Vol 7 No 2, June 2023
ABDI DOSEN
Jurnal Pengabdian Pada Masyarakat
pISSN: 2614-6509
eISSN: 2620-5156

# HEALTHY HEART EXERCISE ON BLOOD PRESSURE REDUCTION IN ELDERLY PRODUCTIVE

**Lusia Henny Mariati [1], Matilda Putri Hadia [2], Yohana Jehani [3]**
Nursing Study Program,
Universitas Katolik Indonesia Santu Paulus Ruteng, NTT
[1*] lusiahenny87@gmail.com, [2] putrihadia41@gmail.com

**Abstract**

Hypertension is a significant cause of premature death worldwide. One of the management of hypertension in the elderly is healthy heart exercise. This activity aims to determine the effect of healthy heart exercise in reducing blood pressure in productive elderly in the Bangka Kenda Health Center area. The population in this activity is productive elderly (45-59 years) with hypertension first degree. Activities consist of counseling on hypertension and healthy heart exercise. The exercise program was carried out for three weeks and done twice a week. After the first week of exercise, there was no significant change in blood pressure in the elderly with first-degree hypertension. After exercising in the second week, blood pressure slowly decreased. Exercise in the third week, blood pressure experienced a significant change. The analysis of changes in blood pressure in the elderly showed a significant effect of healthy heart exercise series one on changes in systolic and diastolic blood pressure in productive elderly (p-value 0.000 <0.05). The average blood pressure value decreased from the first-degree hypertension category to a normal high. There is a change in knowledge about hypertension before and after being given counseling. Healthy heart exercises one series is an alternative non-pharmacological treatment to reduce blood pressure in productive elderly.

**Keywords**: Elderly, Hypertension, Healthy Heart Exercise.

## INTRODUCTION

Hypertension is one of the non-communicable diseases that interfere with the cardiovascular system. The disease that most often affects people today is the leading cause of premature death worldwide (WHO, 2000). From the last ten years before the pandemic, Indonesia experienced an epidemiological transition where there was a shift from Communicable Diseases (CD) to Non-Communicable Diseases (NCDs). Since 2019, Indonesia has been surprised by Covid-19, an infectious disease that can cause death if exposed to the coronavirus. As a result, Indonesia is in a situation where the number of non-communicable diseases is high, coupled with a high transmission rate of Covid-19; this condition can increase the risk of death. Since the Covid-19 pandemic, non-communicable diseases have become the main comorbidities for the severity of the Covid-19 disease (Kementerian Kesehatan RI, 2019). People with comorbid diseases have a weaker or lower immune system than those without comorbid diseases. They are very vulnerable to viral infections such as Covid-19, so the risk of death increases.


Submitted: January-2023 Received: January-2023 Available online: June-2023

World Health Organization data for 2021 An estimated 1.28 billion adults aged 30-79 years worldwide have hypertension, most (two-thirds) living in low- and middle-income countries. An estimated 46% of adults with hypertension are unaware of the condition. Less than half of adults (42%) with hypertension are diagnosed and treated. Approximately 1 in 5 adults (21%) with hypertension have it under control (WHO, 2020). In Indonesia, hypertension is one of the non-communicable diseases that ranks first in health problems, with the number of cases reaching 185,857. The 2018 Basic Health Research (Riskesdas) showed that the prevalence of hypertension in Indonesia in 2013 was 25.8%, up 8.3% to 34.1% in 2018. From the prevalence of 34.1%, 8.8% were diagnosed with hypertension and were diagnosed with hypertension but did not take medication, and the other 32.3% did not take medication regularly. Hypertension occurs in the age group of 31-44 years (31.6%), age 45-54 years (45.3%), and age 55-64 years (55.2%) (Riskesdas, 2018). These data indicate that the prevalence of hypertension is most common in the 55 – 64 year age group and the least in the 31-34 year age group. Based on data from the Manggarai District Health Office, hypertension is in the first place of 17 Non-Communicable Diseases (PTM) in the Manggarai Regency. The number of people with hypertension in 2018 was 16,051, to 19,217 in 2019, an increase of 19,435 in 2020. These data show that the incidence of hypertension in Manggarai has increased yearly (Dinas Kesehatan Kabupaten Manggarai, 2020).

According to the 2018 Riskesdas data, for the population aged 15 years and over, the risk factor for the proportion of people who lack physical activity is 35.5%. Physical activity in the elderly influences blood pressure; the less the elderly do physical activity, the more blood pressure will increase (Riskesdas, 2018). Lack of physical activity makes the organs, blood supply, and oxygen stagnate, thereby increasing blood pressure (Anggraini et al., 2021; Kementerian Kesehatan RI, 2019). Hypertension management is carried out with pharmacological and non-pharmacological therapies. The Indonesian government's program to reduce the incidence of hypertension through non-pharmacological therapy is the Chronic Disease Management Program. One form of this program is the healthy heart exercise. Healthy heart exercise techniques have an impact on the smooth circulation of blood flow, balance the flow of energy in the body, and relax muscle tension. Some research shows that a healthy heart has a very significant effect on reducing blood pressure (Hartutik & Noorratri, 2019; Meikle et al., 2013; Sari, 2021)

Healthy heart exercise is a physical activity that moves the muscles and skeleton by involving all body components. Healthy heart exercise consists of five series. Series one uses a slow, uncomplicated musical rhythm. Healthy heart exercise has several benefits, including improving the pulse rate, stimulating the enlargement of the heart chambers, increasing the elasticity of blood vessels, and lowering blood pressure (Fitria et al., 2019). In the elderly who routinely do healthy heart exercise series-I, the condition of the elderly blood vessels will experience vasodilation and increase elasticity to facilitate the delivery of nutrients and oxygen to other organs.

Since 2020 Chronic Disease Management Program activities have been carried out at an integrated healthcare point in Kaweng hamlet because the elderly with hypertension are mostly in Kaweng Hamlet. This activity was carried out at the Bangka Kenda Health Center, one of the health centers with hypertension increasing yearly. The incidence of hypertension in 2019

was 533 people to 641 people in 2020. An exercise program is carried out by health workers once a month, but this exercise program is not routinely implemented, and its effectiveness has never been evaluated. Therefore, this activity aims to determine the effect of healthy heart exercise on reducing blood pressure in productive elderly aged 45-59.

## IMPLEMENTATION METHOD

This community service activity plan is in the form of counseling activities related to hypertension, followed by providing healthy heart exercise series one, carried out for approximately three weeks. These activity targets are productive elderly with hypertension who participate in integrated service activities, especially first-degree hypertension, in Kaweng Helmet, Bangka Kenda Village.

The method of this service activity is using the method of counseling and training. Counseling is carried out in the first week before the first exercise is carried out. Instruments or tools used in this research are a blood pressure measuring device and a healthy heart exercise leaflet to guide healthy heart exercise movements. The leaflet explains the meaning, benefits, and series of movements. This activity was carried out for three weeks, each week consisting of two times exercises with a duration of 20 minutes for each exercise. The type of healthy heart exercise used in this exercise is a series one healthy heart exercise. The exercise movement begins with a warm-up consisting of 11 movements performed for 6 minutes, core exercises consisting of 19 movements performed for 8 minutes, and a cooling exercise consisting of 4 movements performed for 6 minutes. Movement is accompanied by slow music. Every training session, before doing healthy heart exercise series one, the elderly's blood pressure is measured, and the measurement results are recorded. Then the elderly were invited to do a series I simulation of healthy heart exercise outside the home for 20 minutes. The principles in carrying out healthy heart exercises are: the exercises must increase the training load so that the pulse of the heart is maintained. During exercise, the movement must be maintained. The movement of the walking legs, such as walking in place or lifting the legs, is carried out continuously, in addition to the movements of other body parts. Exercise movements are arranged by prioritizing the heart's ability, large muscle movements, joint flexibility, and efforts to enter as much oxygen as possible (Meikle et al., 2013). In the third week of training, the knowledge of the elderly about hypertension was evaluated by distributing a questionnaire that had been used previously.

## RESULTS AND DISCUSSION

This activity is for three weeks at an integrated health service center in Kaweng Hamlet, Bangka Kenda Village, Wae Ri'i District, Manggarai Regency, Flores-NTT. This activity was carried out with due observance of the health protocol by the participants, cadres, health workers, and activity speakers. Before the educational activities, knowledge assessment was carried out by distributing questionnaires as a form of pre-test containing 10 questions to assess the elderly's understanding of hypertension. The activity was continued by doing heart-healthy exercises. Before exercise, blood pressure measurements to determine the initial blood pressure (figure 1). Then the elderly gathered outside the house to exercise for 20 minutes (figure 2).

After doing the exercise, respondents were given time to rest for 15 minutes. After 15 minutes, blood pressure is measured again.

**Figure 1. Blood pressure measurement**

**Figure.2 Healthy heart exercise series one**

**Table 1. Characteristics of the Elderly by Level of Knowledge**

| Characteristic | Pre-Test | | Post-test | |
|---|---|---|---|---|
| Level of Knowledge | n | % | n | % |
| Good | 3 | 10 | 22 | 73 |
| Average | 8 | 27 | 6 | 20 |
| Below average | 19 | 63 | 2 | 7 |
| **Total** | **30** | **100** | **30** | **100** |

Source: primary data 2022

Table 1 describes the results of the analysis of the knowledge level of the elderly before and after being given counseling. After the third week, knowledge about hypertension was tested again by distributing the same questionnaire. The results analysis of the knowledge of the elderly shows that there is a change in the level of knowledge before and after counseling.

**Table 2. The Difference in Blood Pressure Pre and Post-Test Healthy Heart Exercise in The Elderly**

| | Pre- test | | | Post-test | | |
|---|---|---|---|---|---|---|
| | Mean systolic (mmHg) | Mean diastolic (mmHg) | *p-value* | Mean sistolic (mmHg) | Mean diastolic (mmHg) | *p-value* |
| 1st week (2nd exercise) | 149 | 94 | 0,72 | 148 | 93 | 0,180 |
| 2nd week (4th exercise) | 147 | 91 | 0,000 | 145 | 90 | 0,000 |
| 3rd week (6th exercise) | 136 | 86 | 0,000 | 132 | 85 | 0,000 |

Source: primary data 2022; Wilcoxon test

The results of the elderly's blood pressure examination, both systolic pre-test and diastolic pre-post-test in the second exercise, and the average blood pressure of the elderly are included in the category of first-degree hypertension. This result also occurs in the second week of training. In the sixth exercise, the average systolic blood pressure was 136 mmHg, diastolic 86 mmHg. It decreased to 132 mmHg systolic and 85 mmHg diastolic; it is indicated that the blood pressure is in the high normal category. Statistical test results showed that changes in blood pressure did not occur significantly in the first week of exercise. Significant changes occurred in the second and third weeks. In the third week, there was a significant change in pressure where there was a decrease in blood pressure from the first-degree hypertension category to a normal high. This community service activity is carried out in two forms of activity, namely health counseling and training for healthy heart exercise series one. At the beginning of the first week of activities, there was counseling about hypertension. At the end of the third week, the elderly were re-evaluated regarding their knowledge. The results of the evaluation showed that the level of knowledge of the elderly about hypertension changed before and after counseling. For three weeks, healthy heart exercise was also carried out in the elderly with hypertension. Thirty older adults have been actively following since the first week. The results of the blood pressure evaluation of the elderly who routinely followed the exercise for three weeks showed a significant change in the decrease in blood pressure—decreased from grade one hypertension to normal high.

This activity shows that healthy heart exercise is an alternative to non-pharmacological therapy to lower blood pressure. The movement in this exercise is very easy to do and does not burden the elderly. The principle of the movement is slow and uncomplicated movements. Doing heart-healthy exercise regularly, at least twice a week, can significantly lower blood pressure. A decrease in blood pressure occurs because regular exercise strengthens blood vessels against changes in blood pressure, and elasticity can be maintained. In addition, with regular exercise, there will be vasodilation of the anterior part of the blood vessel structure, and the number of active capillaries in the muscles being trained will be more so that blood pressure will be stable and blood circulation will be smooth. With this mechanism, there is a decrease in

blood pressure (Meikle et al., 2013). The elderly who participate in this exercise routinely desire to continue doing it regularly at home after experiencing the benefits of the changes from it. Health workers and cadres also encourage the elderly who are less active to regularly participate in training activities at every integrated health service activity that is carried out every month. Through this activity, healthy heart exercise series one has become the main exercise choice for the elderly because the movements performed are easy to learn and not complicated. This community service activity also identified the elderly who do not routinely follow the hypertension treatment program. Antihypertensive drugs are not routinely taken because when the drug runs out, it is not prescribed again. The elderly also sometimes forget to take medicine because they feel there are no complaints. This healthy heart exercise activity is preferred because it is easy to do independently by the elderly. The results of this identification become input for local health workers to further improve the monitoring of elderly hypertension.

## CONCLUSION

Counseling activities and healthy heart exercises are carried out to increase public knowledge and as an alternative therapy to reduce blood pressure in the elderly with hypertension. Health education shows increased public knowledge about hypertension before and after health counseling. Healthy heart exercise performed for three weeks with a frequency of twice a week showed a change in blood pressure from the first-degree hypertension category to high normal. Some of the obstacles found during this activity, namely, not all the elderly routinely participated starting from the first week of the activity. Only 30 people have followed regularly since the first week. The elderly generally work in the garden or rice fields from morning to evening. In addition, people who do not routinely check their blood pressure seek treatment for severe complaints.

The existence of an integrated health service program by the community health center every month helps the elderly to get health services. Healthy heart exercise is hoped to become an alternative therapy routinely carried out by the elderly, not only when this activity is carried out but independently at home. Healthy heart exercise is proven to lower blood pressure if carried out regularly.

## REFERENCES


Anggraini, D. A., Nadiyah, N., Jus'at, I., Nuzrina, R., & Gifari, N. (2021). Efektivitas Senam Jantung Sehat dalam Menurunkan Tekanan Darah pada Lansia Hipertensi. *Indonesian Journal of Human Nutrition*, *8*(1), 1. https://doi.org/10.21776/ub.ijhn.2021.008.01.1

Dinas Kesehatan Kabupaten Manggarai. (2020). *Sebaran Data Penyakit* .

Fitria, N., Lydyana, L., Iskandar, S., Lubis, L., & Purba, A. (2019). Senam Jantung Sehat Seri-I 3 kali seminggu Meningkatkan Kebugaran Jasmani Lansia. *JURNAL PENDIDIKAN KEPERAWATAN INDONESIA*, *5*(1). https://doi.org/10.17509/jpki.v5i1.15741

Hartutik, S., & Noorratri, E. D. (2019). Senam Jantung Terhadap Hipertensi Pada Lansia. *Gaster*, *17*(1), 86. https://doi.org/10.30787/gaster.v17i1.344

Kementerian Kesehatan RI. (2019). *Hipertensi Penyakit Paling Banyak Diidap Masyarakat*. https://www.kemkes.go.id/article/view/19051700002/hipertensi-penyakit-paling-banyak-diidap-masyarakat.html

Meikle, J., Al-Sarraf, A., Li, M., Grierson, K., & Frohlich, J. (2013). Exercise in a healthy heart program: A cohort study. *Clinical Medicine Insights: Cardiology*, *7*, 145–151. https://doi.org/10.4137/CMC.S12654

Riskesdas. (2018). *Riset Kesehatan Dasar 2018*. https://www.litbang.kemkes.go.id/laporan-riset-kesehatan-dasar-riskesdas/

Sari, E. (2021). Pengaruh Senam Jantung Sehat Terhadap Tekanan Darah Lansia di Panti Tresna Werda Hargo Dedali Surabaya. *Jurnal Keperawatan*, *10*(1), 29–39. https://doi.org/10.47560/kep.v10i1.268

WHO. (2000). *World Health Organization Asses the World's Health System*. https://www.who.int/news/item/07-02-2000-world-health-organization-assesses-the-world's-health-systems

WHO. (2020). *Global Health Estimates: Life expectancy and leading causes of death and disability*. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates