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APPLICATION OF THERAPY BRISK WALKING EXERCISE ELDERLY BLOOD PRESSURE WITH HYPERTENSION IN THE PUSKESMAS AMBARAWA

Samsuri^a, Ns. Diana Dayaningsih, M.Kep^b

^a DIII Keperawatan, samsu89@gmail.com, Akademi Keperawatan Kesdam IV/ Diponegoro Semarang.

^b DIII Keperawatan nsdiananingsih@gmail.com, Akademi Keperawatan Kesdam IV/ Diponegoro Semarang

ABSTRACT

The elderly are the largest contributor to hypertension worldwide. Hypertension or an increased blood pressure > 140/90 mmHg. Brisk Walking Exercise therapy is a non-pharmacological therapy to control blood pressure. This case study aims to describe the application of Brisk Walking Exercise to reduce blood pressure in the elderly with hypertension. This research method uses a descriptive method involving 2 respondents with the criteria of elderly aged >60 years.category 1 hypertension.the results of this case study show a decrease in blood pressure between before and after brisk walking exercise therapy. Subject I experienced an average decrease of 3.71 mmHg in systolic and diastolic an average decrease of 1.71 mmHg.subject II experienced an average decrease of 4.41 mmHg in systolic blood pressure while in diastolic blood pressure there was an average decrease of 1.71 mmHg. Subject II experienced an average decrease of 4.14 mmHg in systolic and diastolic an average decrease of 3.14 mmHg.the conclusion of this case study is that brisk walking exercise therapy is effective in reducing blood pressure in both subjects.brisk walking exercise therapy is recommended as a nursing intervention in hypertension management in the elderly with hypertension.

Keywords : Brisk Walking Exercise, Elderly, Hypertention, Blood Pressure.

1. INTRODUCTION

The elderly are the biggest contributor to hypertension worldwide. (1) Hypertension is often referred to as the "silent killer", because people with hypertension are not aware of the disease they are suffering from. (2) Hypertension causes an increase in blood pressure which will cause further symptoms such as heart disease. coronary heart disease, right ventricular hypertrophy and stroke. (3) Hypertension is a condition when a person experiences an increase in blood pressure above normal, namely systolic blood pressure 140 mmHg and diastolic 90 mmHg. (4) The number of patients with hypertension continues to increase and is getting worse. controlled especially someone who has entered old age.(5)

Elderly is someone who is over 60 years old. (6) The elderly experience a decline in the function of body organs due to the aging process. (1) Aging is a process of slowly disappearing the ability of tissues to repair themselves and maintain their normal functions against infection or damage they suffer. . One of the body functions that have experienced a decline is cardiovascular function.(7)

Cardiovascular function in the elderly is impaired, namely thickening of the heart valves so that they become stiff and the ability of the heart to pump blood decreases. Rigid heart valves cause the elasticity of blood vessels and heart contractions to decrease causing blood pressure to increase.(8) The number of people with hypertension continues to increase and is increasingly uncontrolled, especially someone who has entered the elderly.(5)

According to 2019 AHA data, the prevalence of hypertension sufferers in the world is 22% of the total population. (5) Southeast Asia occupies the third position in the world at 25% of hypertension rates. (9) Data for 2019 the prevalence of hypertension in Indonesia is 34.11%. Central Java province itself ranks 4th out of all provinces in Indonesia with a hypertension prevalence rate of 37.57%. (10) In Semarang Regency the prevalence of hypertension is quite high, namely 6.88% of the total population in Java. Central. (11) Based on statistical data from the Ambarawa Health Center, the number of hypertension sufferers was 1,369 cases in 2019. (12)

Based on data in Indonesia, patients with hypertension in the age group 18-24 years (13.2%), aged 25-44 years (20.1%), aged 35-44 years (31.6%), aged 45-54 years (45.3%), age 55-64 years (55.2%), age 65-

74 years (63.2%) and age 75 years and over amounted to 69.5% of the total population.(9) Age 55 years and over is the biggest contributor to the number of people with hypertension in Indonesia.(5)

Hypertension is one of the risk factors that cause complications. (13) Uncontrolled increase in blood pressure triggers various diseases including heart disease, stroke and kidney failure. (14) The high prevalence of hypertension and the complications that accompany it are influenced by several factors, including genetic factors. , age, stress, smoking habits, alcohol and foods high in cholesterol and lack of activity. (15) Handling hypertension needs to be done properly to prevent the complications experienced. The role of families and nurses makes a good contribution in supporting the optimal management of hypertension.(16)

Families have a big role in providing support to people with hypertension because of their emotional attachment and strong inner relationship.(17) Whole family support can be given to people with hypertension is to provide facilities, empathy, appreciation and information related to their illness.(18) One of the ways to support hypertension sufferers. family function is a family nursing function, namely the family provides food, clothing, protection and health nursing care.(16) Families need to collaborate with nurses. The role of nurses as educators is to provide health education to patients and their families in improving the existing health status in the family environment. (17) Nurses also act as providers of nursing care by providing nursing services. One of the nursing services is providing treatment for hypertension.(2)

Handling hypertension can be done in 2 ways, namely pharmacological and non-pharmacological methods.(19) Administration of antihypertensive drugs by pharmacological means will not be effective and optimal if it is not accompanied by a healthy lifestyle. Management of hypertension by non-pharmacological methods is considered more effective and does not pose a risk to the function of other body organs. (20) The non-pharmacological method is to provide complementary therapies that can be given by a nurse in controlling blood pressure of patients with hypertension, including progressive muscle relaxation therapy, music therapy. , yoga, step up exercise, slow deep breathing exercise, isometric handgrip exercise and brisk walking exercise.(21–25)

One of the non-pharmacological complementary therapies in controlling blood pressure in hypertension is to increase activities such as brisk walking, not using assistive devices and requiring a relatively short time. Brisk walking exercise is a form of aerobic exercise with moderate activity in hypertensive patients by using brisk walking for 15-30 minutes at a speed of 4-6 km/hour to help lower blood pressure and help improve blood circulation.(26)

Brisk walking exercise is quite effective in stimulating muscle contraction, increasing heart rate capacity, breaking down glycogen and increasing oxygen in the tissues, besides that this exercise can also reduce plaque formation through increased fat utilization and increased glucose utilization.(27) Brisk walking exercise works by decreasing peripheral resistance, when muscles contract through activity there will be a 30-fold increase in blood flow when contractions are performed rhythmically.(25) Dilation of blood vessels will also result in a decrease in the distance between blood and active cells as well as the distance traveled by diffusion of O₂ and metabolic substances. greatly reduced which can improve cell function due to adequate supply of blood, oxygen and nutrients in cells.(28)

Various studies have shown that brisk walking exercise is effective in lowering blood pressure in hypertension. Meily Nirmasari et al's research in 2019 showed a decrease in blood pressure from MAP 113.54 to MAP 95.59, there was a decrease in the mean MAP of 17.95 after being given brisk walking exercise. (26) A similar study by Soni Ajji et al in 2020 showed a decrease in average blood pressure. blood pressure before brisk walking exercise was at 161.21 / 11.312 mmHg, the frequency of blood pressure after brisk walking exercise was on average 140.34 / 8.010 mmHg.(25) Blood in the Elderly in the Ambarawa Health Center Area”.

2. LITERATURE REVIEW

2.1. Hypertension

Hypertension is a condition of a person who experiences an increase in blood pressure above normal 140/90 mmHg. Blood pressure consists of two phases, namely the systolic phase of 140 mmHg indicating the phase of blood being pumped out by the heart and the diastolic phase of 90 mmHg indicating the phase of blood returning to the heart.(2)

Hypertension is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg on two measurements within five minutes. (25) An increase in blood pressure can cause damage to the kidneys, heart and brain. (4) According to The Seventh Report of The Joint National Committee on Prevention, Evaluation and Treatment of High Blood Pressure (JNC VII) blood pressure is grouped using a table of hypertension degrees.

2.2. Etiology

Based on the cause of hypertension can be divided into two:

1. Primary (essential) hypertension
Primary hypertension is an increase in blood pressure that has no known cause (ideopathic).
2. Secondary hypertension (non essential)
Secondary hypertension is an increase in blood pressure whose main cause is known to include blood vessel disorders, kidney disease, thyroid gland disorders, diabetes mellitus, diseases related to pregnancy and adrenal gland disorders. (15)

2.3. Blood Pressure

Blood pressure is the force on the artery walls that can push blood with the pressure of the heart to circulate blood throughout the body. Blood pressure can rise and fall because of the aorta and arteries which are blood vessels. The heart pumps blood intermittently into the aorta and then into the arteries so that blood pressure can rise and fall.(36)

2.4. Blood Pressure Type

1. Systolic pressure: blood pressure that occurs when the arteries are maximally contracted so that the left ventricular lobe of the heart contracts. The period of time when the heart contracts to pump blood throughout the body is called systolic. The normal systolic pressure for adults is 120 mmHg.
2. Diastolic pressure: blood pressure that occurs when the heart is not contracting or resting. On the heart rate curve, the diastolic blood pressure is the pressure represented in the range between the heart rate charts. The normal adult diastolic pressure is 80 mmHg.(19)

2.5. Family

The family is the smallest unit in society consisting of the head of the family and several of its members who live under the same roof and are interdependent. The family is an association of two or more individuals who are bound by blood, marriage or adoption relations and each family member interacts with one another. (17)

2.6. Elderly

Elderly is someone who has reached the age of more than 60 years. This stage is the stage where a person's body reaches the point of maximum development. After that the body begins to shrink or experience a decrease in the volume and density of both organs and bones due to the reduced number of cells in the body.

The elderly body will also experience a gradual decline in function so that it cannot withstand attacks of infection and cell damage. Cells in the body will experience progressive and comprehensive damage in the body. This process is known as the aging process. This aging process is natural and cannot be avoided by all living things. (1)

2.7. Brisk Walking Exercise

Brisk walking exercise is a form of aerobic exercise with moderate activity in hypertensive patients by using brisk walking for 15-30 minutes with an average speed of 4-6 km/hour. Brisk walking exercise is a sport activity with the movement of walking as quickly as possible without losing contact or touch with the ground.(25)

Brisk walking exercise is a regular isotonic exercise (walking fast) that can improve blood circulation so that it can lower blood pressure. Brisk walking exercise is also a form of physical activity.(38) Physical activity is any body movement that increases energy and energy expenditure which can reduce plaque formation in blood vessels through the process of burning calories (increased metabolism).

Brisk walking exercise can be done by people with hypertension stage 1 or stage 1. Patients with hypertension can do brisk walking for 15-30 minutes in one day for 7 consecutive days.(20)

3. RESEARCH METHODOLOGY

3.1. Case Study Subject

The case study subjects were 2 people with the following criteria:

The inclusion criteria in this case study are:

1. Elderly with hypertension grade 1 (systolic 140-159 mmHg, diastolic 90-99 mmHg).
2. Able to do independent activities.
3. Cooperative respondents.
4. Patients who are willing to be respondents.

The exclusion criteria in this study are:

1. Respondents who are not taking antihypertensive drugs.
2. Respondent resigned.
3. Respondents who have complications: DM.
4. The elderly who have problems in the lower extremities.
5. Seniors who refuse to be respondents.(25)

3.2. Study Focus

This case study focuses on the application of brisk walking exercise to lower blood pressure in the elderly with hypertension.

3.3. Data Collection Method

The steps for collecting data are as follows:

1. Manage licensing in the area of Ambarawa Health Center, Semarang Regency to conduct case studies.
2. Explain the purpose, purpose and time to the head of the puskesmas or the nurse in charge at the case study site and ask for approval to involve the subject in the case study.
3. Determine and conduct an initial assessment of respondents according to the inclusion criteria and exclusion criteria.
4. Conduct an assessment and check blood pressure 5 minutes before being given therapy.
5. Ask the respondent to sign the informed consent and be accompanied by a family member as proof of consent to involve the subject in this case study.
6. Identify and discuss with the subject and family about the implementation of brisk walking exercise.
7. Keep the meeting time contract and conduct an assessment before giving brisk walking exercise therapy.
8. Do therapy in the morning for 15 minutes at a speed of 4-6 km/hour accompanied by family members as a form of support.
9. Measure blood pressure again 5 minutes after being given therapy..
10. Contract the next meeting and repeat the procedure for 7 consecutive days.
11. Each meeting was measured pretest before therapy and post test blood pressure after being given therapy.
12. Perform data processing.
13. Presenting case study results in tabular form.

3.4. Location and Time of Case Study

This case study plan was carried out in the Ambarawa Health Center area, Semarang Regency and the implementation time was for 7 consecutive days in the morning.

3.5. Data Analysis and Presentation

1. Data Analysis
Data processing using descriptive analysis. Descriptive analysis is a way of describing or describing the data that has been collected as it is without intending to make conclusions that apply in general. This data processing will be carried out using a digital sphygmomanometer to determine changes in blood pressure after being given brisk walking exercise therapy. The results of blood pressure measurements are in the form of systolic and diastolic numbers in mmHg.
2. Data Presentation
Presentation of data after data processing and obtained a research result. Data and research results will be presented in the form of narratives and tables.

4. RESULTS AND DISCUSSION

4.1. Overview of Case Study Subjects

Subject I

Researchers visited subject I on April 14, 2021 at 15.00 WIB. The results of the data collection showed that subject I was male, 65 years old, height 160 cm, weight 56 kg, Muslim, last education was junior high school, worked as odd jobs. Subject I said that currently he only lives with his wife, his children are married and live at home alone. Subject I was still active independently, did not experience physical weakness and did not have dementia. Currently, subject I suffers from hypertension, often complains of headaches in the back and tension in the neck area. The results of the examination showed that the blood pressure was 148/92 mmHg.

The results of the study of 5 functions of family health nurses obtained data that the client and family had known to suffer from hypertension for more than 1 year, received Amlodipine 10 mg from the Puskesmas to lower blood pressure but now it had run out, Subject I said that he had participated in the Prolanis program from BPJS and lastly took medication almost 1 year ago.

Subject I said that there was a family history of suffering from hypertension, had received health education about hypertension from the Puskesmas and was recommended to stop smoking but was not implemented because it was addicted, was not carrying out other complementary therapies. Subject I and his family said that they knew that subject I had hypertension but did not know how to treat or treat his hypertension.

Subject II

Researchers visited subject II on April 15, 2021 at 09.00 WIB. The results of the data collection showed that subject I was female, 63 years old, height 155 cm, weight 58 kg, Muslim, last elementary school education. Subject II does not work, daily activities as a housewife, suffers from high blood pressure (hypertension) for more than 1 year. Subject II was still able to move on his own, did not experience physical weakness and did not experience dementia. Subject II said that during the month of Ramadan, he prepared food for sahur, got up at around 02.30 WIB and a meal to break the fast at 15.30 WIB.

Subject II currently lives with her husband and a 19-year-old son. Subject II said that he was very happy to be visited by health workers because they could check his health condition for free. Subject II complained that at this time he was often dizzy and felt stiff in the neck. The results of the examination showed blood pressure of 153/90 mmHg.

The results of the study of 5 functions of family health nurses obtained data that the client and family had known to suffer from hypertension for more than 1 year but there was no follow-up nursing action while the family also had a history of stroke. The client's family rarely pays attention to the health of the subject II. Subject II also never took high blood pressure lowering drugs.

Subject II said that he had never had a health check at the Puskesmas, the last check being at the Puskesmas was almost 1 year. Have received health education about hypertension from the Puskesmas and were advised to reduce salty foods but were not carried out because they thought that food if not salty was not delicious, Was not carrying out other complementary therapies. Subject II and his family members do not smoke at home. Subject II and his family knew that subject II had hypertension but did not know how to treat or treat hypertension.

4.2. Implementation of Brisk Walking Exercise Therapy

Both subjects were subjected to Brisk Walking Exercise therapy for 7 consecutive days of meetings and carried out in the morning at 06.30 WIB in 15 minutes. The initial assessment on subject I for the first meeting was carried out on Wednesday April 14, 2021 at 15.00 WIB in the living room of subject I's house. The first meeting began with introductions, conveying the intent and purpose then measuring the blood pressure of subject I with the results of 148/92 mmHg.

The results of the initial assessment and measurement of subject I's blood pressure were in accordance with the research inclusion criteria and then submitted an informed consent to obtain approval from subject I and was willing to participate in this Brisk Walking Exercise therapy study. When conducting the first study, subject I was accompanied by his wife. The family supports subject I to do Brisk Walking Exercise therapy to control his blood pressure. After completing the initial assessment, a contract time for the implementation of the Brisk Walking Exercise therapy will be carried out on Friday, April 16, 2021, at 06.30 WIB. The plan for implementing Brisk Walking Exercise therapy was carried out together with subject II at Jalan Reban Tank, Yonkav-2/TC Dormitory, Ambarawa.

The initial assessment of subject II for the first meeting was conducted on Thursday, April 15, 2021, at 09.00 WIB in the living room of subject II's house. The first meeting began with introductions, conveying the goals and objectives then measuring the blood pressure of subject II with the results of 153/90 mmHg.

Subject II agreed to participate in the application of Brisk Walking Exercise therapy and signed the Informed Consent accompanied by his child. The intervention for the application of Brisk Walking Exercise therapy was carried out with subject I on Friday, April 16 at 06.30 WIB at Jalan Reban Tank, Yonkav-2/TC dormitory, Ambarawa.

On April 15, 2021 at 15.00 WIB, the researcher measured the distance from the application of Brisk Walking Exercise therapy as far as 1 km using a Motorcycle Speedometer. A start sign is given to start the implementation of Brisk Walking Exercise therapy and every 100 meters a sign is also given to control the speed of the two subjects so that maximum results are obtained in accordance with Brisk Walking Exercise therapy.

The first intervention was given on Friday, April 16, 2021, for both subjects, starting with conveying the techniques and procedures for implementing Brisk Walking Exercise therapy. The researcher conveys the Brisk Walking Exercise therapy technique, the speed limit is between 2-4 km/hour, the distance is 1 km, every 100 meters has been given a white line so that the speed can be controlled and conveys signs of stopping Brisk Walking Exercise therapy if you experience blurred vision such as seeing fireflies, headache and leg cramps. Then the researchers measured the blood pressure of each subject.

In the first subject, the blood pressure measurement results were 146/91 mmHg and the blood pressure measurement for the second subject was 151/93 mmHg. Both subjects were in good health, then the researcher directed subject I and subject II to follow the warm-up movement in place before starting the Brisk Walking Exercise therapy. After warming up, the two subjects stood at the starting line, starting with a prayer, then walking briskly at a speed of 2-4 km/hour with a distance of 1 km for 15 minutes accompanied by the researcher. In the implementation of this first intervention, subject I was accompanied by his child. After reaching the finish line, subject I and subject II took a break for 5 minutes then continued stretching. At the end of the first meeting, the researchers measured blood pressure 15 minutes after the implementation of therapy. Measurement of blood pressure of subject I obtained results of 144/89 mmHg while measurement of blood pressure of subject II obtained results of 148/88 mmHg. subject I and subject II said their bodies felt fresh even though they were a little tired.

The second intervention will be given on Saturday, April 17, 2021, at 06.30 WIB. The researcher reiterated the procedure for implementing the Brisk Walking Exercise therapy for the two subjects. Then the researchers measured the blood pressure of subject I with the results of 139/88 mmHg and subject II 147/93 mmHg. After measuring blood pressure, the researcher led the heating before doing therapy. Subject I and subject II followed enthusiastically.

In this second meeting, the researcher was still accompanying and carrying out Brisk Walking Exercise therapy for the two subjects. Subject I was accompanied by his wife and participated in carrying out the fast walk. Subject II was accompanied by his child but did not participate in the fast walk. The researcher, subject I and subject II then stood at the starting line, the researcher pressed the stopwatch then subject I and subject II did a brisk walk but were not allowed to run. Fast walking is carried out for 15 minutes with a distance of 1 km and ends at the finish line. After carrying out a brisk walk, the two subjects rested for 5 minutes and then continued to follow the stretch led by the researcher. At the end of the meeting, the researchers measured the blood pressure of the two subjects again, the results were that subject I was 139/87 mmHg and subject II was 140/90 mmHg.

The third intervention will be given on Sunday, April 18, 2021, at 06.30 WIB. The researcher reiterated the brief procedure for implementing Brisk Walking Exercise therapy then measuring the blood pressure of subject I, the results were 143/89 mmHg and for subject II the results were 149/96 mmHg. The researcher led the warm-up and was followed by both subjects and their family members. After the warm-up was completed, subject I and subject II stood at the starting line, the researcher pressed the stopwatch, then the two subjects walked quickly together for 15 minutes with a distance of 1 km and ended at the finish line. Subject I and subject II arrived at the finish line on time, rested for 5 minutes followed by stretching. At the end of the meeting, the researchers measured blood pressure again on both subjects with the results of subject I 137/89 mmHg and subject II 145/95mmHg.

The fourth intervention was carried out on Monday 19 April 2021 at 06.30 WIB. The researcher reiterated the brief procedure for implementing Brisk Walking Exercise therapy then measuring the blood pressure of subject I, the results were 149/93 mmHg and for subject II the results were 139/91 mmHg. In this fourth intervention, the two subjects were able to warm up independently and then stood at the starting line, the researcher gave the preparation signal and then pressed the stopwatch. Both subjects walked fast simultaneously but did not run. After 15 minutes both subjects reached the finish line and rested for 5 minutes followed by independent stretching. At the end of the meeting, the researchers measured the blood pressure of the two subjects again, the results were that subject I was 139/90 mmHg and subject II was 137/87 mmHg. Both subjects said their bodies felt fresher and felt happy to be able to exercise.

The fifth intervention was carried out on Tuesday, April 20, 2021, at 06.30 WIB. The researcher reiterated the brief procedure for implementing Brisk Walking Exercise therapy then measuring the blood pressure of subject I, the results were 138/91 mmHg and for subject II the results were 147/90 mmHg. Researchers reminded the safety factor when carrying out therapy. Both subjects were able to carry out Brisk Walking Exercise therapy independently, starting with warming up, doing brisk walking and stretching. Researchers give appreciation to both subjects. At the end of the meeting, the researchers measured the blood pressure of the two subjects, the results were that subject I was 137/86 mmHg and subject II was 145/90 mmHg.

The sixth intervention was carried out on Wednesday, April 21, 2021 at 06.30 WIB. The researcher reiterated the brief procedure for implementing Brisk Walking Exercise therapy then measuring the blood pressure of subject I, the results were 141/87 mmHg and for subject II the results were 156/88 mmHg. Both subjects carried out warming up, brisk walking and stretching therapy independently, but the researchers still controlled the speed, time and distance of the therapy. Subject I said his body is now fresher and enjoys the air in the morning. At the end of the meeting, the researchers measured the blood pressure of the two subjects, the results were that subject I was 140/86 mmHg and subject II was 149/85 mmHg.

The seventh intervention was carried out on Thursday, April 22, 2021, at 06.30 WIB. The researcher reiterated the brief procedure for implementing Brisk Walking Exercise therapy and reminded the safety factor in the implementation of therapy then measuring the blood pressure of subject I the results were 147/91 mmHg and for subject II the results were 150/96 mmHg. Both subjects carried out warming up, brisk walking and stretching therapy independently. Researchers accompany therapy on the seventh day which is the last day of the implementation of Brisk Walking Exercise therapy. Both subjects carried out therapy with enthusiasm, arriving at the finish line on time in about 15 minutes with a distance of 1 km. Then the two subjects carried out stretching and continued by measuring blood pressure by the researcher on each subject. Researchers got the results of measuring blood pressure in subject I, namely 141/91 mmHg and subject II 146/93 mmHg.

At the last meeting, subject I said that his body felt fresher even though he was fasting and intended to continue this therapy, while subject II said that his headaches and neck pain had reduced. Both subjects were very happy to get attention from nurses about their health problems. Subject I and Subject II agreed to invite their family members to adopt a healthy lifestyle with adequate rest, reduce salty foods and exercise regularly.

4.3. Discussion

The results of a case study in the Ambarawa Community Health Center, Semarang Regency on reducing blood pressure in the elderly with hypertension by giving Brisk Walking Exercise therapy to subject I and subject II before and after therapy for 7 consecutive days there was a decrease in blood pressure in both subjects.

The results of the study of 5 family health nursing functions on subject I showed that subject I had the need for affection in his family met, was able to socialize both with other family members and in the community, already had offspring and had no problems in meeting his economic needs. Subject I has not fulfilled the function of family health nursing optimally. Subject I's family did not understand about hypertension treatment so that there was no nursing action from family members to deal with hypertension experienced by subject I such as lack of food control, smoking and lack of exercise.

The results of the study of 5 family health nursing functions on subject II showed that subject II received love from family members, subject II was able to socialize well, already had 2 children, and in fulfilling the economy in the family was fulfilled. Subject II's family has not fulfilled the function of family health nursing optimally. Subject II's family members have not been able to provide support for handling hypertension experienced by subject II such as the absence of support for routine checks to health facilities and no control over food for hypertension sufferers and lack of activity in exercising.(1)

The results of blood pressure measurements in subject I were 146/91 mmHg, often complained of headaches in the back and tension in the nape area. Subject I had known suffering from hypertension since 2 years ago. Subject I is an active smoker, has hypertension from his parents and likes to eat salty and fatty foods. While the results of the measurement of blood pressure, subject II 151/93 mmHg, currently complains that he often feels dizzy and feels stiff in the neck. Subject II had known that he had hypertension since 1 year ago. Subject II likes to consume salty food, is less active and prefers to hang out with his peers.

Both subjects were included in the category I hypertension stage. The data obtained in each subject showed an increase in blood pressure that exceeded the normal limit, namely having a blood pressure exceeding the normal limit of 140/90 mmHg. This condition is in accordance with the theory which explains that hypertension is an increase in systolic blood pressure of more than 140 mmHg and diastolic more than 90 mmHg. Hypertension can occur due to several factors such as heredity, gender, age, unhealthy lifestyle (smoking, eating fatty and salty foods, lack of exercise, stress, and drinking alcoholic beverages).

Factors that support high blood pressure in both subjects is the age factor. Both are elderly, where subject I is 65 years old and subject II is 63 years old. With age, the flexibility of the large arteries decreases and becomes stiffer which results in the capacity and recoil of blood being accommodated through the blood vessels to decrease. This reduction causes the systolic blood pressure to increase. (41)

Aging also causes disruption of neurohormonal mechanisms such as the renin-angiotensin-aldosterone system and also causes an increase in peripheral plasma concentrations and also the presence of glomerulosclerosis due to aging and intestinal fibrosis resulting in increased vasoconstriction and vascular resistance resulting in increased blood pressure (hypertension). This is in accordance with Eni Nuraini's research on the relationship between age and the incidence of hypertension which shows that the older a person is, the greater the risk of developing hypertension. A person aged >45 years has a risk of 8.4 times greater than a young person <45 years old.(41)

Another factor that influenced the occurrence of hypertension in both subjects was the hereditary history of hypertension from family members. Subject I's parental medical history suffered from hypertension which resulted in stroke and died, while the second subject's family medical history also suffered from hypertension. Based on Ari Pristina's research, hypertension is a hereditary disease. A person who has a family history of being a carrier of hypertension has a two-fold greater risk of developing hypertension. A history of hypertension can pass down the genes of the offspring. The symmetric gene codes for the aldosterone synthase gene, resulting in the ectopic production of aldosterone, a gene mutation. Endothelial sodium channels result in increased aldosterone activity, suppression of plasma renin activity and hypokalemia. The damage causes mineralcorticoid excess syndrome. With the increase in aldosterone causes water retention also increases, resulting in an increase in blood pressure (hypertension). A person with parents who have a history of hypertension is likely to experience hypertension by about 60% decreasing in him.(42)

Lack of regulation of hypertension diet is also a factor that affects the incidence of high blood pressure in the two subjects. Foods that are high in salt can trigger hypertension. Salt contains a lot of sodium which causes water retention so that blood volume increases. High sodium intake will also cause the release of excess natriouretic hormone which will indirectly increase blood pressure. Consumption of high amounts of salt can also shrink the diameter of the arteries, so the heart has to pump harder to push the increased volume of blood through narrow blood vessels, which can lead to hypertension. According to research by Janu Purnomo that eating patterns in the elderly is a factor that determines the health problems of the elderly such as consuming excessive salty food is directly proportional to an increase in blood pressure (hypertension).(43)

One of the factors that influence these differences is the level of health activity of the two subjects. Subject I had a moderate level of activity, namely working as a laborer and sometimes exercising such as a morning walk but not regularly. Subject II has a light activity level, namely activities just sitting at home and hanging out with their peers and do not like sports. According to research by Rino Andriani Harahap, lack of regular activity can cause blood pressure to increase. Physical activity greatly affects the stability of blood pressure.

Someone who is not actively doing activities tends to have a higher heart rate. This causes the heart muscle to work harder with each contraction. The harder the heart muscle pumps blood, the greater the blood pressure that imposes on the arterial walls so that the peripheral resistance causes an increase in blood pressure. Lack of activity can also increase the risk of being overweight which will cause the risk of hypertension to increase. Physical activity or moderate-intensity exercise, such as brisk walking, can reduce mortality in patients with cardiovascular disorders such as hypertension.(44)

The researchers here conducted a case study using the intervention of Brisk Walking Exercise therapy on both subjects with the aim of being able to see a picture of changes in the subject's blood pressure after the Brisk Walking Exercise therapy was performed for 7 consecutive days within 15 minutes of each therapy. Brisk Walking Exercise is a form of aerobic exercise with moderate activity with brisk walking technique for 15-30 minutes with an average speed of 2-4 km/hour.

Brisk Walking Exercise works by decreasing peripheral resistance, when muscles contract through physical activity there will be a 30-fold increase in blood flow when contractions are performed rhythmically. The presence of dilatation of the precapillary sphincters and arterioles results in a 10-100-fold increase in capillary opening. Dilatation of blood vessels will also result in a decrease in the distance between the blood and active cells as well as the distance traveled by the diffusion of O₂ and greatly reduced metabolic substances which can improve cell function due to an adequate supply of blood, oxygen and nutrients in the cells. This is in accordance with Sonhaji's research on the effect of Brisk Walking Exercise on blood pressure in the elderly. The frequency of blood pressure before the Brsik Walking Exercise was on average 161.21/11,312 mmHg and after the Brsik Walking Exercise the average was 140.34/8.010 mmHg.(25)

The provision of Brisk Walking Exercise therapy intervention to subject I and subject II for the first meeting was carried out on Friday, April 16, 2021, which was located on Jalan Reban Tank, Yonkav-2/TC dormitory, Ambarawa. The Brisk Walking Exercise therapy was given jointly between subject I and subject

II to facilitate monitoring and safety factors and to obtain optimal results. The two subjects were fasting, the Brisk Walking Exercise therapy was carried out in the morning at around 06.30 WIB so that both subjects said they were able to follow the Brisk Walking Exercise therapy because they had eaten sahur and did not feel thirsty.

At the first meeting, it began with a request for approval from subject I and subject II and was accompanied by each family member of the two respondents, followed by an explanation regarding the implementation of therapy. Researchers measured the blood pressure of subject I at 146/91 mmHg and for subject II at 151/93 mmHg. After measuring blood pressure, the two subjects did warm-up exercises for about 5 minutes starting from head to toe movements led by the researcher, then continued with the implementation of Brisk Walking Exercise therapy, starting to stand at the starting line. The distance is about 1 km on a level road, the average speed is 2-4 km/hour with a travel time of 15 minutes. The researcher provided assistance and participated in carrying out therapy at the first meeting and for subject I was accompanied by his child and subject II himself. Subject I and subject II walked together while doing brisk walking therapy. Arriving at the finish line, subject I and subject II rested for 5 minutes then continued with stretching exercises led by the researcher. After the stretching exercise was completed, the researchers re-measured blood pressure in subject I with the results of 144/89 mmHg and for subject II 148/88 mmHg.

At the second meeting and so on until the seventh meeting, the same treatment was carried out as at the first meeting. The measurement results for each subject are listed in table 2.1 and table 2.2. Both subjects said they were very happy and felt more refreshed after doing brisk walking therapy with the researcher, especially when they were accompanied by family members of the two subjects. Both subjects also said that the therapy time of 15 minutes was quite appropriate when they were fasting and did not experience significant fatigue.

The process of giving Brisk Walking Exercise therapy both at the first to the last meeting, the researcher involved family members of subject I and subject II, namely their children and wife. The involvement of family members in the nursing process aims to increase family independence in caring for elderly family members who are experiencing high blood pressure. According to Susriyanti's research, the support of family members will provide motivation and self-confidence in dealing with life problems, especially health problems for the elderly. The involvement of family members is expected to make the two subjects more obedient and obedient to the treatment of hypertension experienced.

The results of the nursing evaluation obtained after the intervention was carried out for 7 consecutive days in both subjects there was a decrease in blood pressure. Subject I blood pressure of 146/91 mmHg to 141/91 mmHg while for subject II from blood pressure of 151/93 mmHg to 146/93 mmHg. Subject I experienced a decrease of 5 mmHg for systolic and 0 mmHg for diastolic, while subject II experienced a decrease of 5 mmHg for systolic and 0 mmHg for diastolic pressure. Based on the results of the study above, it shows the effect of Brisk Walking Exercise on blood pressure.

When both subjects did the Brisk Walking Exercise, all limbs moved and then stimulated muscle contractions which increased heart rate capacity and broke down glycogen and increased oxygen in the tissues. When doing Brisk Walking Exercise regularly, it can reduce plaque formation by increasing the use of fat and glucose which is converted by metabolism in the body into a source of caloric energy. Both subjects feel happy and happy when walking fast, this can reduce stress levels which is one of the factors causing hypertension.

The results of the case study conducted by the researcher are in accordance with another similar study conducted by Son Hajji by giving Brisk Walking Exercise therapy for 7 consecutive days at the Semarang nursing home, there was a decrease of 3.15 mmHg in systolic blood pressure and 1 mmHg in diastolic blood pressure. ,72 mmHg.(1)

Another factor that supports the decrease in blood pressure in both respondents is the enthusiasm in doing therapy and family support so that the implementation of Brisk Walking Exercise therapy can run optimally. In addition to developments related to the decrease in blood pressure in subjects I and II, there was also a change in the level of family independence in subject I before being given therapy which was included in the level of family independence from level III to level IV. Meanwhile, subject II who is included in the level of family independence level II becomes level III because they are able to carry out preventive actions actively in controlling their blood pressure.

5. CONCLUSION

Based on the results of case studies and discussions about blood pressure care in the elderly with hypertension with a family nursing care approach, it can be concluded that:

1. There was a decrease in blood pressure in subject I between before and after being given Brisk Walking Exercise therapy for 7 consecutive days which was monitored using the client's blood pressure observation sheet, there was a decrease from 148/92 mmHg to 140/92 mmHg.
2. There was a decrease in blood pressure in subject II between before and after being given Brisk Walking Exercise therapy for 7 consecutive days which was monitored using the client's blood pressure observation sheet, there was a decrease from 153/90 mmHg to 146/90 mmHg.
3. Brisk Walking Exercise therapy intervention was effective in reducing blood pressure in the elderly with hypertension, with a decrease in systolic blood pressure in subjects I of 6 mmHg and for subjects II a decrease in systolic blood pressure of 4 mmHg. Meanwhile, the diastolic blood pressure of the two subjects did not change (fixed).
4. Family nurses can act as health implementers and health supervisors to improve the 5 functions of health care and the level of family independence.

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