

Effect of Decoction of Bay Leaves (*Syzygium polyanthum*) on Blood Pressure Changes in Elderly Patients with Primary Hypertension in the Work Area of Pekauman Health Center

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ABSTRACT

Hypertension is threat main for health worldwide. Hypertension based on the etiology distinguished Becomes two that is primary and secondary hypertension. Prevalence hypertension in the world 90-95% is primary hypertension. Riskesdas data shows prevalence highest hypertension happens in groups elderly. Treatment common hypertension is known Public is with therapy pharmacological. Besides therapy pharmacological there is also therapy complementary and alternative that has advantages that is easy, cheap and affordable and minimal effect side. Stew leaf regards is one therapy complementary for lower pressure blood because contain compound the *flavonoids* contain *quarCERTIN*. *QuarCERTIN* this is what useful as a vasodilator, antiplatelet, and *antiproliferative* as well as could lower pressure blood. For knowing influence stew leaf regards to decline pressure blood elderly sufferer primary hypertension. Method of this study used *quasi experiment* with design *nonequivalent control group design*. The sampling technique used is *purposive sampling*, which is divided into 13 groups control and 13 groups treatment. The statistical test used is the Mann Whitney test. The result showed score *p-value* group treatment after given stew leaf regards for 7 days is $= 0.000 < 0.05$. Boil leaf regards give significant influence to decline pressure blood elderly sufferer primary hypertension.

INTRODUCTION

Hypertension is problem health for all countries in the world numbers continuing epidemic increase every the year is threat main for health worldwide. Case hypertension predicted will experience enhancement as much as 60 % in 2025. Incident hypertension like iceberg where many people are not realize himself suffer hypertension even in developed countries. Although Thing this still often occur [1]. According to WHO, the global prevalence of sufferers hypertension in 2019 reached 22% of the total world population. Prevalence highest indicated in the African region with prevalence by 27% of the total population , meanwhile for Southeast Asia to occupy ranking to three with prevalence of 25% of the total population [2]. Based on data from Riskesdas (Basic Health Research) in 2018, the total number of sufferers hypertension aged over 18 years in Indonesia by 34.11 % . Data per province in Indonesia, shows that South Kalimantan occupies position first with prevalence of 44.13% of the total population sufferer hypertension [3]. Sufferer hypertension in Banjarmasin at advanced age (elderly) experience enhancement from 17,113 sufferers in 2019 to 23,039 sufferers in 2020 , as seen from addition notes case new to service health Banjarmasin city from month January-December 2020 (P2P PTM Banjarmasin City Health Office, 2021) . In line with Thing mentioned, data from The Banjarmasin City Pekauman Health Center shows sufferer hypertension in the elderly also experienced improvement. The data shows that in the Pekauman health center it happened enhancement case hypertension highest to three of the 26 public health center that have their respective work areas in Banjarmasin (P2P PTM Health Office of Banjarmasin City, 2021). Hypertension based on the etiology distinguished Becomes two that is primary and secondary hypertension [4] . Primary hypertension or essential is type causative hypertension _ what we can be certain of is still not yet known [5]. Primary hypertension is type most common hypertension found in the community, 90-95% of sufferers hypertension caught primary hypertension. Based on study, factors risk primary hypertension among them type gender , history family , stress , sports that don't regular and habitual smoking [6]. Besides that, it show that age is also included to in factor risk reason happening primary hypertension, in research 67% elderly from the total sample hypertension he studied Show patient data primary hypertension [7]. Affected seniors hypertension

need various type care and treatment good treatment in a manner pharmacological and non- pharmacological. Treatment common hypertension _ is known Public is with therapy pharmacological. However, therapy this often not conducted in a manner regular because various factor like not enough knowledge , distance to facility health , height price medicine and lack discipline patient [1]. Because it is necessary treatment hypertension that is easy, cheap and affordable for sufferer hypertension. Easy , inexpensive and affordable therapy and minimal effect side is therapy complementary and alternative [8]. Stew leaf regards is one _ therapy complementary for lower pressure blood. Leaf regards could lower pressure blood because there is compound the *flavonoids* it contains *quarcertin*. *Quarcertin* this is what useful as *vasolidator*, *antiplatelet* , and *antiproliferative* as well as could lower pressure blood in patients hypertension [9]. Based on description above, researcher _ interested for To do study about influence therapy stew leaf regards to change pressure blood elderly sufferer primary hypertension in the work area Pekuman Health Center.

MATERIALS AND METHODS

Materials

This research was conducted in the working area of the Pekauman Health Center, Pekauman Village, South Banjarmasin District, Banjarmasin City, Kalimantan. Screening activities and categorizing of respondents were carried out for 5 days, starting from April 15 2022 to April 20 2022. This activity was carried out before the research which aimed to select respondents so that they fit the inclusion and exclusion criteria. Then the research was conducted for 20 days divided into 2 activities per 10 days, namely from April 21 2022 to April 30 2022 the researcher focused on collecting control group data and from May 8 2022 to May 17 2022 the researcher focused on collecting control group data. The targets in this study were elderly people with primary hypertension who live in the working area of the Pekauman Health Center. The research instrument in this study, as follows:

1. Aneroid sphygmomanometer is used to measure the respondent's blood pressure.
2. The stethoscope is used to determine the respondent's diastolic blood pressure.
3. Standard Operating Procedure (SOP) for making bay leaf stew to be used as a reference for making bay leaf stew.
4. Bay leaves 10 pieces or \pm 12 grams.
5. The tools and materials for boiling bay leaves are a pot, water, gas stove or kerosene.
6. Strainer to filter the boiled water of bay leaves before drinking.
7. A glass to hold the decoction of bay leaves before drinking.
8. Observation sheet to determine the daily progress of the respondent's blood pressure.

Methods

Method research used in study this is method study quantitative with design *quasi experiment* with design *nonequivalent control group design*. Study this carried out in the work area Pekauman Health Center, South Banjarmasin District, Banjarmasin City. The population used in the study this is elderly with aged 60-79 years with diagnosis primary hypertension domiciled in Pekauman village. Research *sampling* technique This study uses *purposive* sampling. Criteria *inclusion* sample study this as following; 60 years old moment do the intervention test, willing Becomes respondent research, domiciled in the village of Pekauman, currently consuming drug primary hypertension with dose 1x a day and no have history disease emergency. Then for criteria research *exclusion* this as following; aged more from 80 years moment conducted research tests, suffer disease kidney, smoker active, consuming alcohol moment given stew leaf regards, and medium apply non- pharmacological therapy other. Amount suitable sample criteria *inclusion* and inner *exclusion* study this totaling 26 respondents. Instrument data collection used in research this use Aneroid sphygmomanometer and stethoscope used for measure pressure blood, Standard operational Manufacturing procedures. stew leaf regards as ingredient reference making stew leaf Greetings, leaves greetings 10 sheets or \pm 12 grams, tools and materials for boil leaf regards that is pot, water, gas stove or oil soil, sieve for filter the resulting water stew leaf regards before drink, glass for accommodate stew leaf regards before drink, and observation sheets for knowing development daily pressure blood respondent. Deep data collection techniques study this, using interviews no structured dan observation systematic. As for research data analysis techniques it uses descriptive and inferential analysis. Descriptive analysis used for knowing common data distribution

respondent and inferential analysis in study this using the drop test percentage and *Mann Whitney* for knowing there is or no influence gift leaf decoction regards to change pressure blood systolic (PBS) and diastolic (PBD) elderly sufferer primary hypertension.

RESULTS AND DISCUSSION

Results

Research results this served Becomes two category namely general data and special data. general data containing characteristics respondent covers age, type gender, grade education, and classification hypertension according to WHO based results measurement pressure blood. Characteristics respondent group treatment could seen in table 1, below.

Table 1: Characteristics Respondents Group Treatment

Characteristic Data	Frequency (n)	Percentage (%)
Type Sex		
Woman	11	84,6
Man	2	15,4
Age		
60 - 69 years	10	76,9
70 - 79 years	3	23,1
Last education		
Not yet graduated from elementary school	5	38,5
SD / equivalent	5	38,5
Middle school/equivalent	3	23,1
High school/equivalent	0	0
Classification Hypertension		
Hypertension (Primary) Grade II	11	84,6
Systolic (Primary) Hypertension Isolated	2	15,4

Source: Primary Data, 2022

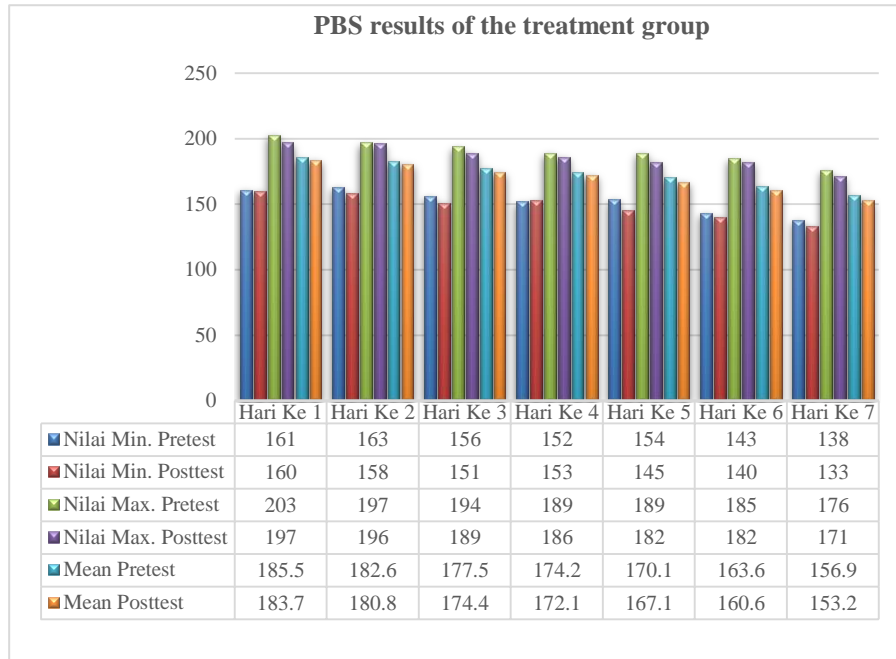
Characteristics respondent group treatment could seen in table 2, below

Table 2: Characteristics Respondents Group Control

Characteristic Data	Frequency (n)	Percentage (%)
Type Sex		
Woman	10	76,9
Man	3	23,1
Age		
60 - 69 years	10	76,9
70 - 79 years	3	23,1
Last education		
Not yet graduated from elementary school	3	23,1
SD / equivalent	7	53,8
Middle school/equivalent	2	15,4
High school/equivalent	1	7,7
Classification Hypertension		
Hypertension (Primary) Grade II	10	76,9
Systolic (Primary) Hypertension Isolated	3	23,1

Source: Primary Data, 2022

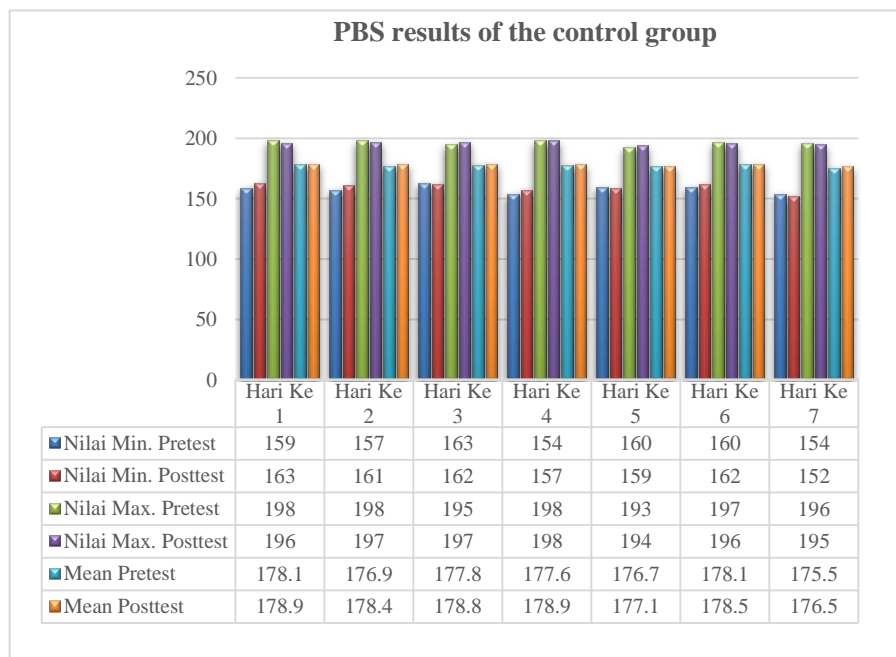
Custom data study this covers results measurement daily PBS and PBD from day 1-7 in the group treatment and control. Figure 1 below this shows the PBS of the day to 1-7 groups treatment.



Source: Primary Data, 2022

Figure 1: Results of daily PBS measurement of the treatment group

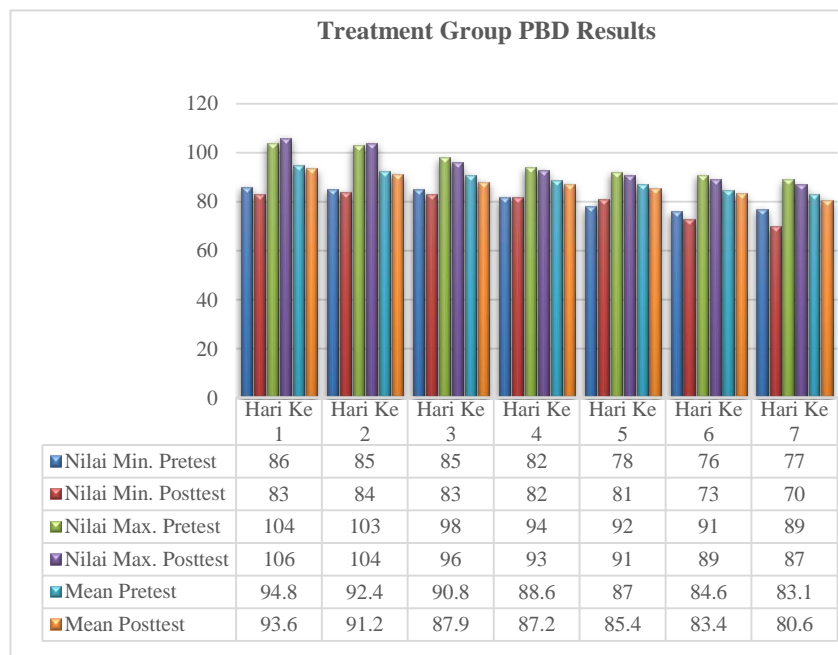
PBS results in groups control shown in figure 2, below this



Source: Primary Data, 2022

Figure 2: Results of daily PBS measurement of the control group

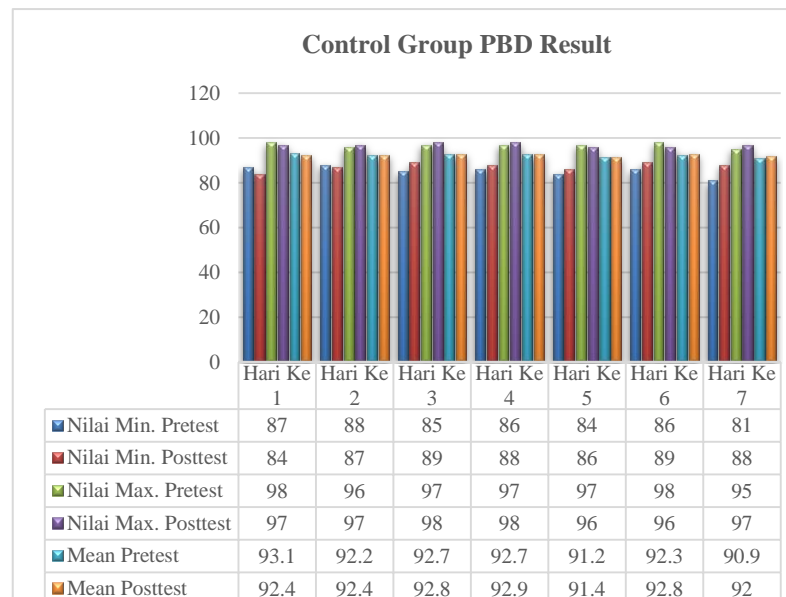
PBD results in groups treatment shown in figure 3, below this



Source: Primary Data, 2022

Figure 3: Results of daily PBD measurement of the treatment group

PBD results in groups control shown in figure 4, below this



Source: Primary Data, 2022

Figure 4: Results of daily PBD measurement of the control group

Custom data study it also includes data from the drop test analysis percentage and *mann whitney* for knowing influence stew leaf regards to change pressure blood elderly sufferer primary hypertension. Following research analysis results this.

Table 3: Percentage reduction test results and Mann Whitney PBS and PBD

Test Analysis Decline Percentage and Mann Whitney TDS Posttest Day 7				
Distribution Group	Means	SD	Percentage Decline	p Value
Group Treatment	153,27	10.25	17%	0.000
Group Control	176.54	11.89		
Derivation Analysis Test Percentage and Mann Whitney TDD Posttest Day 7				
Group Treatment	80,62	4,44	12%	0.000
Group Control	92.04	0.50		

Source: Primary Data, 2022

DISCUSSION

Tables 1 and 2 show the 76.9% group treatment and dick are in a group with range aged 60-69 years. Research results This is supported by the results study Purwono where in his research found data on elderly who became respondent research average age 67.04 years [10]. According to him more and more old age somebody so will the more easy caught hypertension. it caused by patterns aging and average age 67.04 years. Work growing heart decreased. Wall arteries in the heart the more old will the more thicken because buildup substances collagen in the lining muscle, so cause vessels blood narrow and become resulting stiffness heart must pump more hard so that pressure blood too increase. Research results this also shows hypertension in the elderly most happens to women. These results are in line with another study which shows distribution of respondent data namely 15 men and 45 women suffer hypertension[11] . According to Anwar & Masnina aged woman carry on more susceptible experience hypertension because moment age carry on production the female hormone estrogen will experience decline [12] . This causes decline *High Destinity Lipoprotein* (HDL) so trigger occurrence of arteriosclerosis. Function from HDL itself is care for and look after health vessels blood. Impact that will generated from HDL deficiency or also known as term *Low Destinity Lipoproteins* (LDL) is happening atherosclerosis can cause pressure blood increase because happening hoarding plaque in the vessels blood so that heart will pump more hard [11].

Education level the most respondents suffer hypertension in the study this is have not graduated from elementary school and have passed elementary school. In line with Thing such , research Wu & Wang (2019) also show the same result where the respondent suffering elderly Hypertension is the most common among people education low good already _ graduated from elementary school or not graduated from elementary school or equivalent [13]. According to him, because level education for the elderly most are in elementary school or not yet graduated from elementary school will resulted they deficiency knowledge about method prevention hypertension and danger hypertension leading to neglect disease this. In line with Thing the according to Uchmanowicz height case hypertension in the elderly is also caused due to repetition or no he recovered hypertension in total in the elderly[14]. This triggered by non-compliance for implementing a therapeutic regimen in accordance instructions. Tables 1 and 2 above also show good from group treatment nor control results measurement pressure blood pressure (BP) predominate in grade II ie results of PBS \geq 160 MmHg or PBD \geq 100 MmHg. Besides that, on the respondent group control also occurs hypertension systolic isolated. In line with results this another research found where 68.6% of the elderly are respondent his research , when conducted inspection pressure blood is in grade II[15]. It is explained reason more grade II hypertension many found in the elderly caused by factors age. According to him, more and more old age somebody so change and decline function physiological somebody the more real. Change the like function decreased heart, vessels no blood elastic again, and production decreased hormones could cause enhancement pressure blood [16].

Another researcher explain that PBS will be Keep going increase until somebody 80 years old and for PBD will be Keep going increase until ages 55-60 years. After age that, pressure blood tend will settled, reduced, or even reduce in a manner drastic. This is what causes part respondent elderly experience hypertension systolic isolated [17]. Reason primary hypertension in respondents study this based on description on according to researcher could caused because a number of factor like decline function vessels blood artery because factor age, type female genitalia caused because decline estrogen hormone, and levels education that causes lack of knowledge of the respondents related method resolve hypertension.

Table 3. shows the mean of PBS and PBD. As for the mean of group treatment in days seventh after given stew leaf regards for 7 days in the morning and evening is 153.27 MmHg and for group dick is 176.5mmHg. Then for the mean PBD in the group treatment were 80.62 MmHg and 92.04 MmHg in the group control. Decline analysis the percentage of PBS and PBD in table 3 is as much as 17% for the PBS group and 12% for PBD group. Besides show decline analysis results percentage, table 3 also shows results of the analysis of the *Mann Whitney* test. Table it also shows *man whitney* test value in the PBS and PBD groups was $0.000 = <0.05$. Based on results of 2 hypothesis tests above, leaves regards proven take effect in a manner significant to change pressure blood elderly sufferer primary hypertension. With results the could concluded Ha research this accepted and Ho is rejected. Stew leaf regards effective lower pressure blood because inside _ leaf regards contain flavonoid compounds.

Flavonoid compounds themselves proven could lower pressure blood with method lower *Systemic Vascular Resistance* (SVR), which results in vessel vasodilation blood. Besides reduce leaf SVR greetings too affect the ability of ACE inhibitors inhibits angiotensin I conversion to angiotensin II [18]. Besides it, leaf regards could stimulate decline rate cholesterol in blood. It cause elasticity vessels blood could maintained even could improve, consequently pressure blood could decreased. According to researcher stew leaf Greetings are very effective for consumed by the elderly sufferer primary hypertension due besides proven take effect lowering the BP effect the resulting side is also very minimal is only sick head light and disappear after a number of day gift.

CONCLUSION

The results of the analysis of the effect of boiled bay leaves on the elderly with primary hypertension on reducing blood pressure from the Mann Whitney test results can be interpreted that there is an effect because the p value is $0.000 = <0.005$, both TDS and TDD results. With these results it can be concluded that Ha is accepted and Ho is rejected.

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