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ANSI (ANTI-HYPERTENSION) EXERCISE IS EFFECTIVE IN REDUCING BLOOD PRESSURE HYPERTENSION PATIENTS

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ABSTRACT

Introduction: Hypertension is a condition in which blood pressure in blood vessels increases chronically. In addition to pharmacological therapy, hypertension management uses non-pharmacological therapy such as ANSI (Anti-Hypertension) exercise. This study aims to analyze the effect of ANSI (Anti-Hypertension) exercise on blood pressure in hypertensive patients.

Method: This study has a pre-experimental one group pre-post test design. The population is 107 hypertensive patients aged 56-65 years at the Industrial Health Center, Gresik District, Gresik Regency, East Java. A total of 44 hypertensive patients were sampled based on purposive sampling technique. The independent variable in this study is ANSI (Anti- Hypertension) exercise and the dependent variable in this study is the blood pressure of hypertensive patients. The instruments used in this study are the Standard Operating Procedure (SOP) for ANSI (Anti-Hypertension) exercise, digital sphygmomanometer and blood pressure observation sheet. The data were then analyzed using the Wilcoxon Signed Rank Test statistical test with a significance level of 95%.

Results: The results of the statistical test showed a decrease in systolic blood pressure after ANSI (Anti Hypertension) exercise of 5.41 mmHg, and diastolic blood pressure of 1.59 mmHg. The Wilcoxon Signed Rank Test statistical test has a p value = 0.00 (p value <0.05).

Conclusion: ANSI (Anti-Hypertension) exercise reduces systolic and diastolic blood pressure in hypertensive patients. Community nurses need to conduct educational activities and provide information on the importance of physical activity such as ANSI (Anti-Hypertension) exercise in managing blood pressure. Health centers need to provide policies by providing services and facilities to improve health programs, especially making the ANSI (Anti-Hypertension) exercise program a routine program at least once a week, because it has many benefits for the health of hypertensive patients.

Keywords: ANSI (Anti Hypertension) Exercise; Hypertension

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INTRODUCTION

Hypertension is a condition in which blood pressure in the blood vessels increases chronically. This can happen because the heart has to work harder to pump blood to meet the body's need for oxygen and nutrients. Uncontrolled hypertension can interfere with the function of other organs, especially vital organs such as the heart and kidneys (Efliani et al., 2022). Worldwide, hypertension ranks high among the most common diseases affecting the cardiovascular system. (Nursalam et al., 2020). Not all people with hypertension have clear symptoms or complaints, which is why this disease is often referred to as a silent killer. People with hypertension may experience a variety of nonspecific symptoms, including but not limited to: headaches, anxiety, dizziness, blurred vision, chest pain, fatigue, and palpitations. Many people with hypertension are not even aware until potentially fatal complications arise.

(Yusuf & Boy, 2023). A person who lives a modern lifestyle is more likely to suffer from hypertension (high blood pressure) due to his fondness for fast food and lack of physical activity (Arindari & Alhafis, 2019).

About one-third of the global population suffers from hypertension, and only about 36.8% of those diagnosed are actually taking medication, according to data from the World Health Organization (WHO) in 2018. Worldwide, the number of people diagnosed with hypertension continues to increase. Every year, about 9.4 million people will die each year from hypertension, and 1.5 billion people will be living with the disease by 2025. The prevalence of hypertension in Indonesia is 63,309,620 people, according to data obtained from measurements (Lautan et al., 2023).

Hypertension is dangerous because it can cause heart attacks, strokes, kidney damage, visual impairment, etc., and it should be noted that the prevalence of hypertension in East Java reached 13.47% in 2017 (around 935,736 people), with men at 13.78%. (387,913 people) and women at 13.25% (547,823 people) (Ruffa'ida, 2019). The prevalence of this disease continues to increase in Indonesia. Hypertension attacked 34.11 percent of the Indonesian population aged 18 years and over in 2018, according to the 2018 Basic Health Research (RISKESDAS) survey. Hypertension is more common in Gresik Regency (prevalence 36.42%) compared to East Java (prevalence 36.32%). The increasing incidence of hypertension in Indonesia is caused by several factors (Nurhayati & Indrawati, 2023). Based on the results of interviews with nurses at the industrial health center, most hypertensive patients have unhealthy diets and lack exercise. The Industrial Health Center handles 3,067 hypertensive patients, ranking sixteenth in Gresik Regency based on data from the Health Service in 2024.

Due to two factors—increased total body peripheral resistance and increased cardiac output—both systolic and diastolic pressures increase, leading to hypertension. Hypertension can be defined as an increase in blood pressure due to an event that increases either of these two parameters (Kadir, 2018). Vascular dilation and hardening are natural effects of aging. As a result, the ability of blood vessels to accommodate recoil is reduced. This decrease leads to an increase in systolic blood pressure. The renin-angiotensin-aldosterone system, increased peripheral plasma concentrations, glomerulosclerosis, intestinal fibrosis, and other neurohormonal mechanisms are all impaired with age (Nuraeni, 2019), risk factors for hypertension are: age, stress, genetics, obesity, and high salt consumption. Usually, people with high blood pressure are prone to headaches, anxiety, rapid heartbeat, blurred vision, and fatigue, so they risk killing their victims silently (Lautan et al., 2023).

According to (Basuki & Barnawi, 2021), hypertension is the leading cause of death every year, causing complications such as heart disease, kidney failure, diabetes, and stroke.

The program that has been provided by the industrial health center is the chronic disease management program (prolanis), this program includes routine consultations with doctors, health education classes and group exercise. The effectiveness of this program is: increasing patient compliance where prolanis provides routine health education through group education activities, exercise, and consultations, this helps patients better understand their health conditions and comply with treatment and a healthy lifestyle, and reducing the number of complications with routine monitoring of blood sugar or blood pressure checks to detect and prevent complications of chronic diseases. Another effort that can be done especially for hypertension patients is to do ANSI (Anti- Hypertension) Exercise. Anti-hypertension gymnastics is a sport that, among other things, increases blood flow and oxygen supply to active muscles and skeletons, especially to the heart muscle, which is specifically designed to help lower high blood pressure and maintain heart health (Rasiman & Ansyah, 2019). According to research (Hernawan & Rosyid, 2017), anti-hypertension gymnastics is effective in improving blood circulation, stretching stiff muscles in hypertension sufferers, helping to manage body weight, improving heart fitness, and reducing stress in hypertension patients. This study aims to analyze the effect of ANSI (Anti-Hypertension) gymnastics on blood pressure in hypertensive patients at the Industrial Health Center. The hypothesis in this study is that there is an effect of ANSI (Anti-Hypertension) gymnastics on blood pressure in hypertensive patients at the Industrial Health Center. The hypothesis is that hypertensive patients at the Industrial Health Center can lower their blood pressure with the help of ANSI (Anti-Hypertension) gymnastics.

METHOD

The design used in this study is a pre-experimental method of one group pre-post test design where this study aims to determine the effect of ANSI (Anti Hypertension) gymnastics on blood pressure in hypertensive patients. The population in this study were 56-65 years old hypertensive patients

at the Industrial Health Center as many as 107 people. The sample in this study was 44 hypertensive patients taken based on the purposive sampling technique. The independent variable in this study was ANSI (Anti-Hypertension) gymnastics guided by (Kreasi, 2024) which consisted of 15 movements, namely: walking on the spot, slapping both palms, interlacing hands, crossing thumbs, touching the little finger, touching the index finger, patting arms and shoulders, pressing fingers, opening and clenching, patting the waist, patting the thighs, patting the stomach, squatting and standing, tiptoeing and stomping feet. ANSI (Anti Hypertension) gymnastics was performed for 30 minutes with stages of 5 minutes of warm- up exercises, 20 minutes of core movements, and 5 minutes of cooling movements with a frequency of 4 times in 2 weeks. The dependent variable in this study was the blood pressure of hypertensive patients, blood pressure was measured using a digital sphygmomanometer, the Taff Omicron BW-3205 brand. Categorization of blood pressure measurement results is carried out based on the categories of The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) (Yudha et al., 2018), with normal categories <120/80 mmHg, pre- hypertension 120/80-89 mmHg, grade 1 hypertension 140-159/90-99 mmHg, grade 2 hypertension ≥ 160/≥ 100 mmHg. The study was conducted on September 17, 21, 24, 28, 2025. Measurements were taken before ANSI (Anti-Hypertension) gymnastics and after ANSI (Anti-Hypertension) gymnastics. Blood pressure measurements were taken by 7th semester students of the University of Muhammadiyah Gresik. Univariate data analysis was carried out on the dependent variables from the research results. Bivariate data analysis was used on the dependent variables that were influenced by the independent variables. To determine the effect of the independent variables on the dependent variables with the Wilcoxon Signed Rank Test with a significance level of 95%. This study was conducted in September 2024. Ethical clearance permit number: 078/KET/II.3.UMG/KEP/A/2024. Informed consent was given on the first day before ANSI (Anti-Hypertension) gymnastics was carried out. Data collection was assisted by local nurses. There was an alignment of perceptions between local nurses and researchers where researchers provided a complete explanation of the concept, research objectives, data collection, methods, and tools used for the study. This alignment of perceptions is very useful where nurses can work according to researchers' expectations without confusion, the data collected becomes more accurate and consistent, and the relationship between researchers and nurses is better so that the research process runs smoothly.

RESULTS

Respondent characteristics

Table 1. Distribution of demographic characteristics of research respondents (n=44)

Characteristics	Category	Frequency (f)	Percentage (%)
Age	56 – 60 year	31	70,5
	61 – 65 year	13	29,5
Gender	Male	17	38,6
	Female	27	61,4
Education	Elementary School	1	2,3
	Junior High Schol	8	18,2
	Senior High School	33	75,0
	Bachelor	2	4,5
Job Status	Private employees	2	4,5
	Entrepreneurs	6	13,6
	Housewives	24	54,5
	Retirees	9	20,5
	Not working	3	6,9
Long suffering	1 – 2 years	25	56,8
	3 – 4 years	10	22,7
	> 4 years	9	20,5
Treatment	Regularly	18	40,9
	Sometimes	26	59,1

Based on the table presented in table 1, it contains demographic data information from 44 hypertensive patients at the Industrial Health Center. Most hypertensive patients are aged 56-60 years as many as 31 (70.5%), most hypertensive patients are female as many as 27 (61.4%), most hypertensive patients are housewives as many as 24 (54.5%), most hypertensive patients have a high school education as many as 33 (75.0%), most hypertensive patients have experienced hypertension for 1-2 years as many as 25 (56.8%), most hypertensive patients sometimes receive hypertension treatment as many as 26 (59.1%).

Table 2. Systolic and diastolic blood pressure of hypertensive patients before and after being given ANSI (Anti Hypertension) exercises

Variables	Pre	Post	Mean gap	P value
Systolic blood pressure	157,09	151,68	5,41	0,00
Diastolic blood pressure	89,41	87,82	1,59	

Based on the table presented in table 2, it contains the results of systolic and diastolic blood pressure of hypertensive patients before and after

being given ANSI (Anti- Hypertension) gymnastics. The average systolic blood pressure before was 157.09 mmHg, the average diastolic blood pressure before was 89.41 mmHg and the average systolic blood pressure after was 151.68 mmHg, the average diastolic blood pressure after was 87.82 mmHg. The decrease in systolic blood pressure was 5.41 mmHg and diastolic was 1.59 mmHg. The results of the statistical test analysis using the Wilcoxon Signed Rank Test obtained a p value of systolic and diastolic blood pressure of 0.00 <α (0.05) with a significance level of 95%, so H0 was rejected and H1 was accepted, which means that there is an effect of ANSI (Anti-Hypertension) gymnastics on blood pressure in hypertensive patients at the Industrial Health Center.

DISCUSSION

The results of the study showed that the average systolic blood pressure before ANSI (Anti Hypertension) exercise modality therapy was 157.09 mmHg, and the average diastolic blood pressure was 89.41 mmHg. Cardiovascular diseases such as heart and blood vessels are serious health problems in the world. Hypertension ranks first in the cause of death each year, and is the gateway to heart disease, kidney failure, diabetes and stroke. The highest risk factors for death are male smokers, hypertension and diabetes. Around 1.13 billion people in the world are hypertensive and this number continues to increase every year along with unhealthy lifestyles and consumption of fast food high in cholesterol. Most people with hypertension are found in developing countries including Indonesia. Hypertension is called the silent killer because it is often without complaints, so sufferers do not know they have hypertension and are only found out after complications occur. Organ damage due to complications will depend on the magnitude of the increase in blood pressure and the length of time without treatment (Basuki & Barnawi, 2021). The blood pressure of hypertension sufferers in the research that has been conducted (Rasiman & Ansyah, 2019) average systolic blood pressure before exercise for elderly hypertension was 157.78 mmHg and the average diastolic blood pressure before exercise for elderly hypertension was 106.11 mmHg. This is in accordance with research (Sumartini et al., 2019) the average systolic blood pressure before hypertension exercise for the elderly was 151.80 mmHg and the average diastolic blood pressure before hypertension exercise for the elderly was 94.73 mmHg. The results of the study showed that of the 44 elderly people, 17 were male and 27 were female. This is in accordance with research (Nugroho et al., 2023), which states that hypertension is at risk of occurring in women because estrogen hormone production decreases during menopause, so that blood vessels become less flexible and blood has difficulty flowing smoothly. Apart from hormones, the trigger for increased blood pressure is because a person tends to adopt a modern lifestyle that likes instant things, lack of exercise and likes to consume instant foods that have high fat and sodium content as triggers for high blood pressure or hypertension which can affect increased blood pressure in hypertension sufferers (Arindari & Alhafis, 2019). In this study, the factor causing hypertension is the lack of physical activity or exercise because most of them are housewives, household activities such as cooking, cleaning the house, washing, and caring for grandchildren often make the elderly feel tired and find it difficult to take time to exercise.

The results of the study showed that the average systolic blood pressure after ANSI (Anti-Hypertension) Exercise Modality Therapy was 151.68 mmHg, and diastolic was 151.68 mmHg. There are two types of management for hypertensive patients, namely pharmacological and non-pharmacological. Pharmacological therapy for hypertension is the use of drugs to control high blood pressure in patients. The main goal is to reduce the risk of complications that can arise due to uncontrolled high blood pressure, such as stroke, heart failure, or other organ damage. Some classes of drugs commonly used in the treatment of hypertension are diuretics, ACE Inhibitors (Angiotensin Covnverting Enzym Inhibitor), ARB (Angiotensin II Receptor Blocker), Beta Blockers. Non-pharmacological therapy for hypertension is a non- pharmacological intervention for high blood pressure without using drugs. Increasing ANSI (Anti-Hypertension) exercise activity is an effective non-pharmacological strategy in the management of hypertension. Physical activity can help lower blood pressure, improve heart and blood vessel conditions, and improve overall health. Exercise habits also affect hypertension. People who don't exercise tend to have a higher heart rate, which means the heart muscle has to work harder for each contraction. Due to technological advances, especially in electronics and transportation, and shifts in lifestyle and new work patterns, Indonesian people tend to be less active. (Anwari et al., 2018). According to research (Ardi, 2022) hypertension gymnastics can encourage the heart to work more optimally, exercise can increase energy needs by cells, tissues and organs of the body, which can result in increased venous return so that it causes volume that will directly increase cardiac output so that it causes arterial blood pressure to increase. After arterial blood pressure

increases, the impact of this phase is able to reduce sympathetic nerve activity, after which it will cause the heart rate to decrease, volume to decrease, arteriovenous vasodilation, because this decrease causes a decrease in cardiac output and a decrease in total peripheral resistance, thus causing a decrease in blood pressure. Research that has been conducted in industrial health centers by providing ANSI (Anti Hypertension) gymnastics 4 times in 2 weeks for 30 minutes. This is in accordance with the research conducted (Hernawan & Rosyid, 2017) providing hypertension gymnastics intervention 4 times in 2 weeks for 30 minutes. The results of the study showed a decrease in the average systolic blood pressure value from 157.09 to 151.68 with a difference of 5.41. The average diastolic blood pressure from 89.41 to 87.82 with a difference of 1.59. This is in accordance with the research (Hernawan & Rosyid, 2017) the average systolic value from 150.00 to 130.00 with a difference of 20.00. The average diastolic blood pressure from 95.00 to 80.00 with a difference of 15.00.

The results of statistical test analysis using the Wilcoxon Signed Rank Test showed that there was an effect of ANSI (Anti-Hypertension) exercise modality therapy on blood pressure in hypertensive patients at the Industrial Health Center. An abnormal increase in blood pressure in the arteries that carry blood from the heart to the entire body can cause high blood pressure. This blood pressure continues to increase over a long period of time and can cause complications (Rahmiati & Zurijah, 2020). According to (Yudha et al., 2018) Risk factors for hypertension are caused by habits that are more common in people with hypertension compared to normal people, age, gender, or a history of certain diseases can be the cause of hypertension. Habits such as smoking, drug abuse, diet, and exercise can also be risk factors. The results of the study showed that ANSI (Anti Hypertension) gymnastics had an effect on lowering blood pressure in hypertension sufferers, which is useful for strengthening bones, helping to normalize blood flow and training nerve stiffness, to improving heart health and body stamina. The elderly who experienced a decrease were 38 people, experienced an increase of 7 people, and remained the same at 1 person. The decrease in blood pressure can be influenced by the harmony of movement carried out by the elderly so that it can increase energy needs by cells, tissues and organs of the body, which can result in increased venous return flow, resulting in a volume that will directly increase cardiac output, causing increased arterial blood pressure. After arterial blood pressure increases, the impact of this phase is able to reduce sympathetic nerve activity, after which it will cause a decrease in heart rate, decreased volume, arteriovenous vasodilation, because this decrease causes a decrease in cardiac output and a decrease in total peripheral resistance, causing a decrease in blood pressure.

CONCLUSION

Based on the results and discussion above, it can be concluded that there is an effect of ANSI (Anti-Hypertension) gymnastics on blood pressure in hypertensive patients at the Industrial Health Center. Community nurses need to carry out educational activities and counseling on the importance of physical activity such as ANSI (Anti-Hypertension) gymnastics in managing blood pressure. The Health Center needs to provide policies by providing services and facilities to improve health programs, especially ANSI (Anti- Hypertension) gymnastics as a routine program at least once a week, because it has many benefits for the health of hypertensive patients.

REFERENCES

Anwari, M., Vidyawati, R., Salamah, R., Refani, M., Winingsih, N., Yoga, D., Inna, R., & 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, 160–164. https://doi.org/https://doi.org/10.32528/ijhs.v0i0.1541

Ardi, putri astuti. (2022). Pengaruh Senam Tera Terhadap Penurunan Tekanan Darah pada Lansia dengan Hipertensi di Puskesmas Gunung Medan Astuti. Jurnal Ilmu Kesehatan Dharmas Indonesia, 02, 23–27. https://doi.org/https://doi.org/10.56667/jikdi.v2i1.674

Arindari, D. R., & Alhafis, H. R. (2019). Pengaruh Senam Hipertensi Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi. Jurnal Kesehatan: Jurnal Ilmiah Multi Sciences, 9(2), 80–87. https://doi.org/10.52395/Jkjims.V9i02.151

Basuki, S. P. H., & Barnawi, S. R. (2021). Pengaruh Senam Hipertensi terhadap Tekanan Darah pada Komunitas Lansia Desa Petir Kecamatan Kalibagor, Banyumas. Sainteks, 18(1), 87–93.

Efliani, D., Ramadia, A., & Hikmah, N. (2022). Efektifitas Senam Hipertensi Terhadap Penurunan Tekanan Darah Pada Lansia Di Upt Pstw Khusnul Khotimah Pekanbaru. Menara Medika, 4(2), 183–191. https://doi.org/10.31869/mm.v4i2.3172

Hernawan, T., & Rosyid, F. N. (2017). Pengaruh Senam Hipertensi Lansia terhadap Penurunan Tekanan Darah Lansia dengan Hipertensi di Panti Wreda Darma Bhakti Kelurahan Pajang Surakarta. Jurnal Kesehatan, 10(1), 26–31.

https://doi.org/10.23917/jurkes.v10i1.5489

Kadir, A. (2018). Hubungan Patofisiologi Hipertensi Dan Hipertensi Renal. Jurnal Ilmiah Kedokteran Wijaya Kusuma, 5(1), 15. https://doi.org/10.30742/jikw.v5i1.2 Kreasi, F. (2024). Senam Anti Hipertensi Terbaru// Senam Lansia Terbaru. www.youtube.com.

Lautan, N. lydia moji, Mella, F. A., & Nazarius, Y. R. (2023). Terapi Modalitas Relaksasi Progresif Pada Pasien Hipertensi Dengan Gangguan Rasa Nyaman : Nyeri Akut. Elisabeth Health Journal, 8(2), 126–135. https://doi.org/Https://Doi.Org/10.52317/Ehj.V8i2.564

Nugroho, F. P. A., Widiharti, W., Suminar, E., & Fitrianur, W. L. (2023). The Use Of Soaking Warm Water For Blood Pressure Reduction In Elderly Hypertensive Patients. Indonesian Nursing Journal of Education and Clinic (INJEC), 8(2), 281–292. https://doi.org/10.24990/injec.v8i2.601

Nuraeni, E. (2019). Hubungan Usia Dan Jenis Kelamin Beresiko Dengan Kejadian Hipertensi Di Klinik X Kota Tangerang. Jurnal JKFT, 4(1), 1. https://doi.org/10.31000/jkft.v4i1.1996

Nurhayati, N. E., & Indrawati, V. (2023). Hubungan Tingkat Stres,Asupan Natrium Dan Asupan Lemak Dengan Kejadian Hipertensi Pada Lansia Di Posyandu Lansia Kelurahan Sidomoro, Kabupaten Gresik. Gizi Universitas Negri Surabaya, 3(4), 427–434.

Nursalam, N., Irwindi, Y. A., Nimah, L., & Efendi, F. (2020). The Effect Of Range Of Motion Exercise On Blood Pressure, Pulse and Sleep Quality Among Hypertensive Patients. International Journal of Innovation, Creativity and Change, 13(6), 220–234.

Rahmiati, C., & Zurijah, tjut irma. (2020). Pengaruh Senam Lansia Terhadap Tekanan Darah Pada Lansia Dengan Hipertensi. Penjaskesrek Journal, 7(1), 15–27. https://doi.org/10.46244/penjaskesrek.v7i1.1005

Rasiman, N. B., & Ansyah, A. (2019). Pengaruh Senam terhadap Perubahan Tekanan Darah pada Lansia. Pustaka Katulistiwa, 1(1), 6–11.

Ruffa'ida, F. (2019). Hubungan Status Pekerjaan, Status Gravida, Dan Kecemasan Dengan Kejadian Hipertensi Pada Ibu Hamil Di Puskesmas Kalijudan, Kota Surabaya. Jurnal Keperawatan Muhammadiyah, 2(2), 104–107. https://doi.org/https://doi.org/10.30651/jkm.v4i2.1923

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), 47–55. https://doi.org/10.32807/jkt.v1i2.37

Yudha, B. L., Muflikhah, L., & Wihandika, R. C. (2018). Klasifikasi Risiko Hipertensi Menggunakan Metode Neighbor Weighted K- Nearest Neighbor (NWKNN). Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer (J-PTIIK) Universitas Brawijaya, 2(2), 897–904.

Yusuf, J., & Boy, E. (2023). Manifestasi Klinis Pada Pasien Hipertensi Urgensi. Jurnal Implementa Husada, 4(1), 1–9. https://doi.org/10.30596/jih.v4i1.12448