



IMPLEMENTATION OF GEMU FA MI RE EXERCISE IN REDUCING BLOOD PRESSURE IN HYPERTENSION PATIENTS

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ABSTRACT

Hypertension is a chronic disease which is called a silent killer because it often does not cause complaints, so sufferers do not know they have hypertension and only find out after complications occur. (Maria et al., 2021). The aim of this research is to determine the application of gemu fa mi re exercise in lowering blood pressure in hypertensive patients in the working area of the Sikumana Community Health Center, Kupang City. The research design was descriptive, the total research sample was 30 respondents using purposive sampling technique. Data collection was carried out by interviews and fa mi re exercise interventions for hypertensive patients in the Sikumana Community Health Center working area. The procedure was carried out for 3 days with a time of 20 minutes, measuring pre-test and post-test blood pressure. Analyzing the data using univariate research results, it was found that the majority of gender characteristics were women, 23 people, the majority of respondents were >45 years old. High school education 23 people. The majority of respondents did not work or were retired, namely 23 people. The duration of hypertension for 1 year was 18 people. There were 6 people in the pre-hypertension blood pressure category and 24 people in stage 1 hypertension. Gemu fa mi exercise can lower blood pressure, with a decrease in systole and diastole of 5 to 20 mmHg with an average decrease in systole of 5 mmHg and diastolic of 10 mmHg. Conclusion: Gemu fa mi re exercise can reduce blood pressure in hypertension sufferers. Suggestion: Health workers who work in the Sikumana Community Health Center area can improve the non-communicable disease (NCD) program with culturally based efforts to reduce blood pressure such as doing gemu fa mi re exercises.

Keywords: blood pressure; gemu fa mi re exercise; hypertension patients

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INTRODUCTION

Hypertension is a chronic disease which is called the silent killer because it often goes without complaints, so sufferers do not know they have hypertension and only find out after complications occur (Maria et al., 2021). This is what causes hypertension to be called a silent killer because it is a disease that can be fatal without prior symptoms. However, until now treatment of hypertensive patients has not been optimal. There are various non-pharmacological measures that can be taken in hypertensive patients to control blood pressure, but many still do not know clearly about these non-pharmacological measures. Nationally, hypertension is one of the most common and most common non-communicable diseases suffered by society, causing around 8 million people to die every year. It is estimated that the number of hypertension cases in Indonesia is 63,309,620 people, while the death rate in Indonesia due to hypertension is 427,218 people (Ministry of Health of the Republic of

Indonesia, 2019). Apart from causing death, hypertension can also cause serious illnesses such as kidney failure, heart disease, coronary heart disease and stroke.

According to data from the World Health Organization (WHO, 2019) shows that around 1.13 billion people in the world experience hypertension and this is mostly experienced by countries with low income. Low levels of education, knowledge and income as well as little access to health education programs cause residents in low-income countries to have low knowledge of hypertension. This increase was mainly due to increased risk factors for hypertension in this population. The highest prevalence of hypertension in the elderly is in Africa (27%) while the prevalence of hypertension in the elderly is lowest in America at (18%). Indonesia is in 5th place in the country with the most hypertension sufferers (WHO, 2019). In Indonesia, in 2018 the prevalence of hypertension was 34.1%, while in 2019 it increased to 36.32%. Apart from that, the 2018 Indonesian Health Profile recorded that the prevalence of high blood pressure was 34.11%, where women (36.85%) were higher than men (31.34%). In urban areas the prevalence is slightly higher (34.43%) than in rural areas (33.72%). Hypertension sufferers aged 65-70 years who take medication regularly have a higher prevalence than other ages. (Riskesdas, 2018).

East Nusa Tenggara Province is one of the provinces in Indonesia with the fourth highest rate of hypertension cases. The prevalence of hypertension in East Nusa Tenggara Province reached 7.2% or 76,130 cases and 1,301 people died (Ministry of Health, 2020). Kupang City is the capital of East Nusa Tenggara province with a total of 1582 cases of hypertension in 2017. In the city of Kupang, the number of hypertension cases in 2017 was the same as in the previous year and increased starting in 2019 (Ministry of Health, 2021). At the Sikumana Health Center itself, based on the results of initial data collection, it was found that in 2020 there were 2189 cases of hypertension, in 2021 there were 1934 cases and in 2022 there were 2080 cases. Data for February 2023 shows that the number of hypertension cases was 186 cases.

There are 2 ways to treat hypertension, namely pharmacological and non-pharmacological treatment. Pharmacologically it can be done using drugs, while non-pharmacologically it can be done by adopting a healthy lifestyle which includes creating a relaxed state, maintaining a diet, overcoming obesity by losing weight and maintaining lifestyle changes. Lifestyle changes consist of regular exercise, stopping smoking and limiting alcohol consumption. A lifestyle change that can be done easily and cheaply is exercise. Sports that can be done by hypertension patients include jogging, swimming, cycling and gymnastics. Hypertension treatment must be carried out properly and regularly in order to control blood pressure in hypertensive patients. Uncontrolled hypertension can cause dangerous complications. Complications that often occur in hypertensive patients are strokes, both hemorrhagic and non-hemorrhagic strokes. Non-pharmacological treatment of hypertension is the most appropriate way to avoid complications other than pharmacological treatment. One non-pharmacological treatment is by doing exercise. Hypertension exercise that is done regularly and is aerobic in nature can reduce blood pressure (Palmer & Williams, 2007), one type of exercise is gymnastics.

Gymnastics is a physical activity that can provide changes to all body system functions, including increasing cardiac output and adjusting the distribution of cardiac output, as well as stimulating the release of endorphins which function as a natural sedative to reduce high blood pressure (Yantina & Saputri, 2019) . One exercise that is easy to do is rhythmic exercise. Rhythmic gymnastics or rhythmic movements are gymnastics sports using free

movements accompanied by music (Paiman, 2019). One type of rhythmic gymnastics is Maumere gymnastics or gemu fa mi re gymnastics. Maumere gymnastics is rhythmic gymnastics or aerobic exercise originating from the Maumere area of Kupang, East Nusa Tenggara (NTT) which is accompanied by musical rhythms that are characteristic of the area. Maumere gymnastics is an exercise that uses energetic music and makes the body sway (Yudhianto, 2017 in Sulistyana Journal, et al 2022). This research aims to determine the application of gemu fa mi re exercise in reducing blood pressure in hypertensive patients in the working area of the Sikumana Community Health Center, Kupang City.

METHOD

This research is a descriptive study, namely to describe the application of Gemu fa mi re exercise in lowering blood pressure in hypertensive patients in the working area of the Sikumana Health Center, Kupang city. The sampling technique in this research used a purposive sampling technique. The number of samples taken in this study was 30 patients with hypertension in the Sikumana Community Health Center Working Area, Maulafa. Where the inclusion criteria are and the exclusion criteria are respondents who have a non-permanent place of residence. Data collection was carried out in February-April 2023. The sampling technique used in this research was purposive sampling with a total sampling of 30 respondents who met the inclusion and exclusion criteria. The instruments used are the Gemu Fami Re exercise video and a structured questionnaire which has been tested with previous validity and reliability tests. Collecting research data by conducting home visits. This activity is assisted by enumerators and health workers. The research analysis is univariate analysis. The statistical test results are translated into a frequency distribution table.

RESULTS

Table 1.

Characteristics of respondents based on gender, age, education, occupation, duration of hypertension, blood pressure category in the Sikumana Community Health Center working area (n=30)

Variable	f	%
Gender		
Woman	23	76.7
Man	7	23.3
Age		
>45 years	27	90
< 45 years	3	10
last education		
Elementary school	3	10
Junior high school	2	6,7
Senior high school	23	76.7
Bachelor	1	3.3
Other	1	3.3
Work		
Farmer	1	3.3
Trader	1	3.3
Private sector employee	5	16.7
Other	23	76.7
Suffering from hypertension for a long time		
1 years	18	40
2 years	12	60
Blood pressure		
Pre hypertension	6	20
Stage 1 hypertension	24	80

Tabel 1 regarding the characteristics of respondents, it was found that the number of female respondents was (76.7%) and male respondents were (23.3%). The majority of hypertensive people are aged >45 years(90%). High school education (76.7%). The majority of respondents were not working or had retired (76.7%). The duration of suffering from hypertension for 2 years is (60%). Pre-hypertensive blood pressure categories (30%) and stage 1 hypertension (80%).

Table 2.
Description of respondents' blood pressure before and after implementing the Gemu Fa mi re exercise (n=30)

Category	Pre-test		Pro test	
	f	%	f	%
<i>Prehypertension</i>	5	16.7		
<i>Stage 1 hypertension</i>	25	83.3	30	100

Table 2 shows that on average 5 people (25%) had pre-hypertension and 15 people (75%) had stage 1 hypertension. Furthermore, the frequency distribution of blood pressure after doing the Gemu Fami Re exercise showed prehypertension in 20 respondents (100%).

DISCUSSION

The research results show that the percentage of respondents in the Sikumana Community Health Center working area is more female than male. Based on the description of the research results, researchers are of the opinion that apart from men, women are also at risk of developing hypertension due to a decrease in the hormone estrogen. This research is in line with research by Sundari (2015) in Fatahya & Abidin (2017) which states that there is a relationship between male and female gender. Of the 94 respondents, 80 female respondents suffered from primary hypertension and 14 male respondents suffered from secondary hypertension. Apart from that, there is also research put forward by Geva, Janu, and Ludiana which says that women will experience an increased risk of high blood pressure (hypertension) after menopause, namely over the age of 45 years. Women who have not yet reached menopause are protected by the hormone estrogen which plays a role in increasing High Density Lipoprotein (HDL) levels. Low HDL cholesterol levels and high LDL cholesterol (Low Density Lipoprotein) influence the atherosclerosis process and result in high blood pressure. Researchers assume that women suffer from hypertension more often than men.

The majority of people in the working area of the Sikumana Community Health Center, Sikumana District, Kupang City are in the age category > 45 years. According to the Indonesian Ministry of Health (2019) ages > 45-59 years are pre-elderly and elderly. This data shows that the majority of hypertension sufferers in the Sikumana Community Health Center working area are in the elderly category. From the description above, researchers concluded that age can influence a person to experience hypertension. The older a person is, the more at risk of experiencing hypertension. This research is in line with research conducted by Maulidina, Harmani and Suraya (2018), regarding factors related to the incidence of hypertension in the Jati Luhur Bekasi Community Health Center Work Area in 2018. The results of the Prevalence Ratio (PR) calculation showed that respondents aged ≥ 40 years were likely to 9,245 times experienced hypertension compared to respondents aged < 40. Researchers assume that this is because as a person gets older, the elasticity of organs, especially organs in the cardiovascular system, decreases and causes the arteries to narrow, thereby increasing blood pressure. Therefore, it is important to maintain a lifestyle by consuming food according to needs, maintaining body weight to avoid obesity, and doing

regular physical activity and exercise. One of the good sports for hypertension sufferers is doing gymnastics. Doing exercise regularly can help control blood pressure.

The results of this study also show that the majority of hypertension sufferers' education in the Sikumana Community Health Center working area is high school. Researchers believe that the level of education can influence a person's health because the level of knowledge can influence a person's ability to obtain information so that they can comply with maintaining health. This opinion is in line with research by Sumandi (2009) in Elfina (2023) which states that the better the knowledge about hypertension, the better the efforts to control the hypertension suffered. Apart from that, there is also research put forward by Notoatmojo (2017) in Elfina (2023) that knowledge can be obtained through formal, non-formal education, experience and mass media. Based on this description, the researcher is of the opinion that there needs to be support from other parties such as Community Health Center officers to provide education about hypertension and hypertension management in hypertension sufferers in the Sikumana Community Health Center working area in increasing knowledge about hypertension, especially in carrying out non-pharmacological treatment of hypertension which can be done by hypertension sufferers. in controlling blood pressure. One good non-pharmacological action to take is to increase exercise, especially culturally based exercise such as *gemu fa mi re* exercise.

The majority of hypertension sufferers in the Sikumana Community Health Center work area do not work or are retired. According to researchers, people who do not work or are retired may be at high risk of developing hypertension because they do not regularly engage in physical activity or exercise. People who don't work tend to spend time at home watching TV, playing on their cellphones or sleeping. This is in line with research conducted by Nazir (2006) in Mulyadi (2015) stating that someone who is retired and does not work has a worse quality of life than those who are still working. There is also research conducted by Kristianti (2010) in (Lumowa, 2020) which says that work can affect a person's physical activity. People who do not work have less activity which can increase the incidence of hypertension. According to researchers' assumptions, to reduce poor quality of life, retirees or people who do not work must do physical activity and exercise for approximately 30 minutes a day and do it at least 3 times a week and not do heavy exercise. One type of exercise that can be done to reduce poor quality of life is by doing gymnastics. There are various types of exercise that can be done, one of which is light exercise, namely *gemu fa mi re* exercise. People who do sports such as cycling, jogging and gymnastics can improve blood circulation thereby lowering blood pressure.

The results of the study show that *gemu fa mi re* exercise can reduce blood pressure in hypertensive patients. Table 3 shows the blood pressure levels of 5 respondents in the Sikumana Community Health Center working area in the pre-hypertension category before the intervention and 25 people in the stage 1 hypertension category. After doing the *Gemu Fa Mi Re* exercise, there was a reduction in blood pressure to pre-hypertension in 30 people. The majority of respondents suffered from hypertension for a period of 1 year, 18 people. Respondents showed that there was a decrease in blood pressure after being given the *Gemu Fa Mi Re* exercise intervention. Systolic and diastolic blood pressure decreased by 5 to 20 mmHg with an average decrease of 5 mmHg in systole and 10 mmHg in diastole. According to researchers, *gemu fa mi re* exercise can affect blood pressure. Exercise done for 30 minutes per day 3 times a week in a row can lower blood pressure. This is relevant to the results of research conducted by Caturia Sulistyana (2022) that providing *gemu fa mi re* exercises can reduce blood pressure in hypertensive patients. Gymnastics activities are very

beneficial for managing hypertension. Regular exercise for 20-30 minutes 2-3 times a week is recommended to lower blood pressure.

Exercise can reduce blood pressure levels by stimulating a decrease in parasympathetic nerve activity which has an effect on reducing the hormones adrenaline, norepinephrine, catecholamines and vasodilation in blood vessels which results in smooth oxygen transport throughout the body, especially the brain, thereby reducing blood pressure and making the pulse normal. Exercise such as hypertension exercise can encourage the heart to work optimally, where exercise can increase energy requirements by cells, tissues and organs of the body, which as a result can increase venous return, causing stroke volume which will directly increase cardiac output, causing arterial blood pressure to increase, after Arterial blood pressure will increase first, the impact of this phase can reduce respiratory and skeletal muscle activity which causes sympathetic nerve activity to decrease, after that it will cause heart rate to decrease, stroke volume to decrease, vasodilatation of arterioles and veins, because this decrease results in a decrease in cardiac output. and a decrease in total peripheral resistance, resulting in a decrease in blood pressure. Based on the description of the theory above, researchers are of the opinion that exercise such as gemu fa mi re exercise can lower blood pressure. Therefore, knowledge about gemu fa mi re exercise must be increased so that hypertensive sufferers can do gemu fa mi re exercise as a non-pharmacological measure to control blood pressure.

CONCLUSION

Based on the research that has been conducted, it can be concluded that the characteristics of respondents who experienced hypertension at the Sikumana Community Health Center were that most were over 45 years old, most were female, most had a high school education, most had suffered from hypertension for 1 year and most were in the hypertension category.

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