



THE EFFECT OF HYPERTENSION EXERCISE AND FOOT MASSAGE THERAPY ON REDUCING BLOOD PRESSURE IN HYPERTENSION PATIENTS IN MEKARJAYA VILLAGE, PURWASARI DISTRICT, KARAWANG REGENCY

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ABSTRACT

Hypertension is defined as a condition where a person experiences an increase in blood pressure above normal which can result in morbidity and mortality. Hypertension, which means very high blood pressure in the blood vessels, which carry blood from the heart which pumps blood to all tissues and organs of the body. Mekarjaya Village has cases of hypertension with the number of cases being 58% of the PTM census of 3 hamlets in the working area of the Purwasari Health Center. The aim of this study was to determine the effect of hypertension exercise therapy and foot massage therapy on blood pressure in hypertensive patients. The research was conducted on 48 hypertensive patients in Mekarjaya village, Purwasari district. The treatment was carried out by carrying out hypertension exercise activities in Krajan Hamlet for 24 people as the intervention group and 24 people as the control group. For the intervention, there were 24 people in the foot massage therapy intervention group and 24 people in the control group. This research method is quantitative, a pretest-posttest quasi-experimental design with control group design, the sample used was 72 elderly people with hypertension. The results of the study stated that there was a significant effect on the hypertension exercise group and the foot massage therapy group before and after the intervention with a p-value (0.000); (0.001). Conclusion: Hypertension exercise and foot massage interventions are both effective interventions to help reduce blood pressure in hypertensive patients

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1. INTRODUCTION

Hypertension is persistent blood pressure where the systolic pressure is above 140 mmHg and the diastolic pressure is above 90 mmHg. Hypertension is the main cause of heart failure and kidney failure. Hypertension can also kill sufferers suddenly because hypertension often has no symptoms (Fitriyana 2023).

Data from the World Health Organization (WHO) in 2019 estimates that currently the prevalence of hypertension at world level is 22% of the total population in the world. Africa is the country with the highest cases of hypertension in the world, namely 27%, while Southeast Asia is in third place with a prevalence of 25%. The number

of cases in adults is greater in people with poor economies, namely 31.5% or 1.04 billion compared to high economic countries which is only around 28.5% or 349 million people. Hypertension in Indonesia is one of the third highest causes of death for almost all ages, after stroke (15.4%) and tuberculosis (7.5%), which is around 6.8%.

According to Riskesdas in (Indonesian Ministry of Health, 2021) the prevalence of hypertension in Indonesia is 34.1%, an increase compared to the prevalence of hypertension in Riskesdas in 2013 which was 25.8%. Prevalence of hypertension by year

2020 was obtained from 2018 Riskesdas data where the prevalence rate for West Java Province increased from 34.5% to 39.6% (West Java Health Office, 2020).

According to the Karawang Health Profile (2022), the estimated number of hypertension sufferers (≥ 15 years) in Karawang Regency in 2022 will be 625,156 people. A total of 262,221 people suffering from hypertension (41.9%) have received services. Both the number and coverage of health services for hypertension sufferers is increasing every year. Several sub-districts with the highest health service coverage for hypertension sufferers are in Tirtamulya District at 100.57%, meanwhile, the lowest hypertension sufferers are in Pakis Jaya District at 3.47%. From the description of the data above, it can be used as a reference for the Community Health Center as the regional person responsible for health problems at the sub-district level in creating priority programs in handling hypertension cases in their working area (Karawang Health Office, 2022).

The role of nurses in providing nursing services has a role in improving the family's nursing ability to care for sick members. Family involvement is really needed, especially those closest to you, especially family members who live in the same house, to monitor the client's hypertension. This will have an impact on minimizing treatment costs and preventing hospitalization if your hypertension worsens or complications from hypertension itself occur. Non-pharmacological nursing interventions that are easy to teach and carry out by clients and family members such as hypertension exercises and foot massage therapy to help lower blood pressure (Bustomi, 2020).

Hypertension exercise can lower blood pressure because it is a sporting activity that is useful for reducing weight and is a method of managing stress. Stress is one of the risk factors that triggers hypertension. Hypertension exercise can increase blood and oxygen flow throughout the body, especially the muscles in the heart organ, so that it can maintain blood pressure (Elviansyah, 2020). Foot massage therapy can help improve blood flow because it has a relaxing and vasodilating effect on blood vessels. Stiff muscles in hypertension sufferers will be reduced due to the vasodilation effect where blood vessels widen so that blood flow improves and blood pressure decreases (Ainun, 2021).

2. RESEARCH METHOD

The research method used in this research was a quasi-experimental pretest and posttest with control group design. This method aims to determine the effectiveness of hypertension exercises and foot massage therapy for elderly people with hypertension in Krajan Hamlet and Cilalung Hamlet in Mekarjaya Village, Purwasari District, Karawang Regency. The research was conducted in March 2024 at the hamlet in the working area of the Purwasari Community Health Center. The population of this study were all hypertension sufferers in the Posyandu for the elderly in Krajan hamlet and Cilalung hamlet in the working area of the Purwasari Community Health Center, especially in Mekarjaya Village. The sample in this study was taken using a purposive sampling technique as many as 72 people with hypertension, 24 people in the hypertension exercise group, 24 people in the foot massage therapy group, and 24 people in the control group who were not given hypertension exercises or foot massage therapy. The two types of interventions, namely the hypertension exercise group and the foot massage therapy group, were carried out for 3 consecutive days in each hamlet. For research tools or instruments, sphygmomanometers for measuring blood pressure, stethoscopes, massage oils, sheets for recording blood pressure measurement results.

3. RESULTS AND ANALYSIS

Univariate Analysis

Table 1. Univariate Analysis

Demographic Data		Jumlah (n)	Frekuensi
Age	58-79 th	72	100%
Education	Elementary- Middle School	39	54%
	Secondary	24	33%
	University	4	13%
Gender	Male	32	45%
	Female	40	55%



Table 1 depicts the number of participants as 72 people in the age range 58-79 years. The majority of seniors' education is elementary and junior high school and the majority of seniors are female.

Table 2. Average Blood Pressure

Variabel		Mean	SD	Min	Max
Hypertension Exercise	Pre Systolic	152,8	16,131	142	187
	Pre Diastolic	96,54	11,221	79	120
	Post Systolic	123,25	13,417	110	150
	Post Diastolic	82,25	9,656	70	100
Foot Massage	Pre Systolic	155,29	18,754	130	192
	Pre Diastolic	90,75	13,495	75	111
	Post Systolic	131,94	16,238	100	150
	Post Diastolic	81,67	12,432	62	100
Control	Pre Systolic	157,0	11,002	145	171
	Pre Diastolic	96,92	5,216	87	105
	Post Systolic	159,0	9,108	145	174
	Post Diastolic	97,08	4,442	87	103

From table 2, it can be seen that the mean value of the hypertension exercise group before treatment was 152.8 mmHg and the mean diastolic value was 96.5 mmHg. The mean systolic blood pressure after the hypertension exercise intervention was 123.25 and the mean diastolic was 82.25 mmHg. The mean value of the intervention group before the foot massage treatment was 155.29 and the mean diastolic value of the foot massage therapy group was 90.75. The mean systolic value after foot massage therapy was 131.94 and the mean diastolic value after foot massage therapy was 81.67 mmHg. The mean systolic values in the control group were 157.0 mmHg and 159.0 mmHg. The mean diastolic values for the control group were 96.92 and 97.08 mmHg

Bivariate Analysis Test

Bivariate analysis was carried out to determine the effect of reducing blood pressure before and after administering the hypertension exercise intervention in group A and the foot massage therapy intervention in group B in Mekarjaya village, Purwasari District in Karawang Regency, West Java.

Table 3. Bivariate Analysis

Treatment	Mean	SD	t	Df	Sig.	CI 95%	
						Lower	Upper
Hypertension Exercise							
Systolic	-35,75	13,12	-13,3	23	0,000	-41,291	-30,209
Diastolic	-14,88	10,88	-6,61	23	0,000	-30,209	-10,197
Foot Massage							
Systolic	-27,75	20,392	-6,667	24	0,000	-36,361	-6,667
Diastolic	-15,41	11,806	-6,397	24	0,000	-20,402	-6,397

From table 3, it can be seen that the results of this study show that there is a significant difference in the reduction in systolic and diastolic blood pressure before and after being given hypertension exercise intervention in group A with a p-value <0.05. The results of the study also showed that there was a significant difference in group B who were given foot massage therapy intervention before and after being given the intervention. Blood pressure measurements were carried out 15 minutes after the intervention in both the hypertension exercise group and the foot massage therapy intervention group.

4. DISCUSSION

From blood pressure measurement activities carried out after hypertension exercise therapy in group A, it was found that there was a significant decrease in systole and diastole (p-value=.0.000). This is because the effect of hypertension exercise can help improve blood flow because the light movements carried out are very good for body fitness. Hypertension exercises that are done regularly can improve blood flow throughout the body, help restore the elasticity of blood vessels, strengthen the body's muscles and provide a relaxing effect and improve mood so that the tension and stress experienced also improves. This is in line with research conducted by Silvie (2024) where hypertension exercise can help reduce blood pressure in elderly people with hypertension.

Hypertension exercise movements are an alternative light exercise that can be applied to hypertension sufferers. Hypertension exercises are done routinely 3-4x a week for approximately 15-30 minutes each time. After completing hypertension exercises, the blood vessels will dilate so that blood flow becomes smoother. The oxygen supply increases and tension decreases, which causes a decrease in parasympathetic nerves, which has the effect of lowering blood pressure. The elasticity of blood vessels will gradually improve and blood pressure will become more stable.

Foot massage therapy is a non-pharmacological therapy that can be applied to help lower blood pressure in patients with hypertension. The foot massage therapy carried out in this study showed significant results with a p-value (0.000) in reducing systolic and diastolic blood pressure. This is because foot massage therapy is a foot massage technique in the soles and ankles area. This massage movement aims to improve blood flow because there are acupressure points on the feet which function for heart and blood vessel health (Fitria & Patria, 2019).

The pressure applied during foot massage therapy has a relaxing and vasodilation effect on the blood vessels, where the return flow of blood to the heart becomes better and bloodier due to the effect of the parasympathetic nerves. The effect of foot massage therapy is to improve blood circulation so that the body's health becomes better, reducing pain and fatigue. Foot massage therapy is also able to stimulate the release of endorphins which have the effect of making the body more relaxed so that blood pressure will decrease (Hartuti, 2017).

The results of the SPSS analysis of different tests were carried out using the Mean Whitney statistical test with the results that there was no significant difference in the mean value of blood pressure reduction in the hypertension exercise and foot massage intervention group (p-value >0.05). So it can be seen that hypertension exercises and foot massage therapy are both effective as non-pharmacological therapies to help lower blood pressure in hypertensive patients. Nurses can implement both interventions when providing nursing care.

5. CONCLUSION

Hypertension exercise interventions and foot massage therapy can be used as complementary nursing care interventions to be applied to hypertensive patients. Further research regarding the effect of hypertension exercise and foot massage therapy is needed regarding hypertension exercise and foot massage therapy.

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