

THE EFFECT OF HYPERTENSION GYMNASTICS ON LOWERING BLOOD PRESSURE IN THE ELDERLY

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ABSTRAK

Hipertensi pada lanjut usia di Provinsi Sulawesi Tengah per tahun 2019 sebanyak 213.686 orang. Pada observasi pendahuluan di ketahui bahwa lansia dengan hipertensi masih terus bertambah dan kurang mendapatkan terapi senam. Senam hipertensi sangat efektif untuk menurunkan tekanan darah pada lansia. Tujuan penelitian ini untuk mengetahui pengaruh senam hipertensi terhadap tekanan darah sistole dan diastole pada lansia yang menderita hipertensi. Penelitian ini berjenis deskriptif-kuantitatif dengan desain pree eksperimen menggunakan one group time series design Pre-Test dan Post-Test, di panti sosial Tresna Werdha Tentena, Juli Tahun 2020. Populasi berjumlah 63, dan sampel 15 orang lansia. Analisa data menggunakan uji dependent T-test one sample. Hasil analisis data penelitian bahwa tekanan darah lansia pada pretest sistol diperoleh nilai t sistol 4,08 dan nilai diastol 1,57, dengan kriteria penerimaan ($t > 2,14$), maka untuk nilai sistol berarti bahwa H_0 ditolak artinya ada perbedaan pretest dan post-test. Sedangkan untuk nilai diastole, H_0 diterima artinya tidak ada perbedaan pre-test dan post-test est. maka kesimpulan dari hasil penelitian ini yaitu senam hipertensi lansia cukup efektif untuk mengontrol penyakit hipertensi pada lansia, khususnya terhadap penurunan tingkat tekanan darah Sistole pada lansia, apabila dilakukan secara teratur dan terkontrol dan berkelanjutan, sedangkan pada tekanan darah diastole belum diketahui tingkat efektifitas yang di dapatkan.

Kata kunci **i:** Lansia, Senam, Hipertensi, Tekanan darah

ABSTRACT

Hypertension in the elderly in Central Sulawesi Province as of 2019 was 213,686 people. Hypertension exercise is effective in decrease hypertension in the elderly. The purpose of this study was to determine the effect of hypertension exercise on systolic and diastolic blood pressure in the elderly who suffer from hypertension. This research is descriptive-quantitative with a pre-experimental design using one group time series design (Pre-Test and Post-Test), at the Tresna Werdha Tentena Social Institution, July 2020. The population is 63 and The sample is 15 elderly people. Data analysis used the one-sample dependent t-test. The results of the analysis of research data that the blood pressure of the elderly in the systolic pretest obtained a systolic t value of 4.08 and a diastolic value of 1.57, with acceptance criteria ($t > 2.14$), then the systolic value means that H_0 is rejected, meaning that there is a difference between pretest and post-test, As for the diastolic value, H_0 is accepted, meaning that there is no difference between the pre-test and post-test. The conclusion is that elderly hypertension exercise is quite effective for controlling hypertension in the elderly, especially for reducing the level of systolic blood pressure in the elderly, if it is carried out regularly and is controlled and sustained, while for diastolic blood pressure, the level of effectiveness obtained is unknown.

Kata kunci: *Elderly, Gymnastics, Hypertension, Bloods pressure*

INTRODUCTION

By 2050, it is predicted that the number of elderly people will continue to grow by up to three times greater. Based on the results of SUSENAS in 2018, it is known that the number of elderly people in Indonesia has

reached 24.49 million, and will always increase along with the increasing standard of living. The preparation of the strategy will be important to anticipate that all elderly people remain healthy (BPS, 2018).

The prevalence of hypertension in the elderly in Central Sulawesi Province has

reached 228,359 people, having experienced a significant increase since 2016, namely 213,686 people, spread across several districts, especially the Poso regency area, which currently has a total of 86,691 elderly people. The study assesses that the elderly gymnastics health program will be the main strategy for controlling hypertension disease (DINKES Prov Sul-Teng, 2019).

The elderly are the condition of a person who has experienced a period of aging, namely the process of the gradual disappearance of sensing functions and body tissues. Everyone will have a body with various health problems, including the elderly or other degenerative diseases. This stage represents the end of development in human life (Langingi et al., 2020).

Hypertensive disorders can result from a lack of strategies to deal with the elderly. Such as doing physical activity and controlling the health of the body regularly. One strategy that can be done is to follow a gymnastics program to build body fitness and reduce the risk of degenerative diseases. Broadly speaking, gymnastics habits carried out by the elderly will show the quality of their health and reduce dependence on the use of drugs (Senja & Prasetyo, 2019). This elderly gymnastics is able to train bones to stay strong, encouraging the heart to work optimally. By involving physical activity in everyday life, life expectancy can be improved (Agoes, 2011).

Hypertension gymnastics is a movement that comes from a combination of meditation movements, breathing movements, and meditation movements, which is shaped and done gently, regularly, and measuredly, to relax all parts of the body, reduce stress, and increase immunity (Suparwati et al., 2017). Pemberian senam hipertensi secara rutin kepada lansia dapat menurunkan dan menstabilkan tekanan darah yang dapat mengakibatkan hipertensi bagi lansia (Salmiyati & Rahmawati, 2021).

Generally, the elderly who suffer from hypertension will be therapy using drugs to control high blood pressure levels. However, it is known that several alternatives can be

applied to the elderly to reduce hypertension and maintain their health and fitness, namely by doing proper gymnastics activities regularly, or a combination of two or more of these lifestyles can give significant results (Manurung, 2018).

A preliminary study conducted by researchers on January 30, 2020, at Tresna Werdha Madago Social Home, Tentena, obtained data on the elderly 63 people, consisting of 35 men and 28 women. From the results of the interview, it was obtained information that most of the elderly had suffered from hypertension and did not get elderly gymnastics as an alternative form of non-pharmaceutical treatment, while in theory it is known that the elderly have an influence on the incidence of hypertension. by doing gymnastics programs, the elderly can control blood pressure and health (Anwari et al., 2018).

Based on this, the researchers decided to examine the effect of hypertension exercise on lowering blood pressure in the elderly. To know the effect of hypertension exercise on systolic and diastolic blood pressure in the elderly with hypertension

METHODS

This research is descriptive-Kuantitatif with a pre-experimental type with one group pretest and posttest design. It has been held at Modago Social Home, Tentena, Poso regency in July, 2020. The population of this study amounted to 63 people with a sample of 15 people who were determined purposively in accordance with the criteria of Inclusion; Age \geq 59 Years Old (Elderly), not being hurt or disabled, and Have a history of hypertension. Criteria of Exclusion; Being sick and Elderly people who are unable to do physical activity.

The instrument for measuring blood pressure variables is a sphygmomanometer or sphygmomanometer. Data processing is done by editing, coding, tabulating, and cleaning. The data analysis is using the dependent t-test. The study was conducted after obtaining the consent of the respondents through the informed consent form

RESULT

The data and information obtained in this study can see in the following description:

Analisis Bivariat

Table 1. Distribution of systole blood pressure in the elderly pre and post-test do gymnastics.

| Variable Type | Mean | Standard Deviation | Minimum-Maximum | N |
|---------------|--------|--------------------|-----------------|----|
| Pre-Test | 153,33 | 12,47 | 140-180 | 15 |
| Post-Test | 134,67 | 14,55 | 100-160 | |

As the measurement results obtained in table 1, showed a significant difference in the results of measurements of systole pressure in

Table 3. Different of systole and diastole blood pressure in the elderly Before (Pre-Test) and After (Post-Test) do hypertension gymnastics.

| Variable Type | Mean | Different Mean | Standard Deviation | Standard Deviation Gaps | Min-Max | t | N |
|---------------|-----------|----------------|--------------------|-------------------------|---------|------|----|
| Systole | Pre-Test | 18,66 | 12,47 | - 2,08 | 140-180 | 4,08 | 15 |
| | Post-Test | | 134,67 | | 100-160 | | |
| Diastole | Pre-Test | 4 | 8,69 | 0,05 | 70-100 | 1,57 | |
| | Post-Test | | 82,67 | | 70-100 | | |

As the results obtained in table 3, the results of the blood pressure of the elderly in the systolic pretest obtained a mean value of 153.33. For the diastolic value, the mean value was 86.67. In the posttest for the systolic value, the mean is 134.67 and for the diastolic value, the mean is 82.67. The results of the t hit test with 0.05 obtained t hit systolic value of 4.08 and t hit diastolic value of 1.57 with t table 2.14, then the acceptance criteria ($t > 2.14$), then for the systolic value of H_0 was rejected, meaning that there was a difference between the pretest and the posttest. Meanwhile, the diastolic, H_0 value is accepted, meaning that there is no difference between the pretest and posttest.

The systolic blood pressure analysis show the total difference in the mean value is 18.66 with a standard deviation difference of -2.08, with a t-value of 4.08, the difference in value is very large and is categorized as critical or occurs rejection, so it can be interpreted that there is a change in systolic blood pressure in the elderly after getting

the elderly, based on the deviation value of - 2.08.

Table 2. Distribution of diastole blood pressure in the elderly pre and post-test perform gymnastics.

| Variable Type | Mean | Standard Deviation | Minimum-Maximum | N |
|---------------|-------|--------------------|-----------------|----|
| Pre-Test | 86,67 | 8,69 | 70-100 | 15 |
| Post-Test | 82,67 | 8,54 | 70-100 | |

Based on the measurement results obtained in table 2, there is a significant difference in the results of diastole pressure measurements based on the deviation value of 0.05.

exercise, and can control the incidence of hypertension. While the results of the analysis of diastolic blood pressure show that the total difference in the mean value is 4, with a standard deviation of 0.05, with a t-value of 1.57, there is a small difference, and it is not critical, so it can be interpreted that diastolic blood pressure in the elderly who get exercise did not experience a significant change in pressure

DISCUSSION

As the results this study obtained show that, the results of the analysis of systolic blood pressure show a significant difference, it can be interpreted that it is systolic blood pressure in the elderly that can trigger hypertension and can be intervened by the gymnastics in a measurable and regular exercise.

While the results of diastole blood pressure analysis showed a less significant difference so it can be interpreted that

diastole blood pressure in the elderly has only slight changes in pressure when doing gymnastics. Various health programs aimed at providing health services to the elderly, one of which is the gymnastics program for the elderly held through Posyandu, it is a strategy to overcome elderly health problems such as stroke, hypertension, cholesterol, and overweight. The types of gymnastics that are usually done are elderly fitness gymnastics, tai-chi gymnastics, and hypertension gymnastics (Safitri & Astuti, 2017).

The elderly, in general, are physiologically normal and have high blood pressure values due to a lack of bodily activity in old age. This situation occurs because the arterial walls of the elderly have become thickened, causing stiffness due to arteriosclerosis so that blood pressure increases so that it can pass through. Physical activity such as special sports for the elderly is considered significant to help the elderly in these circumstances (Iswahyuni, 2017).

After the age of 20, the capacity of the heart to distribute blood throughout the body decreases by 1% per year, so the elderly are at risk of decreased ability of heart contraction and volume to pump blood, as well as decreased flexibility of blood vessels, which can lead to an increase in blood pressure or hypertension (Sya'diyah, 2018).

Physical exercise for the elderly or, in other words, gymnastics, will have a positive influence on various systems that work in the body, one of which is the cardiovascular system. When doing physical activities such as hypertension exercise, the pressure in the blood vessels will increase, and after doing the exercises, the blood pressure will gradually fall below normal, which will last for 30–120 minutes. If exercise is done consistently, then blood pressure will experience a constant decline. This is why physical activity exercises such as hypertension exercises can lower blood pressure (Jatiningsih, 2016).

Lowering blood pressure can be done with the mechanism of exercise because exercise can relax the blood vessels, which will eventually dilate and cause the blood

pressure pumped from the heart to decrease (Anwari et al., 2018). Similar research results by Tulak et al. (2017) applied the intervention three times in one week and showed a significant difference in mean between before and after gymnastics, can be done with a frequency of exercise 1 time/week for 3 weeks, the results also state that there is an effect of hypertension exercise on decreasing systolic blood pressure but not with diastolic blood pressure (Tulak, 2017).

Elderly exercise can increase the flexibility of the elderly blood vessels that have stiffened and increase the supply of oxygen and nutrients to the brain, thereby reducing the risk of blood vessel damage that can lead to stroke. Exercise performed by the elderly 3 times a week can greatly affect the normal blood pressure of the elderly (Muharni & Wardhani, 2018).

Sudirman (2018) in his research explains that the low support of health facilities available in health care facilities, especially in health centers, can hinder the implementation of health programs, one of which is health programs for the elderly. In addition, health workers become less motivated to carry out and carry out their duties (Sudirman, 2018). Thus, the researchers argue that hypertension exercise can help the elderly significantly reduce the level of systolic blood pressure so that the risk of hypertension in the elderly can be reduced, but it is necessary to support integrated facilities for health workers, especially in social institutions, so that the implementation of exercise therapy for the elderly can be maximized and become a sustainable program.

CONCLUSION

As for things that can be concluded from the results of this study, namely; The combination of Tai-Chi and Qigong hypertension is quite effective in the reduction of systole blood pressure levels in the elderly, if done regularly and controlled and sustained, while in diastole blood pressure, it is not yet known the level of effectiveness obtained.

It is recommended that health workers, especially in the elderly Posyandu, assist elderly gymnastics in a controlled and sustainable manner. As for the next research to conduct research with a broader aspect by adding concomitant diseases with more samples and more varied demographic characters and taking control groups as a comparison.

The shortcoming of this study is that the source of the respondent's population only comes from 1 place, so it cannot describe the comparison between groups based on demographics and comorbidities. In addition, researchers also only have a relatively short time frame, so observations are very limited.

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