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The Effect of Giving Young Coconut Water on Lowering Blood Pressure in Elderly People with Hypertension in Sarirahayu Hamlet, Cimaragas Health Center Working Area

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ABSTRACT

Hypertension is a cardiovascular disorder, hypertension is the number 1 cause of death in the world and it is estimated that hypertension will continue to increase. According to WHO, the blood pressure limit that is still considered normal is 140/90 mmHg while blood pressure ≥160/95 mmHg is declared hypertension. This study aims to determine the effect of giving young coconut water on lowering blood pressure in the elderly with hypertension in Sarirahayu Hamlet, Cimaragas Health Center Working Area. The type of research used is quantitative using Quasy Experiment with one group pretest-postest design. The population in this study were 38 respondents, with the sampling technique using purposive sampling technique. The sample of this study amounted to 15 respondents, namely elderly people with hypertension. The results of this study indicate that after being given young coconut water to 15 respondents, all respondents experienced a decrease in blood pressure. Based on the results of the Wilcoxon test, the p value = 0.001 < α = 0.05, which means that there is an effect of giving young coconut water on lowering blood pressure in the elderly with hypertension in Sarirahayu Hamlet, Cimaragas Health Center Working Area.

Keywords: *Interprofessional Education* (IPE), Literature Review, Authorship

Introduction

Hypertension is a cardiovascular disorder, hypertension is the number 1 cause of death in the world and it is estimated that the number of people with hypertension will continue to increase along with the increasing population. According to WHO, the blood pressure limit that is still considered normal is 140/90 mmHg, while blood pressure ≥160/95 mmHg is declared as hypertension. Hypertension is called a silent killer because it is a deadly disease without any symptoms as a warning to its victims. Hypertension is one of the leading causes of death, as it may be asymptomatic but many complications will develop rapidly and lead to death (Salem et al., 2018).

According to data from the World Health Organization (WHO) in 2021, it was found that approximately 1.28 billion people in the world aged 30-79 years had hypertension (WHO, 2021). The data also shows that as many as 46% of people with hypertension are unaware of their condition and only 42% of hypertension cases are diagnosed and treated (WHO, 2021).

The case of hypertension in Indonesia based on Basic Health Research in 2018, shows the prevalence of hypertension nationally is 34.1% based on measurements of age 18 years and over, for West Java province ranks second in the province with hypertension cases as much as 40.1% of 48,037,827 people. The incidence of hypertension occurs in the age group 31-44 years (31.6%), age 45-54 years (45.3%) and age 55-64 years (55.2%) (Riskesdas, 2018). Meanwhile, data in Ciamis Regency in 2021, the prevalence of hypertension was 347,888 cases (Ciamis Health Office 2021). While data from the Cimaragas Health Center in 2021 the number of hypertension diseases is quite high, hypertension cases are the most cases, namely 365. Sarirahayu Hamlet is the hamlet with the most hypertension patients, namely there are 38 elderly people who receive guidance.

Treatment of hypertension can be done pharmacologically and non-pharmacologically. Pharmacological treatment is treatment using anti-hypertensive drugs. Taking these drugs continuously is often disliked by people with hypertension. In addition to making boredom, the price is relatively expensive and not obedient to taking antihypertensive drugs regularly, long-term consumption of drugs also makes sufferers afraid of side effects. Pharmacological management is with anti-hypertensive drugs.

Non-pharmacological treatment is a form of treatment service that uses methods, tools or materials that are used as an alternative or complement to certain medical treatments. Non-pharmacological therapy that can be given to people with hypertension is herbal treatment, namely drinking young coconut water (Fahriza 2014).

Young coconut water is water commonly found in young coconuts and has a sweet taste, young coconut water contains sugar, protein, calcium, magnesium, vitamin C, potassium and sodium. Consumption of foods with high potassium and low sodium content is important to maintain blood pressure within normal limits. Coconut water contains a high potassium K element of about 290 mg/100 ml. Coconut water aged 6-8 months has the highest potassium content and the lowest sodium (Farapti and Sayogo 2017).

Potassium can reduce renin secretion which causes a decrease in angiostensin II so that vasoconstriction of blood vessels is reduced and reduce aldosterone so that the reabsorption of sodium and water into the blood is reduced. Potassium also has an effect in the Na-K pump, namely potassium is pumped from the extracellular fluid into the cell, and sodium is pumped out so that potassium can lower blood pressure. (Guyton & Hall 2008 in Petrika et., al 2020). Potassium is what works by maintaining the balance of blood pressure. Potassium (potassium) is the main ion in intracellular fluid. Consuming potassium will increase its concentration in the intracellular, so it tends to draw fluid from the extracellular

portion and lower blood pressure. Magnesium minerals are also beneficial for blood flow and calming the nerves. (Cembun et.al 2020).

Preliminary studies conducted by researchers in March 2022 in Sarirahayu Hamlet by conducting interviews and checking blood pressure in 5 people with hypertension, from the results of blood pressure checks 3 elderly people out of 5 people have a systole blood pressure of 160 mmHg and a diastole blood pressure of 100 mmHg. After conducting interviews regarding non-pharmacological treatment with young coconut water, 1 person said that lowering his blood pressure only used drugs from health workers such as amlodipine and 1 more person said taking herbal home remedies such as celery leaf decoction and had never tried young coconut water therapy.

Methods

The type of research used is quantitative research, using Quasy Experiment (pseudo experiment). This research design uses a one group pretest-postest design is a research activity that provides an initial test (pretest) before being given treatment, after being given treatment then gives a final test (posttest).

The population of this study were all elderly people suffering from hypertension in Sarirahayu Hamlet, Cimaragas health center working area with a total population of 38 people. The instruments used are observation sheets, stethoscopes and tension meters to measure blood pressure. Data analysis used in this study using the Wilcoxon Test

Results

Characteristics of Respondents

The characteristics of respondents in this study are classified by age, gender, education, and occupation. Based on the research, the characteristics of the community in the Sarirahayu Hamlet neighborhood are as follows:

Table 1

Frequency Distribution of Respondents by Age in Sarirahayu Hamlet, Cimaragas Health Center Working Area

Age	Frequency	Percentage
60-65 year	5	33.3 %
66-70 year	4	26.7 %
71-75 year	6	40.0 %
Total	**15**	**100**

Based on table 1 above, it can be seen that the frequency distribution according to age in the Cimaragas Health Center Working Area is mostly at the age of 71-75 years, namely 6 people (40.0%) and the least respondents aged 66-70 years as many as 4 people (26.7%).

Table 2

Frequency Distribution of Respondents According to Gender in Sarirahayu Hamlet, Cimaragas Health Center Working Area

Gender	Frequency	Percentage
Female	12	80.0 %
Male	3	20.0 %
Total	**15**	**100**

Based on table 2 above, it shows that female respondents in this study were more numerous than male respondents, namely 12 people (80.0%) and the remaining male respondents were 3 people (20.0%).

Table 3

Frequency Distribution of Respondents According to Education in Sarirahayu Hamlet, Cimaragas Health Center Working Area

Last Education	Frequency	Percentage
SD	15	100.0 %
Total	**15**	**100**

Based on table 3 above, it can be seen that the last educational background of the respondents was elementary school graduates as many as 15 people (100.0%).

Table 4

Frequency Distribution of Respondents According to Occupation in Sarirahayu Hamlet, Cimaragas Health Center Working Area

Jobs	Frequency	Percentage
Housewife	12	80.0 %
Farmer	3	20.0 %
Total	**15**	**100**

Based on table 4 above, it shows that the background of respondents based on workers, most of the respondents are housewives, namely 12 people (80.0%) and the rest work as farmers as many as 3 people (20.0%).

Univariate Analysis

1. Frequency distribution of blood pressure status before being given young coconut water

Table 5

Frequency Distribution of Systolic Blood Pressure Status Before being given Young Coconut Water in Elderly with Hypertension in Sarirahayu Hamlet

Systolic Blood Pressure Before Young Coconut Water Administration		
Systolic Blood Pressure	**Frequency**	**Percentage**
160	4	26.7 %
170	4	26.7 %
180	7	26.7 %
Total	**15**	**100.0**

Table 5 shows that 15 respondents before being given young coconut water had a systolic blood pressure range of 160-180 mmHg. Systolic blood pressure of 160 mmHg was 4 respondents (26.7%) and systolic blood pressure of 170 mmHg was 4 respondents (26.7%) and those with systolic blood pressure of 180 mmHg were 7 respondents (46.7%).

Table 6

Frequency Distribution of Diastolic Blood Pressure Status Before being given Young Coconut Water in Elderly with Hypertension in Sarirahayu Hamlet

Diastolic blood pressure before young coconut water intake		
Diastolic Blood Pressure	**Frequency**	**Percentage**
90	6	40.0 %
100	8	53.3 %
110	1	6.7 %
Total	**15**	**100.0**

Table 6 shows that 15 respondents before being given young coconut water had a diastolic blood pressure range of 90-110 mmHg. Diastolic blood pressure of 90 mmHg was 6 respondents (40.0%), diastolic blood pressure of 100 mmHg was 8 respondents (53.3%) and diastolic blood pressure of 110 mmHg was 1 respondent (6.7%).

1.Frequency distribution of blood pressure status after being given young coconut water

Table 7
Frequency Distribution of Systolic Blood Pressure Status after being given Young Coconut Water in Elderly with Hypertension in Sarirahayu Hamlet

Systolic Blood Pressure after Young Coconut Water Administration		
Systolic Blood Pressure	**Frequency**	**Percentage**
130	3	20.0 %
140	5	33.3 %
150	6	40.0 %
160	1	6.7 %
Total	**15**	**100.0**

Table 7 shows that 15 respondents after consuming young coconut water for 7 days experienced a decrease in blood pressure with a range of 130-160 mmHg. Systolic blood pressure 130 mmHg was 3 respondents (20.0%) then systolic pressure 140 mmHg was 5 respondents and systolic pressure 150 mmHg was 6 respondents and systolic pressure 160 mmHg was 1 respondent.

Table 8
Frequency Distribution of Diastolic Blood Pressure Status After being given Young Coconut Water in Elderly with Hypertension in Sarirahayu Hamlet

Diastolic Blood Pressure after Young Coconut Water Administration		
Diastolic Blood Pressure	**Frequency**	**Percentage**
80	6	40.0 %
90	8	53.3 %
100	1	6.7 %
Total	**15**	**100.0**

Table 8 shows that 15 respondents after consuming young coconut water for 7 days experienced a decrease in diastolic blood pressure with a range of 80-100 mmHg. Diastolic blood pressure 80 mmHg as many as 6 respondents (6.7%) diastolic pressure 90 mmHg as many

as 8 people (53.3%) and who have systolic blood pressure 100 mmHg as many as 1 person (6.7%).

Bivariate Analysis

The results of the effect of giving young coconut water on lowering blood pressure in the elderly with hypertension in Sarirahayu Hamlet, Cimaragas Health Center Working Area using Wilcoxon can be seen in table 9 as follows:

Table 9
The Effect of Giving Young Coconut Water on Decreasing Blood Pressure in the Elderly with Hypertension in Sarirahayu Hamlet

Blood Pressure	*Mean*		*P-Value*
	Pre	Post	
Systolic	172.00	143.33	0.001
Diastolic	96.67	86.67	

The data in table 9 the results of the Wilcoxon statistical test on pretest and posttest blood pressure show a p-value of 0.001 < α = 0.05, which means that H1 is accepted, meaning that there is an effect of giving young coconut water on lowering blood pressure in elderly people with hypertension in Sarirahayu Hamlet, Cimaragas Health Center Working Area.

Discussion

The results showed that the most respondents who suffered from high blood pressure were the average age of respondents in this study aged 71-75 years 6 people (40%). These results are in line with research by Aristotle (2018) which states that there is a relationship between age and the incidence of hypertension, adult blood pressure will increase with age this occurs due to the weakening function of the human organs.

Gender is one of the factors that affect blood pressure that cannot be changed. The gender in this study was mostly female, namely as many as 12 people (80.0%) Factors that can trigger high blood pressure, one of which is hormonal changes. This is supported by research by Mariza Elvira 2019 in Rahmawati (2021) which suggests that women who have experienced menopause will tend to experience hypertension due to low levels of estrogen in the blood which can cause an increase in LDL (Low Density Lipoprotein) in the blood, thus triggering hypertension. This is because women who have experienced menopause have low estrogen levels.

The level of education is a factor that can affect the occurrence of hypertension. There is a tendency that the lower the education the lower the knowledge about hypertension and vice versa, the higher the level of education, the more alert and maintain a healthy lifestyle due to the amount of information obtained. This is because the level of knowledge of the community in Sarirahayu Hamlet is low from the information obtained from respondents, the reason why respondents do not continue their education is influenced by the economy, the rarity of schools in ancient times and the environment, the majority of which in ancient times was not so important to education. This study is in line with the results of research conducted by Sugiharto et al (2017) which states that the level of education can affect a person's ability and knowledge

in implementing healthy behavior, especially hypertension. The higher the level of education, the higher a person's ability to maintain a healthy lifestyle.

Work has an influence on hypertension, the results of the study showed that the respondents' jobs were housewives, namely 13 people (80.0%). It is known that women in Sarirahayu Hamlet work as housewives, where their daily lives are spent at home with activities that are carried out almost the same every day which makes them bored with momnoton activities so that respondents at this time switch to using tools that make it easier to do household chores such as washing machines which make housewives less physically active. The lighter the work they face, the less active they are, causing housewives to be more at risk of high blood pressure. This is in line with the opinion of (Handayani, Rusli, & Ibrahim 2017) which states that work as a housewife tends to cause severe hypertension due to lack of physical activity and stress. Sources of stress at work include workload, inadequate work facilities, unclear job roles, work and family demands.

The results showed that before being given young coconut water therapy had a systolic range of 160-180 mmHg and diastolic 90-110 mmHg with the highest systolic pressure of 180 mmHg and diastolic blood pressure of 110 mmHg. After being given young coconut water therapy all respondents experienced a decrease in blood pressure with a systolic range of 130-160 mmHg and diastolic 80-100 mmHg with the lowest systolic blood pressure of 130 mmHg and diastolic pressure of 80 mmHg. From this data shows a significant difference in systolic and diastolic blood pressure in hypertensive patients before and after consuming young coconut water. wilcoxon statistical test results on pretest and posttest blood pressure show a p-value of .001 < α = 0.05.

The decrease in blood pressure is due to young coconut water containing potassium, magnesium and vitamin C. Potassium contained in coconut water can keep blood vessel walls elastic and reduce blood vessel constriction so that blood vessels become wide reducing renin secretion which causes a decrease in angiotensin II so that blood vessel vasoconstriction is reduced and decreasing aldosterone so that sodium and water reabsorption into the blood is reduced. Potassium also has an effect in the Na-K pump, namely potassium is pumped from the extracellular fluid into the cell, and sodium is pumped out so that potassium can reduce blood pressure (Guyton & Hall 2008 in Pertika et, al 2020). Magnesium will activate cell membranes that pump sodium out and potassium into cells so that blood pressure decreases. Vitamin C functions to keep blood vessels flexible and more easily expand (fahriza 2014).

Conclusion

Based on the results of the research that has been conducted and described in the discussion contained in the previous chapter, the researcher can provide the following conclusions that Blood pressure status before being given young coconut water therapy with the highest systolic 180 mmHg and diastolic blood pressure 110 mmHg and Blood pressure status after being given young coconut water decreased blood pressure with the lowest systolic 130 mmHg and diastolic blood pressure 80 mmHg.

Advice

This study is expected to increase knowledge in nursing science, especially community nursing, about the effect of giving young coconut water on lowering blood pressure in the elderly with hypertension. In addition, this study is also expected to be a guide in the treatment of hypertension by using alternative non-pharmacological therapies that are low in side effects.

Practical advice for the community this research can be used as information and alternatives for the community in reducing and maintaining blood pressure stability with young coconut water therapy for people with hypertension.

For STIKes Bina Putera Banjar Institute, this research is expected to be used as a reference and used by students to increase student knowledge in the health sector, namely complementary therapy to reduce blood pressure with young coconut water therapy.

For Further Research for further research can develop variations in the administration of young coconut water as an alternative therapy for hypertension and a shorter research time span.

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