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The Effectiveness of Slow Deep Breathing Innovation on Headache in Hypertensive Patients

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ABSTRACT

Background & Objective : Hypertension is an increase in blood pressure beyond normal limits, specifically above 140/90 mmHg. The objective of this study was to determine the effect of slow deep breathing relaxation technique on headache in hypertensive patients. **Method:** This study utilized a case study methodology, focusing on an individual with hypertension at the RPDC of JEND. Ahmad Yani General Hospital, Metro. Data collection tools included a numerical scale and observation sheet. Analgesic administration was conducted after 7 hours of drug administration, carried out over 3 days, with each session lasting 10 minutes. **Result:** On the first day, the client's pain score was 7 before the intervention and decreased to 6 after the intervention. On the second day, the score was 6 before the intervention and decreased to 4 after the intervention. On the third day, the score was 4 before the intervention and decreased to 2 after the intervention. **Conclusion:** The results obtained by the author on the third day showed that the patient experienced a reduction in pain, with pain scores of 6 on the first day, 4 on the second day, and 2 on the third day. Additionally, the patient had understood how to perform slow deep breathing correctly.

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Introduction

Hypertension is a condition characterized by elevated blood pressure, defined as systolic pressure above 140 mmHg and diastolic pressure above 90 mmHg (Wahyuni et al., 2023). WHO projects that this figure is likely to increase to 29.2% by 2025. Of the 792 million people with hypertension, 333 million are in developed countries, while the remaining 639 million are in developing countries, including Indonesia (Efliani, 2025).

In Lampung Province, hypertension ranked seventh among the top 10 most common diseases in 2019, with 22,310 cases. It then rose to fifth place in 2020, with 27,189 cases, and further increased to third place in 2021, with 30,322 cases (Arisyandi et al., 2024).

Hypertension can be influenced by several risk factors, including hereditary (genetic) factors, age, gender, excessive salt consumption, low intake of potassium, calcium, and magnesium, obesity, lack of physical activity (exercise), smoking behavior, alcohol consumption, cholesterol, caffeine consumption, and stress (Julita et al., 2025).

Uncontrolled blood pressure can lead to endothelial damage, and hypertension is considered a serious condition due to its widespread consequences, which can potentially cause death. Hypertension is sometimes called the silent killer because of its potential to cause sudden death in affected individuals. Death occurs due to the effects of hypertension, which then lead to several diseases, including kidney disorders, glaucoma, and erectile dysfunction (Ema Erfiana et al., 2024).

People with high blood pressure often complain of various issues, such as headaches upon waking, nausea and vomiting due to increased intracranial pressure, dependent edema, and capillary pressure swelling. However, common indicators of high blood pressure include a heavy feeling of headache in the neck but not throbbing, blurred vision, and headaches that occur when blood flow to the brain increases. This process causes blood vessels to constrict. If blood flow narrows, arterial flow becomes turbulent. Headaches will occur because damaged tissues will have less O2 (oxygen) and more CO2 (carbon dioxide) (Pramiyanti et al., 2024).

High blood pressure can be prevented by consuming medication or changing lifestyle. To change lifestyle, you can reduce salt intake to no more than ½ and ¼ teaspoon (6 grams/day), lose weight, and avoid alcohol, cigarettes, and caffeinated beverages (Saragih et al., 2022). People with high blood pressure should also exercise by walking, running, jogging, or cycling for 20 to 25 minutes, two to three times a week. Getting enough sleep (6-8 hours) and managing stress are also necessary (Awaru Makkulau, 2024). There are two approaches to managing high blood pressure: with medication and without medication. Antihypertensive drugs can be used as pharmacological treatment, while for non-pharmacological treatment, there are various individual therapies that can be performed, such as diet, exercise, and complementary therapy.

Based on the author's experience at Ahmad Yani Hospital, the management of headaches in hypertensive patients follows Indonesian nursing intervention standards, which include assessing pain intensity, pain location, aggravating and alleviating factors, and collaboration with doctors for analgesic administration. Furthermore, nursing interventions include non-pharmacological approaches for patients, such as guided visualization, breathing exercises, and aromatherapy. However, in practice, non-pharmacological management is rarely performed. Slow deep breathing therapy can be administered before providing pain medication or can be given after providing pain medication after 5-7 hours because at that time the drug's effect begins to wear off and pain may recur.

Slow and deep breathing can be used to relieve headaches while waiting for the next medication administration. Research by Rahayu and Suryandari (2024) on the application of slow deep breathing to relieve pain in hypertensive patients in the Dahlia ward of Fatmawati Soekarno Hospital, Surakarta City, showed that this

relaxation technique can reduce pain from moderate to mild levels. The author intends to focus on nursing interventions related to the management of hypertensive patients, specifically the use of slow deep breathing technique to relieve headaches at General Ahmad Yani Hospital, Metro.

Objective

This study aims to determine the headache in hypertensive patients before and after being given Slow Deep Breathing relaxation.

Method

This design uses a case study methodology, focusing on individuals with hypertension in the RPDC of General Ahmad Yani Hospital, Metro. Data collection used a numerical scale and observation sheet. Analgesic administration was performed after 7 hours of drug administration, carried out over 3 days, with each session lasting 10 minutes. This application was implemented in October 2025.

Results

TABLE 1. Client Characteristics

Parameter	Information
Name	Tn. A
Age	57 years
Gender	Male (L)
Education	Elementary School (SD)
Occupation	Farmer
Blood Pressure	165/120 mmHg

Based on the table above, it can be explained that the client's characteristics are as follows: 57 years old, male, elementary school education, occupation as a farmer, and a blood pressure of 165/120 mmHg.

TABLE 2. Average Headache Pain Scale Score After Administration of Slow Deep Breathing Relaxation Therapy

Pain Scale	Day 1	Day 2	Day 3
Before	7	6	4
After	6	4	2

The presented data shows that the client's headache intensity on day 1 before the intervention was rated 7, which then decreased to 6 after the intervention. On day 2, the score before the intervention was 6, reducing to 4 after the intervention. On day 3, the headache intensity was measured at 4 before the intervention and decreased to 2 afterwards.

Discussion

The client's characteristic is being 57 years old. The researcher posits that this age group is susceptible to hypertension. This aligns with research by Herawati et al. (2024), which indicates that hypertension occurs more frequently in those over 40 due to the aging process that increases arterial stiffness. The age group 20-30 years has

minimal risk, but the risk increases in individuals aged 31-50, peaking in those over 50.

The next characteristic is that the client is male. In this context, men often exhibit lifestyles that pay less attention to health and neglect their well-being compared to women. This finding is consistent with the research of Zikran and Suwahyu (2024). The majority of men (64.1%) suffer from hypertension. This condition is common in men and can be linked to lifestyle factors such as alcohol consumption and smoking, which lead to higher blood pressure in men compared to women, thereby increasing their susceptibility to hypertension.

Another characteristic is the client's elementary school education level. Individuals with low education are more vulnerable to hypertension due to a lack of understanding and access to healthy lifestyle practices. This aligns with Chasanah and Syarifah (2023), who explain that hypertension is more prevalent among those with low education, as education influences a person's ability and understanding in implementing a healthy lifestyle. A person's education level positively correlates with their understanding of how to apply healthy living habits.

The Slow Deep Breathing intervention was carried out over 3 days from October 8–10, 2025. The Slow Deep Breathing therapy was administered once daily for 10 minutes, performed 7 hours after analgesic administration over the 3-day period. Before the exercise, the researcher first measured Mr. A's blood pressure and pain scale, and then the pain scale and blood pressure were measured again after the exercise.

According to the theory (Smeltzer & Bare, 2011), the aim of slow deep breathing exercises is to maintain gas exchange, enhance coughing, and reduce both physical and psychological stress, which can lower pain intensity, promote peace of mind, and reduce anxiety.

On the third day, a reduction in pain was observed: the pain decreased to a scale of 6 on the first day, 4 on the second day, and 2 on the third day. The patient also understood how to perform the slow deep breathing therapy and planned to apply it at home after receiving 3 days of nursing care in the hospital.

The assessment of the slow deep breathing therapy results showed that the patient effectively demonstrated the technique. The Slow Deep Breathing relaxation method was performed six times, involving inhaling for four seconds, holding the breath for two seconds, and exhaling for eight seconds. The patient's response indicated that the Slow Deep Breathing relaxation technique alleviated his headache and enhanced feelings of relaxation and comfort.

This is consistent with Azwaldi et al. (2023). The research results showed that the application of Slow Deep Breathing in hypertension case studies significantly reduced the pain scale by 3 points in both cases, resulting in a decrease in pain level from moderate to mild. The researchers claim that slow deep breathing care effectively reduces headache severity in hypertensive patients. The significant reduction in pain scale among patients indicates that this intervention has a beneficial effect on them. This underscores the importance of nurses providing comprehensive nursing care.

Conclusion

The author's findings on the third day showed that the patient experienced a reduction in pain, with pain scores of 6 on the first day, 4 on the second day, and 2 on

the third day. Furthermore, the patient had learned how to perform the slow deep breathing technique.

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