

**Jurnal Info Kesehatan**

Vol. 20, No. 2, December 2022, pp. 176-182

P-ISSN 0216-504X, E-ISSN 2620-536X

DOI: [10.31965/infokes.Vol20Iss2.858](https://doi.org/10.31965/infokes.Vol20Iss2.858)Journal homepage: <http://jurnal.poltekkeskupang.ac.id/index.php/infokes>**RESEARCH****Open Access****The Effect of Progressive Muscle Relaxation Therapy on Anxiety in Hypertension Patients****Nasihin<sup>1a\*</sup>, Diah Ayu Pertiwi<sup>1b</sup>, Khayan<sup>2c</sup>, Widyana Lakshmi Puspita<sup>3d</sup>, Muhammad Ifham Hanif<sup>4e</sup>**<sup>1</sup> Department of Nursing, Poltekkes Kemenkes Banten, Tangerang, Banten Province, Indonesia<sup>2</sup> Department of Medical Laboratory Technology, Poltekkes Kemenkes Banten, Tangerang, Banten Province, Indonesia<sup>3</sup> Department of Nutrition, Poltekkes Kemenkes Pontianak, Pontianak, West Kalimantan, Indonesia<sup>4</sup> Dr. Hasan Sadikin General Hospital, Faculty of Medicine, Universitas Padjadjaran, Bandung, West Java, Indonesia<sup>a</sup> Email address: [ihin50@yahoo.com](mailto:ihin50@yahoo.com)<sup>b</sup> Email address: [Pertiwidiahayu7@gmail.com](mailto:Pertiwidiahayu7@gmail.com)<sup>c</sup> Email address: [mkhayan@yahoo.co.id](mailto:mkhayan@yahoo.co.id)<sup>d</sup> Email address: [widyanalakshmi96@gmail.com](mailto:widyanalakshmi96@gmail.com)<sup>e</sup> Email address: [muhammadifhamhanif@gmail.com](mailto:muhammadifhamhanif@gmail.com)

Received: 18 July 2022

Revised: 14 December 2022

Accepted: 15 December 2022

**Abstract**

Anxiety is a condition in which an individual experiences a concern about something that is not certain to happen, even some people experiencing anxiety but do not understand the specific cause of the anxiety source they feel. Anxiety problems, which are common in people, can be treated non-pharmacologically with deep muscle relaxation techniques, which do not require guided imagination or cause side effects in patients undergoing progressive muscle relaxation therapy. The objective of this study is to identify how progressive muscle relaxation techniques affected the anxiety levels of hypertension patients at the Kedaung Wetan Public Health Center. The study was conducted to determine if there was a difference in the level of anxiety experienced by hypertensive patients before and after receiving progressive muscle relaxation therapy. The design in this study employed a quasi-experimental pre-post-test with a control group with a progressive muscle relaxation therapy intervention. Result: there is a significant relationship between the period of occurrence of hypertension with anxiety experienced by respondents. Anxiety in hypertensive patients is more prevalent in those who are unfamiliar with hypertension. Thus, anxiety can arise from a sense of concern and fear of more serious complications which occur from the hypertension they are experiencing. The experimental group who received treatment in the form of progressive muscle relaxation therapy had a lower level of anxiety than the control group at the Kedaung Wetan Public Health Center in Tangerang City, with a p-value of 0.000.

**Keywords:** Progressive Muscle Relaxation, Anxiety.**\*Corresponding Author:**

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## 1. INTRODUCTION

Health is a condition in which an individual is in good physical, social, emotional, and spiritual condition without any disturbance to perform the daily life productively ([World Health Organization, 2008](#)). Healthy means someone possessing a perfect state ranging from physical, mental, and social; it can be indicated that a person is identified to be healthy if he does not possess a disease, weakness, or disability problems in himself. Mental health is a condition in which an individual can develop physically, emotionally, and spiritually in the sense of being able to realize the expertise he possesses in himself and overcome the problems encountered in his life. A person is identified to be mentally healthy if he is able to contribute to the surrounding environment. In other words, he or she is able to socialize in the community ([Thirunavuraku, Thirunavuraku & Bhugra, 2013](#)). People With Mental Problems is a condition in which an individual encounters problem physically, emotionally, and spiritually; where in this situation, a person can experience the risk of receiving to a more serious stage, which is mental disorders ([Carter, 2014](#); [Gamm, Stone & Pittman, 2010](#); [Kementerian Kesehatan Republik Indonesia, 2019](#)).

Indonesian Health in 2017 stated that there are numerous forms of mental disorders that the Indonesian population is expected to encounter, one of which being anxiety ([Kementerian Kesehatan Republik Indonesia, 2017](#)). Anxiety is a condition in which a person suffers fear and worry about something that is not guaranteed to happen; even someone who has uneasiness does not know where the source of his anxiety stems from ([Gale & Davidson, 2007](#); [Wells & Carter, 2016](#)). The fear and worry that an anxious person feels is frequently a response or output of a warning signal that shows that he is in danger and provides a stimulus to strengthen someone to take the right step or take the appropriate action to reduce the possible threat ([Rowa & Antony, 2008](#); [Stein & Sareen, 2015](#); [Tyrrer & Baldwin, 2006](#)).

The anxiety most frequently experienced by the surrounding community is anxiety affected by physical illness, particularly diseases that can cause various diseases such as complications. One of the anxiety problems generally suffered by the public regarding physical illness is hypertension ([Bajkó et al., 2012](#); [Grimsrud et al., 2009](#); [Kretchy, Owusu-Daaku, & Danquah, 2014](#); [Wei & Wang, 2006](#)). Hypertension is a non-communicable disease, but it is one of the diseases which causes death. It is also frequently referred to as the Silent Killer or can be interpreted as a disease that can kill without any symptoms ([Lackland & Weber, 2015](#); [World Health Organization, 2013](#); [Sawicka et al., 2011](#)). The World Health Organization informs that recently, cases of hypertension globally acquire 22% of the world population. As the matter of fact, of the 22%, only one-fifth made efforts to control their hypertension. A person is identified as hypertensive if the blood pressure presents a systolic pressure of more than 140 mmHg and a diastolic pressure of more than 90 mmHg ([Kementerian Kesehatan Republik Indonesia, 2019](#)).

In accordance with the case of hypertension at the Information Data Center of the Indonesian Ministry of Health, with the increasing number of hypertension cases in Indonesia, numerous people with hypertension experience anxiety. Anxiety in a person with hypertension is frequently generated by a sense of fear about hypertension; even many people who have recently been diagnosed with hypertension are concerned that their hypertension would produce problems such as stroke, coronary heart disease, and kidney failure ([Hamrahan & Falkner, 2016](#); [Yu et al., 2011](#)). As a result, many people are concerned that their elevated blood pressure may exacerbate the situation and lead to the development of undesirable diseases ([Kretchy, Owusu-Daaku, & Danquah., 2014](#); [Wei & Wang, 2006](#)).

Anxiety disorders caused by hypertension can be treated non-pharmacologically, one of which is progressive muscle relaxation therapy ([Atmanegara & Suhita, 2021](#); [Brauer et al.,](#)

1979; Cottier et al., 1984; Ermayani, Prabawati, & Susilo, 2020; Li et al., 2015; Pender, 1985). Progressive muscle relaxation therapy is a deep muscle relaxation approach that does not require a guided imagination and does not have any negative side effects in people who utilize it. This therapy involves simply a concentration on a muscle activity by tensing the muscles and then releasing muscle tension so that it is felt calm when releasing muscle tension, as directed. This therapy is tremendously effective for reducing anxiety experienced by a person as it is able to reduce muscle tension that occurs. It is also helpful in producing a relaxation for the patients (Rosdiana & Cahyati, 2019; Sheu et al., 2003; Shinde et al., 2013). Therefore, the researcher was willing to identify the effect of progressive muscle relaxation techniques on the anxiety experienced by hypertensive patients at the Kedaung Wetan Public Health Center.

## 2. RESEARCH METHOD

This research is a quantitative study with a quasi-experimental design and employs a pre and post-test method with a control group design. This experimental study incorporated two groups, which were the intervention group totaling 36 people, and the control group, amounting to 36 people. The sampling method in this study administered a purposive sampling technique. This research was conducted at the Kedaung Wetan Public Health Center, Tangerang City. The instrument utilized was to measure anxiety levels was the zung Self-rating Anxiety Scale (ZSAS) calculating instrument designed (Zung, 1971). Questions totaled 20 items, comprising of 5 positive questions and 15 negative statements demonstrating anxiety symptoms.

Data analysis was performed univariately, and bivariate was employed to determine anxiety scores in hypertensive patients before and after being given the application, while bivariate analysis administered the t-dependent test (with Sig  $\leq$  0.05) to determine the effect of progressive muscle relaxation therapy on anxiety in hypertensive patients.

Ethical approval the research proposal was approved by the Health Ethics Commission of the Poltekkes Kemenkes Banten and informed consent was obtained from research respondents. Aspects of research employed the general principles of research ethics in humans, which is: Respect for human dignity, beneficence, and justice. Number of the ethical protocol: No. DP.02.01/5.1/2499/2022.

## 3. RESULTS AND DISCUSSION

**Table 1.** Distribution of the Number of Respondents Experiencing Anxiety in the Experimental Group.

Group	No anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety
Pre-test Experiment	0	0	9	27
Post-test Experiment	0	9	27	0

Table 1 demonstrates that in the pre-test experimental group, there was 1 respondent who experienced moderate anxiety and 27 people with severe anxiety. In the post-test experimental group following therapy, 27 respondents reported moderate anxiety and 9 reported mild anxiety. As a result, it can be stated that progressive muscle relaxation therapy has an effect on reducing anxiety in hypertension patients at the Kedaung Wetan Public Health Center.

**Table 2.** Distribution of the Number of Respondents Experiencing Anxiety in the Control Group.

Group	No anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety
Pre-test	0	0	30	6
Post-test	0	0	30	6

Table 2 illustrates that in the pre-test control group, 6 respondents experienced severe anxiety and 30 respondents experienced moderately anxious. Meanwhile, in the post-test control group, the results of severe anxiety were 6 respondents who were moderately anxious, amounting to 30 respondents. Therefore, it can be identified that there was no change in the decrease of anxiety in the control group.

**Table 3.** Anxiety Score Difference Respondents Before and After Provision of Progressive Muscle Relaxation Therapy in the Experimental Group.

Variable	N	Mean	SD	SE	p-value
Anxiety Level pre-test experiment	10	29,40	1.265	0,400	0,000
Anxiety Level post-test experiment		22,50	1.179	0,373	
Difference		6,9	0,086	0,027	

Table 3 demonstrates the anxiety scores of respondents before providing progressive muscle relaxation therapy to the experimental group with a mean value of 29.40 with a standard deviation of 1,265 and after providing progressive muscle relaxation therapy to the experimental group. The result is a mean of 22.50 with a standard deviation 1,179. The test results obtained the p-value in the experimental group 0.000 (p-value <0.05).

**Table 4.** Anxiety Scores in the Pre-Test and Post-Test Control Groups.

Variable	N	Mean	SD	SE	p-value
Anxiety Level pre-test control	10	26,80	1,687	0,533	0,168
Anxiety Level post-test control		26,60	1,647	0,521	
Difference		0,2	0,04	0,012	

Table 4 illustrates the anxiety scores of respondents before providing progressive muscle relaxation therapy in the control group with the mean value of 26.80 with a standard deviation of 1.687 and after providing progressive muscle relaxation therapy in the control group. The mean result is 26.60 with a standard deviation 1,647. The test results obtained a p-value in the experimental group of 0.168 (p-value > 0.05).

Based on the research findings, the average score in the pre-test experimental group before receiving progressive muscle relaxation therapy was 29.40, while the post-test score after receiving progressive muscle relaxation therapy was 22.50. It implies that there is a difference between the average values of the pre-test and post-test. The variations that happened in the experimental group after progressive muscle relaxation therapy revealed that previously 27 respondents had severe anxiety and 9 respondents experienced moderate anxiety. The respondents experienced severe anxiety changed to 27 moderate anxiety and 9 moderate anxieties. The difference obtained by progressive muscle relaxation therapy can inhibit the occurrence of an increase in the sympathetic nervous system. Hence, the hormone causing body dysregulation can be decreased in number so that it can result in a decrease in

blood pressure, and can also reduce hormone levels that cause stress and anxiety (Mawardika, Aniroh, & Lestari, 2020; Pramono, Hamranani, & Sanjaya, 2019).

Anxiety encountered by hypertensive patients is closely associated with blood pressure conditions that must be continuously controlled, encompassing a good lifestyle, diet, activity, and rest patterns. This research is in accordance with research Nova and Tumanggor, (2018) who conducted a study of providing progressive muscle relaxation therapy to breast cancer patients with the results of the average value possessing a significant difference with the mean pre-test value of 26.46 and post-test with a mean value of 15.62 (Nova & Tumanggor, 2018). Anxiety is an emotional response without an object, manifested as feelings of fear or worry that are not clear and excessive in origin, and are accompanied by the presence of summative symptoms, which can cause significant disruptions in social function or obvious suffering for a patient. Anxiety may be experienced by a hypertensive patient since hypertension requires relatively long therapy.

Based on the findings of the research conducted in the pre-test control group, the results obtained are 26.80, while the post-test in the control group is 26.60, with the results of the pre-test anxiety score of 30 moderate anxiety and 6 severe anxiety t and post-test anxiety score of 30 moderate anxiety and 6 severe anxiety t. It indicates that there is no significant change in the control group. Thus, it is possible to conclude that there is no statistically significant difference between the pre-test and post-test in the control group. In There was no significant difference in the control group since the control group in the study did not receive intervention or therapy, and this control group can be identified as a comparison material to evaluate whether progressive muscle relaxation therapy can reduce the anxiety experienced by hypertension patients. The modifications in the control group were produced by the patient's family's support, but the changes in the patient could be perceived as insignificant. The results of this study are in accordance with research conducted by Nova & Tumanggor, (2018) which presented results that had no significant difference between the pre-test and post-test in the control group as the changes that occurred in the control group were not significant (Nova & Tumanggor, 2018).

Based on the research that has been performed, there is a decrease in the anxiety level score by administering progressive muscle relaxation therapy encountered by hypertensive patients. This progressive muscle relaxation therapy is provided for 20 minutes. Progressive muscle relaxation therapy is able to reduce heart rate, cardiac dysrhythmias, oxygen demand and oxygen consumption, muscle tension, metabolic rate, and can increase brain alpha waves that occur when hypertensive patients are conscious, not focus attention and can relax, enhance fitness, and escalate concentration and ability to deal with anxiety (Cottier et al., 1984; Pramono, Hamranani, & Sanjaya, 2019; Rosdiana & Cahyati, 2019; Sheu et al., 2003; Shinde et al., 2013).

#### 4. CONCLUSION

Based on the research which has been conducted regarding the effect of progressive muscle relaxation therapy on anxiety in hypertensive patients at the Kedaung Wetan Public Health Center, Tangerang City, it can be concluded that there was a decrease in the level of anxiety in hypertensive patients at the Kedaung Wetan Public Health Center, Tangerang City in the experimental group who had received treatment in the form of progressive muscle relaxation therapy than the control group with the resulting p-value 0,000.

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