



Exercise Method for Prevention and Treatment of Hypertension in Cipta Harja Village, Cipatat District, Bandung

Ade Ajeng Rahmawati^{1*}, Julia Annisa Cahayani², Tegar Saputra Yasa³

^{1,2,3} Nursing Program Study, Faculty of Sports and Health Education, Universitas Pendidikan Indonesia, Indonesia

Correspondence e-mail: ajengr427@gmail.com

ABSTRACTS

High blood pressure can worsen a person's quality of life, even hypertension is the cause of other diseases. Prevention is important to prevent and even reduce the risk factors for hypertension. Prevention can be done in various ways, one of which is physical activity. This study aims to determine the management of physical exercise techniques to reduce blood pressure in residents of Cipta Raharja with hypertension. The method used is One Group Pretest-Posttest Design, involving 45 groups of adults to elderly people with hypertension in Cipta Harga Village, Cipatat District. The sampling technique used is accidental sampling. The results showed that hypertension exercise reduced blood pressure in the systolic range of 4 to 34 mmHg and the diastolic range of 5 to 30 mmHg. Measurements were taken before and after hypertension exercise with a rest break after exercise to 1-hour measurement. It can be concluded that hypertension exercise can be used as an intervention option for reducing hypertension.

ARTICLE INFO

Article History:

Received 01 April 2022

Revised 15 April 2022

Accepted 28 April 2022

Available online on 30 April 2022

Keyword:

Hypertension, Exercise, Physical Activity

1. INTRODUCTION

Efforts to control blood pressure are only carried out by one-fifth of all sufferers in the world (RI, 2019). Hypertension control can be done by controlling risk factors, namely by consuming healthy foods, reducing the amount of salt in food, not consuming alcohol, not smoking, controlling stress, and doing physical activity (Suprayitno & Damayanti, 2020)

Less physical activity tends to make the heart rate higher, thus stimulating the heart muscle to work harder with each contraction, this causes the heart muscle's ability to pump blood, too much pressure can cause a load on large arteries which can cause an increase in blood pressure. & Prayitno, 2013). Lack of physical activity strains the large arteries and raises blood pressure.

Exercise is also recommended for people with hypertension, can be in the form of walking, running, jogging, or cycling for 20-25 minutes with a frequency of 3-5 times per week. Daily activities that are carried out even though they reduce calories, but in some people, this actually causes a burden which eventually causes muscle tension, therefore many people with hypertension are still active in carrying out daily routine activities, but their blood pressure is still high. This is different from sports activities, which can stimulate the release of endorphins, where endorphins can affect the mood to be happier (Bessy Sitorus Bane, 2015).

Gymnastics activities can be an option in carrying out physical activities that can be done together so that they can trigger the release of endorphin hormones. Hypertension Gymnastics has long been practiced in the process of preventing hypertension. Hypertension exercise is a sport that is shown for people with hypertension and the elderly to reduce weight and manage stress (a factor that heightens hypertension) it is carried out for 30 minutes and is carried out at least 2x a week (Sherwood, 2005 in Hernawan and Rosyid, 2017). Another goal is to increase blood flow and oxygen supply to the active muscles and skeleton, especially the heart muscle so that it can lower blood pressure. After resting the blood vessels will dilate or stretch, and blood flow will decrease for a while, about 30-120 minutes later it will return to blood pressure before exercise. If you do exercise regularly and continuously, the blood vessels will be more elastic and the decrease in blood pressure will last longer. So that by dilating blood vessels, blood pressure will decrease after doing sports activities (Hernawan and Rosyid, FN, 2017).

This research activity was carried out through hypertension exercise together with music as a stimulus. Gymnastics movements focus on the joint area, followed by patting the shoulders, stomach, thighs, and calves. The exercise was continued with breathing techniques and simple games in Cipta Harja Village, Cipatat District. This activity aims to determine hypertension exercise to reduce blood pressure.

2. RESEARCH METHOD

The type of this research is One Group Pretest-Posttest Design research. This method involves 1 group of adults up to the elderly to be given hypertension exercise intervention by measuring blood pressure before and after the intervention. The population of this study is 45 people with hypertension in Cipta Harga Village, Cipatat District. The sampling technique used is accidental sampling. The sample used in the study was 45 people. The dependent variable is blood pressure and the independent variable is hypertension exercise. This research was conducted in Cipta Harja Village, Cipatat District within one month. Researchers screened respondents to detect complications, besides that screening was also carried out to determine the risk factors for hypertension of each respondent. Respondents were given hypertension exercise for 30 minutes and also education about hypertension exercise and risk factors. Blood pressure measurements were carried out before the exercise and after the exercise using digital tension and for knowledge with a questionnaire.

3. RESULTS AND DISCUSSION

3.1 RESULT

Participants consisted of the community in Cipta Harja Village, Cipatat District, Bandung Regency. With the number of participants who participated, namely 45 people.

3.1.1 Knowledge

Table 1. Result Knowledge

Result	Knowledge			Mean Score
	Low f (%)	Midle f (%)	High f (%)	
Before	21 (52.5%)	10 (25%)	9 (22.5%)	1.7
After	0	7 (17.5%)	33 (82.5%)	2.83

From table 1, it can be seen that the results of knowledge of hypertension showed an increase in knowledge from the average before training 1.7 and after training to 2.83.

3.1.2 Data on blood pressure in patients with hypertension after hypertension exercise

Table 2 Blood Pressure Characteristics

Blood Pressure Classification	f	(%)
Pre-Hypertension	20	44.4
Hypertension	15	33.3
Stage 1 Hypertension	10	22.2
	45	100

From table 2, it can be seen that the most of respondents in the pre-hypertension stage with 120-139 mmHg for systole and 80-89 mmHg for diastole based on JNC 8 Blood Pressure Guidelines. (Hernandez, 2015).

4. DISCUSSION

Risk factors that can affect the respondent's blood pressure are stress and physical activity. Respondents who experienced stress admitted that they often could not sleep at night. The results of these stressful interviews were mainly caused by the situation during the pandemic, the rising prices of basic necessities, and some people who had not been able to see their children for a long time. The stress experienced by the patient contributes to an increase in blood pressure because stress can increase the secretion of adrenal hormones and cause an increase in blood pressure (Ardian, I., Haiya, Nutrition N., Sari, 2018). The physical activity of the surveyed subjects also contributed to the increase in blood pressure, and the activities of the elderly were limited as they got older. Half of the respondents in this study were quite active and at risk of developing hypertension (Karim, 2018). Analysis of the effect of hypertension exercise on reducing blood pressure in patients with hypertension in Cipta Raharja Village, Cipatat District, West Bandung Regency showed that $p < 0.05$ (0.000) means that hypertension exercise reduces blood pressure. This finding is supported by previous research which states that there is an antihypertensive effect before and after exercise therapy (Basuki & Barnawi, 2021). Regular exercise is both prevention and treatment

Hypertension and dyslipidemia. Physical activity has a significant effect on blood pressure (Harahap, Rochadi & Sarumpaet, 2017). Regular exercise 3-5 times a week (Lestari, Yudanari & Sapparwati, 2020) or high-intensity exercise 3 or more days a week can increase functional capacity, thereby reducing cardiovascular disease and mortality. Physical activity induces cardiovascular physiological adaptations that enhance athletic performance, and regular physical activity also improves cardiovascular function and can control or stabilize blood pressure (Cobo-Mejía, Prieto-Peralta, and Sandoval-Cuellar, 2016). The physical

activity carried out by respondents is not a type of programmed regular exercise, but can be in the form of hypertension exercise. Hypertension training is one of the non-pharmacological approaches to reducing hypertension (Anwari et al., 2018). It is good for overall physical health as it allows fat burning and improves blood circulation. This routine activity can have a positive impact on the performance of the heart and respiratory muscles. Hence, it helps keep blood pressure stable. The results of this study are supported by previous research. This means that the heart muscle of a person who exercises regularly is very strong, so exercise and exercise can help increase the pumping power of the heart. People rarely exercise because exercise causes a decrease in heart rate, which also decreases cardiac output, which can lower blood pressure (Bare, 2001; Darmawati, 2020).

The decrease in stress after exercise can also be caused by the fact that respondents were able to meet with their groups after a long period of not having posyandu activities during the pandemic. Hypertension exercise activities in groups can provide a comfortable and safe feeling (Jaka S et al., 2016), and can increase the enthusiasm and motivation of patients to do exercise regularly, besides that it can also foster feelings of happiness, because hypertension sufferers can share stories and experience with other sufferers, be it about hypertension or other problems. Smooth blood flow makes the body fresher and can make you feel happy, this really helps lower blood pressure in people with hypertension.

5. CONCLUSIONS

Hypertension exercise can be used as a recommendation to help lower blood pressure non-pharmacologically in hypertensive patients. Hypertension exercise can be done once a week for a duration of 30 minutes to get maximum results. Patients with hypertension can increase the frequency of hypertension exercise according to their abilities.

6. REFERENCES

- Anwari, M., Vidyawati, R., Salamah, R., Refani, M., Winingsih, N., Yoga, D., ... Susanto, T. (2018). Pengaruh Senam Anti Hipertensi Lansia Terhadap Penurunan Tekanan Darah Lansia Di Desa Kemuningsari Lor Kecamatan Panti Kabupaten Jember. *The Indonesian Journal of Health Science*, (September), 160. doi:10.32528/ijhs.v0i0.1541
- Bare, B. G., & Smeltzer, S. C. (2001). *Buku Ajar Keperawatan Medikal Bedah. Jakarta: Egc*, 2, 45-47.
- Cobo-Mejía, E. A., Prieto-Peralta, M., & Sandoval-Cuellar, C. (2016). Efectos de la actividad física en la calidad de vida relacionada con la salud en adultos con hipertensión arterial sistémica: revisión sistemática y metaanálisis. *Rehabilitacion*, 50(3), 139–149. \

doi:10.1016/j.rh.2015.12.004

- Darmawati, I., Lindayani, L., & Taryudi, T. (2020). Home based-exercise using mobile application to improve cognitive functions in patients with hypertension: A quesy experimental design. *Enfermería Global*, 19(4), 409-426.
- Febby Haendra Dwi Anggara, N. P. (2013). Faktor-Faktor Yang Berhubungan Dengan Tekanan Darah Di Puskesmas Telaga Murni, Cikarang Barat Tahun 2012. *Jurnal Ilmiah Kesehatan*, 5(1), 20–25.
- Harahap, R. A., Rochadi, R. K., & Sarumpaet, S. (2017). Hipertensi pada Laki-laki Dewasa Awal (18-40 Tahun) Di Wilayah Puskesmas Bromo Medan Tahun 2017, 68–73.
- Jaka S, R., Prabowo, T., & Dewi S, W. (2016). Senam Lansia dan Tingkat Stres pada Lansia di Dusun Polaman Argorejo Kecamatan Sedayu 2 Kabupaten Bantul Yogyakarta. *Jurnal Ners Dan Kebidanan Indonesia*, 3(2), 110.
- Hernandez-Vila, E. (2015). A review of the JNC 8 blood pressure guideline. *Texas Heart Institute Journal*, 42(3), 226-228.
- Karim, N. A. (2018). Hubungan Aktivitas Fisik Dengan Derajat Hipertensi Pada Pasien Rawat Jalan Di Wilayah Kerja Puskesmas Tagulandang Kabupaten Sitaro. *Jurnal Keperawatan*, 6(1), 1–6.
- Lestari, P., Yudanari, Y. G., & Saparwati, M. (2020). Hubungan Aktivitas Fisik Dengan Kejadian Hipertensi Pada Usia Dewasa Di Puskesmas Kedu Kabupaten Temanggung. *Jurnal Kesehatan Primer*, 5(2), 89–98.
- Kemenkes, R. I. (2018). Laporan Riskesdas 2018 Nasional. *Dinkes. Babelprov. Go. Id.* http://dinkes.babelprov.go.id/sites/default/files/dokumen/bank_data/20181228-Laporan_Riskesdas.
- Sumartini, N. P., Zulkifli, Z., & Adhitya, M. A.P. (2019). Pengaruh Senam Hipertensi Lansia Terhadap Tekanan Darah Lansia Dengan Hipertensi Di Wilayah Kerja Puskesmas Cakranegara Kelurahan Turida Tahun 2019. *Jurnal Keperawatan Terpadu (Integrated Nursing Journal)*, 1(2), 47. doi:10.32807/jkt.v1i2.37
- Suprayitno, E., & Damayanti, C. N. (2020). Intervensi Supportive Educative Berbasis Caring Meningkatkan Self Care Management Penderita Hipertensi. *Dunia Keperawatan: Jurnal Keperawatan Dan Kesehatan*, 8(3), 460–467.