

The Effect of Circulo Massage Combined with Stretching On Blood Pressure and Pulse Rate in Elderly Hypertensive Patients in The Active Elderly School Pajangan District Guwosari Village Iroyudan Hamlet Bantul

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ABSTRACT: The combination of Circulo massage with Stretching is one of the treatments for managing degenerative hypertension in the elderly. This study aims to determine the effect of the Circulo Massage method combined with stretching on elderly hypertension patients at the active elderly school in Dusun Iroyudan, Guwosari, Pajangan, Bantul. The method used in this research is a quantitative descriptive method. The research design uses a Quasi-Experiment with a one group pretest posttest design. The population in this study is the community of Dusun Iroyudan, consisting of 64 people, and those who experience hypertension became the sample in this study, totaling 20 people who were selected using specific criteria, namely inclusion criteria and exclusion criteria. The research instrument used in this study is a digital sphygmomanometer, which is used to measure blood pressure and pulse rate in the elderly. The treatment given in this study is Circulo Massage with a Combination of Stretching. For the massage treatment, it was given for 50 minutes and followed by 20 minutes of stretching. In this study, the analysis technique used is the paired t-test or Wilcoxon signed rank test according to the data to compare pretest and posttest to determine the significance of the difference. The research results show that the systolic value before treatment was 161.95 mmHg and after treatment decreased by 143.00 (11.7%) mmHg with a significance value of $0.000 < 0.05$. The diastolic value before treatment was 99.20 mmHg and after treatment it was 85.10 (14.21%) mmHg with a significance value of $0.000 < 0.05$. And in the pulse rate, the value before treatment was 87.25 mmHg and after treatment, there was a decrease to 74.80 (14.26%) mmHg with a significant value of $0.000 < 0.05$. In this study, the combination of Circulo massage with stretching for elderly hypertensive patients in Dusun Iroyudan, Guwosari, Pajangan Bantul was effective in lowering blood pressure and pulse rate in hypertensive patients.

KEYWORDS: Massage Circulo, Stretching, Hypertension, Elderly

I. INTRODUCTION

According to Law Number 13 of 1998, an elderly person is defined as someone aged 60 years or older. Along with advances in health care, the elderly population continues to grow, marked by rising life expectancy and declining mortality rates. Population aging is a global phenomenon, with nearly all countries worldwide experiencing an increase in the size and proportion of elderly people in their populations.

Elderly is the final phase of human life and lifespan, during which humans experience a decline in metabolism, both physically and spiritually, and a process of change in all aspects of life (Posyandu, 2024). Human life in this universe undergoes an aging process, in which every bodily function experiences a decline in the physiological function of its organs. Aging is a natural cyclical process that every individual experiences.

The systems that humans experience in reducing motor function include the digestive system, nervous system, endocrine system, neurosensory system, motor system, and cardiovascular system. Generally, a person will suffer from or experience a degenerative disease, with symptoms that point to the disease, but many people ignore these symptoms. All of these symptoms are widely known as metabolic syndrome, which is a person who experiences high blood pressure, obesity, high blood sugar levels, and abnormal blood fat levels (Fatihaturahmi et al., 2023).

The aging process will disrupt the elderly's ability to perform daily physical activities, reducing their independence and forcing them to rely on the assistance of others. This decline in human physiological function can lead to the onset of degenerative

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diseases. The triggering of degenerative diseases in human organs is caused by the decline in physiological function due to the aging process (Graha, 2019). Various degenerative diseases which are often experienced by humans include heart disease, coronary heart disease, cholesterol, stroke, diabetes mellitus and hypertension (Delano, 2021).

The pressure exerted by the artery walls is called blood pressure. Blood pressure is usually described as the ratio of systolic blood pressure to diastolic blood pressure. Broadly speaking, blood pressure is the force required for blood to flow throughout the blood vessels and circulate to the human body's tissues. Blood pressure is divided into two: systolic (the pressure when the heart contracts), when the ventricles contract and eject blood into the arteries, also called systole, and diastolic (the blood pressure when the heart begins to stretch). When the ventricles relax and the atria flow blood into the ventricles, it is called diastole. Systolic blood pressure is always higher than diastolic blood pressure (Maulana, 2016).

Blood pressure can be grouped into three, namely: low blood pressure (hypotension), normal blood pressure (normotension) and high blood pressure (hypertension). Pulse is a manifestation of the heart's ability, to determine the work of the heart and can be seen from the pulse. The pulse is a wave that can be felt in the arteries when blood is pumped out of the heart. (Siska et al., 2021).

There are many types of degenerative diseases, one of which is a disease often found in the elderly is hypertension. Hypertension is a disease that can cause a decline in body function, resulting in a person experiencing a very limited life and can even cause death, so this disease should not be underestimated. Hypertension, often called high blood pressure, is a condition where blood pressure in the arteries is chronically elevated. Blood pressure is measured in two numbers: systolic (the pressure when the heart beats) and diastolic (the pressure when the heart rests between beats). According to the WHO, normal systolic blood pressure is <120 mmHg and diastolic <80 mmHg. So, normal blood pressure for adults is <120/80 mmHg. The burden of hypertension is very high among the elderly due to factors such as aging, genetics, and experiencing other diseases besides hypertension such as kidney disease, diabetes, and others (Delano et al., 2022).

The occurrence of an abnormal and continuous increase in blood pressure on several examinations in a condition is called hypertension. Hypertension often causes changes in blood vessels which will lead to increased blood pressure in the human body. According to the WHO (World Health Organization), hypertension or high blood pressure is a serious medical condition that significantly increases the risk of heart disease, brain, kidney and other diseases. Hypertension or high blood pressure is a chronic condition characterized by increased blood pressure on the artery walls. This condition causes the heart to work harder to circulate blood throughout the body through the blood vessels. Another opinion regarding the definition of hypertension was expressed by Hidayah Utomo & Denys (2018) hypertension is a condition where blood pressure in the main arteries in the body is too high. As everyone knows, the function of the heart is to pump blood throughout the body, but if the heart pumps too hard, the blood pressure will be higher, pressing on the arteries, which will cause hypertension.

Hypertension can be classified based on its form into diastolic hypertension, mixed hypertension, and systolic hypertension. Hypertension can also be classified based on its severity. According to the WHO (JPMA, 2022), it is divided into eight stages: Optimal, Normal, Normal-high, Grade 1 (mild hypertension), subgroup, borderline, Grade 2 (moderate hypertension), and Grade 3 (severe hypertension).

All diseases inevitably affect all physiological functions of the human body. A person with high blood pressure may experience problems with the function of their organs. Abnormalities in physical activity caused by disease are called pathophysiological. As with other diseases, a person with high blood pressure can experience impaired organ function.

In general, high blood pressure is caused by increased blood pressure and increased environmental resistance (Manuntung, 2018). Blood loss is similar to an increase in the sympathetic nervous system, which is associated with a negative response to sympathetic nerve stimulation and genetic changes in receptors and persistent serum catecholamine levels. An increase in the renin-angiotensin-aldosterone system causes direct vasoconstriction. When blood vessels narrow, blood pressure in the blood vessels increases. It appears that the accumulation of fat in the blood vessels, called atherosclerosis, causes narrowing of the blood vessel walls and hardening of the arteries. If the heart slows and pumps blood to other parts of the body, but the blood vessels are stiff and narrowed, blood flow increases. This mechanism is closely related to the function of the kidneys and the autonomic nervous system. The kidneys play a role in controlling blood pressure by controlling the amount of salt and water produced. If blood pressure is high, the kidneys excrete salt and water, thereby lowering blood pressure and preventing bleeding. However, if blood pressure is low, the kidneys reduce salt and water production, increasing blood pressure, resulting in high blood pressure.

According to WHO data, approximately 720 million people with hypertension do not receive the necessary treatment, with significant disparities in treatment rates across regions. WHO reports that approximately 1.28 billion adults aged 30-79 years suffer

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from hypertension, and most of them live in middle- to low-income countries. Each year, hypertension claims approximately 10 million deaths (WHO, 2023). This shows that hypertension is a disease that requires serious attention not only in Indonesia but also globally. Based on the latest data, hypertension remains a significant health problem in our country. Approximately 34.1% of Indonesians suffer from hypertension, equivalent to 70 million people (Kemenkes RI, 2023).

Based on 2018 basic health research data, the prevalence of hypertension in women is higher (36.8%) than in men (31.3%). As age increases, the prevalence of hypertension increases, affecting almost 69.5% of individuals aged 75 years and over (Ministry of Health, Republic of Indonesia, 2023). In terms of mortality from complex diseases such as heart disease and stroke, the latest data shows around 700,000 deaths annually in Indonesia, with hypertension being the primary risk factor (WHO, 2023). Hypertension does not show any obvious symptoms, making it very difficult to detect. In fact, if it does not show any actual symptoms, the condition known as hypertension is very difficult to detect and usually requires further medical examination and other physical examinations (Delano et al., 2022).

Uncontrolled and uncontrolled behavior can negatively impact other organs. These effects can worsen the condition. The above statement suggests that this disease can be managed and treated by consistently understanding the role of the heart through detailed analysis, which can be used to identify problems in the body and other organs. Hypertension sufferers can manage high blood pressure through pharmacological and non-pharmacological treatments. Pharmacological treatment includes the use of blood pressure-lowering medications, while non-pharmacological treatment includes exercise, dietary adjustments, and massage (Muhadi, 2016).

The recommended treatment in this study is circulomassage and stretching. This is to determine the accuracy of its effectiveness in elderly people with blood pressure and pulse. Pressure on arteries and veins can be improved by circulomassage throughout the body. Massage can reduce heart rate and blood pressure. Swelling that often occurs due to trauma can also be reduced by massage, which improves the circulation of fluids produced by the lymph vessels (Samsudin, 2019).

Ciculomassage is recommended and functions to restore the body to fitness and recover from fatigue, as well as achieve a healthy body. It can be concluded that circulomassage is a massage technique that aims to improve blood circulation, thus aiding the recovery process and managing the body's metabolic waste, as well as providing relaxation to the muscles and nerves. Massage can improve blood circulation and induce muscle relaxation (Delano, 2020). Massage is also widely used by sports doctors, and its numerous health benefits, especially for athletes and laypeople, include its effects on accelerating inflammation, processing contracted fibrous tissue, increasing blood flow, and relieving pain (Saraswati et al., 2023).

Massage comes from the Arabic word *mash*, meaning to press gently, or the Greek word *massien*, meaning to knead or knead. Massage is referred to as the science of massage or the science of the knee. Understanding the meaning of the name is crucial. Therefore, it can be concluded from its name that the massage often used in Indonesia originated in Arab countries. The development of massage in Indonesia is very popular; in fact, massage has been widely used since before the Common Era. Archaeological discoveries of artifacts indicate the use of massage in several regions of the world. While there is no direct prehistoric evidence explaining the use of massage for medical reasons, indirect evidence clearly indicates a link between massage and medical treatment.

The recommended treatment in this study is to provide circulomassage to elderly people with hypertension. The techniques used in this circulomassage include: friction, tapotement, walken, effleurage, and skin rolling. Friction is a circular, spiral-like movement that helps break down myogelosis and stimulates muscle and nerve fibers. Tapotement is a movement that provides strong stimulation to the spinal cord, nerve fibers, and simultaneously can push out residual burning that remains along the spinal joints and surrounding muscles.

Tapotement has three types: beating, clapping, and hacking. Tapotement involves rhythmic, light blows to target large muscle areas. Walken (cross-muscle rubbing) involves pulling and pushing to further enhance the removal of metabolic waste by the blood. Walken involves moving the entire palm and fingers back and forth, alternating between the right and left hands.

Effusive (rubbing) movements are movements intended to improve blood and lymph circulation. Gently applied pressure can produce a calming effect. Skin rolling involves shifting skin folds to loosen or separate the adhesions between the skin and the fingers.

The improved blood circulation resulting from Circulo massage will support the production and distribution of both hormones and antibodies. Antibodies will streamline all metabolic processes in the body and help fight disease. Thus, Circulo massage is beneficial for disease prevention and maintenance of organ function, as well as maintaining health and fitness. Circulo massage is crucial for people with hypertension. Maintaining health is crucial. This study focused on blood circulation in humans, especially in the elderly. Hypertension is not to be taken lightly, as the major impact of this degenerative disease is death.

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Stretching is an activity performed at the opening and closing stages of exercise. The benefit of stretching is to prepare muscles to prevent stiffness that can lead to injury. Muscles that have been stretched will have increased flexibility and joint range of motion. According to Larasati et al., (2018), the benefits of stretching include improving circulation, strengthening muscles, increasing joint flexibility, relieving pain, and improving blood pressure. Another opinion regarding stretching was expressed by several other researchers, namely Yuliyanto et al., (2015), stretching is the movement of stretching certain body parts to prepare the body for sports activities. Based on the expert opinion explained above, the definition of stretching is a process of stretching body parts that aims to make physiological changes in preparation for sports activities.

Stretching exercises have the benefit of maintaining muscle elasticity and contractility, improving blood circulation, and preventing the formation of blood clots (thrombi). Thrombus is carried in the bloodstream in arteries and veins. If the thrombus cannot enter the smaller blood vessels, it will cause a blockage and lead to high blood pressure. If left untreated, the blockage will grow larger and cause the blood vessel to rupture. This can lead to coronary heart disease (Arovah, 2010). The explanation above demonstrates that stretching exercises are essential for people with hypertension.

Based on the expert opinion above, it can be concluded that stretching can help improve muscle flexibility and joint range of motion (ROM). Based on the observations made, the researcher wanted to examine the effect of circulomassage and a combination of stretching on blood pressure and pulse in elderly people with hypertension at the Active Elderly School in Pajangan Subdistrict, Guwosari Village, Iroyudan Hamlet, Bantul.

II. METHOD

The research design uses Quast Experiment with one group Pretest-Posttest design. Before being given treatment in this study, an initial test will be held to obtain a pretest after which a re-measurement will be carried out to obtain a posttest. This study was conducted with the aim of knowing and seeing the effect of circulo massage with a combination of stretching on blood pressure and pulse rate of elderly people at the Guwosari active elderly school, Iroyudan hamlet, Bantul. The research was conducted in Iroyudan hamlet, Pajangan sub-district, Guwosari village, Bantul Regency, DIY. This study uses a *purposive sampling technique*, namely determining samples based on inclusion and exclusion criteria. The inclusion criteria in this study were 1) male and female residents of Iroyudan hamlet, 2) aged 60-70 years, 3) experiencing high blood pressure exceeding the normal limit of 130/90 mmHg and a pulse rate above 96-128/minute, 4) willing to be research respondents, while the exclusion criteria were 1) respondents experiencing bone fractures, skin diseases or open wounds, 2) respondents undergoing other therapy, 3) respondents suffering from *prehypertension* and *isolated hypertension*.

The sample group that will be used in this study is one group without using a control group. This study begins with the measurement of the sample as a pretest after which the samples that have been obtained will be given a combination of treatment in the form of circulo massage with stretching, then blood pressure and pulse will be measured again to get the posttest. In its implementation the sample will be measured in *the pretest* and *posttest phases* using a digital sphygmomanometer which has been used by previous researchers, one of which states that the sensitivity value of the digital sphygmomanometer is 88% meaning that the digital sphygmomanometer has the ability to correctly detect people with hypertension 88%. The specificity value of the digital sphygmomanometer is 86% meaning that the digital sphygmomanometer has the ability to correctly detect people who are not sick, or correctly identify healthy people. The *positive predictive value* (PPV) of the digital sphygmomanometer is 87% meaning the ability of the digital sphygmomanometer to detect people who are truly positive for hypertension or detect someone who is truly positive. The *negative predictive value* (NPV) of a digital tensiometer is 93%, meaning the digital tensiometer's ability to detect people who are truly not sick or detect someone who is healthy (Yuningrum, 2019).

Analysis of the collected data using the SPSS application to test the effectiveness of the treatment carried out with the normality test step to determine whether the data is normally distributed or not and continued with the homogeneity test and difference test using the paired t test or the Wilcoxon test.

III. RESULT AND DISCUSSION

A. RESULT

This research was conducted in Iroyudan Hamlet, Pajangan Village, Guwosari District, Bantul Regency, Yogyakarta Special Region. Data collection was carried out from October 28 to November 2, 2024. The sample in this study were residents of Iroyudan Hamlet with male and female gender aged 60-70 years, who experienced high blood pressure often called hypertension. The sample determination used certain criteria so that a sample of 20 people was obtained. The following data is a sample of elderly research with hypertension where there are 8 men and 12 women.

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Table 1. Description of Research Samples Grouped by Age

Age Group (Years)	Amount	Percentage (%)
60-65	12	60%
66-70	8	40%

Based on the table above, it can be seen that the 60-65 year age group consists of 12 people (60%) consisting of 3 men and 9 women. The 66-70 year age group consists of 8 people (40%) consisting of 4 men and 4 women.

Table 2. Test Results Systolic Normality with Shapiro-Wilk

	<i>Shapiro-Wilk</i>	
Pre-Post Difference 1	Sig.	Information
	0.002	Not Normally Distributed
	<i>Shapiro-Wilk</i>	
Pre-Post Difference 2	Sig.	Information
	0.746	Normally Distributed
	<i>Shapiro-Wilk</i>	
Pre-Post Difference 3	Sig.	Information
	0.628	Normally Distributed

Based on table 2, it is explained that in the first observation the difference value of Pre-post 1 0.002, which is described as abnormal. In the second observation, the Pre-Post 2 difference is 0.746, which is described as normal. In the third observation, the Pre-Post 3 difference is 0.628, which is described as normal.

Table 3. Test Results Diastolic Normality with Shapiro-Wilk

	<i>Shapiro-Wilk</i>	
Pre-Post Difference 1	Sig.	Information
	0.149	Normally Distributed
	<i>Shapiro-Wilk</i>	
Pre-Post Difference 2	Sig.	Information
	0.908	Normally Distributed
	<i>Shapiro-Wilk</i>	
Pre-Post Difference 3	Sig.	Information
	0.268	Terdistibusi Normal

Based on table 3, it is explained that the results of the normality test on the diastole test obtained in the first observation, the significance value of the Pre-Post 1 difference was 0.149. And in the second observation, the significance value of the Pre-Post 2 data had a value of 0.908 which was stated as normal in the description. The third observation, the significance value obtained in the Pre-Post 3 test, namely 0.268, was stated in the description as normal. Because from the three observations that have been carried out, a value of more than 0.05 was obtained, it can be stated that all the significance data were stated as normally distributed.

Table 4. Test Results Pulse Normality with Shapiro-Wilk

	<i>Shapiro-Wilk</i>	
Pre-Post Difference 1	Sig.	Information
	0.148	Normally Distributed
	<i>Shapiro-Wilk</i>	
Pre-Post Difference 2	Sig.	Information
	0.474	Normally Distributed
	<i>Shapiro-Wilk</i>	
Pre-Post Difference 3	Sig.	Information
	0.714	Normally Distributed

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Based on table 4, it is explained that in the first observation of the pulse rate normality test, the significance value of the Pre-Post 1 difference was 0.148. Judging from the Pre-Post 1 value which is more than 0.05, it can be stated that the data is normally distributed. The second observation of the pulse rate normality test obtained a Pre-Post 2 significance value of 0.474. Judging from the data significance value which is more than 0.05, it can be stated that the data is normal. The third observation of the pulse rate normality test obtained a Pre-Post 3 significance value of 0.714. Because the value in this third observation is more than 0.05, it can be stated that the data is normal .

Table 5. Test Results Homogeneity of Systolic Data

Observation 1			
Levene Statistics	df 1	df 2	Sig.
0.568	1	38	0.456
Observation 2			
Levene Statistics	df 1	df 2	Sig.
0.313	1	38	0.579
Observation 3			
Levene Statistics	df 1	df 2	Sig.
1,148	1	38	0.291

Based on Table 5, the results of the homogeneity test for *systolic data indicate* that each observation has a significance value greater than 0.05. To determine whether the research data is homogeneous or not, the significance value is determined. If the significance value is less than 0.05, the data is considered non-homogeneous, and vice versa. If the value is greater than 0.05, the research data is considered homogeneous.

The first observation yielded a significance value of 0.456, indicating homogeneity. Furthermore, the second observation yielded a significance value of 0.579, indicating homogeneity. The final observation yielded a significance value of 0.291, indicating homogeneity. Therefore, the significance value is greater than 0.05, thus concluding that the *systolic research data* is homogeneous.

Table 6. Test Results Homogeneity of Diastole Data

Observation 1			
Levene Statistics	df 1	df 2	Sig.
0.004	1	38	0.951
Observation 2			
Levene Statistics	df 1	df 2	Sig.
2,058	1	38	0.160
Observation 3			
Levene Statistics	df 1	df 2	Sig.
2,813	1	38	0.102

Based on the table above, the results of the homogeneity test for *diastolic data* in the first observation show a value of more than 0.05, namely 0.951, so it can be stated that the data is homogeneous. In the second observation, it has a significance value of more than 0.05, namely 0.160, and the third observation produces a significance value of 0.102. From the three observations that have been carried out, it can be concluded that the significance value is more than 0.05, so it can be stated that the *diastolic data* is homogeneous.

Table 7. Test Results Pulse Rate Data Homogeneity

Observation 1			
Levene Statistics	df 1	df 2	Sig.
0.807	1	38	0.375

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Observation 2			
Levene Statistics	df 1	df 2	Sig.
0.327	1	38	0.571
Observation 3			
Levene Statistics	df 1	df 2	Sig.
0.001	1	38	0.979

Based on the table above, observations have been made that in the first observation, the homogeneity test for pulse rate data showed a significance value of more than 0.05, namely 0.375. The second observation produced a significance value of more than 0.05, namely 0.571. And in the final observation, a significance value of 0.979 was obtained. Therefore, it can be concluded from this research data that the *diastolic value* is homogeneous.

Table 8. Test Results Different uses

OBSERVATION 1				
Variables	Pretest	Posttest	Sig.	Information
<i>Systole</i>	161.95	154.35	0.008	Significant
<i>Diastole</i>	99.20	92.30	0,000	Significant
Pulse	87.25	79.25	0.003	Significant
OBSERVATION 2				
Variables	Pretest	Posttest	Sig.	Information
<i>Systole</i>	161.95	151.30	0.026	Significant
<i>Diastole</i>	99.20	89.35	0,000	Significant
Pulse	87.25	77.25	0.001	Significant
OBSERVATION 3				
Variables	Pretest	Posttest	Sig.	Information
<i>Systole</i>	161.95	143.00	0,000	Significant
<i>Diastole</i>	99.20	85.10	0,000	Significant
Pulse	87.25	74.80	0,000	Significant

In the table above, the significance value in the first observation of *systole* produces a significance value of 0.008 while *diastole* produces a value of 0.000 and pulse produces a significance value of 0.003. Furthermore, in the second observation, the significance value of *systole* is 0.026. While *diastole* is 0.000 and pulse has a significance value of 0.001. All third or final observations, namely *systole*, *diastole* and pulse, have a significance value of 0.000.

From all initial to final observations, the significance value was less than 0.05. Therefore, H0 was rejected and H1 was accepted. Thus, the *Circulo Massage* method with *Stretching* was effective in reducing blood pressure and pulse rate in elderly people with hypertension in Iroyudan Hamlet, Guwosari, Bantul.

B. DISCUSSION

The study's results indicated that the aim of this study was to determine the effectiveness of *Circulo Massage* with *Stretching* on blood pressure and pulse rates in elderly people with hypertension in Iroyuda Hamlet, Guwosari, Bantul. Properly performed massage and stretching treatments are highly effective in lowering blood pressure and pulse rates in elderly people with hypertension in Iroyudan Hamlet, Guwosari, Bantul.

Based on the calculation of the data analysis that has been obtained, namely that the *systolic value* before Treatment was 161.95 mmHg and after Treatment was given 143.00 mmHg, the percentage decrease was 11.7% with a significant value of 0.008 <0.05. *Diastolic blood pressure* before being given treatment had a value of 99.20 mmHg after being given treatment became 85.10 mmHg therefore the percentage decrease was 14.21% with a significant value of 0.000 <0.05.

In the pulse pressure test before being given the treatment, the value was 87.25 mmHg, after being given the treatment, the value became 74.80, therefore the percentage decrease was 14.26% with a significance value of 0.003 <0.05. It can be concluded

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from all the data in this study that *Circulo* Massage with *Stretching* is effective in reducing blood pressure and pulse in elderly people with hypertension in Iroyudan Hamlet, Guwosari, Bantul. This study all the results show that *Circulo* Massage with *Stretching* is significantly effective and can reduce blood pressure and pulse rate of elderly people with hypertension in Dusun Iroyudan, Guwosari, Bantul. Measurements of *systolic blood pressure*, *diastolic blood pressure* and pulse rate indicate a significant decrease in all observations. One to three *systolic blood pressures* have a decrease with a percentage value of 11.7%, Observations one to three with *diastolic values* have a decrease with a percentage of 14.21% and also on pulse pressure from the beginning to the end of observations has a percentage decrease of 14.26%. Based on these data, it can be concluded that providing *Circulo* Massage treatment with *Stretching* on blood pressure and pulse rate of elderly people with hypertension is significant and effective.

High blood pressure, often referred to as hypertension, is a condition in which a person's blood vessel pressure increases beyond normal limits. This is caused by several triggering factors. Factors that can cause hypertension include stress levels, sleep patterns, diet, and a person's cardiovascular health. As someone ages, the physiological function of the cardiovascular organs declines. Weakened cardiovascular function in people with high blood pressure or hypertension is evident in impaired blood vessel function. A person with hypertension experiences blockages caused by bad cholesterol (LDL) that adhere to blood vessel walls, causing obstruction of blood flow. Bad cholesterol that adheres to blood vessel walls can also cause blood vessel inelasticity. Inelastic blood vessels can make it difficult for blood vessels to expand and contract. This condition causes blood flow to press strongly against the blood vessel walls, resulting in hypertension. Therefore, treatment that can lower blood pressure is crucial, such as providing *Circulo* Massage with *Stretching*. Massage, when administered properly and correctly, can produce significant benefits for the human body. According to Arovah (2010: 63) massage can have a positive impact on the physiology, namely improving blood circulation and helping to relax tense muscles.

Hypertension sufferers experience stiff blood vessels due to blockages caused by bad cholesterol and metabolic waste. Bad cholesterol buildup in blood vessels narrows the blood vessel cross-section, making it difficult for blood to flow. Continuous blockages increase the pressure exerted on the blood vessels. Massage for hypertensive patients can reduce blood vessel stiffness, thus lowering blood pressure. This statement is further supported by (Priyonoadi, 2008) who states that massage can accelerate muscle relaxation. Massage, which involves pressure, can relax muscles, which stimulates the sympathetic and parasympathetic nerves, leading to *vasodilation*, which widens the blood vessels and lowers blood pressure.

Another opinion also explains that muscle relaxation can also stimulate the release of *beta-blocker-like substances* in the peripheral nerves that cover the sympathetic nerve nodes, thereby reducing tension that causes low blood pressure (Hartono, 2007). From all the expert opinions explained, it can be concluded that the physiological benefits of massage can relax muscles and cardiovascular organs and cause blood pressure to decrease. *Stretching* provides numerous benefits for the human body. The second treatment in this study provided *stretching exercises*. According to Suryati, Resti, and (Khairina, 2017), the benefits of stretching exercises, often called *stretching*, can strengthen muscles, increase body flexibility, and improve blood pressure. The organs of people with hypertension will experience a lot of stiffness in the joints, muscles, and blood vessels. As previously explained, bad cholesterol blockages that stick to the walls of blood vessels will cause stiffness. Blood vessels will be difficult to widen and narrow if the blood vessels are stiff, causing blood pressure to increase in the blood vessels, providing stretching or stretching exercises can make blood vessels and other organs more elastic and experience relaxation which can stimulate the parasympathetic nerves so that *vasodilation* occurs so that blood pressure will decrease (Tyani, et al., 2015). Based on the explanation above, it can be concluded that providing *Circulo* Massage treatment with a combination of *Stretching* on blood pressure and pulse rate of elderly people with hypertension has been proven to be significantly effective in reducing blood pressure and pulse rate of elderly people with hypertension with an age range of 60 to 70 years in Iroyudan Hamlet, Guwosari, Pajangan, Bantul.

V. CONCLUSIONS

Explanation of the research results and all the discussions that have been presented above, the researcher concluded that providing *Circulo* Massage treatment with a combination of *Stretching* to elderly people with hypertension is very effective and significant in making blood pressure decrease and stabilize in elderly people with hypertension in Iroyudan Hamlet, Guwosari, Pajangan, Bantul. Based on the results of the research that has been conducted, it shows that massage therapy with *Circulo* Massage Technique equipped with a combination of *Stretching* is effective and significant in reducing blood pressure and pulse rate in elderly people with hypertension in Iroyudan Hamlet, Guwosari, Pajangan, Bantul. The researcher hopes that this technique can be applied more widely to residents or the general public as an alternative treatment option.

The Effect of Circulo Massage Combined with Stretching On Blood Pressure And Pulse Rate In Elderly Hypertensive Patients In The Active Elderly School Pajangan District Guwosari Village Iroyudan Hamlet Bantul

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