

Progressive Muscle Relaxation on Family Anxiety with Hypertension

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KEYWORDS ABSTRACT

Progressive Muscle Relaxation, Anxiety, Hypertension

Since hypertension is a chronic condition, long-term care is required. Anxiety within the family is one of the ways that long-term care and the possibility of complications impact the loving family. Extended family stress may lead to subpar treatment for hypertensive individuals, which will impact their pulse. The purpose of this study was to examine what increasing muscle relaxation meant for the anxiety levels of hypertensive families. Analytical methods are utilized in this kind of quasi-experimental study. All households with family members who experience the ill effects of hypertension are the target population. samples from 35 participants in the control group and another 35 participants in the experimental group. The HARS questionnaire was the tool used to gauge the level of anxiety. Using the SPSS software, data management employed the Wilcoxon Signed Ranks Test at a significance threshold of $<\alpha$ (0.05). The outcomes demonstrated that gradual muscle relaxation had an impact on the anxiety levels of the experimental group's families with hypertension. $p = 0.000$ ($0.000 < 0.05$) was the result of the Wilcoxon sign rank test at a significance level of 0.05. The control group's Wilcoxon sign rank test result, at a significance level of 0.05, was $p = 1.000$ ($1.000 > 0.05$), indicating no effect of progressive muscle relaxation on anxiety. According to the study's findings, gradual muscular relaxation can diminish anxiety. To bring down anxiety levels, this technique can be utilized as a non-pharmacological therapy.

1. Introduction

Since hypertension is a chronic condition, long-term care is required. The reason hypertension is known as the silent executioner is that it frequently goes undiagnosed, leaving victims unaware of their condition until problems arise. The level of circulatory strain increase and the amount of time the pulse disease remains misdiagnosed and untreated will determine the extent of target organ damage resulting from hypertension consequences. The brain, eyes, heart, kidneys, and peripheral arteries are among the substantial organs that are targeted (Habibi, 2020). Because of the fact that treating hypertension involves a variety of measures, like food, exercise, and medicine, long-term care and the possibility of problems also have an impact on the family that provides care, including family anxiety (Hulloli et al., 2021). Extended family stress may lead to suboptimal management of hypertension patients, thereby influencing their circulatory strain (Hafid, 2022). In the event that a family member experiences a hazardous disease, anxiety and stress among those who provide care for people with hypertension will rise (Pratiwi et al., 2009). Progressive muscle relaxation treatment is one method of improving family coping abilities and overcoming anxiety in the family (Mohamed et al., 2024). Family caregivers for individuals with hypertension may have an anxious outlook on the client's growth, care, and treatment, as well as anxious about speculating about potential outcomes. Because the family is an integral part of the individual and cannot be separated, it can be an empowered support system (Alamer et al., 2023). Since the family is the initial wellspring of support, it must be stable and able to persevere under all circumstances in the hopes of being able to determine current issues (Saleh et al., 2020). According to estimates from the World Health Organization (WHO), 1.13 billion people worldwide experience the ill effects of hypertension, with the majority of those affected (two-thirds) living in low-and middle-income nations (Harahap et al., 2019). According to the primary findings of the 2018 Riskesdas, the proportion of Indonesians with hypertension climbed from 25.8% in 2013 to 34.1% in 2018 (Riskesdas, 2018). Using information from the Provincial Health Office of East Java from 2013 to 2018, The number of instances of hypertension has increased by 8.3%. In the meantime, 5,271,569 persons in East Java experience the ill effects of hypertension in 2021, up from 27% the year before. Nugraha and associates, 2022). Many victims of this ailment are unaware of their increased gamble of hypertension because it doesn't present with the usual complaints and symptoms (Ekarini et al., 2019). Because of the lengthy healing process of hypertension, which can ultimately result in health difficulties for those with the condition, the family, as a caregiver and support system, will also experience anxiety and stress (Mulyati et al., 2021). Consequently, in request to assist and care for family members who have

hypertension, families must learn to cope with anxiety. Progressive muscle relaxation treatment is one strategy that can be utilized to help family of patients with hypertension deal with their anxiety (Kusumawaty, 2021). The only thing this relaxation therapy does is promote a feeling of ease or calm. Endorphins are the body's natural analgesics and can ease pain (physical complaints) when the body is calm and the brain is processing the endorphins (Bobir et al., 2024). Furthermore, when the body is calm, the parasympathetic sensory system is triggered, which brings down pulse, heart rate, and respiration rate (Handayani et al., 2021). At last, a calm environment can boost feel-good chemicals and decrease anxiety. The purpose of this study is to determine how anxious families of hypertension patients were both when progressive muscle relaxation therapy was applied.

2. Methodology

Materials

This study sought to ascertain the impact of progressive muscle relaxation on the anxiety levels of families providing pre-and post-intervention care for clients with hypertension. This kind of study utilizes a pre-posttest two-group plan methodology, quasi-experiment procedure, and analysis. The researchers defined the target group as all households with family members who have hypertension, with the inclusion of persons aged 21 to 59 who are literate and who live in the Banyu Urip RW 01 Surabaya area. Using a straightforward random sampling procedure, a sample of 33 respondents from the experimental group and 33 respondents from the control group were selected. The HARS questionnaire was utilized to gauge the participants' level of anxiety both prior to and during the progressive muscle relaxation therapy intervention. Anxiety is the dependent variable in this study, whereas progressive muscle relaxation therapy is the independent variable. The Research Ethics Committee approved this study before it was carried out in the Banyu Urip RW 01 Surabaya area in June 2023.

Data collection procedures

The following steps were taken in the data collection process: (1) The researcher tracked down the participants, (2) the researcher ascertained the participants' willingness, (3) the researchers elucidated the aim and advantages of the study to the participants, (4) the researchers granted the participants informed consent, (5) Researchers gave out pre-test anxiety questionnaires (HARS questionnaires); (6) Researchers gave respondents a demonstration of progressive muscle relaxation techniques to practice; (7) Post-test anxiety questionnaires (HARS questionnaire) were distributed by researchers).

Data analysis

With the SPSS software, the researcher utilized the Wilcoxon Signed Ranks Test to handle the data at a significant level of $<\alpha$ (0.05). The hypothesis is rejected assuming the statistical test results indicate $p > 0.05$, indicating that there is a link between the independent and dependent variables.

3. Results and discussion

Results and discussion of general data

Outcomes Table 1.1 presents research on the characteristics of respondents, including age, orientation, education, occupation, and duration of hypertension:

Table 1. Respondents' characteristics Progressive muscle relaxation for hypertension and family distress at the Banyu Urip Public Health Center in Surabaya in May 2023.

Characteristics of respondents	Frequency	Percentage (%)
Age		
17-25	14	21.2
26 – 35	8	12.1
35 - 45	25	37.9
46 - 55	19	28.8

Gender		
1. Man	17	25.8
2. Women	49	74.2
Education		
1. Did not finish / did not go to school	0	0
2. Elementary School	16	24.2
3. Middle School	15	22.7
4. High School	25	37.8
5. College	10	15.2
Work		
1. Not working	15	22.7
2. Student/student	0	0
3. Private	13	19.7
4. Entrepreneur	17	25.8
5. Labor	19	28.8
6. Others	2	3
Length of time a family member has had hypertension		
1. < 6 years	27	41
2. ≥6 years	39	59

The aforementioned figure indicates that nearly half of the respondents are between the ages of 35 and 45. The majority of the women with the highest educational attainment levels are employed as traders or are unemployed. The majority of study participants were also from households where there was at least one member who had hypertension for north of six years. Women made up the majority of study participants. According to certain research, there is a correlation between orientation and anxiety, although the probability varies depending on an individual's age. In 2023, Nugroho et al. Women are more probable than men to have anxiety at 60 years of age and beyond (Bantas and Gayatri, 2019). Nonetheless, according to research by Paniyadi et al. (2019), there was no significant correlation found between anxiety levels and variable demographic data, like age, marital status, orientation, occupation, education, place of home, and family income. An individual's advancing years may correspond with their growing level of maturity. An individual's capacity to regulate his emotional state, including his level of stress, can increase with maturity (Paniyadi et al., 2019). In request to respond to changes in their surroundings rapidly, adapt well, and manage their level of anxiety, a more mature person also possesses a more serious level of adaptability. The ability of a person to respond to stressors, including anxiety, with effective coping methods can also be influenced by their maturity. Murray and colleagues, (2019). The majority of research participants have completed senior secondary school. Although sufficient for informational purposes, this level of education doesn't preclude the gamble of experiencing extreme concern. Studies have indicated that anxiety is higher in those with less education. The poor educational attainment of the respondents affects their motivation and awareness of preventing anxiety. An exceptionally low level of education makes it harder for someone to regulate their health issues, especially anxiety, because they don't know sufficient about health and the disease they are suffering from. The respondents' low educational attainment has a significant impact on their anxiety since a lack of health information leads to a mindset that is less capable of responding to and staying aware of health issues (Suciana et al., 2020). A family member with long-term hypertension would probably generate anxiety until the end of the family because the condition often requires lengthy treatment and carries a danger of complications. Anxiety in individuals and families is also impacted by the length of hypertension (Faijurahman, 2022). Anxiety is characterized as an emotional reaction triggered by a person's subconscious and linked to specific factors like restlessness, concern, and uncertainty (Binoriang & Pramesti, 2021). The frequency distributions of anxiety levels in the experimental group and control group when the intervention, the distribution of anxiety levels in the control group when the intervention, the distribution of the differences in anxiety levels (pre-test)

between the two groups, and the distribution of the differences in anxiety levels (post-test) between the two groups are among the specific data got from the study's findings.

Table 2. Frequency Distribution of Respondents Based on the Anxiety Level of the Experiment Group

No	Anxiety Level	Before		After	
		f(n)	%	f(n)	%
1.	Mild anxiety	0	0	16	48,5
2.	Moderate anxiety	1	3	9	27,3
3.	Seriously worried	32	97	8	24,2
Total		33	100	33	100
Wilcoxon Sign Rank Test statistical test <i>Asymp Sig (2-tailed)</i> = 0,000 <i>Negative rank</i> = 1 <i>Positive rank</i> = 25 <i>Ties</i> = 7					

Source: Primary Data June 2023

Table 2 demonstrates that, prior to the intervention, nearly all respondents (97%) in the experimental group reported having serious anxiety, while just 3% reported having moderate anxiety. Following the intervention, nearly half (48.5%) experienced mild anxiety, nearly half (27.3%) experienced moderate anxiety, and a tiny percentage (24.2%) experienced serious anxiety. After obtaining a value of $p = 0.000$ ($0.000 < 0.05$) using the Wilcoxon sign rank test with SPSS for windows with a significance level of $= 0.05$, H_0 is rejected, indicating that progressive muscular relaxation has an effect on anxiety. Whenever left untreated, hypertension is a chronic disease that can cause additional major health problems as well as concern in the family. Using progressive muscle relaxation (PMR), a type of relaxation technique, is one non-pharmacological method for reducing anxiety. 2020 reported that following the fourth seven day stretch of progressive muscle relaxation therapies, there was a reduction in anxiety and a drop in both systolic and diastolic circulatory strain (Ermayani et al., 2020). By decreasing sympathetic nerve activity and raising parasympathetic nerve activity, progressive muscle relaxation therapy can promote relaxation by causing an increase in arteriolar diameter vasodilation. In request to suppress sympathetic nerve activity, parasympathetic neurons will release acetylcholine, which will decrease venous and arterial vasodilation as well as heart muscle contractility (Ekarini et al., 2019). The least expensive relaxation technique, it produces no negative aftereffects, is simple to perform, and calms and relaxes both the body and the mind (Raziansyah & Sayuti, 2022).

Table 3. Frequency Distribution of Respondents Based on the Anxiety Level of the Control Group

No	Anxiety Level	Before		After	
		f (n)	%	f(n)	%
1.	Mild anxiety	0	0	0	0
2.	Moderate anxiety	1	3	1	3
3.	Seriously worried	32	97	32	97
Total		33	100	33	100
Wilcoxon Sign Rank Test statistical test <i>Asymp Sig (2-tailed)</i> = 1.000 <i>Negative rank</i> = 0 <i>Positive rank</i> = 0 <i>Ties</i> = 33					

Source: Primary Data June 2023

The pre-test and post-test findings for the control group's table indicated that 97% of respondents had a serious level of anxiety, while only 3% had a moderate level, as can be shown. The study's findings indicated no changes in anxiety levels in the post-test results, based on the table. After using SPSS for Windows to perform the Wilcoxon sign rank test at a significance threshold of $= 0.05$, the results

showed that $p = 1.000$ ($1.000 > 0.05$), the null hypothesis (H_0) is accepted, indicating that gradual muscle relaxation has no effect on anxiety. The control group didn't get the progressive muscle relaxation intervention, so their level of anxiety didn't alter. Creating a comfortable and relaxed atmosphere is one of the objectives of progressive muscle relaxation, which helps to bring down anxiety. Stressful circumstances physiologically stimulate the hypothalamus, which regulates two neuroendocrine systems: the adrenal cortical system and the sympathetic sensory system. In response to hypothalamic nerve signals, the sympathetic sensory system activates smooth muscles and organs under its influence. Examples of these actions include dilating pupils, raising circulatory strain, speeding up heart rate, and boosting blood supply to muscles. Anxiety is a person's inherent alarm system that signals danger. A concern that is imprecise and unwarranted given the circumstances is called anxiety. Anxiety is an emotive reaction, experienced subjectively and expressed interpersonally, to a particular item. Physical imbalances brought on by anxiety include alterations in vital signs, eating and sleeping habits, and tense muscles. Anxiety results in a variety of substantial symptoms and altered states, like tense, stimulated, or eased back breathing, elevated heart rate, and impaired stomach function. Muscle tightness, one of the indications of a physical imbalance in anxiety victims, can be feeling better with PMR therapy (Pome et al., 2019).

Table 4. Distribution of Differences in Anxiety Levels (Pre Test) Between the Experiment Group and the Control Group

No	Anxiety Level	Experiment Group		Control group	
		f (n)	%	f (n)	%
1.	Mild anxiety	0	0	0	0
2.	Moderate anxiety	1	3	1	3
3.	Seriously worried	32	97	32	97
Total		33	100	33	100
Mann Whitney test was obtained $p = 1,000$					

Source: Primary Data June 2023

Table 4 demonstrates that, prior to receiving intervention, nearly all participants in both the experimental and control groups (97%) reported serious anxiety, whereas just 3% had moderate anxiety. The Mann Whitney test, conducted using SPSS for Windows at a significance level of 0.05, yielded a value of $p = 1.000$ ($1.000 < 0.05$) significant H_0 , which is accepted. This indicates that there was no significant difference in anxiety levels between the experimental and control groups prior to the intervention. Anxiety is defined as a state of unease brought on by emotions of uncertainty, powerlessness, and weakness stemming from unclear circumstances and uncomfortable emotional states. Overwhelming anxiety can have negative effects on one's substantial and mental health and lead to indifference. Persistent anxiety can also raise one's gamble of developing depression. 2020; Yuniati et al. Progressive muscle relaxation therapy can help lower anxiety levels. By guiding the parasympathetic sensory system and controlling the hypothalamus to promote positive attitudes and diminish stressor activation in the hypothalamus, this progressive muscular relaxation can stop the stream that generates anxiety. Clients with this condition feel more comfortable taking action than those who previously exhibited helpless conduct and depended on others to get things done (Aminah, 2022).

Table 5. Distribution of Differences in Anxiety Levels (Post Test) Between the Experiment Group and the Control Group

No	Anxiety Level	Experiment Group		Control group	
		f (n)	%	f(n)	%
1.	Mild anxiety	16	48,5	0	0
2.	Moderate anxiety	9	27,3	1	3
3.	Seriously worried	8	24,2	32	97
Total		33	100	33	100
Mann Whitney test obtained $p = 0.000$					

Source: Primary Data June 2023

Table 5 demonstrates that following the intervention, nearly half (48.5%) of the experimental group experienced mild anxiety, nearly half (27.3%) experienced moderate anxiety, and a tiny percentage

Anxiety was extreme for 24.2% of the population. Just 3% of the control group reported having mild anxiety, while the majority (97%) reported having extreme anxiety. The Mann Whitney test results using SPSS for Windows at a significance level of 0.05 yielded a value of $p = 0.000$ ($0.000 < 0.05$) significant H_0 was rejected, indicating that anxiety levels varied between the experimental and control groups following the intervention. Psychotherapy is one of the anxiety-reduction tactics. Using many therapies, like progressive muscle relaxation, five finger hypnosis, relaxation techniques, etc., is the psychotherapy method. Tensing and then relaxing certain muscles is the method of Progressive Muscle Relaxation (PMR), a relaxation technique. According to Rosdiana and Cahyati (2019), progressive muscle relaxation techniques target tense muscles and then lessen tension by practicing relaxation techniques to achieve a relaxed feeling. The way to progressive muscle relaxation, which involves stretching and relaxing muscles, allowed respondents to feel less anxious. This could lead to a decrease in somatic symptoms like stiffness and pain in the muscles, facial tension, muscle twitching, and snapping, as well as complaints and symptoms in the cardiovascular system like palpitations, tachycardia, chest pain, and weakness (Utomo and Winarti, 2021). Numerous researches have demonstrated the beneficial effects of relaxation techniques on anxiety, including Progressive Muscle Relaxation (PMR). A technique called PMR helps the body relax by reducing muscular (Sartika et al., 2022). This progressive muscle relaxation technique has the following benefits: it brings down circulatory strain systolic and diastolic, decreases muscle tone, headaches, back pain, heart rate, respiration rate, metabolic rate, brings down pulse rate, lessens stress, and diminishes depression and anxiety by enhancing restraint (Akhriansyah, 2019).

4. Conclusion and future scope

The study's findings indicate that progressive muscle relaxation therapy had an impact on the experimental group's family anxiety related to hypertension. Respondents in the experimental group's anxiety levels dropped from the extreme to the moderate and mild ranges. Because the control group didn't get progressive muscle relaxation therapies, their anxiety level didn't decrease in either the pre- or post-test.

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Conflict of interest

The authors affirm that there is no conflict of interest and that they have all authorized the paper's final manuscript.

Ethical Consideration

This research has obtained another certificate of ethic from the Health Research Ethics Committee of Lembaga Chakra Brahmana Lentera (Candle) No. 030/016/V/EC/KEP/LCBL/2023.

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