ISSN : 2443-4019 | eISSN : 2502-2083
ADI HUSADA Nursing Journal
Jurnal Keperawatan - Sekolah Tinggi Ilmu Kesehatan Adi Husada Surabaya

The Application Of Progressive Muscle Relaxation Therapy On Changes In Blood Pressure In Elderly With Hypertension

Paramita Ratna Gayatri[1]*, Sheylla Septina Margaretta[2], Wahyu Nur Pratiwi[3]
[1]Prodi S1 Keperawatan, Fakultas Kesehatan, Institut Ilmu Kesehatan Bhakti Wiyata Kediri, Indonesia

Correspondent Author:
Paramita Ratna Gayatri

Email : paramita.gayatri@iik.ac.id

Keywords :
Elderly, Hypertension, Progressive muscle relaxation therapy

Abstract

High blood pressure is one of the most common non-communicable diseases suffered by the elderly. The changes in the cardiovascular system due to increasing age are the cause of hypertension in the elderly which may caused many complications if not controlled properly. High blood pressure can be treated with pharmacological and non-pharmacological therapy. One of the non-pharmacological therapies that can be given to hypertension sufferers is progressive muscle relaxation therapy.This research aims to determine wether there is alteration in elderly people's blood pressure after The Progressive Muscel Relaxation Therapy applied. This research was a quasi experimental research with two group which is Intervention Group and Control Group. There were 31 elderly people with hypertension in each who met the suitables criteria. The results of the study showed variations in the blood pressure of respondents in the intervention group and control group before and after being given progressive muscle therapy at meetings 1 to 6. It was found that blood pressure in the intervention group was reduced. The results of the Independent T-test statistical test showed a significant ρ-value of 0.000 where $\rho < \alpha$ (α : 0.05), which means that providing progressive muscle relaxation therapy has an effect on changes in blood pressure in elderly people with hypertension. The research concluded that there was an effect of applying progressive muscle relaxation therapy on changes in blood pressure in elderly people with hypertension.

INTRODUCTION

Elderly or old age is a time when an individual has reached maturity in body size and function. However, on the other hand, old age is also a period where individuals will experience setbacks as they get older (Rauf et al., 2021). The impact of increasing age on the elderly is their vulnerability to experiencing various health problems. Degenerative disease is a health problem that is often suffered by the elderly where the trigger is a decrease in physiological function (Maisarah et al., 2022).

The degenerative disease that elderly people often suffer from is hypertension (Elya et al., 2016)s. 2018 Riskesdas data states that the prevalence of hypertension sufferers aged 45-54 years is 45.3%, aged 55-64 years is 63.2% and aged 75 years and over is 69.5% (Kementerian Kesehatan RI, 2018). The estimated number of hypertension sufferers aged ≥15 years in Tulungagung Regency is 298,696 people (Dinas Kesehatan Tulungagung, 2023)

Hypertension is an increase in blood pressure where the diastolic pressure is >90 or systolic >140 mmHg (Klabunde, 2015). Huether & McCance (2019) stated that the definition of hypertension according to JNC-8 (The Eight Joint National Committee Report), is a continuous increase in systemic arterial blood pressure with systolic pressure ≥140 mmHg and diastolic pressure ≥90 mmHg (Huether & McCance, 2019). In terms of the causes of hypertension, this disease is divided into two, namely primary hypertension (the cause is unknown) and secondary hypertension (the cause can be determined) (Sari et al., 2022). Hypertension is often known as the silent killer disease. This is because for years sometimes sufferers do not experience any symptoms of this disease. So sufferers make no effort to check and control their blood pressure. Complications of hypertension that occur over a long period of

time are the emergence of diseases such as stroke, myocardial infarction, heart failure, kidney failure, and vision problems (Mayasari et al., 2019)

Management of hypertension is divided into two, namely pharmacological therapy (using anti-hypertension drugs) and non-pharmacological. Pharmacologically, hypertension therapy uses blood pressure-lowering or anti-hypertension drugs (Patricia A. & Perry, 2009). Meanwhile, non-pharmacological management includes counseling about changing lifestyle, low salt diet and complementary therapy (Mulyati, 2020). Complementary therapy is a complementary intervention to conventional medicine, obtained through certain training that is guided by health science (Hartatik & Sari, 2021). Types of complementary therapy include meditation, yoga, foot massage therapy, Benson therapy, cupping, acupressure, food combining, hypnotherapy, Swedish massage and progressive muscle relaxation techniques (Megawati, 2020).

Progressive muscle relaxation technique is a relaxation method by tensing certain muscles, then releasing them with the aim of reducing tension and causing relaxation in the muscles. This complementary therapy has several advantages, including the technique is easy to learn and do, it can be done anywhere and at any time without requiring a specific place (Tasalim & Cahyani, 2021). This progressive muscle relaxation is suitable if given to people with hypertension because when the body relaxes the heart rate will be normal so that blood pumping throughout the body becomes optimal, the effect is that blood pressure decreases (Junaidi & Noor, 2010).

In interviews in the initial study with 12 elderly people with hypertension who attended the elderly posyandu in Rejosari Village, Gondang District, Tulungagung Regency, data was obtained that to reduce blood pressure, the effort made was to ask elderly posyandu cadres for medication. The elderly above also do not know about progressive muscle relaxation and its benefits on blood pressure.

RESEARCH METHODS

This research was quasi-experimental with two group which is Intervention and Control Group. Each groups consists of 31 elderly with hypertension who met the suitable criteria as the research subjects. The inclusion criteria in this study were elderly people who had hypertension, didn't illiterate, and aged 60-74 years old. Meanwhile, the exclusion criteria are elderly people who are not willing to be respondents in this study

The sampling technique used for sample selection was purposive sampling. The research instrument uses a blood pressure observation sheet and a digital blood pressure meter to measure the blood pressure level of respondents. Intervention was only given to the treatment group. Progressive muscle therapy intervention is given for 30 minutes. The duration of intervention is 6 times in 4 weeks. Meanwhile, pre and post blood pressure measurements were carried out in both the treatment and control groups. The data that has been obtained is then processed using the Independent T-Test statistical test.

RESULT

Table 1
Characteristics of Respondents Based on The Ages

Intervention Group			Control Group		
Ages (years old)	**Frequency**	**%**	**Ages**	**Frequency**	**%**
45-59	0	0	45-59	0	0
60-74	31	100	60-74	31	100
74-90	0	0	74-90	0	0
>90	0	0	>90	0	0
Total	31	100	Total	31	100

Table 1 Shows that most respondents both control and intervention group were 60 - 74 years old.

Table 2
Characteristics of Respondents Based on The Gender

Intervention Group			Control Group		
Gender	**Frequency**	**%**	**Gender**	**Frequency**	**%**
Men	6	19.4	Men	15	48.4
Women	25	80.6	Women	16	51.6
Total	31	100	Total	31	100

Table 2 Shows that there were more women as the research subjects than men in both control group and intervention group.

The results of research on blood pressure levels before and after progressive muscle therapy in the control group and intervention group are presented in table 3 and table 4

Table 3
Variations In Blood Pressure Level Of Respondents In The Control Group Before And After Being Given Progressive Muscle Therapy At Meeting 1 To Meeting 6

Blood Pressure Level	Pretest/ Posttest	Meeting	Frequency (n)	Percentage (%)
Normal	Pretest	1	0	0
Pre-hypertension			0	0
Hypertension stage 1			26	83.8
Hypertension stage 2			5	16.2
Normal	Posttest	1	0	0
Pre-hypertension			0	0
Hypertension stage 1			26	83.8
Hypertension stage 2			5	16.2
Normal	Posttest	2	0	0
Pre-hypertension			0	0
Hypertension stage 1			29	93.5
Hypertension stage 2			2	6.5
Normal	Posttest	3	0	0
Pre-hypertension			0	0
Hypertension stage 1			27	87.1
Hypertension stage 2			4	12.9
Normal	Posttest	4	0	0
Pre-hypertension			0	0
Hypertension stage 1			26	83.8
Hypertension stage 2			5	16.2
Normal			0	0

Pre-hypertension	Posttest	5	0	0
Hypertension stage 1			30	96.7
Hypertension stage 2			1	3.3
Normal	Posttest	6	0	0
Pre-hypertension			0	0
Hypertension stage 1			29	93.5
Hypertension stage 2			2	6.5

Table 4
Variations In Blood Pressure Level Of Respondents In The Intervention Group Before And After Being Given Progressive Muscle Therapy At Meeting 1 To Meeting 6

Blood Pressure Level	Pretest/ Posttest	Meeting	Frequency (n)	Percentage (%)
Normal	Pretest	1	0	0
Pre-hypertension			0	0
Hypertension stage 1			28	90.3
Hypertension stage 2			3	9.7
Normal	Posttest	1	0	0
Pre-hypertension			30	96.8
Hypertension stage 1			1	3.2
Hypertension stage 2			0	0
Normal	Posttest	2	0	0
Pre-hypertension			31	100
Hypertension stage 1			0	0
Hypertension stage 2			0	0
Normal	Posttest	3	0	0
Pre-hypertension			31	100
Hypertension stage 1			0	0
Hypertension stage 2			0	0
Normal	Posttest	4	0	0
Pre-hypertension			31	100
Hypertension stage 1			0	0
Hypertension stage 2			0	0
Normal	Posttest	5	0	0
Pre-hypertension			31	100
Hypertension stage 1			0	0
Hypertension stage 2			0	0
Normal	Posttest	6	0	0
Pre-hypertension			31	100
Hypertension stage 1			0	0
Hypertension stage 2			0	0

The results of the Independent T-test statistical test showed a significant ρ-value of 0.000 where $\rho < \alpha$ (α : 0.05) which means that providing progressive muscle relaxation therapy has an effect on changes in blood pressure in elderly people with hypertension.

DISCUSSION

Hypertension increases with age. Most of the respondents from this study were aged 60 – 74 years. The increase in blood pressure that occurs due to blood vessel resistance is one of the changes that occurs as an individual ages (Hasnawati, 2021). Gender is also a factor that influences blood pressure. Women, especially during menopause, are more at risk of experiencing hypertension due to the influence of the hormone estrogen. One of the functions of this hormone is influencing the control

of the atrial vessels (Yudanari & Puspitasari, 2022). This is proven by research results which show that the majority of respondents are female.

One of the complementary therapies for patients with hypertension is progressive muscle relaxation. Progressive muscle relaxation is a method of stretching and relaxing a group of muscles and focuses on feeling relaxed (Rasdiyanah, 2022). This therapy can reduce peripheral resistance and increase blood vessel elasticity (Anggraeni, 2022). The benefits obtained from progressive muscle relaxation are activation of the parasympathetic nervous system and manipulation of the hypothalamus through focusing the mind to strengthen positive attitudes so that stress stimulation to the hypothalamus is reduced (Masudi, 2011).

Yudanari & Puspitasari's research (2022), proved that there was a decrease in blood pressure in elderly people with hypertension who were given progressive muscle relaxation intervention (intervention group) compared to elderly people with hypertension who were not given intervention (control group). Other research states that progressive muscle relaxation therapy also reduces parental stress in dealing with child hospitalization (Rozanawati et al, 2023).

The research, which was conducted over 6 meetings in one month with progressive muscle relaxation for 30 minutes, showed that respondents with hypertension experienced a decrease in blood pressure. Progressive muscle relaxation therapy can reduce blood pressure due to decreased sympathetic nerve activity and increased parasympathetic nerve activity resulting in vasodilation of arteriole diameter. The parasympathetic nervous system releases the neurotransmitter acetylcholine to inhibit sympathetic nerve activity by reducing heart muscle contractility, vasodilation of arterioles and veins and then lowering blood pressure (Muttaqin, 2014). Parasympathetic nerve activity has an effect on decreasing heart rate which is followed by a decrease in cardiac output so that blood pressure decreases (Sherwood, 2012).

CONCLUSION

Based on the research results, it can be concluded that progressive muscle relaxation therapy has an effect on reducing blood pressure in elderly people with hypertension. So this progressive muscle relaxation can be given to elderly people with hypertension as a complementary therapy. Apart from that, this intervention is also a way to control blood pressure so that it can reduce the negative impact of hypertension in the elderly

BIBLIOGRAPHY

Dinas Kesehatan Tulungagung. (2023). *Profil Kesehatan Tahun 2022*.

Elya, R., Hermawan, D., & & Trismiana, E. (2016). Pengaruh Jus Mentimun (Cucumis Sativus) Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Uptd Panti Sosial Lanjut Usia Tresna Werdha Kecamatan Natar Kabupaten Lampung Selatan Tahun 2015. *Jurnal Kesehatan Holistik, 10*(1), 27–31.

Hartatik, S., & Sari, R. P. (2021). Efektivitas Terapi Pijat Kaki. *Nusantara Hasana Journal*, *1*(1), 26–36.

Huether, S. E., & McCance, K. L. (2019). *Buku Ajar Patofisiologi Edisi Keenam Volume 2*. Elsevier.

Junaidi, & Noor. (2010). Penurunan Tingkat Kecemasan pada Lansia Melalui terapi Musik Langgam Jawa. *Jurnal Keperawatan Indonesia*, *13*(3), 195–201.

Kementerian Kesehatan RI. (2018). Hasil Utama Riset Kesehatan Dasar. In *Riset Kesehatan Dasar Tahun 2018* (Tahun 2018). Balitbangkes Kemenkes RI. https://doi.org/1 Desember 2013

Klabunde. (2015). *Konsep Fisiologi Kardiovaskuler* (2nd ed.). EGC.

Maisarah, S., Ibrahim, & Rahmawati. (2022). Hubungan Tingkat Pengetahuan Dengan Perilaku Lanjut Usia Dalam Menjalani Diet Hipertensi. *JIM FKep*, *VI*(1), 86–88.

Mayasari, Waluyo, A., Jumaiyah, W., & Azzam, R. (2019). Faktor-Faktor yang Berhubungan dengan Kejadian Hipertensi. *Journal of Telenursing (JOTING)*, *1*(2), 344–353.

Megawati, M. (2020). Pengaruh Teknik Relaksasi Otot Progresif Terhadap Penurunan Tekanan Darah Pada Lansia Penderita Hipertensi Di Puskesmas Muliorejo Tahun 2020. *Jurnal Ilmiah PANNMED*, *15*(3), 376–382.

Mulyati, S. (2020). Pengaruh Teknik Relaksasi Otot Progresif Terhadap Tekanan Darah Pada Lansia Dengan Hipertensi. *Jurnal Media Karya Kesehatan*, *3*(1), 91–98.

Patricia A., P., & Perry, A. G. (2009). *Fundamental Keperawatan*. Salemba Medika.

Rauf, S., Malawat, & Zahir Makayaino. (2021). *Pandu Lansia (Buku Pegangan bagi Kader Posyandu Lansia)*. Yayasan Penerbit Muhammad Zaini.

Rozanawati., Agusthia M., Wulandari Y. (2023). Pengaruh Terapi Progresive Muscle Relaxation Terhadap Penurunan Stres Orangtua Menghadapi Hospitalisasi Di Ruang Rawat Inap Anak RSUD Raja Ahmad Tabib Tanjungpinang. *Jurnal Ilmiah Kedokteran dan Kesehata*n, 3(1), 74-83

Sari, M. K., Elly, N., & Dahrizal. (2022). Literature Review : Efektivitas Terapi Tertawa Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi Tahun 2021. *Jurnal Vokasi Kesehatan (JUVOKES)*, *1*(1).

Tasalim, R., & Cahyani, A. . (2021). *Stres Akademik dan Penanganannya*. Guepedia.