Wiraraja Medika : Jurnal Kesehatan
https://www.ejournalwiraraja.com/index.php/FIK
2088-415x (Print) |2685-9998 (online)

Decreasing in blood pressure with music therapy (vivaldi-the four season) in elderly patients with hypertension in PSTW Glenmore Banyuwangi

Rahmawati Raharjo[1], Agung Dwi Rahardjo[2]

[1]University of Bakti Indonesia Banyuwangi
[2]University of Bakti Indonesia Banyuwangi
[1]raharjorahmawati@yahoo.co.id*, [2]agungdwia6@gmail.com
*Corresponding author

Informasi artikel
Sejarah artikel:
Received: 23-08-2020
Revised: 20-11-2020
Accepted: 29-11-2020
Kata kunci:
Terapi musik
Hipertensi
Lansia

ABSTRAK

Usia lanjut meupakan kelompok usia yang rentan memiliki masalah kesehatan. Pertambahan usia menyebabkan fungsi dan struktur organ, terutama system kardiovaskuler dan pembuluh darah, Kondisi tersebut berkontribusi memicu terjadi peningkatan tekanan darah. Pencegahan dan penatalaksanaan hipertensi dapat dilakukan dengan metode farmakologi dan non-farmakologi. Metode non-farmakologi yang bisa diintervensikan yaitu music klasik. Tujuan penelitian ini untuk mengetahui pengaruh terapi music terhadap penurunan tekanan darah pada lansia yang hipertensi. Jenis rancang bangun penelitian menggunakan desain pra eksperimen dengan pendekatan one group pre test-post test design. Sampel diambil menggunakan tehnik total sampling sebanyak 53 yaitu lansia yang tinggal di Panti Sosial Tresna Werdha Banyuwangi. Analisa data menggunakan uji Wilcoxon dengan nilai $p < 0,05$. Hasil uji analisis Wilcoxon didapatkan *p* atau *(Asymp. Sig. (2-tailed)*= 0,000, p < 0,05. Hasil tersebut menunjukkan ada perbedaan sebelum dan sesudah diberikan terapi music klasik pada lansia penderita hipertensi . Maka dapat dimpulkan bahwa pemberian terapi musik pada penderita hipertensi akan membantu dalam menurunkan tekanan darah, sehingga terapi musik (Vivaldi-the four seasion) menjadi suatu solusi non-farmakologis baik dalam pelayanan maupun penanganan secara mandiri.

Key word:
Therapy Music
Hypertension
Elderly

ABSTRACT

The elderly is a vulnerable age group having health problems. The addition of age causes the function and structure of organs, especially the cardiovascular system and blood vessels, the condition contributes to the trigger occurs an increase in blood pressure. Prevention and management of hypertension can be done by pharmacological and non-pharmacological methods. The non-pharmacological method that can be intervened is classical music. The purpose of this study was to determine the effect of music therapy on reducing blood pressure in hypertensive elderly. This type of research design uses a pre-experimental design with one group pre-test-post test design approach. Samples were taken using a total sampling technique of 53 elderly people living in the Banyuwangi Tresna Werdha Social Home. Analysis of data using the Wilcoxon test with a value of p <0.05. Wilcoxon analysis test results obtained p or (Asymp. Sig. (2-tailed) = 0,000, p <0.05. These results research showed there was a difference before and after given classical music therapy in elderly patients with hypertension. Then it can be concluded that the delivery of music therapy in patients with hypertension will help in lowering blood pressure so that music therapy (Vivaldi-the four-season) becomes a non-pharmacological solution both in service and self-handling.

Introduction

The human development process starts from prenatal to the elderly. The more age, the cells, and the tissues become old. Some can berate and some will have atresia. The situation is very risky and potentially raises various health problems including decreased levels of self-reliance, mental

health disorders, chronic diseases, degenerative diseases, and diseases due to decreased cardiovascular system and bleeding systems (Indahsari, Agusman, and Ekowati 2013). Hypertension has become a major problem in public health. The World Health Organization (WHO) shows about 1.13 billion people in the world bearing hypertension, meaning that 1 in 3 people in the world is diagnosed with hypertension. The number of people with hypertension continues to increase and accounts for 9.4 million deaths each year due to hypertension.(Schlein 2013).

The prevalence of hypertension in Indonesia is quite high. The proportion of hypertension increases with age groups. Physiologically, the higher a person's age, the more risk they have for hypertension. In the age range of 35-44 years there was an increase of 6.8%, ages 45-54 years by 9.7%, ages 55-64 years by 9.3%, ages 65-74 years by 5.6%, and more of 75 years is 5.7%. In the same year the province of East Java was 36.32%.(Kementrian Kesehatan RI 2018). While In Banyuwangi, the incidence of hypertension at an advanced age reached 11,446 cases (23%) (Timur 2018).

A person diagnosed with hypertension if twice the measurement of blood pressure performed during the five-minute time interval obtained systolic blood pressure is at 140 mmHg or more and diastolic blood pressure is at 90 mmHg (Suprayitno, 2019). The increase between cardiac output and caused vascular resistance or both of the wrong factors causes hypertension (Nurhidayat 2015). The impact of hypertension in the elderly when not immediately performed countermeasures and appropriate treatment can lead to the risk of damage and diseases of complications such as blockage of blood vessels, heart (cardiovascular) and kidney disorders, even rupture of capillary vessels in the brain or more commonly referred to by stroke and end with Death (Jasmarizal, Sastra, and Yunita 2011)., (Suprayitno and Huzaimah 2020)

Based on the incidence rate and the impact of hypertension need treatment to minimize the incidence rate and the risk of complications from hypertension. Treatment of hypertension divided into two categories, which is the pharmacological way is done in hypertension, namely the treatment with the use of anti-hypertensive drugs. Non-pharmacological means of treatment without medications applied to patients with hypertension (Supriadi, Hutabarat, and Monica 2015)). Non-pharmacological treatment that can be applied to lower blood pressure in patients with hypertension is music therapy. Music therapy is a technique used to cure a disease using a certain sound or rhythm. The type of music used in music therapy can be adapted to the wishes, such as classical music, instrumentation, rhythmic music, orchestra, and other modern music (Diyono and Mawarni 2015).

The purpose of this research is to know the blood pressure before and after the administration of music therapy (Vivaldi-the four seasons) in elderly patients with hypertension. Music Therapy (Vivaldi-the four-season) is a non-pharmacological therapy with the classical genre music instrumental of Vivaldi's creation as the four sessions for 30 minutes.

RESEARCH METHODS

This type of research design uses a pre-experimental design with one group pre-test-post test design approach The samples in this study were 53 elderly people with hypertension who lived in Tresna Werdha Banyuwangi Social Home. The sampling technique used is total sampling. The research process is done with the following stages before the introduction of music therapy, blood pressure is measured. After the results of the initial blood pressure measurement, the elderly is given a treatment of music therapy for 30 minutes. After the intervention, measurement (post-test). Measurement of blood pressure using adigital Omron brand Sphygmomanometer. Analysis of data using the Wilcoxon test with a value of $p < 0.05$.

RESEARCH RESULT

Based on the research, the results obtained the following: The results analysis of univariate based on age and gender will be shown in table 1 and 2.

Table 1 The Characteristics of Respondents by Age and Gender

Characteristics	Total	Percentage
Age		
60-65 Years Old	9	17.0
66-70 Years Old	11	20.8
71-74 Years Old	15	28.3
>76 Years Old	18	34.0
Gender		
Female	27	50.9
Male	26	49.1

Based on table 1 the respondents ' frequency data was based on nearly half of the respondents of 18 respondents (34%) Aged > 76 years. The frequency of respondents based on the gender of respondents was that most respondents were 27 respondents (50.9%) of female sex and nearly half of the respondents as many as 26 respondents (49.1%) male gender.

Based on Table 2, the data obtained by the frequency of respondents based on obesity is more than half of the total number of respondents experiencing obesity that is equal to 58.5% (31 respondents), the rest are not overweight.

Table 2 The Characteristics of Respondents by obesity

Characteristics	Total	Percentage
Obesity		
Yes	31	58.5
No	22	41.5

The Data Blood Pressure's Elderlies Before and After Given Music Therapy (Vivaldi-the Four Season)

The results analysis of bivariate based on pre-test and post-test will be shown in table 3:

Table 3 The Data Blood Pressure's Elderlies Before and After Given Music Therapy

Characteristic	Total	Percentage
Blood Pressure (Before)		
Pre-Hypertension	2	3.8
Stage 1	23	43.4
Stage 2	28	52.8
Blood Pressure (After)		
Pre-Hypertension	26	49.1
Stage 1	25	47.2
Stage 2	2	3.8

According to table 3 shows that before music therapy most of the elderly have stage 3 hypertension of 52.8%, while after administration of music therapy occurs a decrease in the percentage of patients in stage one and stage two hypertension. The results of the Sign rank test showed a negative rank value of 0 and a positive rank value of 45. The result is supported by the analysis test results of the Wilcoxon test i.e. the value of P or (ASYMP.Sig. (2-tailed) = 0.000 or indicates the value of the $p < 0.05$, which has the meaning of the effect of music therapy (Vivaldi-the four-season) to decrease in blood pressure in elderly patients with hypertension.

DISCUSSION

Increased blood pressure, where systolic blood pressure is equal to or higher than 140 mmHg, and diastolic blood pressure is higher than 90 mmHg(Suprayitno and Wahid 2019). This condition if continuing will contribute to the abnormal symptoms of the organs – vital organs including the stroke (caused by rupture of blood vessels in the brain) and heart disease. Nowadays, the number of patients with hypertension is difficult to control, because most of the individuals at risk or sufferers are unaware of the symptoms and risk factors of hypertension (Nuraini 2015)

Advanced age is a group that is very susceptible to suffering from hypertension. Proportional to the age, function, and structure of the heart organs and blood vessels network changes. The flexibility of arterial blood vessels decreases and becomes stiff, due to the thickening of the arterial walls so that the heart work increases and implicates the rise in blood pressure (Pical 2011).

Further, age is one of the risk factors of hypertension. All genders are equally high in prevalence, adult males tend to have higher blood pressure and their most high prevalence rate than mature women. The condition is different if it enters the elderly. Elderly women have a higher prevalence rate than elderly men. Menopause experienced by elderly women causing estrogen hormone levels to decline. Though estrogen hormones function to increase High-Density Lipoprotein (HDL) levels. Due to this condition, the Low-Density Lipoprotein (LDL) levels are increased. Increased LDL causes increased blood pressure (Kusumawaty, Hidayat, and Ginanjar 2016).

In addition to age and sex factors, obesity is also one of the determinants of hypertension (Pical 2011). Some similar studies have also proved a significant relationship of obesity with the prevalence of hypertension. Research conducted by Rokuswara, respondents who are obese risk 1.681 times to suffer from degree hypertension 1 than those who are not obese. And research Wahyuningsih mentions obesity is the most dominant factor contributes to the increase in blood pressure in the elderly.

However, because of obesity, there is no theory that can explain clearly. There are three possibilities, first obesity can cause impaired autonomy system, insulin resistance and changes in structures an

vascular function. Vascular endothelial blood vessels experienced vasoconstriction due to the abundance of fat causing heart pump power and increased blood volume, as well as kidney reabsorption of sodium (Rohkuswara and Syarif 2017). Another alleged process of hypertension due to obesity caused by excess fatty tissue triggers angiotensin in blood to break down through angiotensin-renin system. Decomposed angiotensin can decrease intracellular fluid and increase the acellular fluid (Haris and Tambunan 2016).

Hypertensive management can be done with pharmacological and non-pharmacological therapies. Non-pharmacological methods that can lower blood pressure are one of them using classical music. From the results of the research, there are differences before and after the classical music intervention in elderly patients with hypertension. Classical music characterized by a stable tempo and rhythm, based on a lot of research is shown to reduce levels of hormones that contribute to increased blood pressure (cortisol), giving the relaxation effect and heart rate become more orderly (Supriono and Suhadi 2013).

The other research of obtained the results that non-pharmacological therapy proved to have a high percentage in controlling blood pressure. Many methods can be applied with the provision of food containing antioxidants, applying a healthy lifestyle, a diet low in salt and fat and music therapy (Ainurrafiq, Risnah, and Ulfa Azhar 2019). Research similar studies occurred a decrease in blood pressure in the group given the intervention of music therapy in nature sounds (Cholifah, Setyowati, and Karyati 2019). Other research that uses classical music therapy Java, proved to be effective to reduce blood determination in elderly (Hidayat, Nahariani, and Mubarrok 2018).

Classical music rhythm stimulates limbic system work. The limbic system is instrumental in the production of catecholamines i.e. Epinephrine and norepinephrine which are the main vasochtiktor of blood vessels. Reduced release of catecholamines in blood plasma results in a state of relaxation in the body, heart rate and decreased blood pressure (Yulastari, Betriana, and Kartika 2019). The limbic system will also inhibit the secretion of hormones (ACTH) originating from the anterior pituitary. If ACTH is reduced, the adrenal cortex layer, the fasciculata and reticular, will shrink and cortisol will decrease dramatically. Cortisol has the role of regulating arteriolar tone and influencing epinephrine activity. If cortisol is low, then epinephrine activity is reduced, so that the vasodilated blood vessels result in a decrease in blood pressure (Saputri 2018).

Classical music can also activate the body to produce nitric oxide (NO) (Supriono and Suhadi 2013). NO is formed in endothelial cells which then diffuse to the vascular smooth muscle cells around. In this place is activated guanylyl dissolved cyclase which produces guanosine monophosphate cyclic (cGMP), cGMP then become intermediaries mediated relaxation of smooth muscles in blood vessels.(Akbar and Mahati 2013).

CONCLUSIONS

Based on the results of research and data analysis that identifies the effect of music therapy (Vivaldi-the four-season) on reducing blood pressure in the elderly with hypertension in Glenmore Banyuwangi PSTW the results of research statistical tests can be concluded by knowing the value of p or (Asymp. Sig. (2-tailed)) = 0,000 while the significant value used = 0.05, which can be interpreted that p (0,000) <0.05 (significant value) which means that there is an influence of music therapy (Vivaldi-the four-season) on the decrease in blood pressure in elderly patients' hypertension. The results of this study can be used as a non-pharmacological intervention to reduce blood pressure. And researchers can then use the same variable but the time and intensity of therapy is given with a longer and periodic frequency.

BILIOGRAPHY

Ainurrafiq, Ainurrafiq, Risnah Risnah, and Maria Ulfa Azhar. 2019. "Terapi Non Farmakologi Dalam Pengendalian Tekanan Darah Pada Pasien Hipertensi: Systematic Review." *MPPKI (Media Publikasi Promosi Kesehatan Indonesia): The Indonesian Journal of Health Promotion*. doi: 10.31934/mppki.v2i3.806.

Akbar, N., and E. Mahati. 2013. "PENGARUH BEKAM BASAH TERHADAP KOLESTEROL DAN TEKANAN DARAH PADA PASIEN HIPERTENSI DI SEMARANG." *Jurnal Kedokteran Diponegoro* 2(1):137784.

Cholifah, Noor, Setyowati Setyowati, and Sri

Karyati. 2019. "Pengaruh Pemberian Terapi Musik Suara Alam Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Desa Pelang Mayong Jepara Tahun 2016." *Jurnal Ilmu Keperawatan Dan Kebidanan* 10(1):236. doi: 10.26751/jikk.v10i1.648.

Diyono, Diyono, and Putri Mawarni. 2015. "EFEK TERAPI MUSIK UNTUK MENURUNKAN TEKANAN DARAH PADA PASIEN HIPERTENSI DI DESA TARAMAN SRAGEN JAWA TENGAH." *KOSALA : Jurnal Ilmu Kesehatan* 3(2). doi: 10.37831/jik.v3i2.65.

Haris, Syafruddin, and Taralan Tambunan. 2016. "Hipertensi Pada Sindrom Metabolik." *Sari Pediatri*. doi: 10.14238/sp11.4.2009.257-63.

Hidayat, Muhammad Fadhil, Pepin Nahariani, and Alik Septian Mubarrok. 2018. "PENGARUH TERAPI MUSIK KLASIK JAWA TERHADAP PENURUNAN TEKANAN DARAH PADA LANSIA HIPERTENSI DI UPT PANTI WERDHA MOJOPAHIT MOJOKERTO." *Jurnal Ilmiah Keperawatan (Scientific Journal of Nursing)*. doi: 10.33023/jikep.v4i1.132.

Indahsari, P., F. Agusman, and S. Ekowati. 2013. "HUBUNGAN PERUBAHAN FUNGSI FISIK TERHADAP KEBUTUHAN AKTIVITAS HIDUP SEHARI-HARI (AHS) PADA LANSIA DENGAN STROKE (STUDI PADA UNIT REHABILITASI SOSIAL KOTA SEMARANG)." *Jurnal Keperawatan Komunitas* 1(1):104516.

Jasmarizal, Lenni Sastra, and Delvi Yunita. 2011. "Pengaruh Terapi Musik Klasik (Mozart) Terhadap Penurunan Tekanan Darah Sistolik Pada Lansia Dengan Hipertensi Di Wilayah Kerja Puskesmas Air Dingin Kecamatan Koto Tangah Padang Tahun 2011." *Mercubaktijaya* 1–11.

Kementrian Kesehatan RI. 2018. "Hipertensi Si Pembunuh Senyap." *Infodatin Pusat Data Dan Informasi Kementrian Kesehatan RI* 1–5.

Kusumawaty, Jajuk, Nur Hidayat, and Eko Ginanjar. 2016. "Hubungan Jenis Kelamin Dengan Intensitas Hipertensi Pada Lansia Di Wilayah Kerja Puskesmas Lakbok Kabupaten Ciamis." *Jurnal Mutiara Medika* 16(2):46–51.

Nuraini, Bianti. 2015. "Risk Factors of Hypertension." *J Majority* 4(5):10–19.

Nurhidayat, Saiful. 2015. *Asuhan Keperawatan Pada Pasien Hipertensi*.

Pical, Femmy Imelia. 2011. "Prevalensi Dan Determinan Hipertensi Di Posyandu Lansia Wilayah Kecamatan Pasar Rebo Jakarta Timur." *Skripsi : Ilmu Kesehatan Masyarakat. Universitas Indonesia* 122.

Rohkuswara, Teguh Dhika, and Syahrizal Syarif. 2017. "Hubungan Obesitas Dengan Kejadian Hipertensi Derajat 1 Di Pos Pembinaan Terpadu Penyakit Tidak Menular (Posbindu PTM) Kantor Kesehatan Pelabuhan Bandung Tahun 2016." *Jurnal Epidemiologi Kesehatan Indonesia* 1(2):13–18. doi: 10.7454/epidkes.v1i2.1805.

Saputri, MARFIYANA ADINDA UMAR. 2018. "Analisis Risiko Peningkatan Hormon Kortisol Pada Hipertensi Gestasional." *Tesis. Sekolah Pascasarjana Program Studi Magister Kebidanan Universitas Hasanuddin* 122.

Schlein, Lisa. 2013. "WHO: 1 Miliar Orang Di Dunia Alami Hipertensi." *Voa* 1–2.

Suprayitno, E., and A. Wahid. 2019. "Pendampingan Tentang Penyakit Hipertensi Dan Perawatan Keluarga Dengan Hipertensi." *Seminar Nasional Hasil Pengabdian …* 104–6.

Suprayitno, E, and Huzaimah, N. 2020. "PENDAMPINGAN LANSIA DALAM PENCEGAHAN KOMPLIKASI HIPERTENSI." *SELAPARANG Jurnal Pengabdian Masyarakat Berkemajuan* 4(1):518–21.

Suprayitno, E. 2019. "Gambaran Status Tekanan Darah Penderita Hipertensi Di Desa Karanganyar Kecamatan Kalianget Kabupaten Sumenep." *Journal Of Health Science (Jurnal Ilmu Kesehatan)* 4(2):20–24. doi: 10.24929/jik.v4i2.799.

Supriadi, D., E. Hutabarat, and V. Monica. 2015. "PENGARUH TERAPI MUSIK TRADISIONAL KECAPI SULING SUNDA TERHADAP TEKANAN DARAH PADA LANSIA DENGAN HIPERTENSI." *Jurnal Skolastik Keperawatan* 1(2):29–35.

Supriono, M., and Suhadi. 2013. "Perbedaan Tekanan Darah Pada Lansia Hipertensi Sebelum Dan Sesudah Diberikan Terapi Musik Instrumental Di Panti Wedra Pengayoman Pelkis Kota Semarang." *Jurnal Karya Ilmiah*.

Yulastari, Puti Rania, Feni Betriana, and Imelda Rahmayunia Kartika. 2019. "Terapi Musik Untuk Pasien Hipertensi : A Literatur Review." *Real in Nursing Journal* 2(2):56. doi: 10.32883/rnj.v2i2.436.