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Religious Music Therapy Affected the Blood Pressure Changes in Elderly with Hypertension



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Abstract

Hypertension or high blood pressure is a non-communicable disease most suffered elderly. It is characterized by increasing the pressure of blood vessels. Music therapy is one of non-pharmacological management on hypertension so it can be controlled to improve quality of life the patient. The study aimed to analyze the effect of religious music therapy on blood pressure changes in elderly with hypertension. The design of the study was quasy experiment with a pre-post test approach. The sample was 25 respondents as taken by purposive sampling and carried out at Unit Pelayanan Teknis (UPT) Pesanggrahan Penyandang Masalah Kesejahteraan Sosial (PMKS) Mojopahit Mojokerto. The data was analyzed by paired T-test. The results showed there was an effect of religious music therapy on reducing blood pressure in hypertensive elderly at UPT Pesanggrahan PMKS Mojopahit. When music therapy was heard, the brain will produce endorphins that relieves anxiety and tension, so it decrease blood pressure. The recommendation of this study is religious music therapy can be chosen as non-pharmacological management to control elderly's blood pressure.

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INTRODUCTION

Hypertension or high blood pressure is a condition in which a person experiences an increase in blood pressure that exceeds normal. This disease is categorized as the silent disease because the patient does not know he has hypertension before checking his blood pressure (Triana et al., 2019). Hypertension is an important risk factor for cardiovascular disease, especially coronary heart disease, congestive heart decompensation and stroke (Sari & Rekawati, 2019). Hypertension cases in Indonesia are estimated to increase by 83% in 2025. In Indonesia, the number of elderly people suffering from hypertension is estimated at 15 million people but only 4% are controlled hypertension (Junaidi, 2015), the prevalence is 6-15% in elderly people, 15% of them are unaware as hypertension sufferers so they tend to become severe hypertension because they are not aware of and do not know the risk factors and 90% are essential hypertension, currently degenerative and cardiovascular diseases are already a public health problem in Indonesia (Junaidi, 2015). Based on data from the Indonesian Ministry of Health (Kemenkes RI, 2012), hypertension is one of the diseases with the highest number of outpatient cases, namely 80,615 cases. RI Ministry of Health data, 2016 prevalence in East Java Indonesia has increased from 7.6% in 2013 to 9.6% in 2016. Data from the Ministry of Home Affairs, provincial observation unit. The results of this study show that the prevalence of hypertension in Java is 41.9%, with a range in each province of 36.6% -47.7%. The prevalence in urban areas is 39.9% (37.0%-45.8%) and in rural areas 44.1% (36.2%-51.7%). According to Halim (2015) at the Cengkareng Hospital and Tarakan Hospital Jakarta, pharmacological therapy, for example catopril, obtained data of 54.63% at low doses and 45.37% at high doses, and from the results of Halim's research that 22% of 50 patients who received taking catopril has a dry cough.

Hypertension is a disease that has a very close relationship with the elderly. This occurs due to physiological changes that occur such as a decrease in the body's immune response, heart valves to thicken and become stiff, decreased cardiac contractility, reduced elasticity of blood vessels, and

lack of effectiveness of peripheral blood vessels for oxygenation. These changes cause an increase in vascular resistance so that the elderly tend to be more susceptible to hypertension (Halim et al., 2015). The elderly are often affected by hypertension caused by stiffness in the arteries so that blood pressure tends to increase and with increasing age the elderly also experience an unhealthy lifestyle by consuming foods that contain lots of salt. To lower blood pressure, you can do it with music therapy where the working principle is to listen to music according to the wishes of the elderly for 15-30 minutes and do 2 therapies a week. Based on study that listening to music can reduce anxiety and stress so that the body experiences relaxation, which results in a decrease in blood pressure and heart rate, especially in the elderly. From the description above, the writer can conclude that the previous findings showed the effect of music on reducing blood pressure in the elderly (Sari & Rekawati, 2019). Prevention of hypertension, generally done by changing lifestyles such as reducing weight in the elderly who are obese, adjusting the food diet, regular exercise and reducing stress. This series is a non-pharmacological treatment. Dietary adjustments and regular exercise have generally been shown to reduce blood pressure. But there are other non-pharmacological methods that can reduce blood pressure, namely by using music, but the use of music as a non-pharmacological treatment in terms of lowering blood pressure is still in its development stage (Junaidi, 2015).

METHODS

This study was a pre experimental research with a one group pre-test and post-test design. The population in this study were all hypertensive elderly, totaling 33 respondents at UPT Pesanggrahan PMKS Mojopahit Mojokerto. 25 elderly chosen as sample and taken by purposive sampling. The instrument of this study were religious music (Syi'ir Tanpo Wathon) digital spignomanometer, observation sheet. The duration of religious music therapy is 12 minutes and it is given 2 times a week on Sundays and Tuesdays. Blood pressure was measured before and after giving music therapy. Then the data were analyzed using the paired sample t test.

RESULTS

General data of this study include respondent's characteristic (age, ender, education, and history of hypertension).

Table 1: Frequency Distribution of Respondent's Characteristics

| Characteristics | Category | n | % |
|-------------------------|--|----|------|
| Age (years) | 55-65 years | 10 | 40.0 |
| | 66-74 years | 8 | 32.0 |
| | >75 years | 7 | 28.0 |
| Gender | Male | 6 | 24.0 |
| | Female | 19 | 76.0 |
| Education | No Education | 13 | 52.0 |
| | Basic Education (Elementary, Junior High, High School) | 12 | 48.0 |
| | | | |
| History of Hypertension | 1-5 year | 14 | 56 |
| | 6-10 year | 11 | 44 |

Source: Primary Data

Based on Table 1, it showed that most of respondents were 55-65 years old, most of them were female, had no education, and had 1-5 years of hypertension history.

Table 2: Sistol's Pretest and Posttest

| | Min | Max | Mean | SD | P-value |
|------------------|-----|-----|--------|-------|---------|
| Pretest | 140 | 175 | 156.12 | 12.40 | |
| Posttest | 130 | 170 | 149.9 | 11.23 | |
| Pretest-Posttest | | | 6.2 | 4.84 | 0.000 |

Based on table 2, it showed that average systole before being given music therapy is 156.12 mmHg and after being given is 149.9 mmHg. And result of paired sample T-test showed p-value of 0.000.

Table 3: Diastole's Pretest and Posttest

| | Min | Max | Mean | SD | P-value |
|------------------|-----|-----|-------|------|---------|
| Pretest | 90 | 108 | 95.76 | 6.46 | |
| Posttest | 80 | 95 | 89.40 | 4.98 | |
| Pretest-Posttest | | | 6.36 | 4.84 | 0.000 |

Based on table 3, it showed that average diastole before being given music therapy is 95.76 mmHg and after being given is 89.40 mmHg. And result of paired sample T-test showed p-value of 0.000.

DISCUSSION

The result showed the average systolic blood pressure before being given music therapy is 156.12 and average diastolic blood pressure before being given music therapy is 95.76. Hypertension or high blood pressure is a condition in which a person experiences an increase in blood pressure above normal or chronic (for a long time). Hypertension is a disorder that is difficult for our own body to know. The only way to know hypertension is to measure our blood pressure regularly (Muttaqin, 2009). Hypertension in the elderly is usually caused by a loss of elasticity in the blood vessels due to age, besides that, stress can also cause an increase in blood pressure in the elderly. Stress is the body's non-specific response to any demands made on it. There are several types of diseases related to stress

experienced by a person, including hypertension (Maryam, 2018). Bantas and Gayatri's research in 2019 described that hypertension is commonly experienced by those over the age of 60, both men and women. In elderly men, hypertension can occur through the androgen mechanism, via its effect on the production of vasoconstrictors. Meanwhile, hypertension in women increases during the postmenopausal period, decreased estradiol synthesis induces changes in blood pressure. In addition, what is thought to be the trigger for the increased incidence of hypertension during menopause is the activating of renin-angiotensin-system (RAS) and obesity. (Bantas, 2019).

The incidence of hypertension at UPT Pesanggrahan PMKS Mojopahit Mojokerto, was caused by the fact that most respondents felt lonely

because they lived far from family and family also rarely or even almost never visited or visited so that respondents felt depressed, and this feeling continued continuously so that the respondent's blood pressure became higher. It was in line with previous study in Yogyakarta which stated that the elderly who live alone or who have separated from their partners have a higher risk of hypertension. they have poor social support, poor diet, stress, and depression from being alone (Defianna et al., 2021). In addition, due to the age factor of the respondents who are entering the elderly, where this age is very susceptible to disease due to gradual physical, mental, social decline, physiological changes and decreased cognitive function in the elderly accompanied by health problems that cause high degenerative diseases, one of which is hypertension (Muttakin, 2009).

The result showed the average systolic blood pressure after being given music therapy is 149.9 mmHg and average diastolic blood pressure after being given music therapy is 89.40. Music therapy is known that musical stimulation is able to activate the limbic system associated with emotion. When the limbic system is activated, the brain relaxes, this condition triggers a decrease in blood pressure. In music therapy, music can also stimulate the body to produce nitric oxide (NO) molecules. This molecule acts on vascular tone which can reduce blood pressure (Natalina, 2013). According to researchers on the elderly who were at UPT Pesanggrahan PMKS Mojopahit Mojokerto, it was concluded that blood pressure in the elderly who were given music therapy had decreased compared to before being given music therapy. This shows that music given by researchers to the elderly can actually relieve stress so that the blood pressure of the elderly decreases. The results of the paired sample T test on systolic and diastolic blood pressure showed p value of 0.000 (α 0.05). The results of this research were in accordance with the results of research conducted by Marlinda et.al in 2021 which explains that giving music therapy can reduce blood pressure. Marlinda's research was carried out by giving classical music therapy and giving it a significant reduction in blood pressure (Marlinda et al., 2021). The same study was also conducted by Marti et.al in 2019. In this study the treatment group was given Javanese classical music therapy (langgam jawa) and the results showed a significant decreased in systolic and diastolic blood pressure between the experiment group and the control group (Marti et al., 2020).

Music therapy had an effect on blood pressure changes. Music affects perception in 3 ways: First by

distracting, namely diverting thoughts and concentrating on pleasant things, secondly by relaxation, music causes breathing to be more relaxed and lowers heart rate, thirdly by creating a sense of comfort, music can reduce cortisol levels which increase in when stressed, music also stimulates the release of endorphins, which are body hormones that give a feeling of pleasure and comfort (Bustami, 2018). Cao and Zang in 2023 explained music is an adjuvant therapy for hypertension. Listening to music can reduce blood pressure and heart rate, reduce anxiety and stress, also improve sleep quality for people with hypertension (Cao & Zhang, 2023) Music therapy can provide a feeling of comfort and relaxation, the feeling of comfort that is felt helps respondents to reduce anxiety, excessive stress so that it can affect the occurrence of vasodilation of blood vessels and lower the respondent's blood pressure (Aden et al., 2022). Music therapy has many benefits, not only in terms of pressure, music therapy can also reduce stress, depression and reduce pain. Such as the stress experienced by the elderly due to the situation and conditions of the orphanage that are not the same as their homes. Music therapy is the right therapy to prevent reducing blood pressure, besides that the technique is very easy to do and affordable to reduce blood pressure (Winarto et al., 2021).

The explanation above revealed that music therapy can reduce blood pressure through several mechanisms. First, the sound waves produced by classical music will affect the brain. increase the excitability of the nervous system and increase the secretion of the hormone acetylcholine. Secondly, music can distract patients from their pain and problems, reduce the excitability of the parasympathetic nerves, regulate the endocrine system to reduce the secretion of renin angiotensin II. Additionally, the music wave affect on the brain, adjusts the functional state of the cortex, relieves anxiety, thereby causing changes in physiological and psychological states (Cao & Zhang, 2023). So music therapy can be used as an alternative non-pharmacological therapy that is cheap and easy for people with hypertension, especially the elderly.

CONCLUSION

The conclusion of this study was an significant effect of music therapy on blood pressure changes in elderly with hypertension ($p < 0.05$).

SUGGESTION

Religious music therapy has contribution on controlling of blood pressure of elderly with

hypertension. It suggestion to improve multidisciplinary are of hypertension patients by using religious music therapy as non-medical therapy.

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CONFLICTS OF INTEREST

The author declares there is no conflict of interest in this research, funding, and publication.

AUTHOR CONTRIBUTIONS

The main author conducts surveys and literature analysis based on critical thinking and the phenomena that occur. Furthermore, the main author also designed research framework and determined the theoretical concepts and research hypotheses. Together with the other author, the team compiled the article, analyzed the research implementation methods, and planned data processing. After that, all authors carried out the final approval process for the version to be published, which was also part of the work of the main author. Meanwhile, the second author criticized the research design and analysis testing using tools, data retention, interpreting data, assessing the relevance of the theoretical concepts used, providing instruments, and assessing the suitability of implementation according to standard procedures and research frameworks.

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