Effectiveness Of Hypertension Exercise And Health Education On Decreasing Blood Pressure

by Sri Wahyuni Adriani, Et Al

Submission date: 18-May-2022 03:08PM (UTC+0800)
Submission ID: 1838939354
File name: 6._Efectiveness_of_Hypertension_Exercise.pdf (1.25M)
Word count: 2975
Character count: 16348

Jurnal Kesehatan dr. Soebandi
ISSN : 2302-7932 (Print)
ISSN : 2527-7529 (OnLine)

Effectiveness Of Hypertension Exercise And Health Education On Decreasing Blood Pressure

Sri Wahyuni Adriani[1*], Yuyus Febsyna Feronika[2], Cindhy Ayu Meillani[3], Silvia Lestari[4] , Dodik Dwi Hadiansah[5]

[1,2,3,4,5] Faculty of Health Science, Universitas Muhammadyah Jember, Jember, East Java, Indonesia

*Corespondence author : sriwahyuni@unmuhjember.ac.id

ABSTRACT

Introduction: Hypertension is a global health problem, due to its high frequency of occurrence and high risk of developing heart and blood vessel disease. One of the efforts or interventions to control high blood pressure in the community is to provide health education about controlling high blood pressure, and high blood pressure exercise to reduce blood pressure. **Objective:** To determine the effectiveness of providing health education and hypertension exercise in reducing blood pressure in patients with hypertension. **Methods:** Pre-experimental with one-group pre-post test design. The sample in this study was an adult community with hypertension, a total of 42 respondents were taken using simple random sampling. The statistical test used a paired sample t test with a value of = 0.05. **Results:** 54.8% of public knowledge related to hypertension had increased, 50.0% of public attitudes related to hypertension had increased, 71.4% of people's blood pressure with hypertension had decreased and p value = 0.000. **Conclusion:** Health education and hypertension exercise can reduce blood pressure in hypertensive patients. It is expected that nurses can provide health education and teach hypertension exercise to reduce blood pressure in hypertensive patients.

ABSTRAK

Latar belakang: *Hipertensi merupakan masalah kesehatan global, karena frekuensi kejadiannya yang tinggi dan berisiko menyebabkan penyakit jantung dan pembuluh darah. Salah satu upaya atau intervensi untuk mengendalikan tekanan darah di masyarakat dengan memberikan pendidikan kesehatan tentang tata cara mengendalikan tekanan darah serta senam hipertensi untuk mengontrol tekanan darah.* ***Tujuan:*** *Mengetahui efektivitas pendidikan kesehatan dan senam hipertensi dalam menurunkan tenakan darah pada klien hipertensi.* ***Metode:*** *Pre-eksperimen dengan one group pre-post test design. Sampel dalam penelitian ini adalah masyarakat usia dewasa yang mengalami hipertensi, dengan total responden sebanyak 42 orang yang diambil menggunakan simple random sampling. Uji statistik menggunakan paired sample t test dengan p value 0,05.* ***Hasil:*** *54,8% pengetahuan masyarakat terkait hipertensi meningkat, 50% sikap masyarakat terkait pengendalian hipertensi meningkat, 71,4% tekanan darah klien hipertensi dapat diturunkan dengan p value 0,000.* ***Kesimpulan:*** *Pendidikan kesehatan dan senam hipertensi dapat menurunkan tekanan darah pada klien hipertensi. Diharapkan perawat dapat memberikan pendidikan kesehatan dan mengajarkan senam hipertensi secara rutin pada masyarakat untuk menurunkan tekanan darah pada klien hipertensi.*

Submission : 28-06-2021

Revised : 04-09-2021

Accepted : 28-09-2021

Kata Kunci : Hipertensi, Edukasi Kesehatan, Senam Hipertensi, Tekanan Darah.

Keywords : *Hypertension, Health Education, Hypertension Gymnastics, Blood Pressure.*

DOI : 10.36858/jkds.v9i2.300

Jurnal Kesehatan dr. Soebandi
ISSN : 2302-7932 (Print)
ISSN : 2527-7529 (OnLine)

Introduction:

The existence of globalization that continues to develop in various fields and technology and industry has unwittingly changed people's behavior and lifestyle. Changes in lifestyle in the context of socio-economic life, this will cause an increase in high blood pressure. Hypertension is a condition of increasing a person's blood pressure above normal which can increase mortality (morbidity) and mortality (mortality) (Sumartini et al, 2019).

Hypertension is often referred to as the "silent killer" (stealth killer), often people with hypertension for years without feeling any disturbances or symptoms. Hypertension is still a fairly large problem in Indonesia, as much as 25.8% of the population aged 18 years suffer from hypertension (Silviana and Kodim, 2019). Hypertension can be a health threat to the community, the potential for causing complications such as stroke, coronary heart disease, and kidney failure.

Until now, hypertension is still a health problem that is big enough to be overcome. WHO (World Health Organization) states that hypertension affects 22% of the world's population, and reaches 35% of the incidence in Southeast Asia. Hypertension is also a cause of death with 23.7% of the total 1.7 million deaths in Indonesia in 2016 (Anggasari, 2019).

The results of Riskesdas 2018 show the prevalence of hypertension in the population > 18 years based on national measurements of 34.11%. East Java ranks sixth most in Indonesia with a total of 36.32%.

The cause of hypertension is still unknown, but lifestyle is very influential in people with hypertension. There are several factors that are a risk for hypertension, such as age, gender, smoking, and a lack of lifestyle, lack of activity. So it is necessary to reduce the risk factors for hypertension.

So, people who do less physical activity, will experience an increase in heart rate. This can make the heart's burden to pump harder, which leads to an increase in blood pressure. In addition, lack of physical activity can increase the risk of obesity which ultimately results in an increase in blood pressure. Physical activity is important for everyone, small, big old and young need to do enough physical activity.(Sihotang and Elon, 2020).

Non-pharmacological management of hypertension can be done by living a healthy lifestyle that is recommended including reducing salt consumption, alcohol, reducing weight, quitting smoking and doing physical activity (Solihin et al, 2020). Regular exercise can be done by means of appropriate physical exercise including walking, cycling, swimming, doing homework and hypertension exercise.

Hypertension exercise is one way of maintaining physical health or physical exercise that can be done to reduce weight and manage stress so that it can increase the body's metabolism and can stimulate the work of the heart and can strengthen the heart muscles. By doing hypertension exercise, the oxygen demand in the cells will be higher and in the resting phase the blood vessels will be dilated, blood flow will decrease as a result the blood vessels will be more elastic and the blood vessels will widen so the blood pressure will drop (Sanipar et al, 2018). Hypertension exercise can reduce the risk of lipid accumulation in blood vessel walls and maintain elasticity so that it can improve heart function and lower blood pressure.

Based on studies conducted through observations and interviews in Sukorambi Village, Jember Regency, from 70 families, it was found that knowledge, attitudes related to controlling hypertension were still in the poor category. The results of the interview also revealed that the entire community did not know about non-pharmacological therapy to lower blood pressure.

Based on this, health education and demonstration of hypertension exercise were carried out to reduce blood pressure of hypertension sufferers in Sukorambi

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Village, Sukorambi District, Jember Regency.

Methods:

The population in this study were 52 hypertensive patients based on health screening results. The sampling method was simple random sampling. The research sample were 42 hypertensive patients through home visits to clients who have hypertension and meet the inclusion criteria: 1) Diagnosed with hypertension for at least 6 months; 2) Age > 18 years; 3) Full awareness; 4) Able communicate. From 52 populations were screened according to the inclusion criteria. There were 8 respondents who were diagnosed with hypertension < 6 months and 2 respondents were unable to communicate because they had a stroke and were unable to carry out normal daily activities. Sampling process can be seen in figure 1.

The instrument in this study was an observation sheet to monitor blood pressure. Health education was given at the beginning of the meeting with clients and families using booklets. Education was continued every day for 1 week through discussion and counseling sessions for 30 minutes per day. The educational topics provided were hypertension management including diet in hypertensive patients, the importance of taking antihypertensive drugs, and recommended activities for hypertensive patients. While hypertension exercise was done every day with a duration of ± 10 minutes for 1 week. Before the intervention, blood pressure was measured and then recorded on the observation sheet, after the intervention for 1 week blood pressure was measured again and recorded in the observation sheet. Then blood pressure was analyzed using paired sample t-test.

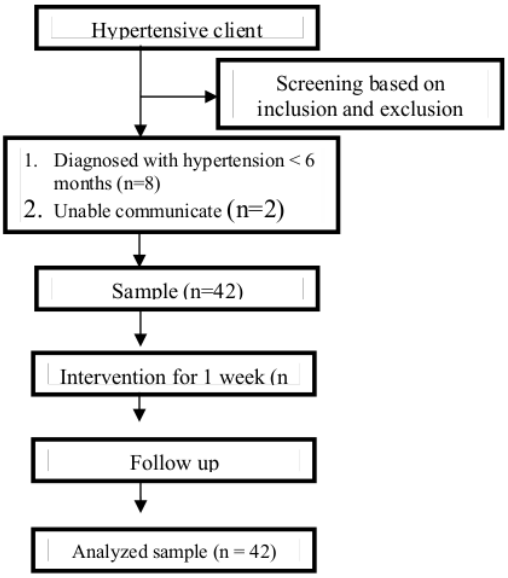

Figure 1: Sample Selection Method

Results:

Table 1. Demographic Data of Respondents in Sukorambi Village, Sukorambi District, Jember Regency, April 2021

Data		Frequency (n=42)	Percentage (%)
Gender	Male	11	26,2
	Female	31	73,8
Age	31-40	5	11,9
	41-50	21	50,0
	51-59	16	38,1
Education	No School	0	0
	SD	7	16,7
	SMP	21	50,0
	SMA	13	31,0
	DIII	1	2,4
	IRT	24	57,1
Profession	Labor	5	11,9
	Trader	8	19,0
	Entrepreneur	4	9,5
	Teacher	1	2,4

Based on Table 1, most of the respondents are female as many as 31 people (73.8%) with the age of 41-50 as many as 21 people (50.0%) with the last education of junior high school as many as

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21 people (50.0%). Most of them work as housewives as many as 24 people (57.1%).

Table 2. Paired T test data on hypertension control behavior in Sukorambi Village, Sukorambi District, Jember Regency, April 2021

Hypertension Control Behavior	N	Mean	SD	Min-Max	P-Value
Pre test	42	7,69	9,26	4-10	0,003
Post test	42	7,21	5,16	5-8	

Based on table 2, the data obtained from the paired t - test are p value < = 0.005 with a value of 0.000 < 0.05 which means that there is an effect of hypertension counseling on hypertension control behavior in respondents who have hypertension in Krajan Hamlet, Sukorambi District.

Table 3. Paired T test data in Sukorambi Village, Sukorambi District, Jember Regency, April 2021

Description	Before		After	
	Systolic	Diastolic	Systolic	Diastolic
Mean Blood Pressure	152,28	95,80	144,52	88,59
Standard Deviation	15,209	6,3331	11,216	4,8693
Minimum	140	80	140	80
Maximum	200	110	200	110
P Value	0,000		0,000	

Based on table 3, the results of the paired t - test obtained p value < = 0.005 with a value of 0.000 < 0.05 which means that there is an effect of hypertension exercise on reducing blood pressure in Krajan Hamlet, Sukorambi District.

Discussion:

Hypertension is an abnormal increase in blood pressure that can be the main cause of cardiovascular disease (Ansar et al, 2019). Hypertension or high blood pressure is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg on two measurements with an interval of five minutes in a state of sufficient rest or calm (Yulanda and Lisiswanti, 2017).

Hypertension is triggered by several risk factors, such as genetic factors, obesity, excess sodium intake, dyslipidemia, lack of physical activity, and vitamin D deficiency. The prevalence of hypertension diagnosed by doctors in Indonesia is 25.8% and Yogyakarta is the third largest hypertension prevalence in Indonesia. The prevalence rate of hypertension is known to increase with increasing age and the prevalence tends to be higher in people with low levels of education or people who do not work (Basic Health Research, 2017).

The results of community nursing care that have been carried out in Krajan Hamlet, Sukorambi District in April 2021 on 47 respondents with hypertension with the most age characteristics being at the age of 41-50 years as many as 21 (50.0%). The results of this study are supported by the theory of Ulfa (2011) which says that the age factor is one of the causes of increasing hypertension. Other factors that influence high blood pressure according to (Ulfa, 2011), namely there are factors that can be changed, and factors that cannot be changed. Factors that can be changed include stress, weight, contraceptive use in women, excessive salt consumption and smoking habits. While the factors that cannot be changed are age, heredity, and gender. This theory supports the research results that most of those who suffer from hypertension are female with a total of 31 (86.1%), women tend to have higher systolic blood pressure levels after menopause, namely over the age of 45 years (Lestari &Isnaini, 2018).

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The relationship between hypertension exercise and blood pressure control in the elderly is as concluded in Wahyuni's research (2015). Research shows that there is an improvement in blood pressure in the elderly but does not reach the desired level of significance. The failure to achieve the desired blood pressure improvement is due to confounding factors related to blood pressure in the elderly, including diet, stress, physical activity, genetics and pharmacology in research that cannot be controlled.

Anti-hypertensive exercise is a sport that aims to increase blood flow and oxygen supply to active muscles and the skeleton, especially the heart muscle. Exercise causes oxygen in the cells to increase for the process of energy formation, resulting in an increase in heart rate, so that cardiac output and stroke volume increase (Zainudin & Labdullah, 2020). If the exercise is done regularly and continuously, the decrease in blood pressure will last longer and blood vessels will be more elastic. The mechanism of lowering blood pressure after exercise is because exercise can relax blood vessels. So that by dilating blood vessels blood pressure will decrease.

The results of the study conducted blood pressure measurements on 42 respondents before and after hypertension exercise. The average value of pre-test systolic blood pressure (152.28 mmHg) was higher than the post-test average systolic blood pressure (144.52 mmHg) so that it was concluded that the intervention of hypertension exercise had an effect on decreasing the respondent's systolic blood pressure. The average value of pre-test diastolic blood pressure (95.80 mmHg) was higher than the post-test average diastolic blood pressure (88.59 mmHg) so that it was concluded that the intervention of hypertension exercise had an effect on decreasing the respondent's diastolic blood pressure.

In this study, the data obtained from the paired t - test results obtained p value < = 0.005 with a value of 0.000 < 0.05, this means that there is an effect of hypertension exercise on reducing blood pressure in those with hypertension in Krajan Hamlet, Sukorambi District. This study is in line with the research of Basuki and Barnawi (2021) which stated that there was an effect of hypertension exercise on blood pressure in hypertensive patients, this means that after doing hypertension exercise, blood pressure decreased compared to before doing hypertension exercise.

Conclusion:

Blood pressure in patients with hypertension in Sukorambi Village, Sukorambi District, Jember Regency, after being given health education and hypertension exercise experienced a decrease in systolic and diastolic. So that there is a significant effect between the provision of health education and hypertension exercise on reducing blood pressure of hypertension sufferers in Sukorambi Village, Sukorambi District, Jember Regency. It is recommended for the community that by increasing knowledge, and public attitudes, it is expected to be able to prevent the occurrence of hypertension by changing bad behavior and attitudes into healthy habits such as consuming healthy food and exercising or doing regular exercise.

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