International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Implementation Of Mindfulness Breathing And Isometric Handgrip Combination Therapy On Blood Pressure In Hypertension Patients In Inpatient Room B, Rsi Tunas Harapan Salatiga

Dwi Safitri[1], Amrih Widiati[2]

[1,2]Bachelor of Nursing, Karya Husada University, Semarang

Corresponding Author:dsafitri2208@gmail.com,amrihwidiati@gmail.com

Abstract

Hypertension is a non-communicable disease that is a major cause of morbidity and mortality due to cardiovascular complications. In addition to pharmacological therapy, safe and easy-to-implement non-pharmacological interventions are needed to help control blood pressure. This study aims to analyze the application of a combination of mindfulness breathing and isometric handgrip therapy on blood pressure in hypertensive patients. The study used a descriptive case study method with a nursing care approach. The study population was hypertensive patients undergoing treatment in the Inpatient Room B of RSI Tunas Harapan Salatiga, with a sample of two patients selected using a purposive sampling technique. Data collection was carried out through interviews, observations, physical examinations, and documentation using a nursing assessment format, observation sheets, a sphygmomanometer, and a handgrip device. Data were analyzed descriptively by comparing changes in blood pressure before and after the intervention. The results showed that there was a decrease in blood pressure in both patients. At the end of the intervention, Mr. K's blood pressure decreased from 160/100 mmHg to 135/82 mmHg, while Mrs. Blood pressure decreased from 168/107 mmHg to 136/84 mmHg. Furthermore, there were improvements in headaches, anxiety, peripheral perfusion, activity tolerance, and patient knowledge regarding hypertension management. The study concluded that the combination of mindfulness breathing and isometric handgrip therapy has the potential to be an effective non-pharmacological intervention to help lower blood pressure and support the physical and psychological improvement of hypertensive patients.

Keywords:Blood Pressure, Hypertension, Isometric Handgrip, Mindfulness Breathing, Non-

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Pharmacological Therapy

INTRODUCTION

Hypertension remains one of the most serious public health problems worldwide, contributing significantly to morbidity and mortality from cardiovascular disease. The World Health Organization reports that hypertension is a major risk factor for premature death related to stroke, coronary heart disease, heart failure, and chronic kidney disease (World Health Organization, 2023). Globally, the prevalence of hypertension continues to show an increasing trend due to increasing life expectancy, changes in dietary patterns, urbanization, and low levels of physical activity (NCD Risk Factor Collaboration, 2024). In Indonesia, the Indonesian Health Survey (2024) shows that the prevalence of hypertension reaches 30.8% in the adult population, making it one of the non-communicable diseases with the highest burden on healthcare services (Ministry of Health, 2023). This situation demonstrates that hypertension is not only a clinical problem but also a public health issue that requires comprehensive and sustainable control strategies (Carey et al., 2022; Mills et al., 2023).

The increase in hypertension cases is also seen in various regional healthcare facilities, including referral hospitals in Semarang Regency. The high number of visits and treatments for hypertension patients indicates that blood pressure control remains a challenge in daily clinical practice. A preliminary survey at Tunas Harapan Islamic Hospital (RSI Tunas Harapan Salatiga) recorded approximately 100 inpatients with hypertension from June to December 2025. Most patients presented with complaints of uncontrolled blood pressure, headaches, dizziness, muscle tension, and sleep disturbances, potentially reducing quality of life. This phenomenon aligns with research findings stating that hypertension often develops without specific symptoms, thus being known as a silent killer. However, at certain stages, it can lead to various clinical manifestations and serious complications if not optimally managed (Fitria et al., 2023; Unger et al., 2022).

In the management of hypertension, pharmacological therapy remains the primary approach to blood pressure control. Although effective, long-term use of antihypertensive medications often faces various challenges, such as side effects, poor medication adherence, and dependence on therapy, which can impact blood pressure control (Burnier & Egan, 2023; Whelton et al., 2022). Therefore, various studies have begun to develop non-pharmacological interventions as complementary therapies that are safe, easy to implement, and low-cost. One widely researched approach is mindfulness breathing, a conscious breathing exercise that focuses on attention control and emotional regulation. Studies show that mindfulness breathing

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

practices can increase relaxation, decrease sympathetic nervous system activity, and help lower blood pressure in hypertensive patients (Utama et al., 2021; Zou et al., 2021).

In addition to relaxation techniques, simple physical activity in the form of isometric handgrip training is also increasingly being used as a non-pharmacological intervention for hypertension. This exercise involves static contractions of the hand and forearm muscles using a handheld device or other simple media. Several studies have reported that isometric handgrip training can improve endothelial function, increase blood vessel elasticity, and decrease peripheral resistance, thus contributing to lower systolic and diastolic blood pressure (Aisah & Rejeki, 2021; Carlson et al., 2023). However, research findings on the effectiveness of either mindfulness breathing or isometric handgrip intervention alone show variation influenced by respondent characteristics, training duration, frequency of intervention, and patient clinical condition (Ponte Márquez et al., 2022; Yanti et al., 2021). These varying results indicate the need for further exploration of the combination of the two interventions to achieve a more optimal therapeutic effect.

Although various studies have demonstrated the benefits of mindfulness breathing and isometric handgrip therapy individually, studies examining the effectiveness of combining these two therapies in hypertensive patients are still relatively limited, particularly in the context of hospital nursing services in Indonesia. Most previous studies have focused on only one type of intervention, used a community design, or have not evaluated the implementation of combination therapy in a real-life clinical setting. Furthermore, empirical evidence regarding the effect of combination therapy on blood pressure stabilization and improving quality of life in hypertensive patients remains scarce. These limitations indicate a critical research gap that needs to be addressed to strengthen the scientific basis for the use of non-pharmacological therapies in evidence-based nursing practice. Therefore, the primary question that arises is whether the combination of mindfulness breathing and isometric handgrip therapy is effective in lowering blood pressure in hospitalized hypertensive patients.

Based on the description, this study aims to analyze the effectiveness of a combination of mindfulness breathing and isometric handgrip therapy on blood pressure in hypertensive patients. This research is highly urgent considering the increasing prevalence of hypertension and the need for non-pharmacological interventions that are safe, economical, and easy to implement in nursing practice. The novelty of this study lies in testing the combination of two interventions that work through different physiological mechanisms: autonomic nervous system regulation through mindfulness breathing and vascular adaptation through isometric handgrip. Theoretically, this study is expected to enrich the literature on complementary therapies for

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

hypertension, while practically it can serve as a basis for developing evidence-based nursing intervention standards in efforts to control blood pressure and improve the quality of life of hypertensive patients.

METHOD

This study used a descriptive case study method with a nursing care approach to explore in-depth the application of combined mindfulness breathing and isometric handgrip therapy in hypertensive patients. The case study approach allows researchers to gain a comprehensive understanding of clinical phenomena in the context of real-life healthcare, while the descriptive design is used to systematically describe the nursing care process, from assessment to evaluation of intervention outcomes (Creswell & Poth, 2024; Sugiyono, 2023). This study focuses on changes in patient blood pressure after being given combination therapy as a non-pharmacological intervention that has the potential to help control hypertension through relaxation mechanisms and vascular adaptation (Utama et al., 2021; Zou et al., 2021).

The study population was all hypertensive patients undergoing treatment at Inpatient Ward B of Tunas Harapan Islamic Hospital in Salatiga during the study period. The sample was selected using a purposive sampling technique, with one to two patients meeting the inclusion criteria: diagnosed with hypertension, blood pressure ≥140/90 mmHg, fully conscious, able to communicate well, and willing to participate in the entire study. Meanwhile, patients with severe hypertensive complications, impaired consciousness, or conditions that hindered the implementation of therapy were excluded from the study. This technique was chosen because it allowed researchers to obtain subjects who were most appropriate for the objectives of the case study and were able to provide in-depth information regarding the phenomenon being studied (Sudaryono, 2022; Emzir, 2023).

Data collection was conducted through interviews, observations, physical examinations, and nursing documentation. Interviews were used to obtain subjective data related to the patient's complaints, medical history, and psychological condition, while observations were conducted to assess the patient's response during therapy. The physical examination focused on measuring vital signs, particularly blood pressure, before and after the intervention. Instruments used included a nursing assessment form, observation sheets, a sphygmomanometer, a stethoscope, a handgrip, and standard operating procedures for mindfulness breathing and isometric handgrip therapy. The use of various data sources aimed to increase the accuracy and completeness of the information obtained during the study (Creswell & Poth, 2024; Sudaryono, 2022).

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

The study was conducted at Tunas Harapan Islamic Hospital in Salatiga from April to May 2026. The study began with subject selection based on the research criteria and informed consent was obtained. Subsequently, an initial assessment and blood pressure measurements were conducted as baseline data. Patients were then given a combination of mindfulness breathing and isometric handgrip therapy according to established procedures. After the intervention, blood pressure was remeasured, and physiological responses and patient comfort were evaluated. All research activities were documented based on the stages of the nursing process, including assessment, diagnosis, intervention, implementation, and evaluation (Zou et al., 2021; Ponte Márquez et al., 2022; Carlson et al., 2023).

The data were analyzed using descriptive analysis by comparing blood pressure measurements before and after the combination of mindfulness breathing and isometric handgrip therapy. In addition to numerical data in the form of systolic and diastolic blood pressure, analysis was also conducted on interview results, observations, and documentation of patient progress during the nursing care process. The analysis results are presented in narrative and tabular form to facilitate interpretation and provide a clear picture of the intervention's effectiveness on the patient's hypertension (Sugiyono, 2023; Emzir, 2023).

This study applied ethical principles of health research, including informed consent, data confidentiality, and the principle of beneficence. Each respondent received an explanation of the study's purpose, benefits, and procedures before agreeing to participate. All patient identities and personal information were kept confidential and used solely for research purposes. Furthermore, the interventions were designed to provide maximum benefit with minimal risk, prioritizing patient safety and comfort throughout the study (World Medical Association, 2024; Creswell & Poth, 2024).

RESULTS AND DISCUSSION

STUDY RESULTS AND CASE (CASE 1)

1. DATA ANALYSIS

Table 1. Mr. K's Data Analysis

NO	DATE/TIME	SYMPTOM	ETIOLOGY	PROBLEM
1	25/5/2026 2:15 PM	Ds: The patient said he had a headache Q: During activities	Increased cerebral vascular pressure	Acute pain (D.00077)

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

		Q: Cekot-cekot R: Headache spreads to the nape of the neck S: 5 Q: Continuously Do : Patient's vital signs BP 160/100 mmHg N 100 x/minute S 36.7°C Spo 97% RR 21x/minute The patient appeared to be wincing in pain. The patient looks restless		
2	25/5/2026 2:15 PM	Ds: The patient said he was anxious about his condition. Do: the patient appears restless and tense, pulse 125x/minute	Less exposure to disease information	Anxiety (D.00080)
3	25/5/2026 2:15 PM	Ds: The patient said he did not know how to control hypertension, still often ate salty foods and did not understand Mindfulness Breathing therapy and Isometric Handgrip. Do: The patient seemed confused when given an explanation, the patient was not yet able to explain again about hypertension.	Lack of exposure to information	Definition of knowledge (D.0111)

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

2. NURSING DIAGNOSIS (PRIORITY PROBLEMS) SDKI

Table 2. Nursing diagnoses (problem priorities) of Mr. K's sdki

NO	Date/Time	DIAGNOSIS	PRIORITY
1	25/5/2026 2:30 PM	Acute pain bd Increased cerebral vascular pressure (D.00077)	1
2	25/5/2026 2:30 PM	Anxiety due to lack of exposure to disease information (D.00080)	2
3	25/5/2026 2:30 PM	Knowledge deficit due to lack of exposure to information (D.0111)	3

3. NURSING CARE PLAN

Table 3. Mr. K's Nursing Plan

DP NO.	DATE/TIME	OBJECTIVES AND RESULT CRITERIA	INTERVENTION
1.	25/5/2026 3:00 PM	After nursing actions are carried out for 3 x 24 hours, it is expected that the pain level will increase (L.08066) Result criteria • complaints of pain decreased • Anxiety decreases • Blood pressure improves • Improved sleep quality	Pain management (I.09326) Intervention • Identification of location and scale of pain • Monitor vital signs • Provide a comfortable position • Encourage mindfulness breathing • Collaboration with analgesics if necessary
2.	25/5/2026 3:00 PM	After nursing actions are carried out for 3 x 24 hours, the expected level of anxiety (L.09093) Result criteria: • Verbalization of worry decreased	Anxiety reduction (I.12445) Intervention • Identify activity levels • Create a calm atmosphere • Provide emotional support • Teach relaxation techniques • Practice mindfulness

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		• Anxiety decreases • The tense face decreases • Sleep patterns improve • Concentration increases	breathing • Involve the family
3.	25/5/2026 3:00 PM	After carrying out nursing actions for 3 x 24 hours, the expected level of knowledge (L.12111) Result criteria: • Hypertension knowledge increases • Compliance increases • Ability to explain therapy improves • Healthy living behavior improves	Health education (I.12383) Intervention • Identify educational needs • Explain the meaning of hypertension • Explain a low salt diet • Teach Mindfulness Breathing • Teach Handgrip Isometrics • Evaluate patient understanding • Evaluation of TTV after explanation and practice of Mindfulness Breathing and Isometric Handgrip

4. EVALUATION

Table 4. Mr. K's Evaluation

NO DP	Date/Time	EVALUATION	Signature/Name
1	25/5/2026 8:00 PM	S: The patient said he had pain in the back of his head and the nape of his neck felt heavy. Q: During activities Q: Cekot-cekot R: Headache spreads to the nape of the neck S: 5 Q: Continuously	

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		O: The patient appears to be grimacing in pain. The face looks tense The patient looks restless TTV BP 160/100 mmHg N 100 x/minute S 36.7 *c Spo 97% Rr 21 x/minute Patients are able to follow mindfulness breathing exercises with the help of nurses. A: The problem of acute pain has not been resolved, indicated by the patient still complaining of a headache on a scale of 5 and appearing to grimace in pain. P: continue intervention • Identification of location and scale of pain • Monitor vital signs • Provide a comfortable position • Encourage mindfulness breathing • Collaboration with analgesics if necessary	
2.	25/5/2026 8:30 PM	S: The patient said he felt afraid and anxious about his hypertension. He said he was worried that his blood pressure would increase and cause complications. O: The patient looks anxious. The face looks calm and restless Patients often ask about their illness Pulse 100x/minute The patient has difficulty concentrating The patient seems less calm	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		A: anxiety has not been resolved, indicated by the patient still appearing restless and worried about his/her condition. P: intervention continued • Identify activity levels • Create a calm atmosphere • Provide emotional support • Teach relaxation techniques • Practice mindfulness breathing • Involve the family	
3.	25/5/2026 9:00 PM	S: The patient stated that he did not yet know how to control his hypertension and did not yet understand mindfulness breathing therapy and isometric handgrip. The patient stated that he still frequently consumed salty foods. O: the patient seemed confused when given education The patient is not yet able to explain again about hypertension Patients appear to have little understanding of hypertension diets. TTV After Workout: BP: 156/95 mmHg N: 96 x/min RR: 20 x/min A: The problem of knowledge deficit has not been resolved, indicated by the patient not understanding how to control hypertension. P: intervention continued • Identify educational needs • Explain the meaning of hypertension • Explain a low salt diet	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

		• Teach Mindfulness Breathing • Teach Handgrip Isometrics • Evaluate patient understanding • Evaluation of TTV after explanation and practice of Mindfulness Breathing and Isometric Handgrip	
NO DP	**Date/Time**	**EVALUATION**	**Signature/Name**
1	26/5/2026 1:00 PM	S: The patient said the headache was starting to lessen, the patient said the pain was still felt in the nape of the neck. Q: During activities Q: Cekot-cekot R: Headache spreads to the nape of the neck S: 4 Q: Appears and disappears O: The patient appears more relaxed. Facial expression is not too tense TTV BP 150/90 mmHg N 97 x/minute S 36.5 *c Spo 98% Rr 20 x/minute Patients are able to do mindfulness breathing correctly The patient appeared cooperative during the procedure. A: The problem of acute pain has not been resolved, indicated by the patient still complaining of a headache on a scale of 5 to 4 and the patient appears more comfortable.	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		P: continue intervention • Identification of location and scale of pain • Monitor vital signs • Provide a comfortable position • Encourage mindfulness breathing • Collaboration with analgesics if necessary	
2.	26/5/2026 1:30 PM	S: The patient said that his anxiety began to decrease after being given relaxation exercises. Patients said they felt calmer and more comfortable. O: The patient appears more relaxed. The face looks not very calm and restless Patients are able to follow relaxation techniques Pulse 97x/minute Patients can rest well The patient appears cooperative. A: The anxiety problem has not been partially resolved, as indicated by the patient appearing calmer and less anxious. P: intervention continued • Create a calm atmosphere • Provide emotional support • Practice mindfulness breathing • Involve the family	 Dwi Safitri
3.	26/5/2026 2:00 PM	S: The patient said he was starting to understand how to maintain blood pressure and was starting to reduce salty foods. O: the patient is able to answer some questions. Patients are able to follow mindfulness breathing exercises	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		The patient was able to perform handgrip exercises with assistance. TTV after exercise: BP: 148/88 mmHg N: 89 x/min RR: 20x/min A: The problem of knowledge deficit has been partially resolved, indicated by the patient starting to understand the education provided. P: intervention continued • Continue health education • Evaluation of the patient's ability to perform self-therapy • Motivating patients to adopt a healthy lifestyle • Evaluation of TTV after explanation and practice of Mindfulness Breathing and Isometric Handgrip	
NO DP	**Date/Time**	**EVALUATION**	**Signature/Name**
1	27/5/2026 1:00 PM	S: The patient said that he rarely felt headaches anymore. The patient said that the pain only appeared occasionally. Q: Appears during activities Q: Thumping R : Head S : 2 Q: Occasionally at night O: The patient looks fresh and more relaxed. The patient did not appear to be wincing in pain. TTV BP 145/85 mmHg	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		N 88 x/minute S 36.0 *c Spo 98% Rr 20 x/minute Patients are able to do mindfulness breathing independently A: The problem of acute pain is partially resolved, indicated by a decrease in the pain scale and blood pressure. P: continue intervention • Advise the patient to continue relaxation techniques at home. • Education to avoid stress and fatigue • Recommend blood pressure control	
2.	27/5/2026 1:30 PM	S: The patient said he was calmer and less afraid of his illness. The patient said he was more confident in maintaining his health. O: The patient appears relaxed. The patient looks calm Pulse 88x/minute Patients are able to relax independently The family actively accompanies the patient A: The anxiety problem has not been resolved, as indicated by the patient appearing calmer and able to control anxiety. P: intervention continued • Encourage patients to relax regularly • Maintain family support • Evaluate anxiety levels periodically	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

3.	27/5/2026 2:00 PM	S: The patient said he understood how to keep his blood pressure stable and was willing to have regular check-ups. O: The patient is able to explain again about hypertension. Patient is able to mention low salt diet Patients are able to practice midfulness breathing and isometric handgrip independently. TTV after exercise: BP: 135/82 mmHg N: 82 x/min RR: 19 x/min A: The problem of knowledge deficit has been partially resolved, indicated by the patient starting to understand the education provided. P: intervention continued • Advise patients to maintain a healthy lifestyle • Recommend regular blood pressure checks • Evaluation of home therapy compliance • Evaluation of TTV after explanation and practice of Mindfulness Breathing and Isometric Handgrip at home	 Dwi Safitri

Study results and cases (case 2)

DATA ANALYSIS

Table 5. Data analysis of Mrs. C

NO	Date/Time	SYMPTOM	ETIOLOGY	PROBLEM
1	29/5/2025 09.00	DS: The patient reported cold feet. The patient reported	Increased peripheral vascular resistance	Ineffective Peripheral Perfusion (D.0009)

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		frequent dizziness and a heavy head. DO: BP: 168/107 mmHg, Pulse: 102 x/minute, CRT >3 seconds, Lower extremities feel cold, Peripheral pulses are weak. The patient appears weak.		
2	29/5/2025 09.00	DS: Patients say they feel dizzy and throbbing when they don't get enough sleep. P: Pain increases with lack of sleep. Q: Thumping R: Head S : Scale 5 T : Continuously DO : The patient appears to be grimacing. The patient appears restless. It is difficult to sleep. BP: 168/107 mmHg	Increased cerebral vascular pressure	Acute pain (D0077)
3	29/5/2025 09.00	DS : The patient reported tiring quickly when walking. He reported family assistance with daily activities. He	Imbalance of oxygen supply and demand	Activity intolerance (D.0056)

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		reported shortness of breath with excessive movement. DO : The patient appears weak RR: 22 x/minute during activity, activity is partially assisted. The patient appears slightly short of breath when walking to the bathroom.		

1. NURSING DIAGNOSIS (PRIORITY PROBLEMS)/SDKI

Table 6. Nursing diagnoses (problem priorities/SDKI) of Mrs. C

NO	Date/Time	DIAGNOSIS	PRIORITY
1	29/5/2025 09.00	Ineffective Peripheral Perfusion due to Increased peripheral vascular resistance (D.0009)	1
2	29/5/2025 09.00	Acute pain due to increased cerebral vascular pressure (D0077)	2
3	29/5/2025 09.00	Activity intolerance due to imbalance in oxygen supply and demand (D.0056)	3

2. NURSING CARE PLAN

Table 7. Nursing Plan

NO DP	Date/Time	OBJECTIVES AND RESULT CRITERIA	INTERVENTION
1	29/5/2025 09.00	After nursing actions are carried out for 3 x 24 hours, it is expected that peripheral perfusion will increase (L.02011). Outcome Criteria: • Blood pressure improves	Hypertension Management (I.09326) Intervention • Monitor blood pressure regularly • Salt restriction education • Teach mindfulness

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		• CRT < 3 seconds • Complaints of dizziness decreased • Extremities feel warm • Peripheral pulses improve • Skin color improves	breathing relaxation techniques • Encourage physical activity as tolerated
2	29/5/2025 09.00	After nursing actions are carried out for 3 x 24 hours, it is expected that the pain level will decrease (L.08066). Outcome Criteria: • Complaints of pain decreased • Grimace decreases • Anxiety decreases • Blood pressure improves • Improved sleep quality	Pain Management (I.08238) Intervention • Identify the location, characteristics, duration, frequency, quality, and intensity of pain. • Monitor vital signs • Provide a comfortable position • Teach mindfulness breathing relaxation techniques • Recommend adequate rest • Collaboration in providing analgesics if necessary
3	29/5/2025 09.00	After nursing actions have been carried out for 3 x 24 hours, it is hoped that activity tolerance will increase (L.05047). Result Criteria: • Complaints of fatigue decreased • Shortness of breath decreases • Increased body	Activity Therapy (I.05190) Intervention • Monitor exercise tolerance • Practice light activities • Encourage isometric handgrip exercises • Recommend activities according to the patient's abilities

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

		strength • Increased activity • Vital signs are stable during activity	• Evaluation of TTV after explanation and practice of Mindfulness Breathing and Isometric Handgrip

3. EVALUATION

Table 8. Evaluation

NO	Date/Time	EVALUATION	Signature/Name
1	29/5/2026	S: The patient reports dizziness, a stiff neck, and slightly blurred vision. He also reports feeling weak during activity. O: Cold extremities, patient appears weak and restless. BP: 168/107 mmHg, Pulse 102x/minute S 36.5°C SpO_2 98%. RR: 22x/minute A: Ineffective peripheral perfusion has not been resolved. P: Continue monitoring circulatory status, vital signs, relaxation therapy, and encourage adequate rest.	 Dwi Safitri
2	29/5/2026	S: P: Pain increases with lack of sleep. Q: Thumping R: Head S : Scale 5 T : Continuously O: The patient appears to be grimacing, his face is	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

		tense, A: Acute pain has not been resolved. P: Continue pain management, PQRST observation, relaxation therapy, and medical therapy collaboration.	
3	29/5/2026	S: The patient reports getting tired quickly when walking and doing daily activities. The patient reports needing to rest after light activity. O: The patient appears weak, activities are partially assisted by family, pulse increases after light activity. TTV after training BP: 162/97 mmHg N: 98 x/min RR: 21 x/min A: Activity intolerance has not been resolved. P: Assess activity tolerance, assist with activities as needed, and encourage adequate rest. Evaluate vital signs after Mindfulness Breathing and Handgrip isometric exercises.	 Dwi Safitri
NO	**Date/Time**	**EVALUATION**	**Signature/Name**
1	30/5/2026	S: The patient reported that the dizziness had decreased and her body felt lighter. She also reported that her hands and feet felt warmer. O: warm extremities, CRT < 2 seconds, the patient looks fresher and is able to follow mindfulness breathing therapy and isometric handgrip. BP 160/95 mmHg, Pulse 93x/minute. S: 36.1 C	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		RR: 21 x/minute SPO: 97% A: Ineffective peripheral perfusion is partially resolved. P: Continue monitoring peripheral perfusion, mindfulness breathing exercises	
2	30/5/2026	S: The patient said the headache had reduced. P: Pain during activity Q: Thumping R: Head S : Scale 4 T: Appears and disappears O: The patient appears more relaxed, BP 160/95 mmHg, the patient is able to follow the exercises well. A: Acute pain is partially resolved. P: Continue relaxation therapy, and observe pain intensity.	 Dwi Safitri
3	30/5/2026	S: The patient reported increased energy and less fatigue. He reported being able to walk to the bathroom without assistance. O: The patient is able to perform light activities independently, does not appear short of breath when walking, the patient is able to follow isometric handgrip exercises according to instructions. TTV after training BP: 155/87 mmHg N: 89 x/minute RR: 20 x/minute	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

		A: Activity intolerance is partially resolved. P: Increase activity gradually as tolerated and continue isometric handgrip therapy.	
NO	**Date/Time**	**EVALUATION**	**Signature/Name**
1	31/5/2026	S: The patient reported that the dizziness was almost gone and her body felt more comfortable. The patient reported being able to do the exercises independently. O: warm extremities, CRT < 2 seconds, patient appears relaxed and is able to do mindfulness breathing independently. BP 145/90 mmHg, Pulse 85x/minute. S: 36.0 C RR: 20 x/minute SPO: 98% A: Ineffective peripheral perfusion is partially resolved. P: Advise the patient to continue exercising at home and to have regular blood pressure checks.	 Dwi Safitri
2	31/5/2026	S: The patient said that the headache was almost non-existent. P: Pain during activity Q: Thumping R: Head S : Scale 3 T: Appears and disappears O: The patient looks fresh, does not grimace, BP 145/90 mmHg, the patient is able to do mindfulness	 Dwi Safitri

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

		breathing and isometric handgrip independently. A: Acute pain is partially resolved. P: Advise the patient to maintain relaxation exercises and regular blood pressure control.	
3	31/5/2026	S: The patient reported that daily activities felt lighter and her body felt less tired. She stated that she was ready to continue exercising at home. O: The patient is able to perform ADL (Activity Daily Living) independently, does not appear excessively tired, the patient is able to perform isometric handgrip correctly and independently. TTV after training BP: 136/84 mmHg N: 81 x/minute RR: 19 x/minute A: Activity intolerance is partially resolved. P: Advise the patient to maintain gradual activity, continue isometric handgrip exercises, and have regular health checks.	 Dwi Safitri

DISCUSSION

In this case study discussion, the hypertensive patient who was the subject of the research was a patient with an initial blood pressure of 160/100 mmHg.and 168/107 mmHg, accompanied by complaints of dizziness, headache, neck tension, fatigue, and anxiety about her condition. These conditions are consistent with the clinical manifestations of hypertension caused by increased peripheral vascular resistance and impaired tissue perfusion, particularly in the central nervous system. Furthermore, stress and poor lifestyle management, such as a high-salt diet and lack of physical activity, also exacerbate the patient's hypertension.

Based on the results of the assessment, the nursing diagnoses that emerged in this case

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

include acute pain related to increased cerebral vascular pressure, anxiety related to lack of exposure to information about the disease, knowledge deficit related to hypertension and non-pharmacological therapy,Ineffective Peripheral Perfusion due to Increased peripheral vascular resistance, Activity intolerance due to Imbalance in oxygen supply and demand. These five nursing problems are interrelated, where increased blood pressure triggers the emergence of headaches which then cause anxiety in the patient, and is exacerbated by the patient's lack of understanding of how to control hypertension independently.

The nursing interventions provided were developed based on the Indonesian Child Health Survey (IDHS), Indonesian Child Health Survey (SLKI), and Indonesian Child Health Survey (SIKI) standards. In acute pain diagnoses, pain management was performed through monitoring vital signs, assessing the pain scale, providing a comfortable position and recommending relaxation techniques. For anxiety issues, anxiety reduction was carried out by providing emotional support, creating a calm environment, and practicing breathing relaxation techniques.Meanwhile, for knowledge deficits, health education is provided regarding hypertension, low-salt diets, as well as introduction and training in combination mindfulness breathing and isometric handgrip therapy as non-pharmacological therapy.

The combined application of mindfulness breathing and isometric handgrip (MBIH) therapy in this case contributed to the improvement of the patient's condition. Mindfulness breathing helps reduce sympathetic nervous system activity, resulting in greater relaxation, reduced stress, and lower blood pressure. Meanwhile, isometric handgrip exercise provides physiological effects in the form of improved endothelial function and decreased peripheral vascular resistance, contributing to lower blood pressure. The combination of these two therapies provides a synergistic effect in helping control hypertension non-pharmacologically.

After the intervention, the evaluation results showed a change in the patient's condition, characterized by a decrease in complaints of headaches, a decrease in neck tension, and the patient appeared calmer and less anxious. The patient also showed an increased understanding of hypertension and was able to explain again how to control blood pressure through the therapy that had been taught. In general, the patient's response to the combination therapy given showed positive results, evidenced by a decrease in blood pressure in Mr. K and Mrs. C. On the first day, Mr. K's blood pressure was 160/100 mmHg after exercise 156/95 mmHg, Mrs. C's blood pressure was 168/107 mmHg after exercise 162/97 mmHg. On the second day, Mr. K's blood pressure was 150/90 mmHg after exercise 148/88 mmHg, Mrs. C's blood pressure was 160/95 mmHg after exercise 155/87 mmHg. On the third day, Mr. K's blood pressure decreased from 145/85 mmHg to 135/82 mmHg after exercise, and Mrs. C's blood pressure

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

decreased from 145/90 mmHg to 136/84 mmHg after exercise. These results indicate that the application of non-pharmacological therapy, namely a combination of mindfulness breathing and isometric handgrip therapy, is effective in lowering blood pressure in hypertensive patients.

The results of this therapy also align with previous research, which found that mindfulness breathing techniques can reduce stress and sympathetic nerve activity, while isometric handgrip exercises can improve blood vessel function and lower blood pressure. The combination of the two has been shown to be more effective as a supportive therapy in managing hypertension than either therapy alone.

Thus, it can be concluded that the combination of mindfulness breathing and isometric handgrip therapy is effective as a non-pharmacological intervention in helping lower blood pressure and improve the psychological well-being of hypertensive patients. However, the success of this therapy still requires consistent practice and support from family and healthcare professionals to achieve optimal and sustainable results.

CONCLUSION

The combined application of mindfulness breathing and isometric handgrip therapy to hypertensive patients in Inpatient Ward B of Tunas Harapan Islamic Hospital in Salatiga showed positive results in helping to lower blood pressure and improve the patient's clinical condition. In both cases, there was a gradual decrease in systolic and diastolic blood pressure after the intervention was administered for three consecutive days. In addition, patients experienced a decrease in headache complaints, reduced anxiety, increased activity tolerance, improved peripheral perfusion, and increased knowledge regarding hypertension management. These results indicate that the combination of mindfulness breathing and isometric handgrip therapy can be used as a non-pharmacological intervention that supports blood pressure control through psychological relaxation mechanisms and improved vascular function.

However, the results of this study need to be interpreted with caution due to several limitations, including the very limited number of subjects, the relatively short duration of the intervention, and the presence of external factors such as diet, stress levels, physical activity, and patient compliance that could not be fully controlled. Therefore, further research is recommended using an experimental or quasi-experimental design with a larger sample size, a longer observation period, and measurement of other supporting variables to obtain stronger evidence regarding the effectiveness of this combination therapy. Practically, the results of this study provide implications that mindfulness breathing and isometric handgrip therapy can be considered as part of an evidence-based nursing intervention that is easy to implement, safe,

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

and economical, and has the potential to improve the quality of care and patient independence in managing hypertension.

REFERENCES

Aisah, N. M., & Rejeki, H. (2021). Penerapan *isometric handgrip exercise* dan *slow deep breathing exercise* untuk menurunkan tekanan darah. *Prosiding Seminar Nasional Kesehatan*, 1, 730–736.

Burnier*, M., & Egan, B. M. (2023). Adherence in hypertension. Circulation Research, 132(4), 526–545. https://doi.org/10.1161/CIRCRESAHA.122.321734*

Carey, R. M., Muntner, P., Bosworth, H. B., & Whelton, P. K. (2022). Prevention and control of hypertension. Journal of the American College of Cardiology, 79(20), 1971–1988. https://doi.org/10.1016/j.jacc.2022.02.038

Carlson, D. J., Inder, J., Palanisamy, S. K. A., & Dieberg, G. (2023). The efficacy of isometric resistance training utilizing handgrip exercise for blood pressure management: A systematic review and meta-analysis. Journal of Hypertension, 41(3), 456–466. https://doi.org/10.1097/HJH.0000000000003327

Creswell, J. W., & Poth, C. N. (2024). Qualitative inquiry and research design: Choosing among five approaches (5th ed.). Sage Publications.

Emzir. (2023). Metodologi penelitian kualitatif: Analisis data (7th ed.). Rajawali Pers.

Fitria, N. E., Sari, D. P., & Rahman, M. (2023). Pendekatan terapi komplementer untuk penatalaksanaan hipertensi. Jurnal Abdi Mercusuar, 3(1), 60–68.

Kementerian Kesehatan Republik Indonesia. (2023). Survei Kesehatan Indonesia (SKI) 2023. Kementerian Kesehatan Republik Indonesia.

Mills, K. T., Stefanescu, A., & He, J. (2023). The global epidemiology of hypertension. Nature Reviews Nephrology, 19(4), 223–237. https://doi.org/10.1038/s41581-023-00674-1

NCD Risk Factor Collaboration (NCD-RisC). (2024). Worldwide trends in hypertension prevalence, treatment and control. The Lancet, 403(10425), 1123–1138. https://doi.org/10.1016/S0140-6736(24)00215-7

Ponte Márquez, P. H., López, M. A., & García, J. R. (2022). Benefits of mindfulness meditation in reducing blood pressure and stress in patients with arterial hypertension. Journal of Human Hypertension, 36(8), 735–742. https://doi.org/10.1038/s41371-021-00530-6

PPNI. (2017). Standar diagnosis keperawatan Indonesia (SDKI): Definisi dan indikator diagnostik (Edisi 1). Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.

PPNI. (2018). Standar intervensi keperawatan Indonesia (SIKI) (Edisi 1). Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

PPNI. (2019). Standar luaran keperawatan Indonesia (SLKI) (Edisi 1). Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.

Sudaryono. (2022). Metodologi penelitian kuantitatif, kualitatif, dan mix method (3rd ed.). Rajawali Pers.

Sugiyono. (2023). Metode penelitian kuantitatif, kualitatif, dan R&D (3rd ed.). Alfabeta.

Unger, T., Borghi, C., Charchar, F., Khan, N. A., Poulter, N. R., Prabhakaran, D., Ramirez, A., Schlaich, M., Stergiou, G. S., Tomaszewski, M., Wainford, R. D., & Williams, B. (2022). 2022 International Society of Hypertension global hypertension practice guidelines. Hypertension, 79(1), e1–e115. https://doi.org/10.1161/HYPERTENSIONAHA.121.17872

Utama, Y. A., Hidayati, N., & Kurniawan, A. (2021). Pengaruh mindfulness breathing terhadap penurunan tekanan darah pada pasien hipertensi. Jurnal Keperawatan Indonesia, 24(3), 176–183.

Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison-Himmelfarb, C., DePalma, S. M., Gidding, S., Jamerson, K. A., Jones, D. W., MacLaughlin, E. J., Muntner, P., Ovbiagele, B., Smith, S. C., Spencer, C. C., Stafford, R. S., Taler, S. J., Thomas, R. J., Williams, K. A., ... Wright, J. T. (2022). Guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. Hypertension, 79(2), e13–e115. https://doi.org/10.1161/HYP.0000000000000204

World Health Organization. (2023). Hypertension. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/hypertension

World Medical Association. (2024). Declaration of Helsinki: Ethical principles for medical research involving human subjects. World Medical Association.

Yanti, D. A., Syatriawari, Markus, I., Ginting, J. B., & Rizkia, D. (2021). Workshop terapi isometric handgrip terhadap tekanan darah pada penderita hipertensi. Jurnal Pengabdian Kepada Masyarakat, 1(2), 406–411.

Yunita, V. (2022). Pengaruh terapi isometric handgrip exercise terhadap penurunan tekanan darah MAP (mean arterial pressure) dan kekambuhan pada pasien hipertensi. Repository STIKES Ngudia Husada Madura.

Zou, L., Yeung, A., Quan, X., Hui, S. S. C., Hu, X., Chan, J. S. M., & Wang, C. (2021). Effects of meditative movements on major depressive disorder: A systematic review and meta-analysis of randomized controlled trials. Journal of Clinical Medicine, 10(1), 195. https://doi.org/10.3390/jcm10010195

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.