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## Effect of Complementary Therapy Combination of Progressive Muscle Relaxation and Music Therapy (RESIK) to Lower Blood Pressure in the Elderly

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### Abstract

**Backgrounds:** Hypertension is a disease that affects many elderly people. One effort that can be done to treat hypertension is to provide a combination therapy of progressive muscle relaxation and music therapy (RESIK).

**Objectives:** The purpose of this study was to analyze the effect of RESIK therapy on clients with hypertension.

**Methods:** The type of research used is a case study with a total sample of 3 respondents. The implementation of this study began with a pre test (measurement of blood pressure before being given RESIK therapy). Then give RESIK therapy 2x a day for 6 days with a duration of 25-30 minutes. After 6 days, blood pressure was measured again as post test data. Research data were analyzed using the Wilcoxon test.

**Results:** Research results with Wilcoxon test obtained sig. (2-tailed) has a value of 0.002 where the value is  $0.002 < 0.05$  so it can be concluded that there is a significant effect of the combination therapy of progressive muscle relaxation and music therapy (RESIK) on blood pressure in the elderly.

**Conclusion:** The results of this study indicate that there is a significant effect of RESIK therapy on reducing blood pressure in the elderly. Elderly people with hypertension are expected to carry out this RESIK therapy intervention independently, practically, efficiently and serve as an alternative complementary therapy to reduce blood pressure.

**Keywords:** elderly, hypertension, music therapy, progressive muscle relaxation therapy

### Introduction

The Elderly is someone who is over 60 years old and has entered the final developmental stage of human life. One of the most common health problems encountered in the elderly is hypertension.<sup>1</sup> Hypertension is a condition in which a person experiences an increase in blood pressure above normal, namely systolic blood pressure  $\geq 140$  mmHg

and diastolic pressure  $\geq 90$  mmHg. Hypertension is triggered by several risk factors including age, gender, ethnicity, genetic factors, poor diet, obesity, dyslipidemia, excess sodium intake, lack of physical activity, and vitamin D deficiency.<sup>2</sup> Based on data from the World Health Organization (WHO), shows that around 972 million people (26.4%) of the world's population suffer from hypertension and it is expected to increase to 29.2% in 2020. Out of 972 million people with hypertension, 333 million sufferers are in developing countries, developed, and the remaining 639 are in developing countries.<sup>3</sup> The prevalence of hypertension in Indonesia in people aged  $> 18$  years is 34.1%.<sup>4</sup> The incidence of hypertension in Central Java, which affects the elderly aged 65 years and over, is quite high, namely around 60-80%, where the highest incidence is in Brebes Regency, 7.2%, while Banyumas Regency ranks third highest with a prevalence of 4.9%.<sup>5</sup> To overcome the problem of hypertension, the government has made various efforts including carrying out Posbindu-based Non-Communicable Disease (PTM) surveillance and pharmacological therapy to treat hypertension. However, these two efforts are considered not to have an optimal impact. These conditions encourage researchers to develop non-pharmacological therapies to complement pharmacological therapy so that they can improve the effect of better treatment.<sup>6</sup>

The recommended non-pharmacological therapy for lowering blood pressure includes combination therapy which comes from a combination of progressive muscle relaxation therapy and music therapy, both of which are then abbreviated as therapy (RESIK). Based on previous research, progressive muscle relaxation therapy has been proven to be able to reduce blood pressure, but it will be more optimal if it is done together with other types of relaxation therapy such as music therapy. Progressive muscle relaxation therapy works by reducing sympathetic nerve activity and increasing relaxation of parasympathetic nerve activity resulting in vasodilation in blood vessels and lowering blood pressure directly. Progressive muscle relaxation therapy also aims to reduce muscle tension so that the muscles become relaxed. This therapy is performed on certain areas such as the muscles of the hands, arms, shoulders, face, neck, back, stomach, the feet.<sup>7</sup> Progressive muscle relaxation therapy combined with music therapy is more optimal in reducing blood pressure. Music therapy is a therapy that can help the healing process. Music that can be used in this therapy is music with a consistent rhythm, stability, dynamic, and pleasant harmony with a regular rhythm without any sudden changes. In the previous study, the music used was Peter Sterling's "The Angels Gift" instrumental music which is one of the instrumental music of the harp, flute, violin, and soft orchestral strings. Music can stabilize blood pressure after being given for 25 minutes.<sup>8</sup>

The results of secondary data from the Baturaden II Health Center in the Kemitug Kidul Village Working Area, the incidence of hypertension in the elderly reached 34.6% or as many as 117 patients out of 338 elderly had hypertension. Three elderly people said that they had routinely taken hypertension medication but their blood pressure was still high and the symptoms they felt, such as dizziness and stiffness in the neck, really interfered with their daily activities. The Elderly said he had never done therapy other than drugs. When blood pressure is high, the elderly only take doctor's medicine and try to consume hypertension-lowering fruits such as cucumbers but their blood pressure still doesn't go down. Therefore, complementary therapy is needed as a complementary therapy to overcome the problem of hypertension in the elderly. Complementary therapy is a traditional medicine that has been recognized and can be used as a companion to conventional medical therapy. Its implementation can be done simultaneously with medical therapy. Complementary health services can contribute to improving health status which is currently in great demand by the public and has been widely applied, especially in the field of nursing. One of the reasons complementary therapies are currently widely used is the desire to avoid the side effects of drugs.<sup>9</sup> The high incidence of hypertension in the elderly in Kemitug Kidul Village made the authors interested in providing gerontic nursing care

for hypertensive patients by providing complementary therapy, namely a combination of progressive muscle relaxation complementary therapy and music therapy (RESIK). This study aims to analyze the effect of complementary therapy combining progressive muscle relaxation and music therapy (RESIK) on clients with hypertension.

## Methods

This research is a case study research with a pre-test and post-test research design with a control design. Sampling was carried out using the Non-Probability Sampling Method with the Consecutive Sampling technique, namely the selection of samples without a formula but was carried out by selecting each individual who met the inclusion criteria within a predetermined time. The sample in this study consisted of 3 respondents with inclusion criteria, namely willing to be respondents by signing informed consent, having blood pressure > 140/90 mmHg, having a history of hypertension for many years, already taking hypertension medication and having blood pressure is still high, having symptoms of dizziness, neck stiff and restless. This study began on 7-12 November 2022. The intervention steps began with a pre-test (measurement of blood pressure before being given RESIK therapy), then giving RESIK therapy 2x a day for 6 days with a duration of 25-30 minutes. After 6 days, blood pressure was measured again as post-test data. The data collection tool uses a sphygmomanometer as a blood pressure measurement tool, SOP for implementing RESIK therapy, as well as implementation observation sheets. Univariate data analysis is presented in the frequency distribution while bivariate analysis uses the Wilcoxon test.

## Results

### The Results of The Univariate Analysis Included The Characteristics of The Respondents (Age And Gender) And a Description of Blood Pressure Pre-Post Test For RESIK Therapy

**Table 1.** Frequency Distribution of Respondent Characteristics Based on Age and Gender in the Elderly in Kemutug Kidul Village in 2022

Characteristic	Frequency	Presentations
<b>Age (Year)</b>		
Young old (66-74)	1	33.33 %
Old (75-90)	2	66.66 %
<b>Total</b>	<b>3</b>	<b>100 %</b>
<b>Gender</b>		
Man	1	33.33 %
Woman	2	66.66 %
<b>Total</b>	<b>3</b>	<b>100 %</b>

In [Table 1](#) it can be seen the frequency distribution of the characteristics of the respondents where: most ages are in the old or old elderly category (75-90 years) as many as 2 respondents (66.6%) while the minority is in the young elderly or young old (66-74) as many as 1 respondents (33.3%). The majority gender distribution was in the female category, namely 2 respondents (66.6%) while the minority in the male category was 1 respondent (33.3%).

**Table 2.** Blood Pressure Description (n = 3)

Meeting to	Name	Systolic BP		Diastolic BP		Decline	
		Pre	Post	Pre	Post	Systolic	Diastolic
1	Mr. T	170	168	110	100	2	10
	Mrs. R	165	165	100	100	0	0
	Mrs. S	160	160	95	85	0	10
2	Mr. T	160	160	110	100	0	10
	Mrs. R	165	160	100	90	5	10
	Mrs. S	160	160	90	90	0	0
3	Mr. T	160	155	100	90	5	10
	Mrs. R	160	160	90	90	0	0
	Mrs. S	160	150	90	85	10	5
4	Mr. T	155	143	90	90	12	0
	Mrs. R	160	150	90	85	10	5
	Mrs. S	143	140	85	82	3	3
5	Mr. T	150	142	90	85	8	5
	Mrs. R	140	130	85	80	10	5
	Mrs. S	140	138	82	80	2	2
6	Mr. T	142	140	85	80	2	5
	Mrs. R	130	130	80	80	0	0
	Mrs. S	138	135	80	75	3	5
<b>The Average Drop in Blood Pressure</b>						4	4

Table 2 shows the average decrease in blood pressure pre and post-therapy for six days, amounting to 4 mmHg in systolic and diastolic blood pressure. The average blood pressure of the 3 elderly before therapy was 165 mmHg (systolic) and 101 mmHg (diastolic). On the sixth day after being given a combination therapy of progressive muscle relaxation and music therapy (RESIK), the average respondent's blood pressure decreased to 135 mmHg at systolic blood pressure and 78 mmHg at diastolic blood pressure. blood pressure from stage 2 hypertension to prehypertension.

### Bivariate Analysis

**Table 3.** Effect of Combination Therapy of Progressive Muscle Relaxation and Music Therapy (RESIK) to Reduce Blood Pressure In The Elderly.

TD	Variable	Median	Min-Max	N	Z	Sig. (2-Tailed)
Systolic	Pre-test	160	130-170	3	-3,071	0.002
	Post-test	150	130-168	3		
Diastolic	Pre-test	90	80-110	3	-3,114	0.002
	Post-test	85	75-110	3		

Table 3 shows the results of the analysis using the Wilcoxon test obtained sig. (2-tailed) has a value of 0.002 where the value is  $0.002 < 0.05$ , which means that there is a difference between the results of pre and post-therapy administration so that it can be concluded that there is an effect of giving combination therapy of progressive muscle relaxation and music therapy on blood pressure in the elderly.

### Discussion

The results of this study indicate that age and gender are factors that can influence the occurrence of hypertension. The age factor greatly influences the incidence of hypertension because with increasing age the risk of hypertension becomes higher. As a

person ages, person's blood pressure will also increase, this can be caused by several factors such as natural changes in a person's heart and blood vessels, these changes occur naturally as an aging process. As you get older, there are changes in the arteries in the body to become wider and stiffer which results in reduced capacity and recoil of blood that can be accommodated through the blood vessels. This reduction causes the systolic pressure to increase.<sup>10</sup> In this study, gender influences the occurrence of hypertension. Gender Men often experience signs of hypertension in their late thirties, whereas women often experience hypertension after menopause. Women's blood pressure, especially systolic, increases more sharply with age. After 55 years, women do have a higher risk of suffering from hypertension. One of the causes of this pattern is the difference in hormones between the two sexes. The production of the hormone estrogen decreases during menopause, women lose its beneficial effect so that blood pressure increases.<sup>11</sup> In this study, there were 2 respondents (66.6%) who were female, while 1 respondent (33.3%) was male. Other results in this study stated that, after being given a combination therapy of progressive muscle relaxation and music therapy (RESIK), the average result of the respondents' blood pressure decreased by 30 mmHg in systolic blood pressure and 23 mmHg in diastolic blood pressure. After analysis using the Wilcoxon test, sig. (2-tailed) has a value of 0.002 where the value is  $0.002 < 0.05$ , which means that there is a difference between the results of pre and post-therapy administration so that it can be concluded that there is an effect of giving combination therapy of progressive muscle relaxation and music therapy on blood pressure in the elderly.

In lowering blood pressure, progressive muscle relaxation therapy works by making a person's body feel relaxed, calm, and breathing regularly. Progressive muscle relaxation that is done calmly relaxed and full of concentration trained for 20-30 minutes can make the secretion of the hormones CRH (corticotropin-releasing hormone) and ACTH (adrenocorticotrophic hormone) in the hypothalamus decrease. The decrease in the secretion of these two hormones causes the activity of the sympathetic nerves to decrease so that the release of adrenaline and noradrenaline decreases, resulting in dilation of the blood vessels and a decrease in the pumping of the heart so that the arterial blood pressure of the heart decreases.<sup>12</sup> Progressive muscle relaxation therapy includes relaxation therapy methods the cheapest and easy to do and there is no effect side. Progressive muscle relaxation therapy will generate frequency alpha waves in the brain that can cause feelings of happiness, happiness, excitement, and confidence. Use muscle relaxation therapy Progressive can reduce muscle tension, reduce anxiety, neck pain, headache, and backache, overcome insomnia, reduce stress on the elderly, reduce anxiety, and depression by increasing self-control, and can reduce pressure systolic and diastole blood.<sup>13</sup>

In addition to progressive muscle relaxation therapy, researchers also implement music therapy which is carried out simultaneously to accompany progressive muscle relaxation therapy. The combination of instrumental music to lower blood pressure is also one of the supporters of lowering blood pressure in the elderly. Music therapy is a method of healing with music through the energy generated from the music itself. Music is a form of sound stimulation that is a unique stimulus for the sense of hearing. Music is a harmonious air vibration that is captured by the hearing organs and through the nerves in our body and conveyed to the central nervous system so that it creates a certain impression in us.<sup>14</sup> The sound that is heard enters through the outer ear and passes through the middle ear until it reaches the inner ear will be processed in the auditory cortex in the form of sound so that it can be enjoyed by the brain. The left brain will then process the lyrics and activate the limbic system to music and emotion. Physiologist Mary Griffith suggested that the hypothalamus controls the autonomic nerves, such as breathing, heart rate, and blood pressure.<sup>15</sup>

After implementing RESIK therapy for 6 days, the client's response was obtained, namely the client said that he had never done progressive muscle relaxation therapy and

music therapy before. After doing therapy on the first day the client felt confused because it was the first time doing this therapy. Clients say they feel foreign to the instrumental music that is played during therapy. However, after the second day, the client said that he had started to memorize the progressive muscle relaxation therapy movements and said that the instrumental music being played was soothing. After six days of therapy given to clients, clients say they feel more relaxed and their body is quite light. Previously the client often felt a lot of thoughts, but after being given therapy, the mind becomes lighter and less saturated. All three clients say dizziness, headache, and stiffness in the neck are reduced, and it is no longer restless so it is easy to sleep at night. In addition, the three clients felt happier and said their daily activities were no longer disturbed because their complaints had decreased. In the process of this research, there were several limitations experienced by researchers including, the number of respondents only 3 people, of course, was still insufficient to describe the real situation, the amount of therapy given too often, namely 2x a day, felt that the client felt tired, and the therapy was carried out in a short time. not fit, should be done when the client is full of energy and ready. In addition, the three clients felt happier and said that their daily activities were no longer disturbed because their complaints had decreased. In the process of this research, there were several limitations experienced by researchers including, the number of respondents only 3 people, of course, was still insufficient to describe the real situation, the amount of therapy given too often, namely 2x a day, felt that the client felt tired, and the therapy was carried out in a short time. If it doesn't fit, it should be done when the client is full of energy and ready. In addition, the three clients felt happier and said that their daily activities were no longer disturbed because their complaints had decreased. In the process of this research, there were several limitations experienced by researchers including, the number of respondents only 3 people, of course, was still insufficient to describe the real situation, the amount of therapy given too often, namely 2x a day, felt that the client felt tired, and the therapy was carried out in a short time. If it doesn't fit, it should be done when the client is full of energy and ready.

### **Conclusion**

The results of this study indicate that there is a significant effect of RESIK therapy on reducing blood pressure in the elderly. Elderly people with hypertension are expected to carry out this RESIK therapy intervention independently, practically, and efficiently and serve as an alternative complementary therapy to reduce blood pressure.

### **Conflict of Interest Declaration**

The researcher stated that this study aims to develop nursing knowledge and this research is free from conflicts of interest, both individuals and organizations.

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