

# THE INFLUENCE OF PROGRESSIVE RELAXATION TECHNIQUE ON BLOOD PRESSURE IN HYPERTENSION PATIENTS

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## Abstract

*One of the most common health problems in the community is hypertension. Hypertension is a circulatory system disorder that causes an increase in blood pressure above the normal value, which exceeds 140/90 mmHg. There are several ways to overcome hypertension by non-pharmacological methods, one of which is the Progressive Relaxation Technique. Progressive Relaxation Techniques are systematic techniques to achieve a state of relaxation that is used to reduce blood pressure in people with hypertension. The purpose of this study was to determine the effect of providing progressive relaxation techniques on blood pressure in patients with hypertension in the Wedi Baru Tambak Region in Surabaya. The research design used was pre-experimental with the approach One Group Pre-Post Test Design. The population is 45 people with hypertension in Tambak Wedi Baru area taken by technique with Simple Random Sampling 40 people. The independent variable in the study was Progressive Relaxation Technique while Blood Pressure. Blood pressure measurement using progressive observation Pre-Post observation sheets. Data were analyzed using the test Wilcoxon. The test results obtained the value of  $p$  value = 0.000 ( $\alpha = 0.05$ ) means that there is a difference in blood pressure before and after the intervention and the results of the mean there is the influence of blood pressure in patients with hypertension in Tambak Wedi Baru Region RT 03 Surabaya. The results of research that progressive relaxation is done to maintain blood pressure stability. It is recommended to be able to do Progressive Muscle Relaxation Therapy independently, in order to reduce blood pressure effectively and efficiently.*

**Keywords:** *Progressive Relaxation; Blood Pressure; Hypertension*

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## 1. Introduction

Heart and blood vessel disease, including hypertension, has become a deadly disease in many developed and developing countries over the past eight decades. Hypertension is a circulatory system disorder that causes an increase in blood pressure above the normal value, which exceeds 140 / 90mmHg. The disease not only attacks elderly people due to degenerative factors but productive age (Triyanto, Patient with Hypertension, 2014).

According to the *World Population Prospect* (2010) in the Republic of Indonesia Ministry of Health (2013) around 20% of the adult population experiences hypertension and more than 90% of them suffer from Essential Hypertension (primary), for which the medical cause cannot be determined. The rest experience increased blood pressure due to certain causes (secondary hypertension), such as narrowing of the renal artery or renal parenchymal disease, organ dysfunction, tumors and pregnancy. In a long time untreated hypertension will damage blood vessels throughout the body, namely the eyes, heart,

kidneys and brain. Enlargement of the heart due to being forced to increase the workload when pumping against high blood pressure.

According to Murti *et al* (2011) there are several ways to overcome hypertension, namely pharmacological treatment by taking anti-hypertensive medication, besides that there are also non-pharmacological treatments that can control blood pressure so that pharmacological treatment becomes unnecessary or delayed. Which includes nonpharmacological treatments such as low-salt / cholesterol diets, weight loss in obesity, regular exercise, meditation, and progressive muscle relaxation. According to Murti, et al (2011) progressive muscle relaxation therapy is a systematic technique to achieve a state of relaxation method that is applied through the application of progressive methods with gradual and continuous training on skeletal muscles by tensing and relaxing them which can restore muscle feeling so that muscles are more relaxed and can be used to reduce blood pressure in people with hypertension.

The number of hypertension sufferers is increasing every year, based on data obtained from the World Health Organization (WHO) in 2012, the prevalence of hypertension according to the world reaches 29.2% in men and 24% in women (Tyani, 2015). According to WHO in Indonesia reached 32% of men reached 42.7% while women reached 39.2%. Data from the Health Office (Dinkes, 2012) in East Java said that total hypertension sufferers in East Java were 286,840 patients. This data was taken according to a survey of Puskesmas in East Java. In Surabaya, 19.4% based on a preliminary survey in the Tambak Wedi Baru area of Surabaya from the results of interviews with 10 residents suffering from hypertension, 8 of them were unable to manage the hypertension they experienced and did not take any action, and 2 others were able to manage the hypertension they experienced by technical means, relaxation, which is like resting sleep.

The serious impact of hypertension, among others, triggers a stroke, some cases of stroke that occur are cases that are triggered by high blood pressure. Another impact of hypertension is kidney disorders, especially in cases of uncontrolled hypertension that will cause various disorders of the kidneys. Kidney disorders that often occur are kidney failure which generally arises due to continued hypertension. Another adverse effect that occurs in hypertension complications is the emergence of a heart attack. If it is not handled properly it can lead to sudden death (HaloSehat, 2015).

In principle, there are two types of therapy that can be done to treat hypertension, namely pharmacological therapy using drugs and nonpharmacological therapy. The amount of side effects caused by pharmacological treatment makes many experts use non-pharmacological treatment. Non-pharmacological treatment that is done is to lose weight, exercise, reduce salt intake, not smoking, and avoid stress (Wahdah, 2011). Besides non-pharmacological treatment can be done with simple breathing exercises and muscle relaxation techniques in which both therapies produce therapeutic benefits such as a quiet heartbeat, lowering blood pressure and reducing stress hormone levels (Jain, 2011).

Progressive Muscle Relaxation Therapy (*ProgressiveMuscleRelaxation*) is a relaxation therapy that is given to clients with certain tenses muscles and then relaxing. Progressive relaxation is a way of relaxation techniques combining deep breathing exercises and a series of certain muscle contractions and relaxation. (Widodo, 2008). According to Herod (2010), progressive muscle relaxation techniques are deep muscle relaxation techniques that do not require imagination, perseverance, or suggestion. Based on the belief that the human body responds to anxiety and events that stimulate the mind with muscle tension.

Hypertension can be prevented by setting a good diet and adequate physical activity. avoid other habits such as smoking and consuming alcohol allegedly influential in increasing the risk of hypertension even though the mechanism of its emergence is unknown (Wahdah, 2011). Therefore, efforts are needed to reduce high blood pressure in patients with hypertension by conducting research on hypertension in patients with progressive relaxation techniques. Based on the description above, researchers are motivated to conduct research "The Effect of Progressive Relaxation Technique on Blood Pressure in Patients with Hypertension in RT 3 RW 3, Tambak Wedi Village, Kenjeran District, Surabaya".

## 2. Method

This research method is *pre-experimental* with the approach *One Group Pre-Post Test Design*. This research was carried out in the Tambak Wedi Baru area RT 3, Tambak Wedi Subdistrict, Kenjeran Subdistrict, Surabaya in February 2019. The population in this study was 45 people. Sampling in this study used *simple random sampling* in patients with hypertension in Tambak Wedi Baru. RT 3 Kelurahan Tambak Wedi Kenjeran District Surabaya. The instruments in this study used the SAP Progressive Relaxation Technique and Blood Pressure Observation Sheet.

## 3. Results and Discussion

**Table 1. Age Distribution of Respondents**

	Age	Frequency	(%)
1.	21-30 Years	6	15%
2.	31-40 Years	4	10%
3.	41-50 Years	19	47%
4.	51-60 Years	10	25%
5.	61 Years Above	1	3%
	Total	40	100%

Based on Table 1 shows that most respondents aged 41-50 years were 19 people (47%).

**Table 2. Gender Distribution Respondents**

No	Gender	Frequency	(%)
1.	Men	3	8%
2.	Women	37	92%
	Total	40	100%

Based on Table 2 shows that the majority of respondents were female as many as 37 people (92%).

**Table 3. Distribution of Respondents' Activities**

No	Routine Sports	Frequency	(%)
1.	Yes	10	25%
2.	No	30	75%
	Total	40	100%

Based on Table 3 shows that most respondents did not routinely exercise as many as 30 people (75%).

**Table 4. Distribution of Smoking**

No	Smoking	Frequency	(%)
1.	Yes	2	5%
2.	No	38	95%
	Total	40	100%

Based on Table 4 shows that most respondents do not smoke as many as 38 people (95%).

**Table 5. Distribution of Respondents Consuming Medication for Hypertension**

No	Consuming Medication for Blood Pressure	Frequency	(%)
1.	Yes	27	68%
2.	No	13	32%
	Total	40	100%

Based on Table 5 shows that the majority of respondents taking blood pressure medication as many as 27 people (68%).

**Table 6. Distribution of Blood Pressure Before Intervention**

No	Category	Frequency	(%)
1.	Normal	4	10%
2.	Prehypertension	0	0%
3.	Stage 1 hypertension	34	85%
4.	Stage 2 hypertension	22	5%
	Total	40	100 %

Based on Table 6 shows that the majority of respondents had blood pressure stage 2 hypertension category of 24 people (60%).

**Table 7. Distribution of Blood Pressure After Intervention**

No	Category	Frequency	(%)
1.	Normal	0	0%
2.	Prehypertension	0	0%
3.	Stage 1 hypertension	16	40%
4.	Stage 2 hypertension	24	60%
	Total	40	100%

Based Table 7 shows that the majority of respondents had blood pressure in stage 1 hypertension as many as 34 people (85%).

**Table 8 Effects of Progressive Muscle Relaxation Therapy on Blood Pressure**

No	Classification of Pressure	Pre		Post	
		F	(%)	F	(%)
1	Normal	0	0%	4	10%
2	Pre hypertension	0	0%	0	0%
3	Hypertension Stage 1	16	40 %	34	85%
4	Hypertension Stage 2 amount	24	60%	2	5%
		40	100%	40	100

Wilcoxon statistical test (p value = 0.000)

Based on table 8 Shows that blood pressure in the category of stage 2 hypertension prior to the administration of progressive muscle relaxation techniques (*pre*) by 60% and after the administration of progressive (muscle relaxation techniques *post*) by 5%. From the Wilcoxon statistical test results showed the level of significance *p value* = 0.000, this shows that there is an influence of blood pressure before and after progressive muscle relaxation therapy given to blood pressure in patients with hypertension in Tambak Wedi Baru Region RT 03 Tambak Wedi Village, Kenjeran District, Surabaya.

### Identifying Blood Pressure Before Progressive Muscle Relaxation Therapy

Results of research conducted on 40 respondents in the Tambak Wedi Baru Region RT 03 Tambak Wedi Village Kenjeran District Surabaya, it is known that before being given progressive muscle relaxation therapy (*pretest*) most respondents had blood pressure in the category of hypertension stage 2 (> 140 / > 90 mmHg) amounted to 24 people with a percentage of 60% and there are still respondents who are in the category of hypertension category 1 (130-139 / 80-89 mmHg) that is a number of 16 people (40%). The characteristics of respondents by age showed that almost 41-50 years old were 19 people (47%). Characteristics of respondents based on female gender as many as 37 people (92%). Characteristics of respondents do not routinely exercise as many as 30 people (75%). Characteristics of respondents not smoking as many as 38 people (95%). Characteristics of respondents taking blood pressure medication as many as 27 people (68%).

According to (Triyanto, 2014) clinical symptoms experienced by sufferers are usually in the form of: dizziness, irritability, buzzing ears, difficulty sleeping, shortness of breath, feeling heavy bent, easily tired, dizzy eyes and nosebleeds (rarely reported). Individuals who suffer from hypertension sometimes do not show symptoms for years. Symptoms if there shows vascular damage, with typical manifestations according to organ systems that are vascularized by the blood vessels concerned.

Factors that can be controlled are lack of exercise, people who are less active in sports generally tend to be overweight and will raise blood pressure. With exercise we can improve the work of the heart. So that blood can be pumped properly throughout the body (Susilo, 2012). Consumption of excessive salt, salt is very important in the mechanism of hypertension. The effect of salt intake on hypertension is through an increase in plasma or body fluid volume and blood pressure (Susilo, 2012). Other contributing factors are smoking and consuming alcohol, the nicotine contained in cigarettes is very dangerous to health besides can increase blood clots in blood vessels, nicotine can cause calcification in the walls of blood vessels. Consuming alcohol is also dangerous to health

because it can increase catecholamin can trigger an increase in blood pressure (Familia, 2011).

In addition to the factors that can be controlled, there are also factors that cannot be changed, namely age and gender. Age is one of the factors that can affect blood pressure. Age is related to high blood pressure (hypertension). The older a person is, the greater the risk of developing hypertension. This happens because the age of the large arteries lose flexibility and become stiff because of that blood is narrower than usual and causes an increase in blood pressure (Sigarlaki, 2006).

Researchers argue that from the description of the facts and theories above it can be seen that respondents who mostly have stage 2 hypertension are influenced by the age factor because most are aged 41 years and over, with increasing age the higher the risk of developing hypertension, because at older ages experience loss of elasticity of arterial tissue and cause loss of muscle flexibility thereby causing joints to stiffen and cause blood pressure to rise. That is why many elderly people who suffer from hypertension experience joint stiffness, dizziness, heaviness, bending, fatigue, and dizzy eyes.

High blood pressure is also related to gender. This is evidenced in the Tambak Wedi Baru Region RT 03 more women because the majority of women are only busy at home as housewives with activities such as cleaning the house and caring for children, so that they experience high blood pressure because the higher the activities carried out, the higher the activities of heart work that must exert high energy so that blood pressure tends to increase. Meanwhile, the lack of activity carried out will also increasingly less activity from the work of the heart so that the work of the heart can not work optimally in pumping from blood vessels to the heart. Therefore physical activity causes large changes in the blood circulation system.

However, there are still respondents with stage 1 hypertension category. This is also related to age because there are still respondents with young adult age so that the mechanism of action of the heart is still quite elastic without having to consume drugs. Respondents just need to maintain a healthy lifestyle by not smoking and reduce salt consumption to prevent blood pressure from becoming unstable.

### **Identifying Blood Pressure After Progressive Muscle Relaxation Therapy The**

results of the study showed that after being given progressive muscle relaxation therapy (*Posttest*) 3 times within a period of 1 week, researchers measured blood pressure to respondents after being treated for 1 week and obtained blood pressure results in the category of Hypertension Stage 1 (130-139 / 80-89 mmHg) which initially numbered 16 people (40%) after being given progressive muscle relaxation therapy decreased blood pressure

by 34 people (85%) Stage 2 hypertension (> 140 / > 90 mmHg) which initially numbered 24 people (60%) after being given progressive relaxation therapy decreased blood pressure amounted to 2 people (5%). From a total of 40 people (100%) in the Tambak Wedi Baru area RT 03, Tambak Wedi Village, Kenjeran District, Surabaya. And subjectively the respondents said that they felt more relaxed after being given progressive muscle relaxation therapy. After doing progressive muscle relaxation therapy which is done for 3 times in a period of 1 week respondents experienced a decrease in blood pressure.

Decreased blood pressure in patients with hypertension after being given progressive muscle relaxation therapy in accordance with the theory (Abu Farhan, 2016) which says that progressive muscle relaxation therapy can reduce blood pressure because progressive muscle relaxation is a complementary therapy. In providing relaxation that suppresses physical conditions such as progressive muscle relaxation techniques, when the body is stimulated to move the sensory nerve limbs that deliver these impulses to the posterior spinal cord, the spinal cord connects these impulses through motor fibers and will control the response in heart muscle (Reny, 2014).

Researchers argue that the non-pharmacological approach to the action of progressive relaxation therapy is an intervention that can be applied to every patient who experiences hypertension. Patients with hypertension can use relaxation therapy as a complementary treatment effort that can be done independently in addition to continuing to check blood pressure and taking medication regularly, regulate diet, and manage stress to control blood pressure levels. Progressive muscle relaxation therapy as an alternative therapy in lowering blood pressure, in addition to being easy, this therapy is also quickly implemented, and is safe and effective for patients with hypertension and can control the complications of hypertension such as reducing dizziness, reducing anger, feeling heavy on the neck, easily tired, dizzy eyes etc. Progressive muscle relaxation therapy can reduce blood pressure, in addition to this therapy can also increase comfort and relax if done with good techniques and according to the procedure of its implementation. Progressive relaxation therapy can be done anytime and by anyone, so even lay people can do this therapy independently.

### **Identifying the Effects of Progressive Relaxation Techniques on Blood Pressure in Patients with Hypertension**

The results of the study before being given a progressive muscle relaxation therapy (*pretest*) blood pressure in the category of Stage 2 Hypertension (60%) and Stage 1 Hypertension category (40%). Then after being given progressive therapy (*posttest*)

blood pressure reduction in stage 2 hypertension category (5%), stage 1 hypertension category (85%). Based on the Wilcoxon statistical test results obtained  $P = 0.000$  and  $\alpha = 0.05$ . The result of  $P$  value is lower than  $\alpha$ , then the hypothesis is accepted. The conclusion from the results of the study is that there are differences in the results of blood pressure between anantara before being given a progressive relaxation technique (*pretest*) and after being given a progressive muscle relaxation technique (*posttest*), so that a decrease in blood pressure occurs in patients with hypertension. One problem that occurs in hypertension is an increase in blood pressure. Handling in patients with hypertension to reduce blood pressure can be done with non-pharmacological treatment that is complementary therapy by means of progressive relaxation techniques (Shinde et al, 2013).

Progressive relaxation techniques can help control blood pressure in hypertensive patients, regardless of the initial level of hypertension with the simple action of stretching the muscles. This is because the relaxation response works more predominantly on the parasympathetic nervous system, controlling the breathing and heart rate for the body to relax. When the relaxation response is felt by the body, it will slow down the heart rate so that the pumping of blood throughout the body becomes effective and blood pressure decreases (Junaidi, 2010).

The results of the analysis according to research (Nursyahidah, 2016) about the effect of progressive relaxation techniques on changes in blood pressure in patients with hypertension in RW 24, Pringgokusuman Gedong Tengen Village, Yogyakarta, have a significant effect on systolic blood pressure 0.026 (sig <0.05) and diastolic blood pressure 0.011 (sig <0.05), meaning that there is an influence of progressive relaxation techniques on changes in blood pressure. So it can be concluded that the relaxation technique can reduce blood pressure and is expected to apply progressive relaxation techniques as a complementary therapy to hypertension.

Researchers are of the opinion that given progressive relaxation therapy, in addition to reducing blood pressure, progressive relaxation therapy can also increase comfort, the body feels more relaxed and can reduce symptoms experienced due to hypertension such as dizziness, anxiety, etc. felt by the respondents. The timing of the administration of progressive relaxation therapy interventions must also be considered because interventions carried out regularly in a row carried out 3 times in a period of 1 week have the benefit of lowering blood pressure more than irregular. Progressive relaxation therapy will have a faster effect if accompanied by anti-hypertensive drug therapy in lowering blood pressure because progressive relaxation cannot be an alternative

therapy (single therapy) but is a complementary therapy. Based on the analysis, theory and previous studies that support this research, it can be concluded that progressive relaxation therapy can be an alternative treatment for someone suffering from hypertension. This treatment can be done independently, easily done, effectively and efficiently in reducing blood pressure.

#### 4. Conclusion

Progressive Muscle Relaxation Therapy which is done every 30 minutes for 1 week can reduce blood pressure in people with hypertension.

#### 5. Suggestion

Respondents are expected to be able to do progressive muscle relaxation therapy independently to maintain blood pressure stability.

#### 6. Reference

- Dewi, AA (2018). The influence of elderly exercise on blood pressure in patients with hypertension in the elderly posyandu.
- Brilliant (2013). *Smart Book Management of Stress and Emotion*. Yogyakarta: Matra Books.
- Nursalam. (2016). *Nursing Science Research Methodology: A Practical Approach*. Jakarta: Salemba Medika.
- Padila (2013). *Internal Medicine Nursing*. Yogyakarta: Nuha Medika.
- Perry, PA (2005). *Nursing Fundamentals book I, 7th edition*. Jakarta: Salemba Medika.
- Pudiatuti, RD (2011). *Stroke Triggers*. Yogyakarta: Nuha medika.
- Ramdani. (2012). The Effect of Progressive Muscle Relaxation Exercises on Reducing Blood Pressure of Primary Hypertension Clients in Malang City.
- Setyoadi. (2011). *Therapeutic Modes of Psychiatric Nursing in Psychogeriatric Clients*. Jakarta: Salemba Medika.
- Suliswati. (2005). *Basic Concepts of Soul Nursing*. Jakarta: EGC.
- Triyanto, E. (2014). *Integrated Hypertension Patients*. Yogyakarta: Graha knowledge.
- Utami (2009). *Healthy Solutions Overcoming Hypertension*. Jakarta: Agromedia Reader.
- Wahdah, N. (2011). *Conquers Hypertension & Diabetes*. Yogyakarta: MultiPress.
- Widodo, K. d. (2008).
- Yundini (2006). *Risk Factors for Hypertension*. Jakarta: EGC.
- Farhan, Abu. (2015). *Progressive Muscle Relaxation Therapy for People with Hypertension*. Central Java: Cilacap. D: /JURNAL20PROPOSAL/Autogenic/Abu2.html .
- Arumi, Seekar. (2011). *Stabilizing High Blood and Low Blood Guides Healthy Living with Normal Blood Pressure*. Yogyakarta: Araska

Nursalam. (2013). *Nursing Research Methodology: A Practical Approach*. Jakarta: Salemba Medika  
Setyoadi and Kushariyadi. (2011). *Nursing Modality Therapy in Psychogeriatric Clients*. Jakarta: Salemba Medika

Susilo, Yekti and Ari Wulandari. (2011). *How to Overcome Hypertension*. Yogyakarta: ANDI