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Original Article

Application of progressive muscle relaxation therapy to reduce anxiety in clients with hypertension: A case study

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Abstract

Background: Hypertension is frequently associated with psychological disorders, particularly anxiety, which may worsen physiological responses and lead to decreased quality of life. Progressive Muscle Relaxation (PMR) is a non-pharmacological intervention proven to reduce anxiety and enhance psychological and physiological stability among clients with chronic diseases.
Objective: This case study aimed to evaluate the effectiveness of PMR therapy in reducing anxiety levels in a hypertensive client.
Methods: A single-case study design using a nursing care approach was implemented on a client diagnosed with stage 2 hypertension and moderate anxiety based on the Hamilton Anxiety Rating Scale (HARS). PMR therapy was performed once daily for five consecutive days, supported by assessments through interviews, observation, vital sign monitoring, and HARS evaluation.
Results: The client demonstrated a decrease in anxiety level from moderate (HARS score: 17) to mild (HARS score: 13) after five therapy sessions. Additional improvements were noted in sleep duration, perceived relaxation, and blood pressure stability. The client became able to independently perform PMR beginning on day three.
Conclusion: Progressive Muscle Relaxation therapy demonstrated a positive impact on reducing anxiety among hypertensive clients when practiced consistently and systematically. PMR may be recommended as a complementary nursing intervention in community settings to improve psychological well-being and prevent hypertension-related complications. Further studies using larger sample sizes are recommended to strengthen generalizability.

Background

Hypertension is a condition that warrants public attention, as irregular or improper management can lead to a decline in quality of life (Alvionita et al., 2022). Clinical symptoms of hypertension, such as dizziness and a heavy sensation in the head, can stimulate the release of epinephrine and cortisol, which may exacerbate anxiety symptoms, including increased heart rate, rapid breathing, and a sense of tension (Anggraeni & Saudia, 2021). Individuals with hypertension tend to exhibit excessive concern about their health conditions, potential side effects of medications, and risks of complications such as stroke, coronary heart disease, and kidney failure (Nurhayati et al., 2020). Prolonged anxiety may lead to stress or depression, which can negatively affect a client's quality of life (Pome et al., 2019).

According to the 2023 Indonesian Health Survey, 566,883 individuals (30.8%) aged over 18 years in Indonesia were found to have hypertension. Based on 2024 data from the Sukorambi Public Health Center (Puskesmas), hypertension ranked among the top ten reported illnesses in the area, with 459 cases, followed by diabetes mellitus (170 cases), gastritis (142 cases), tuberculosis (128 cases), stunting in 101 infants and toddlers, acute respiratory infections (84 cases), heart failure (85 cases), degenerative heart disease (74 cases), osteoarthritis (60 cases), and cephalalgia (51 cases) (Secondary Data: Sukorambi Public Health Center, 2025). Kati (2018) reported that 20 clients (25.6%) with hypertension experienced moderate anxiety, while 23 clients (29.5%) experienced mild anxiety. Gaol and Marmata (2022) noted that 75% of hypertensive patients experienced mild anxiety, and 25% experienced moderate anxiety.

Anxiety is a subjective response to situations perceived as threatening and is characterized by feelings of fear, excessive worry, and an unclear source of fear (Anggraeni & Saudia, 2021). It is also defined as an affective condition marked by discomfort, worry, and excessive fear (Sukandar, 2021). The causes of anxiety are multifactorial, including imbalances in neurotransmitters involved in physiological anxiety processes. In

addition, psychosocial factors such as chronic stress, traumatic experiences, unstable environments, and authoritarian parenting styles contribute to an increased risk of anxiety disorders (Muhammad A et al., 2021). Genetic predisposition and certain personality traits, such as perfectionism or low tolerance for uncertainty, are also contributing factors. If left unaddressed, anxiety can further elevate blood pressure through chronic stress mechanisms and unhealthy lifestyle habits such as insomnia, physical inactivity, and poor dietary patterns (Muhammad A et al., 2021).

Management of anxiety can be addressed through both pharmacological and non-pharmacological approaches. Pharmacological treatment of anxiety in hypertensive patients may include administering single-dose antihypertensive medications when possible and regularly monitoring for side effects (Indonesia, 2015). Non-pharmacological approaches include adopting a healthy lifestyle and engaging in regular physical activity at least three times per week for 30–60 minutes per session, involving exercises such as aerobics, walking, cycling, or stretching exercises through Progressive Muscle Relaxation (PMR) therapy (Indonesia, 2015).

Progressive Muscle Relaxation is a therapeutic technique that provides individuals with systematic instructions to relax both the mind and body, transitioning from a tense to a relaxed state, starting with movements of the hands and progressing to the feet (Oktaviani et al., 2022). A relaxed state can help reduce muscle tension and heart rate, relieve pain, alleviate anxiety and stress, enhance comfort, and improve sleep quality (Sari & Sari, 2022). The benefits of PMR therapy include enabling individuals to control physiological effects of anxiety, such as sleep patterns, appetite, and vital signs (Fauziyyah et al., 2022).

The results of an assessment conducted on the client (Mr. R) using an anxiety instrument (the HARS questionnaire) showed a moderate level of anxiety (score 17). The client reported anxiety about his health, often felt dizzy when working in the rice fields, had difficulty concentrating, sometimes had ankle pain, and could only sleep a maximum of 4 hours at night. The results of the study also confirmed that Mr. R was not yet familiar with progressive muscle relaxation techniques as a method for dealing with anxiety. Based on the background outlined above, the researcher is interested in conducting a case study and providing psychiatric nursing care under the title the application of progressive muscle relaxation therapy to reduce anxiety in a hypertensive client.

Methods

Study Design

This study employed a case study research design with a nursing care approach focused on the implementation of Progressive Muscle Relaxation (PMR) therapy to reduce anxiety in a hypertensive client. A case study is defined as an intensive research method aimed at describing a phenomenon, background, or characteristics of an individual case in depth (Nursalam, 2016). The intervention period was conducted over five consecutive days in March 2025.

Sampling and Setting

The study was conducted in RW 09, Sukorambi Village, Jember, during March 2025. The participant was selected using defined inclusion and exclusion criteria, resulting in one eligible client diagnosed with chronic stage 2 hypertension, not using antihypertensive pharmacological therapy, experiencing anxiety symptoms as indicated through interviews and the Hamilton Anxiety Rating Scale (HARS), and willing to participate throughout the intervention period. Individuals with visual impairments, old age classification, or with other chronic comorbidities were excluded from participation.

Instrument

The instruments utilized in this study consisted of the Progressive Muscle Relaxation Standard Operating Procedure (SOP), the Hamilton Anxiety Rating Scale (HARS) questionnaire to assess anxiety level, a psychiatric nursing assessment format, and an observation sheet for psychological and physiological responses. Supporting equipment included a sphygmomanometer and manual documentation tools.

Intervention

The intervention consisted of PMR therapy combined with deep breathing relaxation techniques carried out once daily for five consecutive days, with each session lasting approximately 20–30 minutes, conducted in a quiet and comfortable environment. The intervention procedure included pre-session assessment, client education, guided PMR instruction, monitoring of physical and emotional responses, encouragement of independent practice, and daily evaluation.

Data Collection

Data were collected through in-depth interviews, direct observation, clinical and physiological monitoring, and pre- and post-intervention HARS scoring. Documentation was completed using the standard nursing process consisting of assessment, diagnosis, planning, implementation, and evaluation.

Data Analysis

Data were analyzed descriptively using comparative interpretation by examining changes in HARS scores between pre-intervention and post-intervention conditions, along with observation of behavioral and physiological indicators to determine clinical improvement.

Ethical Considerations

Prior to data collection, the client received a complete explanation of the purpose, benefits, procedures, and potential risks of the study, followed by voluntary signed informed consent. Client identity was anonymized and all collected data were used solely for academic and non-commercial purposes.

Results

Focused data assessment was conducted to evaluate the client's anxiety, particularly on the precipitating factors. In the past few weeks, the client reported feeling anxious and worried about his condition, as he is only 45 years old and has been diagnosed with severe stage 2 hypertension for the past two years. He also received information from neighbours suggesting that his symptoms resembled early signs of stroke, and he reported being unable to sleep more than 1–2 hours per night, see Figure 1.

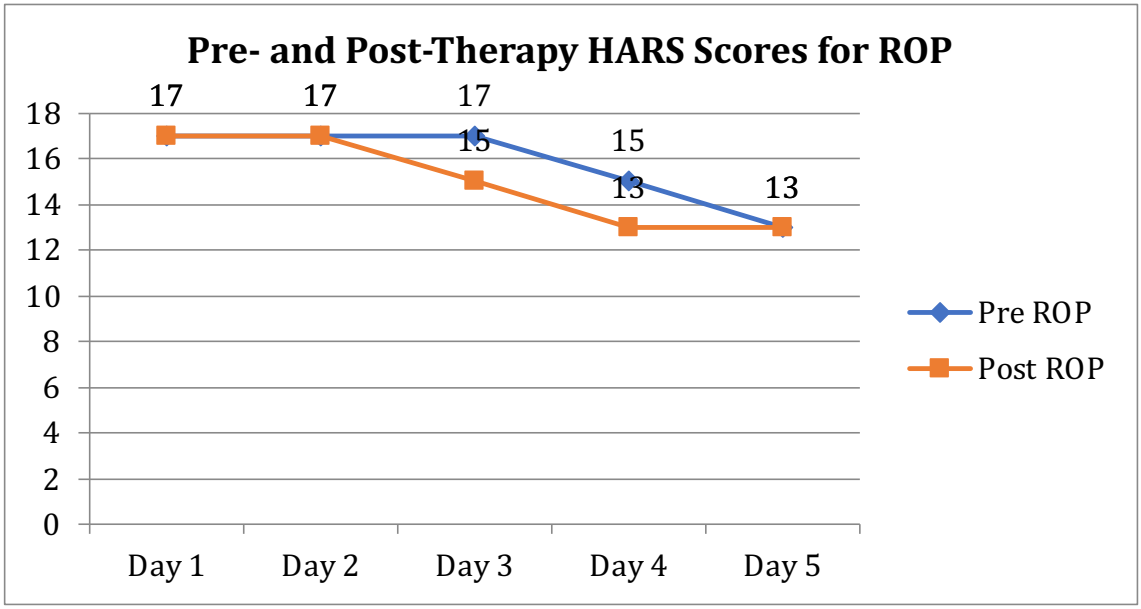

Figure 1. HARS Scores Before and After Therapy

As for predisposing factors, the client has a family history of uncontrolled hypertension from his mother, has never taken antihypertensive medication, experienced a traumatic fall from a coconut two years ago, and often feels pressure from his family due to being unmarried at the age of 45. The client also stated that two weeks ago, a neighbour told him that

individuals with hypertension who experience numbness or frequent urination at night are at risk of stroke, which made him feel anxious whenever he experienced numbness. Another focus of the data assessment that may influence anxiety is the client's sleep and rest patterns. He reported being unable to sleep peacefully at night, often waking after just 1–2 hours and unable to return to sleep. Based on the assessment results, the primary nursing diagnosis identified was: anxiety related to situational crisis, as evidenced by worry about his hypertension, restlessness, difficulty sleeping, trouble concentrating, blood pressure of 179/103 mmHg, heart rate of 98 bpm, respiratory rate of 21 breaths per minute, and a HARS score of 17 (moderate anxiety).

The intervention carried out as part of the nursing care included planning the implementation of progressive muscle relaxation (PMR) techniques, aimed at reducing anxiety levels. This therapy focused on training the client to perform stretching and relaxation exercises to help reduce feelings of worry, decrease restlessness, improve sleep patterns, stabilize blood pressure, and lower the HARS anxiety score. The nursing intervention was conducted over five sessions, each lasting approximately one hour. The client received education on anxiety disorders and hypertension management, followed by anxiety level assessment using the HARS questionnaire, vital sign monitoring, an explanation of the purpose and benefits of relaxation therapy, teaching of PMR techniques in accordance with the standard operating procedure (SOP), monitoring of responses after therapy, reassessment of the HARS score post-intervention, and remeasurement of vital signs. On the first day, the client agreed to undergo PMR therapy. On the second day, the client was willing to participate but had not fully memorized the SOP steps. On the third day, the client was able to perform the PMR technique independently and reported feeling more relaxed, with improved sleep lasting up to 4 hours. On the fourth day, the client could independently perform PMR and reported reduced anxiety, increased relaxation, more comfortable sleep, and a decrease in blood pressure. On the fifth day, the client continued practicing PMR independently, experienced further anxiety reduction, slept longer than on previous nights, felt more relaxed with less muscle tension, and his blood pressure continued to decrease.

The evaluation results over the five-day intervention period indicated that the client had gained a clear understanding of anxiety disorders and how to manage them at home. From the third visit onward, the client was able to independently perform PMR and reported consistent improvements in relaxation and reduced anxiety. By the fifth day, the client expressed willingness to continue practicing PMR daily to maintain his health.

Discussion

Based on the assessment results, the client, Mr. R, is a 45-year-old male with a primary school education, working as a farmer, diagnosed with stage 2 hypertension, and presenting a HARS score of 17, indicating moderate anxiety. From a social background perspective, the client faces family pressure due to being unmarried and has limited access to information regarding his condition, particularly the signs and symptoms of anxiety. This is in line with the study by Ikhtiariyanti and Mariyati (2023), which showed that anxiety is characterized by feelings of discomfort, worry, difficulty initiating sleep, restlessness, and lack of concentration (Ikhtiariyanti & Mariyati, 2023). These findings suggest that anxiety in hypertensive clients is not only influenced by physiological factors but is also strongly related to social and educational conditions. A low level of education may limit the client's understanding of the disease, including recognition of symptoms, the importance of treatment, and stress management. Additionally, the social pressure of remaining unmarried at the age of 45 may serve as a psychological burden that exacerbates the anxiety condition.

The assessment also revealed that the client's parents had uncontrolled hypertension, did not take antihypertensive medication, had a history of trauma from being struck by a falling coconut two years prior, and that the client was still

unmarried at 45. Moreover, the client received misleading information from neighbours suggesting that symptoms such as numbness and frequent urination are early signs of stroke. This aligns with the findings of Anandari et al. (2024), which state that anxiety arises from two main factors: predisposing and precipitating factors (Anandari et al., 2024). Predisposing factors increase an individual's vulnerability to anxiety, while precipitating factors trigger the onset of anxiety. These findings are also supported by Pome et al. (2019), who reported that clients who are aware of their long-standing hypertension symptoms tend to feel worried and fearful, which may increase anxiety levels (Pome et al., 2019). The researcher believes that Mr. R's situation presents a complex picture of psychosocial and personal background, suggesting an accumulation of psychological risk factors contributing to anxiety. The combination of uncontrolled parental hypertension, a traumatic injury history, unmarried status, and exposure to inaccurate community-based information highlights both predisposing and precipitating factors that may aggravate the client's anxiety.

During the first and second days of implementation, the client's HARS score did not show any reduction, although the client was willing to engage in the PMR therapy. This is consistent with the study by Fahriandani et al. (2023), which notes that clients often feel confused during the initial session, as they are still adapting to the unfamiliar therapy movements (Fahriandani et al., 2023). According to the researcher, during the first day, the client was introduced to the steps of PMR, but still required guidance as he had not yet fully mastered the procedure in accordance with the standard operating guidelines.

On the third day of implementation, the client's total HARS score before therapy was 17 (moderate anxiety), which decreased to 15 (mild anxiety) following the intervention. The client also reported feeling more relaxed, experiencing longer sleep durations at night, and a noticeable reduction in anxiety. This aligns with Roy's adaptation theory, which suggests that the body responds adaptively to repeated focal stimuli such as relaxation exercises, leading to reduced levels of cortisol and adrenaline that help alleviate anxiety symptoms (Huda, 2022). The researcher interprets the decrease in HARS score from 17 to 15 as a clinical indicator of the gradual effectiveness of PMR therapy in reducing anxiety. In addition to the numerical score reduction, the client's subjective experiences of feeling more relaxed, sleeping better, and having reduced anxiety serve as strong evidence of the intervention's impact—not only quantitatively but also on the client's overall quality of life. These improvements may be attributed to the client's increasing familiarity with the therapy movements, enhanced confidence in performing them, and a subsequent reduction in anxiety symptoms.

On the fourth and fifth days of implementation, the client's pre- and post-therapy HARS scores remained consistent at 13 (mild anxiety). The client reported that both he and his family had memorized the PMR movements and that he had begun practicing them independently when experiencing numbness. In addition to PMR as a complementary therapy, pharmacological treatment for hypertension may also be recommended to help lower blood pressure and reduce anxiety levels (Indonesia, 2015). Pharmacological therapy plays a critical role in reducing anxiety in hypertensive clients, either as a primary treatment or in combination with non-pharmacological approaches. Appropriate and controlled medication administration not only reduces psychological symptoms but also supports blood pressure regulation, prevents complications, and improves the overall quality of life.

One confounding factor in this study was the client's irregular schedule due to his work as a farmer, which required adjusting therapy sessions based on his availability. This may have affected the effectiveness of the PMR therapy, as physical tension from farm work could interfere with the relaxation process. Additionally, the client experienced emotional pressure from his family related to his unmarried status at 45 years old and had a history of physical trauma. These elements are potential confounding factors contributing to the client's anxiety,

either as a result of chronic hypertension or other underlying psychosocial issues.

Conclusion and Recommendation

Based on the findings of this scientific paper regarding the application of PMR therapy to reduce anxiety in a hypertensive client, it can be concluded that the administration of PMR therapy over a five-day period from March 10–14, 2025, resulted in a reduction of anxiety symptoms. This was evidenced by a decrease in the HARS score from 17 (moderate) to 13 (mild) on the fourth and fifth days.

This scientific work employed a case study approach, in which the intervention and observation were conducted on a single client, Mr. R. Therefore, it is recommended that future research involve a larger sample size to strengthen the findings on the effectiveness of Progressive Muscle Relaxation therapy in reducing anxiety-related nursing problems in hypertensive clients. A recommendation for healthcare providers is to actively engage in the application of PMR therapy as a complementary treatment, alongside pharmacological hypertension therapy, to help reduce the incidence of excessive anxiety in hypertensive clients.

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The authors declare no competing interests.

Declaration on the Use of AI
No AI tools were used in the preparation of this manuscript.

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