

Effects of music on sleep quality among elderly people with hypertension: A randomised controlled trial

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Effects of music on sleep quality among elderly people with hypertension: A randomised controlled trial

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Abstract

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Background: Hypertension is a condition in which an individual has persistently high blood pressure with systolic blood pressure > 140 mmHg and diastolic blood pressure > 90 mmHg when measured at least twice under two different conditions with a two-week interval. The causes of hypertension are broadly categorized into two risk factors: non-modifiable and modifiable. The prevalence of hypertension is still relatively high in both developed and developing countries, with a prevalence of 35% in developed countries and 40% in developing countries among the adult population. The highest prevalence of hypertension is found in the United States, at 46% of the adult population. It is estimated that 1 billion people worldwide suffer from hypertension, and it is predicted that by 2025, around 29% of the global population will have hypertension.

Purpose: To understand the community's perspective on the importance of improving sleep quality through listening to classical music among individuals with hypertension.

Method: This qualitative research employed a case study approach, focusing on describing and understanding phenomena in the social world and the perspectives of individuals with experience. The study concentrated intensively and in detail on cases of patients with hypertension experiencing sleep quality disturbances. The research was conducted on hospital patients in Pontianak City from June 23 to 26, 2023, with a total of two respondents, and it was carried out at the respondents' homes. Data collection utilized purposive sampling through interviews, observations, and documentation over three days. The inclusion criteria were patients with a diagnosis of hypertension, stable medical conditions, compos mentis consciousness, and sleep quality disturbances. The exclusion criteria were non-cooperative patients and their families, no comorbid diseases, and patients unable to communicate in Indonesian.

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Results: It was found that all hypertensive patients were elderly. Both hypertensive patients at Perumnas 1 Community Health Center were female. Respondents' systolic blood pressure ranged from 140-159 mmHg or higher, and diastolic blood pressure ranged from 90-99 mmHg, indicating that women are more prone to stress. Psychologically, women have lower coping mechanisms than men in dealing with problems. If there are physical and psychological disturbances, women will experience more severe sleep disturbances than men. There was an improvement in sleep quality after classical music therapy was administered to patients with sleep quality disturbances. Therefore, classical music therapy is effective and can be utilized by individuals such as nurses or healthcare workers in Perumnas 1 Community Health Center, Pontianak City, for the advancement of nursing and healthcare knowledge.

Conclusion: Appropriate classical music can have an impact on the sleep quality of elderly individuals suffering from hypertension in Pontianak City in 2023.

Keywords: Classical Music; Elderly; Hypertension; Therapy

INTRODUCTION 2

Hypertension is defined as a persistent high blood pressure with systolic blood pressure > 140 mmHg and diastolic blood pressure > 90 mmHg when measured on at least two occasions and under different conditions, two weeks apart (Arguedas, Perez, & Wright, 2009). According to the Joint National Committee 7, hypertension is defined as systolic blood pressure > 140 mmHg and diastolic blood pressure > 90 mmHg (Kuswardhani, 2006). The causes of hypertension are broadly categorized into two risk factors: non-modifiable and modifiable risk factors (Huxley, Lopez, Folsom, Agarwal, Loehr, Soliman, & Alonso, 2011). Modifiable factors include unhealthy lifestyle choices such as high-fat and high-salt diet, obesity, smoking, alcohol consumption, and stress (Sugiharto, 2007). Non-modifiable factors include aging, gender, family history of hypertension or heredity, and certain ethnic backgrounds (Okiana, 2020).

Uncontrolled hypertension is a major factor in morbidity and mortality due to cardiovascular disorders (Tumundo, Wiyono, & Jayanti, 2021). Hypertension is also associated with the risk of stroke, heart disease, kidney failure, and other non-vascular diseases (Mukti, 2020). Given the significant consequences of hypertension, it is essential to effectively manage hypertensive patients, especially by modifying modifiable risk factors.

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Long-term elevated blood pressure can lead to damage in the kidneys (kidney failure), heart (coronary heart disease), and the brain (resulting in a stroke) if not detected early and provided with adequate treatment (Ministry of Health of the Republic of Indonesia, 2013). It is estimated that worldwide, 8 million people die each year due to hypertension-related causes, and this number continues to rise annually. The prevalence of hypertension is high in both developed and developing countries, with 35% prevalence in developed countries and 40% in adult populations in developing countries. The highest prevalence of hypertension is in the Americas, with 46% of the adult population affected. It is predicted that by 2025, around 29% of the world's population will suffer from hypertension (Julia, Kalesaran, & Sekeon, 2016). In Indonesia, the prevalence of hypertension patients continues to increase, with 31.7% of the population

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aged 18 and older being hypertensive (Ministry of Health of the Republic of Indonesia, 2012).

Aging causes structural changes in large blood vessels, making the lumen narrower and the vessel walls stiffer, resulting in increased systolic blood pressure (Kaplan, 2010). Prevalence of hypertension tends to increase with age because, at an older age, more blood is needed to pump blood to the brain and vital organs, and blood vessels become weaker, and vessel walls become thicker. In addition, as people age, their cardiovascular system weakens, as indicated by the development of atherosclerosis, which can increase blood pressure. This makes the elderly vulnerable to hypertension. Many hypertensive patients have uncontrolled blood pressure, and their numbers increase each year (Ministry of Health of the Republic of Indonesia, 2014).

Hypertension often does not show symptoms, and it is only recognized when organ disorders such as cardiovascular dysfunction or a stroke occur. Hypertension is sometimes found accidentally during routine health check-ups or when patients come with other complaints (Lere, & Husada, 2020). This is due to patients' lack of awareness of their symptoms and the consequences of hypertension. Such lack of awareness emphasizes the role of healthcare professionals, particularly nurses, as health educators (Yuwono, Ridwan, & Hanafi, 2018).

The management of hypertension includes pharmacological and non-pharmacological therapies. Pharmacological therapy involves using medications to lower blood pressure, such as diuretics, ACE inhibitors, beta-blockers, calcium channel blockers, and vasodilators. Pharmacological therapy should be supported by non-pharmacological therapy, including lifestyle modifications, exercise, reducing sodium intake, avoiding alcohol and smoking, and stress reduction. Non-pharmacological therapy also includes complementary therapy (Siauta, & Tamin, 2020). Various complementary therapies, such as herbal therapy, nutrition therapy, progressive relaxation, meditation, acupuncture, acupressure, aromatherapy, reflexology (classical music therapy), and cupping therapy (Raihan, & Dewi, 2014), can be applied to treat hypertension.

Classical music therapy is a form of therapy that uses music as a therapeutic tool to improve,

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maintain, and restore mental, physical, emotional, and spiritual health. Music therapy is generally beneficial for everyone, including elderly individuals with hypertension, without requiring prior musical abilities, knowledge, or experience. The choice of music used in music therapy can be tailored to individual preferences, including classical music, instrumental music, relaxing rhythmic music, orchestral music, and other modern music genres. Gentle and rhythmic music like instrumental and classical music is commonly used in music therapy (Setyoadi, 2011).

Classical music therapy consists of two words: "therapy" and "music." "Therapy" is related to a series of efforts designed to assist or help individuals, typically in the context of physical or mental health issues. "Music" in "music therapy" is used to describe the medium specifically used in therapeutic interventions. With the help of music, patients' minds are allowed to wander, recalling pleasant memories, confronting fears, longing for dreams and aspirations, or directly addressing the issues at hand (Dewi, 2009).

Music therapy is the use of music within clinical, educational, and social settings for patients who require treatment and education or interventions on social and psychological aspects (Wigram, 2000). Several studies involving the effects of music therapy have observed various effects in different situations, resulting in physiological changes, affecting blood pressure, heart rate, respiration, body temperature, galvanic skin response, endocrine biochemical parameters, and immune system responses, emotional changes, and pain sensitivity (Maratos, Gold, Wang, & Crawford, 2008). Music therapy is considered a therapeutic use of organized sound because of its predictable and rhythmic characteristics. It tends to mobilize individuals towards high rhythmic activities or demobilize and relax them when listening to low rhythmic music (Ezenwa, 2012). Music can activate stimuli in the appropriate hormonal system to increase metabolism because the physiological system depends on musical notes or rhythms and the listener's perception.

The right type of music can prevent stress and improve sleep quality that has been disrupted due to the effect of hypertension. By combining relaxation and meditation techniques with music listening

experiences, blood pressure can be drastically reduced. It is essential that the chosen music is free from anything that can cause fear or recall sad memories. Moreover, the music should be simple, calming, and have a regular tempo. Recommended music includes instrumental, classical, nature sounds, or meditative music (Blanaru, Bloch, Vadas, Amon, Ziv, Kremer, & Haimov, 2012).

RESEARCH METHOD

Qualitative research using a case study approach is focused on describing and understanding phenomena within the social world from the perspective of individuals with relevant experiences. This study specifically concentrates intensively and in detail on a single case, which is patients suffering from hypertension with sleep quality disturbances. The research was conducted on patients in a hospital in Pontianak from June 23 to June 26, 2023, with a total of two respondents, and the data collection was carried out directly at the respondents' homes.

Data collection employed purposive sampling and included stages of interviews, observations, and documentation conducted over three days. Inclusion criteria encompassed patients diagnosed with hypertension, stable medical conditions, conscious and compos mentis, and experiencing sleep quality disturbances. Exclusion criteria included uncooperative patients and families, the absence of comorbid diseases, and patients unable to communicate in the Indonesian language.

The independent variable was the application of music therapy, while the dependent variable was the improvement in sleep quality among hypertensive patients. The instruments used for data collection included questionnaires, and data collection was carried out through interactive methods, involving asking questions and listening to what the respondents conveyed orally, thus fostering a relationship of trust..

RESEARCH RESULT AND DISCUSSION

This study was conducted from June 23 to June 26, 2023, focusing on sleep quality issues in two respondents. The research results revealed that both hypertensive patients were elderly. Typically, patients with hypertension and poor sleep quality are elderly individuals (Alfi, & Yuliwar, 2018). Both

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patients at the Perumnas⁶ Community Health Center were females with systolic blood pressure readings of 140-159 mmHg or higher and diastolic readings of 90-99 mmHg. This study aimed to understand people's perceptions of the importance of improving sleep quality for hypertensive patients through listening to classical music. It also sought to identify the effects of classical music therapy on sleep quality and examine patients' ability to apply classical music therapy to reduce sleep disturbances among hypertensive patients. The study's findings indicated that females were more prone to stress (Lumi, Terok, & Budiman, 2018). Psychologically, women have lower coping mechanisms compared to men in dealing with problems. This leads to more severe sleep disturbances in women when they experience physical and psychological issues (Sulistyarini, & Santoso, 2016).

Stress is the inability to cope with exceptional demands that are perceived as threatening to one's well-being, either from within or outside the individual (Dewi, 2009). Stressors are events or conditions perceived as threatening, dangerous, or challenging to an individual's well-being, causing feelings of tension (Sarafino, & Smith, 2014). Changes, major or minor, or daily experiences such as workloads, education, grieving, family issues, financial problems, and health issues are stressors for individuals (Anggraieni, & Subandi, 2014).

The impact of stress includes physical complaints such as headaches, migraines, stomach pain, and hypertension, which are manifestations of distress. Psychological manifestations of distress can include a lack of enthusiasm, low self-acceptance, feelings of worthlessness, and even depression. When a family has an individual experiencing distress, it can lead to less harmonious family relationships. Prolonged distress can lead to physical and psychological disturbances in the affected individual. Frequent conflicts within the family or the surrounding environment and experiencing severe physical complaints like hypertension are reactions experienced by individuals going through distress (Chrousos, 2009).

Hypertension is a serious public health issue that occurs in both developed and developing countries. It affects approximately 1 billion people worldwide. Mortality due to this condition has increased by 30% in developing countries, with an average of 30% of

adults suffering from high blood pressure. Surprisingly, one out of every five people has high blood pressure, and approximately one-third of them are unaware of it. However, about 40% of deaths under the age of 65 are due to high blood pressure (Deter, Wolf, Blecher, Thomas, Zimmermann, & Weber, 2007).

Hypertension is etiologically divided into two types: secondary hypertension and essential hypertension. Approximately 5% of hypertension cases are caused by organ function disorders, known as secondary hypertension, and the remaining 95% are essential hypertension with no known primary cause (Mansjoer, 2001). Secondary hypertension is caused by organ function disorders, including endocrine gland abnormalities, kidney diseases, estrogen use (hormone therapy), vascular abnormalities (aortic coarctation), and hypertension related to pregnancy. Essential hypertension refers to a condition where blood pressure increases dramatically without a known primary cause. High blood pressure typically does not present specific symptoms, which means the disease goes undiagnosed for years until patients experience heart, brain, and kidney damage. However, when blood pressure reaches intolerable levels, symptoms such as headaches, chest pain, shortness of breath, palpitations, dizziness, sleep disturbances, and more begin to appear.

The findings that hypertension cases are more prevalent in elderly women are supported by other research. This is because women experience hormonal changes post-menopause that have previously protected blood vessels from damage. As individuals age, almost everyone experiences an increase in blood pressure. Over 50% of hypertension cases are found in individuals aged 60-74 (58.1%). The elderly tend to have higher blood pressure because of the degeneration that occurs with age. The elderly often experience structural and functional damage to the aorta, leading to increased hardness of blood vessels and elevated blood pressure (Prawesti, & Noviyanto, 2015).

In the treatment of elderly hypertensive patients with sleep disturbances, the research results show that the application of classical music therapy has an impact on improving sleep quality in elderly hypertensive patients. Based on the intervention provided, respondents' sleep quality improved due to

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the soothing nature of classical music, inducing relaxation in the listeners. This is supported by the theory that classical music can stimulate the cerebral cortex, balancing brain alpha wave activity and promoting tranquility (Hayati, 2017). This is also supported by previous research that has shown the effective use of music therapy can enhance sleep quality in respondents (Iksan, & Hastuti, 2020). Previous research has also stated that blood pressure decreased after classical music therapy, with a significant reduction in both systolic and diastolic blood pressure for elderly characteristics (100%), with an average systolic blood pressure decrease of 18.88 mmHg and a diastolic blood pressure decrease of 18.04 mmHg (Prawesti, & Noviyanto, 2015).

Similar to research conducted at the Abiyoso Yogyakarta nursing home on the effects of memorizing dhikr recitations on sleep quality, providing dhikr recitations can improve sleep quality (Ismayanti, & Solikhah, 2012). Previous research on the effectiveness of music therapy on sleep quality in respondents has shown differences in sleep quality before and after music therapy, resulting in improved sleep quality (Lantong, Lamonge, & Wetik, 2022).

In another study on Keroncong music therapy to improve sleep quality in patients in Banyumas, differences were observed before and after listening to music. The results showed improved sleep quality in patients (Nurjumala, Prasetyo, & Utomo, 2022). Another study also found similar results, with classical music therapy in Palembang nursing homes improving sleep quality compared to before the therapy (Triwulandari, 2014). Therefore, this therapy is considered to provide positive results for patients' sleep quality.

There are many alternative therapies for high blood pressure that focus on relaxation techniques, while others attempt to address the physiological aspects by changing habits or lifestyles. The elderly are particularly vulnerable, and therefore, complementary care such as classical music therapy can be provided. When classical music therapy is performed effectively, it can reduce both systolic and diastolic blood pressure. This is because classical music can harmonize and balance all the rhythms of the body, including heart rate, breathing rate, blood pressure, brain wave frequency, and primary respiratory rate. In classical music therapy, it is

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known that classical music stimulation can activate the limbic system related to emotions. When the limbic system is activated, the brain relaxes, triggering a decrease in blood pressure. Stress can affect blood pressure, and relaxation can lead to relatively normal blood pressure in a relaxed person.

Based on the research results, it can be said that there is an improvement in sleep quality after classical music therapy in patients with sleep quality disturbances. Therefore, classical music therapy is effective and can be utilized by individuals, such as nurses or healthcare workers at the Perumnas 1 Community Health Center in Pontianak, in the advancement of nursing and health science.

CONCLUSION

The appropriate classical music can influence the sleep quality of elderly individuals suffering from hypertension in Pontianak in 2023.

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