

## THE EFFECT OF PROGRESSIVE MUSCLE RELAXATION ON BLOOD PRESSURE CONTROL IN ADVANCED WITH HYPERTENSION AT BINJAI HEALTH CENTER

Ganda Sigalingging<sup>1\*</sup>, Hetti Marlina Pakpahan<sup>2</sup>, Yudika Zega<sup>3</sup>

<sup>1,2,3</sup>Universitas Darma Agung Medan, Indonesia

\*Corresponding author : gandabonagabe@gmail.com

### Abstract

**Background:** Hypertension is a degenerative disease that commonly occurs in the elderly. Patients must take anti-hypertension medication to monitor blood pressure. Apart from pharmacological measures, non-pharmacological measures are important. Non-pharmacological measures include progressive muscle relaxation therapy which is useful for maintaining stable blood pressure and reducing the risk of disease complications such as stroke, heart disease and others. This action is easy for both the sufferer and the family in the area where the sufferer lives because there are minimal side effects. Progressive muscle relaxation is one therapy that can relax tense muscles and create a sense of relaxation so that it can lower blood pressure. The purpose of this study was to analyze the effect of progressive muscle relaxation on blood pressure control in the elderly with hypertension at the UPTD for elderly social services in Binjai. **Methods:** The type of research design used is quasi eksperiment. The population is all elderly people who are in the Binjai Elderly Social Services Uptd. The sample in this research was 30 elderly people with the criteria of suffering from hypertension, aged 60-70 years, physically healthy using a purposive sampling technique. The research was carried out from April to June 2024. **Results :** The therapy was carried out three times for 90 minutes. Instruments used a blood pressure meter, observation sheet and progressive muscle relaxation therapy. The test used was the T-test test. **Conclusions:** The results of the statistical test showed a value of  $p = 0.000$  ( $p < 0.05$ ) meaning that there is an effect of progressive muscle relaxation on blood pressure control in the elderly with hypertension at the UPTD for elderly social services in Binjai. The elderly and the orphanage should be able to apply this progressive muscle relaxation routinely once a week so that the elderly's blood pressure can be controlled properly.

Keywords: Progressive, Muscle Relaxation, Blood Pressure, Elderly, Hypertension.

### 1. INTRODUCTION

Hypertension is a degenerative disease that commonly occurs in the elderly. Patients must take anti-hypertension medication to monitor blood pressure. Apart from pharmacological measures, non-pharmacological measures are important. Non-pharmacological measures include progressive muscle relaxation therapy which is useful for maintaining stable blood pressure and reducing the risk of disease complications such as stroke, heart disease and others. This action is easy for both the sufferer and the family in the area where the sufferer lives because there are minimal side effects

The aging process must be experienced by every human being, in the aging process there are physical, biological, psychological, social changes, and can affect various aspects of the life of the elderly (elderly) such as aspects of health. Elderly people will naturally experience various degenerative diseases, one of which is hypertension

Based on data from WHO in 2023, it shows that around 1.13 million people in the world suffer from hypertension and this is mostly experienced by countries with low income levels, education levels, knowledge, as well as little access to health education programs causing the population in developing countries to suffer from anxiety. Beautiful income has a beautiful knowledge that also

has to do with hypertension (Rikeisdas, 2018). This increase was caused by an increase in risk factors for hypertension in this population. The highest prevalence of elderly people in Africa is 27%, while the highest prevalence of elderly people in America is 18%. In Indonesia, it is ranked 5th in the country with the highest number of hyperinfectious individuals (WHO, 2023).

The prevalence of hypertension cases in Indonesia has reached 34.1% with an estimated number of cases of 63,309,620 people. There was a prevalence of hypertension in elderly residents aged 65-74 years of around 63.2. The prevalence of hypertension in North Sumatra Province in 2019 was 29.19%. Hypertension that occurs in the elderly during the aging process is related to physical changes that occur in the elderly, including changes from the physical level to the balance of all body organ systems, one of which is an increase in blood pressure. Almost everyone experiences an increase in blood pressure as they get older, the possibility of someone suffering from hypertension also increases, the systolic pressure continues to increase until after 80 years, followed by diastolic blood pressure, complications caused by hypertension include heart disease, stroke, kidney disease, even sudden death. Therefore, hypertension requires quick and appropriate treatment to prevent complications from hypertension.

Efforts to prevent hypertension in the elderly are one of the most important things in maintaining the lives of the elderly. The success of the hypertension prevention program is determined by the existence of national policy, strategy and commitment in controlling the disease as well as cooperation with various related parties and supported by adequate resources. With the role of nurses to reduce hypertension problems that occur in the elderly by providing pharmacological and non-pharmacological treatments. One of the non-pharmacological treatments is progressive muscle relaxation therapy and yoga therapy

Based on the research results of Lina Indrawati (2020) regarding progressive muscle relaxation, the research has carried out therapy on 30 hyperthyroidism patients. Progressive muscle relaxation therapy is given 1 session a day for 1 week, where each session lasts 20 minutes. The results of this study showed changes in blood pressure before and after progressive muscle relaxation therapy was given. These results indicate that there is an effect of providing progressive muscle relaxation techniques on changes in systolic and diastolic blood pressure in elderly people with hypertension. Apart from that, progressive muscle relaxation therapy is the cheapest and easiest pharmacological therapy for the comfort of the elderly.

The results of a survey conducted by researchers at the Binjai Elderly Social Services UPTD under the area under the guidance of the North Sumatra provincial health service in 2024, there were 195 elderly people. Of the 195 elderly people, it was found that 85 people had hypertension. Most of these elderly people still use pharmacological therapy to treat their hypertension problems, but the application of non-pharmacological therapy at the Binjai Elderly Social Services UPTD is still lacking, thus encouraging researchers to conduct this research

## 2. METHODOLOGY

The type of research design used is quasi eksperiment. The population is all elderly people who are in the Binjai Elderly Social Services UPTD. The population in this study were all elderly people who were at the Binjai Elderly Social Services UPTD, North Sumatra Province with a total population of 195 people. The sample in this research was 30 elderly people with the criteria of suffering from hypertension, aged 60-70 years, physically healthy using a purposive sampling technique. The research was carried out from April to June 20 out on one group.

The therapy was carried out three times for 90 minutes. Instruments used a blood pressure meter, observation sheet and progressive muscle relaxation therapy. In this study, researchers conducted univariate analysis to identify the average blood pressure in respondents with hypertension before and after progressive muscle relaxation. Bivariate analysis in this study uses comparative analysis with the T-Test, this test aims to determine pre and post results. The data analysis will be analyzed using computerized statistical software. All data will be analyzed at a significance level (confidence interval) of 95% ( $\alpha=0.05$ ).

## 3. RESULTS

### 3.1. Univariate Analysis

The characteristics of the elderly at the Binjai Elderly Social Services UPTD are as follows

**Table 1.** *Distribution of characteristics of the elderly in the Binjai Elderly Social Services UPTD*

No	Characteristics	f	%
1	Age		
	60-70	17	56,7
	71-80	13	43,3
	Jumlah	30	100,0
2	Gender		
	Man	15	50,0
	Women	15	50,0
	Jumlah	30	100,0
3	Education		
	SD	16	53,3
	SMP	9	30,0
	SMA	5	16,7
	Amount	30	100,0

Based on table 4.1 above, it shows that the age characteristics of the majority of elderly people are between 60-70 years, 17 people (56.7%), gender, laki, 15 people (50.0%), women, 15 people (50.0%), and primary education, namely elementary school. 16 people (53.33%)

**Table 2.** *Distribution of the value of the other techniques obtained before being given progressive muscle relaxation*

Before	Mean TD (mmHg)	N
Day-1	163/103	30
Day-2	160/100	30
Day-3	158/99	30

The results of the research show that Tekainain was paid in addition to hypertension before progressive muscle relaxation in UPTD Other Social Services, Binjai, Sumatra Province, Utairai, and was obtained by the first hairi 163/103 mmHg, second hair 160/100 mmHg, and third hairi 158/99 mmHg.

In accordance with the theory of Mairiyaim (2008), age is one of the risk factors, as one gets older the elasticity of the aortic walls decreases, the connective tissue becomes stiffer and becomes stiffer, the ability of the connective tissue to pump blood decreases, the elasticity of the vessels decreases, and the resistance of the peripheral vessels increases resulting in stress. achieved increases. In addition, it is more risky to develop hypertension at this age, as age increases, the ability to reduce the elasticity of the blood vessels increases so that the ability to increase the blood pressure increases as the fluid increases

Frequency distribution based on gender, shows that 15 respondents (50.0%) are decent, and 15 respondents (50.0%) are female. According to Delfriainai's research (2020), the occurrence of hypertension is generally seen as a common occurrence in women over the years because it is influenced by hormones which cause an increased risk of suffering from hypertension.

Based on the results of Riskesdais (2018), people who have low education have a higher risk of hypertension due to a lack of knowledge and information about good health and a good lifestyle, for example paying attention to life patterns and good life patterns. increasing hypertension.

During the research process of the research results and observations carried out in other studies, it was also possible to detect associated hypertension. This result is caused by a lifestyle that used to be less healthy, such as a diet (consuming high levels of energy, eating fatty foods, drinking high levels of caffeine, and reducing physical activity), smoking habits and family history of developing hypertension.

**Table 3.** Distribution of the value of other techniques achieved after being given progressive muscle relaxation

Before	Mean TD (mmHg)	N
Day-1	156/99	30
Day-2	153/96	30
Day-3	148/94	30

Based on the research results, the research results show that the results of this research show that the results of hypertension after progressive muscle relaxation at UPTD Other Social Services at Agei Binjai show the value of the results of the first 156/99 mmHg, the second 153/96 mmHg, the third 156/99 mmHg. 148/94 mmHg.

Aldhain & Dini (2020), showed that after carrying out progressive muscle relaxation therapy, 9 respondents were able to use the treatment, and 9 respondents in the control group. There were 9 treatment respondents who did not suffer from symptomatic hypertension, while the control respondents still had symptomatic hypertension. After experiencing the progressive muscle relaxation therapy, the activity of pumping the heart decreases, the arteries undergo relaxation, and good fluid flows out of the circulation, the effect of which is to reduce the tissue resistance achieved.

In accordance with the theory of Nurwaihaidai et al (2020) which shows that progressive muscle relaxation therapy can reduce muscle tension, anxiety, neck and back pain, high levels of exercise, and associated fatigue. The results of this research were found to be well controlled after done for 7 days. The technique can be controlled, shown by the respondent's condition, the body is relaxed, calm, the mind is relaxed, the muscles are relaxed, the mind is closed, the condition of the mind is calm, and it is proven by the blood pressure results which are carried out after the therapy has been completed.

### 3.2. Bivariate Analysis

**Tabel 4.** The Effect of Progressive Muscle Relaxation on the Achieved Technique Control

	Mean	SD	p-value
Pre-post 1	1.133	.507	.000
Pre-post 2	1.367	.615	.000
Pre-post 3	1.553	.860	.000

Based on the result of progressive muscle relaxation which has been carried out by researchers, at least 3 times with a duration of 15-20 minutes, 30 respondents obtained significant effect results with the value of the first paid hairi p value = 0.000 ( $p < 0.05$ ), the second paid hairip value = 0.000 ( $p < 0.05$ ), third hair data value = 0.000 ( $p < 0.05$ ).

Based on research results from Linai Indraiwaiti (2020) regarding progressive muscle relaxation, researchers have carried out the therapy on 30 hypertensive patients. Progressive muscle relaxation therapy is given in 1 daily session for 1 week, played each session for 20 minutes. The results of this research show that the changes in muscle tissue can be achieved before the drug is administered after progressive muscle relaxation therapy. These results show that there is an influence of the provision of progressive muscle relaxation techniques on changes in the systolic and diaistolic performance associated with hypertension. Supported by research from Ikai & Irnai (2022) with the results of progressive muscle relaxation therapy which was carried out with paid training, 18 respondents experienced a significant decrease in blood pressure, played before carrying out the progressive muscle relaxation therapy, the results were 160/90 mmHg and the results obtained after being given progressive muscle relaxation therapy 140/80 mmHg, after the therapy was carried out, the respondent did not experience dizziness, pain did not feel dizzy, no nausea, no tiredness, no restlessness, no pounding in the heart.

The results of this research are in accordance with the theory that was first developed by Edmund Jaicobsen in 1938, that a person's body can be transformed into a muscle relaxant. At the same time, this therapy reduces the emotional reactions that are surging, both in the central psychological system and in the autonomous system. This progressive muscle relaxation technique is a muscle relaxation technique with a short duration, simple and easy to carry out (Nurwaihaidai et al, 2020). Apart from these things, to reduce the risk of suffering from hypertension,

you can do it by changing other lifestyles, by checking your habits, reducing your consumption of foods, avoiding smoking, exercising regularly, reducing stress, avoiding fatty foods, and consuming foods. play it well. A healthy lifestyle can help prevent various chronic diseases, such as heart disease, diabetes and cancer. Apart from that, a healthy lifestyle can also increase endurance and quality of life

#### 4. CONCLUSIONS

This is the result of research that has been carried out by researchers with the title The Effect of Progressive Muscle Relay on the Control of Other Drugs with Hypertension in UPTD Other Social Services in Binjai. with hypertension at UPTD Other Social Services in Binjai, with a p-value of 0.000 ( $p < 0.05$ ).

#### REFERENCES

- [1] Cipta. Nugroho. (2008). Keperawatan gerontik dan geriatric. Jakarta : Buku Kedokteran EGC.
- [2] DeaAmelia (2019). Skripsi, pengaruh pemberian teknik relaksasi otot progresif terhadap penurunan tekanan darah hipertensi pada lansia di posyandu Akcaya.
- [3] Masturoh &Anggita. (2018). Metodologi penelitian kesehatan. Jakarta Selatan. Kemenkes.
- [4] Naufal dkk. (2020). Pengaruh Terapi Relaksasi Otot Progresif terhadap Tekanan Darah pada Wanita Lanjut Usia dengan Hipertensi. Jurnal Kesehatan, Vol.13 No.2 Agustus 2020, Hal 136-143.
- [5] Notoatmodjo Soedkijo. (2012). Metodologi penelitian kesehatan. Jakarta : Rineka
- [6] Nurwahida dkk, (2020). Kontrol Hipertensi Melalui Relaksasi Otot Progresif Probolinggo. Pustaka Nurja.
- [7] Riskesdas.(2019). Kementrian Kesehatan, Badan Penelitan dan Pengembangan Kesehatan. Hasil Utama Riskesdas 2019
- [8] Ratnawati Emmelia, (2022).Asuhan Keperawatan Gerontik. Yogyakarta. Pustaka Baru Press.
- [9] WHO.(2023). Hypertension Global Brief on Hipertesion: Silent killer, Global Public Health Crisis.
- [10] Waryantini dkk. (2021). Pengaruh Relaksasi Otot Progresif terhadap Tekanan Darah pada Lansia dengan Hipertensi. Healthy Journal, Vol. 10 No.1. Maret (2021), Hal 38-43.
- [11] Yedy dkk. (2022). Hipertensi Praktis Klini-Farmasi (Konvesional dan Tradisional). Cipedes Tasikmalaya. Perkumpulan Rumah Cermelang Indonesia.
- [12] Yuniati dkk. (2022). Pengaruh Relaksasi Otot Progresif terhadap Tekanan Darah pada Lansia dengan Hipertensi. Journal of Midwifery and Health Sciences, Vol.2 No. 2. Oktober 2022, Hal 72-82
- [13] Zen Dini Nurbaeti dkk, (2024). Penerapan Terapi Relaksasi Otot Progresif pada Lansia dengan Resiko Hipertensi dengan Pendekatan Helath Belief Model. CipedesTasikmalaya.Perkumpulan Rumah Cermelang Indonesia.