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Empowering seniors: The role of physical exercise in managing hypertension

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Abstract
Hypertension is defined as a systolic blood pressure exceeding 140 mmHg and a diastolic blood pressure above 90 mmHg. If left unmanaged, it can lead to serious complications, including heart failure, heart attacks, strokes, and vision impairment. This study aims to explore the impact of physical exercise on managing hypertension in elderly individuals. One participant with hypertension (168/90 mmHg) engaged in a structured exercise program consisting of two sessions per week, each lasting 30 minutes. The results revealed a significant reduction in blood pressure levels (137/81 mmHg) following the completion of the exercise regimen. These findings underscore the potential of incorporating physical exercise into hypertension management strategies for the elderly, promoting healthier lifestyles and improved cardiovascular health.

Keywords: Hypertension; complementary therapy; physical exercise; elderly care; prevention strategy

Introduction
Hypertension, characterized by a systolic blood pressure exceeding 140 mmHg and a diastolic blood pressure above 90 mmHg (Binoriang & Rochmawati, 2022), poses a significant health challenge. According to the 2018 Basic Health Research, the prevalence of hypertension among Indonesians aged over 18 is 34.1%, a notable increase from 25.8% in 2013. In Central Java, the situation is even more concerning, with a prevalence rate of 37.57%. The risk of hypertension escalates with age, primarily due to the decreased elasticity of arterial blood vessels, which hampers their ability to respond effectively (Oktaviarini, Hadisaputro, Suwondo, & Setyawan, 2019). This loss of elasticity can lead to elevated systolic blood pressure and reduced diastolic blood pressure, as the arteries and veins struggle to transport oxygen-rich blood efficiently. The heart, a muscular organ, plays a crucial role in this process by pumping blood throughout the body. As the heart contracts, it pushes blood from the atria to the ventricles and then into circulation. However, in a closed circulatory system, resistance to this pumping action can lead to hypertension (Binoriang & Rochmawati, 2022). To reduce hypertension, engaging in regular physical activity is essential. Gymnastics, or exercise, encompasses a series of planned movements aimed at enhancing the body's functional abilities. This form of physical activity, often referred to as aerobics, stimulates the heart, improves blood circulation, and boosts respiratory function, all contributing to overall health benefits. The term "gymnastics" originates from the Greek word "gymnastic" (gymnos), meaning "naked," reflecting the historical practice of exercising without clothing to allow for freedom of movement and to monitor physical development (Wijayanti & Khadijah, 2021). Elderly gymnastics specifically refers to a tailored series of movements designed for older adults, promoting physical fitness and well-being. This structured exercise regimen not only helps maintain strong bones but also aids in eliminating harmful free radicals from the body (Wijayanti & Khadijah, 2021). Elderly individuals can enhance their overall health and mitigate the risks associated with hypertension by incorporating regular physical activity.

Physical exercise plays a vital role in managing hypertension among the elderly, offering a natural and effective approach to lowering blood pressure and enhancing overall cardiovascular health. As individuals age, their blood vessels often lose elasticity, leading to increased resistance in the circulatory system and, consequently, higher blood pressure. Engaging in regular physical activity helps counteract these effects by promoting better blood flow and improving the heart's efficiency. Activities such as brisk walking, swimming, or tailored exercise classes designed for seniors can significantly reduce systolic and diastolic blood pressure levels. Moreover, exercise stimulates the release of endorphins, which not only alleviate stress but also contribute to a sense of well-being, making it easier for older adults to maintain a consistent fitness routine. This holistic approach not only targets blood pressure management but also fosters a healthier lifestyle, encouraging seniors to stay active and engaged. In addition to its physiological benefits, physical exercise offers numerous psychological advantages that are particularly important for the elderly. Regular participation in exercise can combat feelings of isolation and depression, which are common among older adults. Group exercises or community fitness programs provide a social outlet, fostering connections and encouraging

camaraderie among participants. Furthermore, the sense of accomplishment that comes from achieving fitness goals can boost self-esteem and motivation. Incorporating exercises that enhance balance and flexibility, such as yoga or tai chi, also reduces the risk of falls, a significant concern for the elderly population. Ultimately, embracing physical exercise as a cornerstone of hypertension management not only improves physical health but also enriches the quality of life for seniors, empowering them to live more active, fulfilling lives. Therefore, the study was aimed to evaluate the role of physical activity to reduce hypertension in elderly people.

Case Description

The assessment of Mrs. N, a 60-year-old female laborer from Paremono Village, was conducted on May 19, 2024, at 09:00 WIB. She has been living with hypertension for the past five years and frequently reports symptoms such as a heavy neck, watery eyes, dizziness, and fatigue. During the examination, her vital signs revealed a blood pressure of 168/90 mmHg, a pulse rate of 89 beats per minute, a temperature of 36.7°C, and a respiratory rate of 20 breaths per minute. This data prompted the formulation of a nursing diagnosis: the risk of ineffective peripheral perfusion, evidenced by her elevated blood pressure. To address this diagnosis, nursing interventions focused on enhancing peripheral perfusion were implemented. The goal was to achieve a systolic blood pressure between 120-140 mmHg and a diastolic blood pressure between 80-100 mmHg, along with a reduction in pain sensations. The nursing interventions included monitoring blood pressure, checking peripheral pulses, avoiding blood pressure measurements in extremities with limited perfusion, and teaching non-pharmacological techniques such as acupressure to help lower blood pressure. The implementation of these interventions took place over two visits, on May 19 and May 24, 2024. During these sessions, the author closely monitored Mrs. N's blood pressure. At the first visit, prior to the introduction of elderly exercise therapy, her blood pressure was recorded at 168/90 mmHg. Remarkably, by the second visit, after incorporating the exercise regimen, her blood pressure improved to 137/81 mmHg, demonstrating the effectiveness of the nursing interventions and the potential benefits of physical activity in managing hypertension.

Discussion

The assessment of Mrs. N, a 60-year-old female laborer from Paremono Village, was conducted on May 19, 2024, at 09:00 WIB. She has been suffering from hypertension for the past five years and frequently reports symptoms such as a heavy neck, watery eyes, dizziness, and fatigue. A study explained that hypertensive patients often experience complaints like headaches, anxiety, stiff necks, dizziness, blurred vision, chest pain, and easy fatigue (Kowalski, Goniewicz, Moskal, Al-Wathinani, & Goniewicz, 2023). During the examination, Mrs. N's vital signs revealed a blood pressure of 168/90 mmHg, a pulse rate of 89 beats per minute, a temperature of 36.7°C, and a respiratory rate of 20 breaths per minute. Mrs. N falls into the grade 2 hypertension category according to a study (Giles, Materson, Cohn, & Kostis, 2009). She expressed discomfort, stating her neck felt heavy, her eyes watered, and she experienced dizziness and fatigue. This aligns with research by Eza et al. (2023), which identifies common symptoms of hypertension, including headaches, a feeling of heaviness in the neck and shoulders, fatigue, palpitations, ringing in the ears, and, in some cases, nosebleeds. The assessment highlighted Mrs. N's main complaints: soreness in her shoulders, a heavy sensation in her neck, and elevated blood pressure of 168/90 mmHg. This information formed the basis for the nursing diagnosis, which prioritized the risk of ineffective peripheral perfusion due to uncontrolled hypertension. Unmanaged hypertension is a significant risk factor for increasing blood pressure and can compromise peripheral perfusion.

The nursing intervention aimed to reduce Mrs. N's blood pressure and enhance peripheral perfusion. The therapeutic measures included improving blood circulation and lowering blood pressure. The nursing plan was developed in accordance with the nursing diagnoses related to hypertensive patients at risk of ineffective peripheral perfusion. This plan involved patient collaboration to ensure that her needs were met, following the Indonesian Nursing Outcome Standards (SLKI). The interventions were structured based on the Indonesian Nursing Intervention Standards (SIKI), encompassing observational, therapeutic, educational, and collaborative actions. The target timeframe for achieving the outcome criteria related to the risk of ineffective peripheral perfusion was set for two visits. During the first visit, blood pressure was checked, followed by 30 minutes of exercise. After the session, her blood pressure was measured again. The second visit mirrored the first, continuing the elderly exercise regimen designed to enhance muscle strength, flexibility, and overall body function. Elderly exercise is crucial for maintaining and even improving health in older adults. This form of physical activity combines various movements to strengthen muscles and improve flexibility. Engaging in elderly exercise can effectively lower blood pressure (Utama, Ajiningtyas, & Priyatin, 2023). The evaluation results indicated that elderly exercise positively impacted Mrs. N's blood pressure. This finding aligns with a study which emphasizes that regular exercise for the elderly serves as a non-pharmacological treatment for hypertension. Consistent physical activity can enhance blood circulation, ultimately leading to lower blood pressure levels.

To help Mrs. N better control her hypertension, several lifestyle modifications can be recommended. First, adopting a heart-healthy diet is crucial. She should focus on consuming a variety of fruits, vegetables, whole grains, lean proteins, and low-fat dairy products, following the DASH (Dietary Approaches to Stop Hypertension) diet. Additionally, reducing sodium intake is essential; aiming for less than 2,300 mg per day, or ideally 1,500 mg, can

significantly impact blood pressure. Limiting processed foods, which often contain high levels of sodium and unhealthy fats, will further support her dietary goals. Regular physical activity is another key component in managing hypertension. Mrs. N should aim for at least 150 minutes of moderate-intensity aerobic exercise each week, such as walking, swimming, or cycling, along with strength training exercises at least twice a week. Achieving and maintaining a healthy weight is also important; even a modest weight loss of 5-10% can lead to substantial improvements in blood pressure. Alongside these physical changes, moderating alcohol consumption, salt intake limitation and quitting smoking are vital steps that can enhance her overall cardiovascular health (Purwono, Sari, Ratnasari, & Budianto, 2020). Finally, stress management techniques can play a significant role in controlling hypertension (Ladyani, Febriyani, Prasetia, & Berliana, 2021). Encouraging Mrs. N to practice relaxation methods such as yoga, meditation, or deep breathing exercises can help reduce stress levels. Regular monitoring of her blood pressure at home, combined with adherence to prescribed medications, will ensure she stays on track with her treatment plan (Relawati & Kurniawan, 2021). Mrs. N can take proactive steps toward better managing her hypertension and improving her overall health by implementing these lifestyle changes.

Conclusion

Managing hypertension effectively requires a multifaceted approach that includes lifestyle modifications and behavioral changes. For Mrs. N, adopting a heart-healthy diet, engaging in regular physical activity, and achieving a healthy weight are essential steps in controlling her blood pressure. Additionally, reducing sodium intake, moderating alcohol consumption, and quitting smoking will further enhance her cardiovascular health. Incorporating stress management techniques and consistently monitoring her blood pressure will empower her to take charge of her condition. By embracing these changes, Mrs. N can significantly improve her quality of life and reduce the risks associated with uncontrolled hypertension. It is crucial for her to collaborate with healthcare providers to develop a tailored plan that addresses her specific needs and circumstances. With commitment and support, Mrs. N can achieve better health outcomes and enjoy a more active, fulfilling life.

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