

# Intervention Using Rose Aromatherapy To Lowering Blood Pressure Of Elderly With Hypertension

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**Abstract:** The elderly is not a diseases but a natural process. Humans will slowly decrease in function, including cardiovascular function that can cause hypertension. Hypertension often being called as a silent killer because people with hypertension for years did not feel any symptoms. Rose aromatherapy is thought to be one of the complementary therapies that lowering hypertension. This study aims to determine the effect of rose aromatherapy on lowering blood pressure of elderly with hypertension at Batujajar Community of Health Center. The method used quasy-experiment with one group pre-test post-test with control. The corresponding respondent was divided into two groups, intervention group (n=15) and control group (n=15). The result is the mean value of intervention group before intervention is 4,47 with deviation standard 0,516. After intervention, the result is 3,87 with deviation standard 0,743. The data is normally distributed, so the statistic test which used is T-test correlation with the p value score < a (0,05). The conclusion of this research there is a difference in blood pressure of elderly significantly after the intervention of rose aromatherapy. Aromatherapy roses can be recommended as one of the complementary therapies in providing nursing care to the elderly with hypertension..

**Index Terms:** Elderly, Hypertension, Rose Aromatherapy.

## 1 INTRODUCTION

Globally, the elderly population is predicted continue to increase. The elderly population in Indonesia is predicted to increase higher than the elderly population in the world after 2010. The aging population structure is a reflection of the higher average life expectancy (UHH) of Indonesian population. The high UHH is one indicator of the success of national development achievement, especially in health sector. Since 2004 - 2015 shows an increase in Life Expectancy in Indonesia from 68.6 years to 70.8 years and projected in 2030-2035 reach 72.2 years. The projected population of 2010-2035, Indonesia will enter the aging period, where 10% of the population will be aged 60 years and over (MOH, data and information center, 2016). The aging process is natural and will be experienced by all people who are blessed with longevity. Individually, the effects of aging process can cause various problems both physically, biologically, mentally and socially economically. Increasingly older, they will experience setbacks especially in the areas of physical ability, which can lead to social decline. This resulted in the occurrence of disruption in terms of living needs so as to increase dependence that requires the help of others (Triyanto, 2014). Physical and physiological degeneration of the elderly also occurs in the cardiovascular system. According to Kenia and Taviyanda (2013), high blood pressure is considered a major factor for the development of heart disease and vascular disease in elderly people, due to higher tension in arteries leading to hypertension. Elderly are often affected by hypertension caused by stiffness in the arteries so that blood pressure tends to increase. Hypertension is often referred as a silent killer disease, because it is often hypertensive patients for years without feeling any disturbance or symptoms.

Unconsciously sufferers experience complications in vital organs such as heart, brain, or kidney. Symptoms of hypertension, such as dizziness, visual impairment, and headache, often occur when hypertension is advanced when blood pressure has reached a certain meaningful number (Triyanto, 2014). Hypertension basically has properties that tend to be unstable and difficult to control, either with treatment measures or with other medical measures. Hypertension become worsen if the condition of hypertension is not controlled, it can lead to cardiac infarction, heart failure, kidney failure, stroke, and eye damage (Triyanto, 2014). Pathological conditions of hypertension require treatment or therapy. Hypertension therapy can be grouped in non-pharmacological therapy and pharmacological therapy. Pharmacological therapy using drugs or compounds that in its work can affect the patient's blood pressure. The grouping of pharmacological therapy used to control blood pressure in hypertensive patients is Angiotensin Converting Enzyme (ACE) inhibitors, Angiotensin Receptor Blocker (ARBs), beta blockers, calcium channel blockers, direct renin inhibitors, diuretics, vasodilators, whereas non-pharmacological therapy is a therapy without the use of drug agents in the treatment process (Simadibrata, et al (2006 in Triyanto, 2014). Non-pharmacological therapy is relatively practical and efficient and can help lower blood pressure. One of them is rose aromatherapy. Currently aromatherapy with a very rapidly growing aside as aromatherapy perfume has started to be used as a treatment that can prevent or cure without any harmful side effects. In addition, aromatherapy is cheap and easy to use. Stress-related problems such as hypertension, headaches, insomnia can be reduced or treated with relaxation, relaxation can decrease systolic and diastolic blood pressure in hypertensive patients. Many alternative therapies for high blood pressure disease focus on relaxation techniques. "The benefits of aromatherapy can foster a feeling of calm (relax) in the body, mind, and spirit (soothing the physical, mind and spiritual), can create peace ambience, and can keep away from feelings of anxiety and restlessness (Jaelani, 2009). Research that supports this therapy is research conducted Melania, Widiarti and Triwahyuni (2015) entitled "Inhalation Rose Essential Oil (Rose) To Lower Blood Pressure in High Blood Patients", using experimental type of

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research. The results showed that there was a decrease in blood pressure in the sample members after the scent of rose essential oil for 35 minutes. In addition supported by research conducted by Hidayah Damanik and Elita (2015) on "Comparison Effectiveness of Classical Music Therapy With Aromatherapy Roses Against Blood Pressure On Hypertension Patients", the number of samples as many as 30 people. These results indicate that music therapy and rose aromatherapy are effective to lowering systolic and diastolic blood pressure in hypertensive patients. Based on the above background, the authors are interested to examine "intervention using rose aromatherapy to lowering blood pressure of elderly with hipertension". The purpose of this study is to know how the effect of rose aromatherapy to lowering blood pressure of elderly with hypertension.

**2 METHOD**

The research design used in this research is quasi experiment with Control Group Pre-test and Post-test Design. In this design, the experimental group treat use rose aromatherapy by researcher while the control group not treat use aromatherapy by rearcher. In both groups conduct pre-test before treatment, and post-test after treatment (Nursalam, 2013). Experimental research is a study that is intended to determine the presence or absence of a result of "something" is imposed on the subject of investigation. The trick is to compare one or more experimental groups treated with one or more groups not receiving treatment (Nursalam, 2013). The design is as follows:

**Table.1** Research Design One Group Pre-Test Post-Test with control

	Pre-test	Implementati on	Post-test
Interventi on Group	01	X	02
Control Group	01		02

(Source : Notoatmodjo, 2010)

Legend :

- 01 = Pre-test)
- X = Implementation
- 02 = Post-test)

Sampling technique using non probability sampling technique, with the method used is purposive sampling where the sample research is taken based on a specific purpose. Samples taken are 30 elderly people with hypertension in the area of Batujajar Community Health Center. The sample was divided into 15 of intervention group and 15 of control group. Implementation of the research is done by first implementing the pre-test to measure the blood pressure of the respondents in the intervention group and the control group before the aromatherapy done. Then the intervention group was given rose aromatherapy by way of inhalation of tissue that has been dropped aromatherapy by 2 drops with 3 days in a row. While in the control group was not given any treatment. After intervening for three consecutive days, then conducted post test that is done to measure blood pressure at respondents both intervention groups and control groups.

**3 RESULT AND DISCUSSION**

Based on the results obtained the following:

**Univariate Analysis**

**Table 2:** Respondent Distribution Based on Characteristic

No	Variable	Intervention n	Percentage	Control N	Percentage
1	<b>Age</b>				
	Elderly (60-74)	11	73,3	11	73,3
2	<b>Level of Education</b>				
	Old Age (75-90)	4	26,7	4	26,7
	Elementary	9	93,3	14	60,0
3	<b>Sex</b>				
	Junior High School	4	6,7	1	26,7
4	<b>Employment</b>				
	Senior High School	2			13,3
5	<b>Sex</b>				
	Male	3	33,3	5	20,0
6	<b>Employment</b>				
	Female	12	66,7	10	80,0
7	<b>Employment</b>				
	Work	2	20,0	3	13,3
8	<b>Employment</b>				
	Does not work	13	80,0	12	86,7

Based on table 2 above obtained data that most of the respondents both the control group and the intervention group included in the category of elderly (60-74) which is (73.3%). While for the education status of respondents the highest percentage is Elementary which is 14 people (93.3%). The sex of the respondents is mostly female which is 22 people (80%). While the status of work, most of the respondents which is 25 people (83.3%) does not work.

**Table 3:** Frequency distribution of blood pressure in the intervention group and control group before rose aromatherapy

Category	Variable	Frek (n)	%	Variable	Frek (n)	%
Normal High (130-139/85-89)	Intervention Control			Control Group		
		8	53,3		9	60,0
	Mild (140-159/90-99)	7	46,7	Moderate (160-179/100-109)	5	33,3
	Severe (=180/=110)				1	6,7

Based on the above table.3 shows the categories of hypertension rates in the intervention and control group before intervention using rose aromatherapy. The results showed that in the intervention group which is 8 people (53.3%) had mild hypertension (140-159 / 90-99), then 7 people (46.7%) had moderate hypertension (160-179 / 100-109).

**Table 4:** Frequency distribution of blood pressure in the intervention group after rose aromatherapy and in the control group.

Category	Variable	Frek (n)	%	Variable	Frek (n)	%
Normal High (130-139/85-89)	Intervention Group	5	33,3	Control Group	4	26,7
		7	46,7		8	53,3
	Mild(140-159/90-99)	3	20,0	Moderate (160-179/100-109)	3	20,0
Severe (=180/=110)						

Based on the table. 4 above shows the categories of hypertension levels in the intervention group after aromatherapy of roses, 7 people (46.7%) had mild hypertension (140-159 / 90-99), and there were 5 people (33.3%) had normal hypertension high (130-139 / 85-89) and 3

people (20.0%) who had moderate hypertension (160-179 / 100-109). In the control group showed that as many as 8 people (53.3%) had mild hypertension (140-159 / 90-99) and 4 (26.7%) had high normal hypertension (130-139 / 85-89) while as many as 3 people (20.0%) have moderate hypertension.

### Bivariate Analysis

Bivariate analysis was performed to determine the difference in blood pressure before and after rose aromatherapy.

**Table 5:** Difference blood pressure before and after implementation using rose aromatherapy to intervention and control group.

Group	Variable	Mean	N	Std Deviation	Std Error	P-Value
Intervention	Pre-intervention	4,47	15	0,516	0,133	0,000
	Post-intervention	3,87	15	0,743	0,192	
Control	Pre-Control	4,47	15	0,640	0,165	0,006
	Post-Control	3,93	15	0,704	0,182	

Based on the table. 5 above shows that the mean in the intervention group before treatment was given was 4.47 with a standard deviation of 0.516. While the mean in the intervention group after treatment was given was 3.87 with a standard deviation of 0.743. The data in the intervention group is normally distributed so that the statistical test used is paired t test with  $p = 0,000 > \alpha 0,05$  then  $H_0$  is rejected, thus it can be concluded that there is a difference between blood pressure before and after given rose aromatherapy in the intervention group. In the control group the mean before treatment was 4.47 with a standard deviation of 0.640 and after treatment the mean was 3.93 with a standard deviation of 0.740. Normally distributed statistical test results then t test paired with p value =  $006 > \alpha 0,05$  then  $H_0$  accepted, so it can be concluded there is no influence between blood pressure before given treatment with blood pressure after which is not given treatment to the control group.

## 4 DISCUSSION

### Respondent Characteristic

Characteristics of respondents studied include age, education, sex and occupation. Naturally, humans slowly and progressively lose their resistance to infection and can cause problems both physically, biologically, mentally and socially (Triyanto, 2014). Age factor is very influential on hypertension because with increasing age then the higher the risk of hypertension. Incidence of hypertension is increasing with age, this is often caused by a natural change in the body that affects the heart, blood vessels and hormones. This is in accordance with research conducted by Kenia and Taviyanda (2013), high blood pressure is considered as a major factor for the development of heart disease and vascular disease in people who are elderly, this is due to higher tension in the arteries that cause hypertension. Sex can also affect the state of hypertension, the results showed that as many as 73.3% of women who experience hypertension. Comparison between men and women was more women suffering from hypertension, sex is also closely related to the occurrence of hypertension where in youth and middle-aged hypertension

higher in men and in women higher after age 55 years, when a woman experienced menopause. The results showed that the majority of elderly that is 76,66% elderly have education at elementary level. One's education will affect the knowledge of something. An elderly person will experience a change one of them mental changes. In addition, the results of the study showed that the majority of elderly people are about 83% have no job. Factors that influence mental change include physical changes, general health, education, heredity and the environment (Nugroho, 2008). In addition, the elderly experience psychosocial changes in which the value is often measured from productivity and identity is associated with the role in the job. In the event of retirement, a person will experience loss, among others: financial loss, loss of status, loss of friends / acquaintances or relationships, and loss of work / activity and feel or conscious of death, economic ability resulting from the dismissal of upgraded living expenses on difficult income, increased medical expenses, the presence of chronic illness and disability, resulting in blindness and deafness, nutritional disorders resulting from loss of office, loss sequence.

### Blood Pressure on Intervention Group and Control Group Before and After Given Rose Aromatherapy

The results showed that the blood pressure of elderly ranged from mild (140-159 / 90-99) to severe ( $\geq 180 / \geq 110$ ) in both the intervention group and the control group. Hypertension or high blood pressure is an abnormal increase in blood pressure in the arteries continuously more than one period of arteriole constriction makes the blood difficult to flow and increase the pressure against the arterial wall. Hypertension increases the workload of the heart and blood vessels (Udjianti, 2010). In general, hypertension has no specific cause. Hypertension occurs in response to increased cardiac output or increased peripheral pressure. In the elderly, the cause of hypertension caused by changes in aortic wall decrease its elasticity, the heart valve thickens and becomes stiff, the heart's ability to pump blood, loss of elasticity of blood vessels, and increase blood vessel resistance. After the age of 20 the heart's ability to pump blood decreases by 1% each year, this causing a decrease in contraction and volume. Elasticity of blood vessels disappears because of the lack of effectiveness of peripheral blood vessels for oxygenation (Aspiani, 2014). Some respondents in this study who had high blood pressure did not complain any complaints. According to Adinil (2004, in Triyanto 2014) individuals suffering from hypertension sometimes do not show any symptoms for years. Hypertension is often referred to as a silent killer, because it is often hypertensive sufferers for years without feeling any disturbance or symptoms. Unconsciously sufferers experience complications in vital organs such as heart, brain, or kidney. Symptoms of hypertension, such as dizziness, visual impairment, and headache, often occur when hypertension is advanced when blood pressure has reached a certain meaningful number (Triyanto, 2014). While Crowin (200 in Triyanto, 2014) mentions that some clinical symptoms arise after years of hypertension in the form of headache when awake, sometimes accompanied by nausea and vomiting, due to increased intracranial blood pressure. Increased blood pressure in the arteries can occur in several ways: the heart pumps stronger so that it flows more fluid in every second the large arteries lose their flexibility and become stiff, so they can not expand as the heart pumps blood through the artery. The blood on

each pulse is forced to pass through the narrower blood vessels than usual and causes a rise in blood pressure (Triyanto, 2014). The sympathetic nervous system is part of the autonomic nervous system which temporarily increases blood pressure during a fight or flight response, increases heart rate, and also narrows most of the arterioles, but widens the arteriole in certain areas (e.g. skeletal muscle requiring more blood supply, reducing water and salt removal by the kidneys, thereby increasing blood volume in the body, releasing epinephrine (adrenaline) and norepinephrine (noradrenaline), which stimulates the heart and blood vessels (Triyanto, 2014) ). The measurement of blood pressure in this study was spigmomanometer or tensi meter. Respondents in this study was 30 people, all respondent undergo blood pressure measurement. The majority of hypertensive patients are women because one of the risk factors of hypertension comparison between men and women are more in women (Triyanto, 2014). Another finding in this study is most elderly people with hypertension prefer to eat salty foods. The purpose of prevention is to reduce the incidence of hypertension by controlling the risk factors to prevent the occurrence of hypertension by lifestyle changes, dieting arrangements, good diet and others (Triyanto, 2014).

#### **Difference of Blood Pressure of Hypertension Patients Before and After Intervention using Rose Aromatherapy in Intervention and Control Group.**

There was a difference in blood pressure in the intervention group and the control group after rose aromatherapy in the intervention group. This is because there are several factors that affect the occurrence of hypertension, which is genetic, neurological response to stress or abnormalities of excretion  $\text{Na}^+$  transport. Obesity, associated with high insulin levels that result in increased blood pressure. Environmental stress and loss of tissue elasticity and arteriosclerosis in the elderly and dilation of blood vessels (Aspiani, 20014). The effectiveness of rose aromatherapy is not only in one focus but aromatherapy can foster a calm (physical, mind and spiritual) feeling, which can create a peaceful mood. The term aromatherapy began to be popularized in the early third millennium, along the re-popularization of traditional medicine (Jaelani, 2009). The use of this aromatherapy method has been going on for a long time. Since 5000 years ago, the Egyptians have used the sap and oil from the plants that exist around the country for body care, incense incense room and medicine various diseases. Treatment by using essential oils can be done internally and externally. Internally it can be taken directly orally (eaten or taken by mouth) and inhalation (inhaled through the nose). Inhalation therapy is useful to overcome and alleviate the conditions associated with health condition of a person's body. The purpose of this therapy is to channel the properties of substances produced by essential oils directly (Jaelani, 2009). In research Fauziah (2015), aromatherapy can be done for 3 consecutive days by dripping 2 drops of aromatherapy on tissue for 2 minutes. This method can lower blood pressure due to the working mechanism of aromatherapy materials through the circulation and olfactory system. When the oil is inhaled through the nose, the aromatic molecules enter through the membrane of the nasal cavity and then to the olfactory. Olfactory is a nerve that carries an impulse for the sense of smell from the nose to the brain's control center. Olfactory is located in the upper part of the nose. The brain has a core function, which controls the entire system that

works in the body. The brain is the center of memory, the center of thought, emotion, the control center of the gland, hormones, nervous system and so forth. Once the impulse is delivered to the brain, then a complex reaction begins. After the whole impulse is translated, then immediately responded either in hormonal (endocrine) or nerve. Then a healing reaction takes place and can be felt immediately. More deeply, the limbic system is a brain structure including the hippocampus, amiglada, anterior thalamic nucleus, septum, limbic cortex and formiks. The limbic system is more responsible for the various psychological functions of the brain including emotions, behavior, long-term memory and so forth. Thus, aromatherapy inhales two healing effects simultaneously, namely psychic healing through the limbic system and the healing of physical complaints through the endocrine and nervous system. The endocrine system is the major regulatory force in the body. It consists of secreting hormones into the bloodstream, this hormone acts as a chemical mediator to regulate many body functions including mood, metabolism as well as growth and development. Aromatherapy workflow is essential oil given by the method of inhalation and then into the lungs continues into the bloodstream and into the heart. The above explanation is in line with research conducted by Melania et al (2015) who examined also about inhalation of rose essential oil to lower blood pressure in high blood sufferers. The results of this study also mentions that there is a lowering in blood pressure. When viewed from various aspects of aromatherapy cheap and easy to use. Currently aromatherapy with a very rapidly growing aside as aromatherapy perfume has started to be used as a treatment that can prevent or cure without any harmful side effects. According to researchers, aromatherapy is a complementary therapy while taking drug because non-pharmacological treatment can not stand alone without a pharmacological treatment. In addition, stress-related problems such as hypertension, headaches, insomnia can be reduced or treated with relaxation, relaxation can decrease systolic and diastolic blood pressure in hypertensive patients (Jaelani, 2009). Stress factor is one of the trigger factor of the increase of blood pressure with release process of hormone epinephrine and norefineprin (Triyanto, 2014). In fact there is also a lowering in blood pressure in the control group, although not given treatment, although not significantly. In the control group the mean before treatment were 4.47 with a standard deviation of 0.640 and after given the mean treatment was 3.93 with a standard deviation of 0.740 with the  $p\text{-value} = 006 > \alpha 0.05$ . This can be due to various factors affecting them because the respondents in the control group continued to perform treatment using pharmacological therapy at the Community Health Center. Pharmacologic therapy is therapy by using drugs or compounds that its work can affect the patient's blood pressure. The grouping of pharmacological therapy used to control blood pressure in hypertensive patients is Angiotensin Converting Enzyme (ACE) inhibitors, Angiotensin Receptor Blocker (ARBs), beta blockers, calcium chanel blockers, direct renin inhibitors, diuretics, vasodilators Simadibrata, et al (2006 in Triyanto , 2014). In addition, if the activity of pumping the heart decreases the artery widened, a lot of fluid out of circulation, then blood pressure will lower. Adjustment of these factors is carried out by changes in the kidney function and the autonomic nervous system (part of the nervous system that automatically regulates the various functions of the body). According to Sugiyono (2012) the

correlation value is said to be very low = 0,00-0,199, if low =, 20-0.3999, if medium = 0.40-0.5999, if strong = 0.60-0,799 and if very strong = 0.80-1000. The results of this study obtained the results of correlation values in the intervention group before and after given rose aromatherapy is 0.732. Thus, in the intervention group the value of correlation or influence is strong. While in the control group before and after not given treatment obtained correlation value 0,550. Thus, in the control group the correlation or effect is stated moderate.

## 5 CONCLUSION AND SUGGESTION

### Conclusion

Based on the results of research on intervention using rose aromatherapy to lowering blood pressure of elderly with hypertension showed in intervention group 8 people (53,3%) had mild hypertension (140-159 / 90-99), then 7 people (46,7% ) had moderate hypertension (160-179 / 100-109). In the Intervention group after being given rose aromatherapy treatment the hypertension became lower from moderate to normal levels. While in the control group there are not too significant changes. There was a significant difference in blood pressure in elderly people with hypertension before and after aromatherapy rose.

### Suggestions

Roses aromatherapy can be recommended in providing nursing care to elderly clients with hypertension. Suggestions for further researchers are to be able to explore complementary therapies that are safe, effective and efficient in lowering hypertension in the elderly. Especially by using ingredients that easily available from nature or can be self-cultivated for preventive measures or keeping blood pressure stable.

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