

Rhythmic Gymnastics Therapy Has an Effect on Reducing Blood Pressure in Hypertension Sufferers

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Abstrak

Background: Rhythmic exercise therapy for blood pressure in hypertensive sufferers is one of the non-pharmacological intervention techniques that can be used by hypertensive sufferers.

Objective: This research aims to determine the effect of rhythmic exercise therapy on blood pressure in hypertension sufferers in Cisalak Village, Cibeber District, Cianjur Regency in 2022.

Method: The design of this research is a Quasy Experiment design, non-equivalent pre-test and post-test with a control group design. The population in this study were all residents of Cisalak village, Cibeber subdistrict, Cianjur district with a sample of 32 respondents (16 intervention and 16 controls). The instrument used in this research was an observation sheet. Data collection techniques by observation. The analysis used is Univariate and Bivariate using the Wilcoxon test.

Results: The blood pressure of hypertensive patients before being given rhythmic exercise therapy provided information on the value (Mean Arterial Pressure) with a mean value of MAP of 113 mmHg before the intervention from 16 intervention respondents with a minimum MAP of 106 mmHg and a maximum MAP of 120 mmHg. After conducting research, the results of the mean value were MAP 103 mmHg, minimum MAP 96 mmHg, and maximum MAP 113 mmHg. The results of the Wilcoxon Signed Rank T-Test test between the values of the Intervention Group and the Control Group showed that the P-value was 0.001, and the Intervention p-value <0.005.

Conclusion: There is an effect of rhythmic exercise therapy on patients suffering from hypertension in Cisalak village, Cibeber subdistrict, Cianjur district in the intervention group.

Keywords: hypertension, rhythmic exercise therapy

Pendahuluan

Hypertension is a condition where a person's blood pressure increases above normal which can result in increased morbidity and mortality rates.¹ Hypertension is a disorder of the blood circulation system that results in an increase in blood above normal values or blood pressure of more than 140/90 mmHg.² Hypertension or what can be called high blood pressure is an increase in systolic blood pressure above the normal limit, namely more than 140 mmHg and diastolic blood pressure more than 90 mmHg.³

Based on 2018 World Health Organization (WHO) data, it is known that the number of adults with hypertension increased from 594 million in 1975 to 1.13 billion in 2015. This disease is growing rapidly in low and middle-income countries. This increase is primarily due to an increased risk of hypertension in this population. The highest prevalence is in Africa (27%) while the lowest prevalence is in America (18%). It is estimated that the estimated number of hypertension cases in Indonesia is 63,309,620 people, while the death rate in Indonesia due to hypertension is 427,218 death.⁴ The hypertension achievement for the first quarter, second quarter, and third quarter of 2022 is 64,124 total population, the PTM target is 44,887, and the hypertension target is 21,591. The achievement in the first quarter was 162, a percentage of 0.8%, the achievement in the second quarter was 331, a percentage of 1.5%, the achievement in the third quarter was 2,885, a percentage of 13.4%. The final total achievement was 3,378, a percentage of 15.6%. Cikalongkulon Community Health Center enters the large hypertension zone in the Cianjur district area.^{5,6}

Based on previous studies carried out on society, we can see that advances in increasingly advanced and modern technology are linked to the need for physical therapy and the rhythm of society which does not want to do physical activities such as exercise to maintain health and improve blood circulation in the body.⁷ Rhythmic exercise for people with hypertension is a modern exercise technique that can encourage the heart to work optimally, where exercise can increase the energy requirements of the body's cells, tissues, and organs, which as a result can increase venous return thereby causing stroke volume which will directly increase cardiac output.⁸ Thus, causing arterial blood pressure to increase, if arterial blood pressure increases earlier, the impact of this phase can reduce respiratory and skeletal muscle activity which causes sympathetic nerve activity to decrease, thereby causing decreased heart rate speed, decreased stroke volume, and arteriolar vasodilation. a, because this decrease results in a decrease in cardiac output and a decrease in total peripheral risk, resulting in a decrease in blood pressure.⁹

Based on a preliminary study, we conducted interviews with 10 people in Cisalak village, Cibeber Cianjur Community Health Center Working Area, by visiting people door to door based on data from the community health center who suffer from hypertension at the age of 45-70 years. On July 21, 2022, in the Cikalongkulon Community Health Center working area, 10 people had grade 1 hypertension and grade 2 hypertension, indicating that previously 10 people said they had difficulty sleeping at night, complaining of frequent headaches, blurred vision, and fatigue that could disturb them. Activity patterns and sleep patterns for knowledge of treatment techniques for lowering blood pressure. The 10 people do not know about non-pharmacological techniques and have never carried out any therapy due to a lack of education from the health team, so the 10 people do not know the factors that cause hypertension from health workers or in the local health center area.

It can be concluded from the results of 10 interviews with the hypertension community, namely in Cisalak Village, Cibeber Cianjur Health Center Working Area, who did not know the causal factors and complained that they did not know how to prevent hypertension, and no

one ever received education from the health team, resulting in frequent occurrences of hypertension due to excessive physical activity, age factors, lifestyle, and unhealthy eating patterns. Based on this background, this research aims to determine the effect of rhythmic exercise therapy on blood pressure in hypertension sufferers in Cisalak village, Cibeber subdistrict, Cianjur district in 2022.

Method

The type of research that will be carried out is quantitative research with this research design using a quasi-experimental research design with a Pre-test and Post-test Nonequivalent Control Group design. The design in this design involves control groups in addition to experimental groups.¹⁰ The research instruments used in this study were rhythmic exercise therapy SOPs and blood pressure reduction observation sheets. The implementation of rhythmic exercise therapy begins with filling in an observation sheet that is tailored to the research objectives and refers to the conceptual framework that has been created. The population in this study were all residents of Cisalak Village, Cibeber District, Cianjur Regency with a sample of 32 respondents (16 intervention and 16 control). The instrument used in this research was an observation sheet. Data collection techniques by observation. The analysis used is Univariate and Bivariate using the Wilcoxon test.

Results

Univariate Analysis

Table 1. Characteristics of Respondents Based on Age

No	Respondent's Age	Frequency	Percentage
Intervention			
1	a. 45-59 years old	15	93.75%
	b. 60-74 years old	1	6.25%
	c. 75-90 years old	0	0
Control			
2	a. 45-59 years old	9	56.25%
	b. 60-74 years old	7	43.75%
	c. 75-90 years old	0	0

In Age, information was obtained that the research group had most respondents aged 45-59 years, 15 people with research and a prevalence of 95.75%. 1 responding person has an age group of 60-74 years with a prevalence rate of 6.25%. Meanwhile, in the control group, 9 respondents were in the 45-59-year group with a percentage of 56.25% and 7 respondents in the 60-74 year age group had a percentage of 43.75%.

Table 2. Characteristics of Respondents Based on gender.

No	Gender	Frequency	Percentage
Intervention			
1	a. Woman	16	100%
	b. Man	0	0%
Control			
2	c. Woman	9	56.25%
	d. Man	7	43.75%

Based on the [table](#) above, information was obtained that of the 16 samples used for research, information was obtained that in the research group, 16 samples had a female sex type with a percentage of 100%, and 0 samples had a male sex type with a percentage of 0%. In the control group, information was obtained that 9 respondents had female sex with a

percentage of 56.25% and 7 respondent had male sex with a percentage of 43.75%.

Table 3. Characteristics of Respondents Based on Occupation

No	Work	Frequency	Percentage
Intervention			
1	a. Work	4	25%
	b. Not Working	12	75%
Control			
2	c. Working	13	81.3%
	d. Not Working	3	18.8%

Based on the [table](#) above, information was obtained on the intervention groups of 4 respondents who work with a percentage of 25% and 12 respondents who do not work with a percentage of 75%. Meanwhile, in the control group, 13 respondents worked with a percentage of 81.3% and 18.8% did not work.

MAP (Mean Arterial Pressure) Value Before Giving Rhythmic Exercise Therapy Meeting 1

Table 4. Intervention Group

No	Initial	MAP value	Mean
1	Ny. A	116 mmHg	113 mmHg
2	Ny. T	110 mmHg	
3	Ny. N	120 mmHg	
4	Ny. N	113 mmHg	
5	Ny. Y	103 mmHg	
6	Ny. E	116 mmHg	
8	Ny. O	115 mmHg	
9	Ny. E	110 mmHg	
10	Ny. O	110 mmHg	
11	Ny. U	110 mmHg	
12	Ny. I	113 mmHg	
13	Ny. W	11 mmHg	
14	Ny. C	10 mmHg	
15	Ny. L	12 mmHg	
16	Ny. I	1 mmHg	

Table 5. Control Group

No	Initial	MAP value	Mean
1	Ny. K	113 mmHg	111 mmHg
2	Tn. M	120 mmHg	
3	Ny. I	11 mmHg	
4	Ny. E	11 mmHg	
5	Tn. Y	11 mmHg	
6	Tn. D	113 mmHg	
8	Tn. M	110 mmHg	
9	Tn. A	110 mmHg	
10	Ny. I	110 mmHg	
11	Ny. Y	110 mmHg	
12	Tn. J	106 mmHg	
13	Ny. M	113 mmHg	
14	Ny. S	113 mmHg	
15	Tn. S	113 mmHg	
16	Tn. M	110 mmHg	

MAP (Mean Arterial Pressure) Value After Being Given Rhythmic Exercise Therapy Meeting 8

Table 6. Intervention Group

No	Initial	MAP value	Mean
1	Ny. A	110 mmHg	104 mmHg
2	Ny. T	103 mmHg	
3	Ny. N	103 mmHg	
4	Ny. N	103 mmHg	
5	Ny. Y	106 mmHg	
6	Ny. E	100 mmHg	
8	Ny. O	100 mmHg	
9	Ny. E	116 mmHg	
10	Ny. O	100 mmHg	
11	Ny. U	100 mmHg	
12	Ny. I	100 mmHg	
13	Ny. W	100 mmHg	
14	Ny. C	96 mmHg	
15	Ny. L	103 mmHg	
16	Ny. I	103 mmHg	

Table 7. Control Group

No	Initial	MAP value	Mean
1	Ny. K	116 mmHg	112 mmHg
2	Tn. M	120 mmHg	
3	Ny. I	115 mmHg	
4	Ny. E	113 mmHg	
5	Tn. Y	113 mmHg	
6	Tn. D	113 mmHg	
8	Tn. M	110 mmHg	
9	Tn. A	113 mmHg	
10	Ny. I	110 mmHg	
11	Ny. Y	110 mmHg	
12	Tn. J	113 mmHg	
13	Ny. M	113 mmHg	
14	Ny. S	113 mmHg	
15	Tn. S	113 mmHg	
16	Tn. M	110 mmHg	

Bivariate Analysis

Table 8. Wilcoxon Signed Rank T-Test Results of Respondents Suffering from Hypertension in Cislak Village, Cibeber District, Cianjur Regency

Group	Mean	Std Deviasi	95 % Confident Interval		Std Error Mean	Asymp.Sig (2-Tailed)
			Lower bound	Upper bound		
Intervention 1	113	2.500	111.7	114.5	0.625	0.000
Intervention 8	104	5.619	101.1	107.1	1.404	
Control 1	111	3.376	109.9	113.5	0.844	0.083
Control 8	113	3.023	111.0	115.1	0.758	

Based on [table 8](#) of the results of the Wilcoxon Signed Rank T-test between the values of the Intervention Group and the Control Group, it was found that the P-Value was 0.001, the Intervention p-value <0.005 , which means that there was an influence of dynamic rhythm therapy on the decrease in blood pressure in the sufferer population in Cisalak Village, Cibeber Regency. Patient Cianjur which means H_0 is rejected, and H_a is accepted. Meanwhile, in the control group, the P-value was 0.083, and the control value was >0.005 , which means that there was no significant change in blood pressure in the control group, which means that H_a was rejected and H_0 was accepted.

Discussion

MAP (Mean Arterial Pressure) Value Before being given Rhythmic Exercise Therapy Meeting 1

Results of measuring blood pressure Mean Arterial Pressure MAP in Cisalak Village, Cibeber Sub-district, Cianjur Regency. Based on data from the Cibeber Community Health Center, patients with hypertension disease were then visited to carry out blood pressure measurements and were accompanied by local midwives who were then allowed to carry out research investigations, in a group of investigations consisting of 16 respondents before being given exercise therapy. Rhythm results obtained an average value of 113 mmHg Mean Arterial Pressure MAP. Meanwhile, the control group consisting of 16 respondents obtained an average value of 113 mmHg Mean Arterial Pressure MAP.

The average blood pressure is 113 mmHg Mean Arterial Pressure MAP. From the research results, it was found that the age characteristics of the research group and the control group had most respondents aged 45-60 years. The results of this research are supported by the theory of Ulfa (2018) which states that the age factor is one of the causes of increased hypertensy. Individuals aged over 60 years (50-60%) have blood pressure greater than or equal to 140/90 mmHg with a MAP of 106 mmHg. This is the influence of degeneration that occurs in people as they get older.¹¹

The results of this research indicate that changes in blood pressure before the onset of rhythmic therapy mostly occur at the level of age, type of sex, and work, this is due to the age factor due to diseases caused by the decline in body organs, and in people who do not have work, their activity is reduced. so that cardiac output decreases. The above behavior can be influenced by a lack of knowledge about hypertension disease from related agencies. This is considered not yet very effective because not all hypertension sufferers can carry out rhythmic therapy activities due to their busy schedules and low levels of desire.

Average post-test MAP (Mean Arterial Pressure) blood pressure value

Meeting 8

Based on the results in the intelligence group, there was a decrease in blood pressure because sports activities combined with rhythmic exercise as well as movement activities can also stimulate the release of the endorphin hormone, where the endorphin hormone can influence the mood to be happier. This is good for general physical health because it allows the burning of fat and improves blood flow. Sports activities using rhythmic exercise therapy carried out regularly at a set time can have a positive impact on the ability of the heart and respiratory muscles. This can help maintain and lower blood pressure while remaining stable.

Based on the results in the control group, there was no significant reduction in blood pressure because respondent was not provided with rhythmic exercise therapy, even though carrying out daily activities was carried out even though it reduced calories, in some people this caused stress which ultimately resulted in muscle tension, therefore many people suffered from

it. hyperintensity that is still active in carrying out daily routine activities, but blood pressure is still high. This is different from sports activities, which can stimulate the release of the endorphin hormone, where the endorphin hormone can influence the mood to become happier.

The Effect of Rhythmic Exercise Therapy on Blood Pressure in Hypertension Sufferers

Based on the table showing the results of research on systolic and diastolic blood pressure which are added together to form a MAP value after being subjected to rhythmic physical therapy, the blood pressure results of the intravein group from the Wilcoxon Sign Rank statistical test show a value of $p\text{-value} = 0.000 < \alpha = 0.05$, this means H_0 is rejected and H_1 is accepted, meaning that there is a significant difference in the blood pressure of the intestinal group after being given rhythmic rhythm therapy.

The results of this statistical test show that there is an influence of rhythmic exercise therapy on changes in MAP blood pressure in patients with hyperthyroidism. Meanwhile, the results of blood pressure from the Wilcoxon Sign Rank statistical test show a value of $p\text{-value} = 0.000 < \alpha = 0.05$, this means that H_0 is rejected and H_1 is accepted, meaning that there is a significant difference in blood pressure after being treated with healthy cardiac activity therapy. This statistical test concludes that there is an influence of rhythmic exercise therapy on changes in MAP blood pressure in patients with hyperthyroidism.

Exercise or sports such as rhythmic gymnastics that are done regularly will reduce levels of the hormone norepinephrine in the body, which is a substance released by the nervous system that can increase blood pressure. This can also be supported by Sriwahyuniati opinion (2019) that rhythmic gymnastics is a sport that is structured to always prioritize cardiac performance, large muscle movements, and general flexibility, as well as including as much oxygen as possible. In addition to increasing the feeling of health and the ability to cope with stress, other benefits of regulated rhythmic exercise are reduced blood pressure, reduced obesity, reduced heart rate frequency at rest, and reduced insulin resistance.¹²

This research is in line with the results of research carried out by the Journal of Health Dynamics with the title Research on the Influence of hypertension Exercise on blood Pressure of hypertension sufferer at the Kanyon Puskesmas, Palangkaraya City which was carried out by Siti Santy Sianipar and Desi Kumala Fariangin Putri (2018). facing blood pressure of patients with hypertension in the community health center of Palangkaraya city, when a systolic measurement was carried out three weeks with a frequency of 3 times a week, there was a decrease in the systolic measurement before it was carried out overnight, 142.82 mmHg after a systolic examination was carried out, the systolic measurement was 133.85 mmHg, at trial right to measure diastole before it is done 94.10 with a MAP value of 111, and after a physical examination, the diastolic measurement was 82.82 mmHg with a MAP value of 100. The mechanism of decreasing blood pressure during exercise is that exercise can relax the blood vessels so that the blood pressure increases, the blood pressure will decrease.¹³

Based on research analysis, rhythmic exercise can affect reducing high blood pressure in hyperthyroidism because exercise, like hyperthyroidism, can encourage the heart to work optimally, whereas exercise can increase the need for energy from the body's cells, tissues, and organs, which as a result can increase venous return, thereby causing problems. right stroke volume which will immediately increase cardiac output, thereby causing arterial blood pressure to increase, if arterial blood pressure increases first, the impact of this phase can reduce respiratory and skeletal muscle activity which causes sympathetic nerve activity to decrease, which will cause the heart rate to decrease, decreased stroke volume, and vasodilation of venous arterioles, resulting in a decrease in cardiac output and a decrease in total peripheral risk, resulting in a decrease in blood pressure.¹⁴

This research was carried out for 4 weeks with a frequency of 2 times a week, amounting to 8 research meetings in the morning at 09.00 WIB for 30 minutes. Respondent said that he felt the benefits of the therapy as the rhythm of dizziness and stress disappeared, the feeling of nausea disappeared and Respondent said that the body felt lighter, and the quality of sleep was quite deep and restful. This scientific research program called for rhythmic gymnastics therapy to be continued in Cisalak Village because it helps people carry out regular sports activities.

The control group, based on the table above, shows the results of the analysis of systolic and diastolic blood pressure which are added together to become the MAP value in the control group, that the blood pressure results of the intervein group from the Wilcoxon Sign Rank statistical test show a p -value = $0.083 < \alpha = 0.05$, This means that H_0 is accepted and H_1 is rejected, meaning that there is no significant difference in the blood pressure of the control group in the blood pressure measurements of test 1 and test 8. The results of this statistical test are that there is no influence on the changes in MAP blood pressure in the patient of hypertension for the control group. The blood pressure results from the Wilcoxon Sign Rank statistical test show a value of p -value = $0.083 > \alpha = 0.05$, this means that H_0 is accepted and H_1 is rejected, meaning that there is no significant difference in blood pressure in the control group. This statistical test concludes that there is no influence of healthy cardiac arrhythmia therapy on changes in MAP blood pressure in patients with hyperthyroidism in the community of Cisalak Village, Cibeber District, Cianjur Regency.

This is in line with Pudjiastuti's 2017 theory of causes of high blood pressure in the form of impaired renal barostat function, sensitivity to salt consumption, abnormalities in sodium-potassium transport, CNS (central nervous system) response to psycho-social stimulation, metabolic disorders (glucose, lipid, insulin levels), Psychosocial factors: life habits, employment, mental stress, physical activity, socio-economic status, heredity, obesity, consumption of alcoholic beverages, salt consumption factors, use of drugs such as steroids and various hormones. So there was no significant decrease in blood pressure in the control group, this is because the hypertension was caused by various factors including age, lifestyle, and smoking.¹⁵

Conclusion

Based on the results of research and discussion of the influence of rhythmic exercise therapy on blood pressure in hypertension patients in Cisalak Village, Cibeber Sub-district, Cianjur Regency in 2022, it can be concluded as follows:

Results from Respondent Characteristics, the average age of the research group was 52 years, and the control group was 58-59 years. The type of gender that is the biggest obstacle between the two groups is self-employment, the pattern of job activity on average for a housewife and an entrepreneur. The results of the study showed that pre-operative blood pressure was carried out using rhythmic therapy for blood pressure in the hypertense population in Cisalak Village, Cibeber Sub-district, Cianjur Regency it was largely possible to measure blood pressure with a mean result of 112.7 mmHg. The value of (MAP) Mean Arterial Pressure. The results of the research show that blood pressure after rhythmic therapy was carried out on blood pressure in the hypertency population in Cisalak Village, Cibeber Sub-district, Cianjur Regency, in large part, blood pressure measurements were obtained with a result of 103 mmHg. The value of (MAP) Mean Arterial Pressure. There is an influence of dynamic rhythm therapy on the reduction of blood pressure in the hypertency population in Cisalak Village, Cibeber Sub-district, Cianjur Regency.

Conflict of interest

This research is independent, not tied to individual or group interests.

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References

1. Pikir BS. Hipertensi Manajemen Komprehensif. Airlangga University Press; 2015. Available from: https://books.google.co.id/books?id=bm_IDwAAQBAJ&printsec=frontcover&hl=id-v=onepage&q&f=false
2. Yulanda G, Lisiswanti R. Penatalaksanaan Hipertensi Primer. Jurnal Majority. 2017;6(1):25–33. Available from: <https://juke.kedokteran.unila.ac.id/index.php/majority/article/view/1526>
3. Lingga L. Bebas hipertensi tanpa obat. AgroMedia; 2012. Available from: https://books.google.co.id/books/about/Bebas_Hipertensi_Tanpa_Obat.html?hl=id&id=GWvjAwAAQBAJ&redir_esc=y
4. WHO. World Health Organization. Noncommunicable Diseases Country Profiles 2018. 2018; Available from: <https://www.who.int/publications-detail-redirect/9789241514620>
5. Riset Kesehatan Dasar Indonesia. prevalensi hipertensi. prevalensi hipertensi. 2018;
6. Kemenkes RI. Profil Kesehatan Indonesia 2018 [Indonesia Health Profile 2018]. 2019. 207 hlm. Available from: http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Data-dan-Informasi_Profil-Kesehatan-Indonesia-2018.pdf
7. Listyasari E, Wahidah I. Pengaruh Senam Kesegaran Jasmani 2018 Indonesia Bersatu terhadap Penurunan Tekanan Darah pada Ibu Penderita Hipertensi di Klinik Melati Kecamatan Kawalu Tasikmalaya. Jurnal Ekonomi, Sosial & Humaniora. 2022;3(06):1–5. Available from: <https://www.jurnalintelektiva.com/index.php/jurnal/article/view/696>
8. Barcroft H, Dornhorst AC. The blood flow through the human calf during rhythmic exercise. J Physiol. 1949;109(3–4):402. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1392628/>
9. Sherwood L. Fisiologi manusia dari sel ke sistem. Dalam EGC; 2001.
10. Notoadmodjo. Notoatmodjo, S. Metode Penelitian Kesehatan. Jakarta: Rineka Cipta. 2018. Available from: http://opac.poltekkestasikmalaya.ac.id/index.php?p=show_detail&id=3190
11. Ulfa Ietynl. Asuhan Keperawatan Pada Lansia Yang Mengalami Hipertensi Dengan Masalah Keperawatan Nyeriakut (Kepala) Di Posyandu Lansia Rw 07 Kelurahan Wonokusumo Kecamatan Semampir Surabaya. 2018; Available from: <http://repository.unusa.ac.id/id/eprint/4118>
12. Sriwahyuniati CF. Senam Ritmik Dalam Paradigma Era Globalisasi. Jorpres (Jurnal Olahraga Prestasi). 2019;15(2):67–71. <https://doi.org/10.21831/jorpres.v15i2.29512>
13. Sianipar SS, Putri DKF. Pengaruh Senam Hipertensi terhadap Tekanan Darah Penderita Hipertensi di Puskesmas Kayon Kota Palangka Raya. Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan. 2018;9(2):558–66. Available from: <https://ojs.dinamikakesehatan.unism.ac.id/index.php/dksm/article/view/371>
14. Grossman E, Grossman A, Schein, M H, Zimlichman R, & Gavish B. Breathing-Control Lowers Blood Pressure. 2001; <https://doi.org/10.1038/sj.jhh.1001147>
15. Pujiastuti D, Azaria AD. Studi komparatif masase punggung dan akupresur terhadap tekanan darah pada penderita hipertensi di rw 08 kelurahan kricak kecamatan tegalrejo yogyakarta 2017. 2019; Available from: <https://jurnal.stikesbethesda.ac.id/index.php/jurnalkesehatan/article/view/111>