency in 2019. However, in this study, when viewed based on systolic and diastolic, the subjects showed that the greatest effectiveness in lowering blood pressure in elderly with hypertension at Puskesmas Moncobalang, Gowa Regency was Indonesian boiled bay leaves solutions.

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CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest.

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