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Analysis of tera gymnastic as an intervention of acute pain nursing problems in elderly families with hypertension

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ABSTRACT

Background: One of the problems that occurs in the elderly is hypertension. Hypertension has many symptoms, including dizziness, fatigue, difficulty sleeping, and one of them is acute pain in the nape of the neck. In treating pain, there are two methods of treatment, namely pharmacological techniques and non-pharmacological, one of the non-pharmacological treatments is tera exercise. Terra exercise is an alternative way to reduce pain.

Objective: To analyze the implementation of acute pain nursing care for elderly families who experience hypertension problems in Trayeman Pleret Hamlet, Bantul.

Method: This research method uses descriptive methods. The approach used is a case study with the management of one case using a nursing care process approach involving elderly families who experience acute pain nursing problems with hypertension. This research with quantitative method

Results: After performing tera exercises three times for \pm 60 minutes, participants said the pain had decreased from a pain scale of 5 to 2.

Conclusion: The application of tera exercise can reduce the problem of acute pain nursing in elderly families with hypertension. The benefits for nursing with the discovery of tera exercise have become an innovation for the implementation of nursing care for elderly patients.

Keywords: elderly families; hypertension; tera gymnastics.





INTRODUCTION

Elderly is the final stage of human life development. The elderly will experience an aging process which is characterized by a decrease in physical endurance making them vulnerable to disease (Angulo et al., 2020). States that the diseases that often occur in the elderly are noncommunicable diseases (NCDs), such as hypertension, arthritis, stroke, Chronic Obstructive Pulmonary Disease (COPD) and Diabetes Mellitus (DM) (Karthika et al., 2023). The estimated global prevalence of hypertension is 1.28 million among those aged 30-79 years from the total world population. Prevalence of hypertension sufferers in Indonesia more frequently at ages 55-64 years (55.2%), 65-74 years (63.2%), and >75 years (69.5%). Based on riskesdas data for West Sumatra province, the prevalence of hypertension in Padang city as much as 24.2%. This means that more and more people are at high risk of suffering from hypertension, especially the elderly population. Hypertension is a condition where blood pressure is found to be more than 140/90 mmHg or more for ages 13-50 years and blood pressure reaches 160/95 mmHg for ages over 50 vears (Zhang and Cai, 2022). Signs and symptoms in hypertensive clients are: increased blood pressure 140/90 mmHg, headache, dizziness/migraine, heavy feeling in the neck, narrowing of blood vessels, difficulty sleeping, weakness and fatigue, nocturia, azotemia, difficulty breathing during activity. Tera gymnastics is a breathing exercise combined with movement sports that combine body movements with breathing techniques. The movements in tera gymnastics are carried out regularly and harmoniously (Ilmaskal et al., 2023). Tera workouts take between 4-5 minutes. Regular physical activity can lower a person's blood pressure. The blood pressure of the respondents decreased from 140 mmHg to 110 mmHg, where the researchers will apply exercise to hypertensive patients in the elderly category (Rusnoto and Himawan, 2023).

The family is the smallest unit in society. Family is defined in terms of kinship where individuals unite in a marriage bond by becoming parents. In the external sense, family members are those who have personal and reciprocal relationships in carrying out obligations and providing support due to birth, adoption, or marriage (Akinrolie, Okoh and Kalu, 2020). The family is a social system and small group consisting of individuals who have close relationships with each other, are interdependent and are organized in a single unit to achieve certain goals (Prox and Farine, <u>2020</u>). Families have a life cycle in which there are predictable stages, just as individuals experience continuous growth and development. Family development is a process of change that occurs in the family system, including family changes in interaction patterns and relationships between its members over time, the stages of family development starting from the new family stage to the elderly family stage (Van Gasse and Mortelmans, 2020). Problems that usually occur in elderly families include decreased physical function and strength, inadequate financial resources, loneliness, and old age, which is an age that is at high risk of degenerative diseases such as coronary heart disease (CHD), hypertension, diabetes mellitus, rheumatism, and cancer. One of the diseases that elderly people often experience is hypertension (Zheng et al., 2021). Hypertension is often called the hidden killer; hypertension does not give sufferers any symptoms. But that does not mean this is not dangerous. In general, all medical disorders that arise are usually accompanied by signs and symptoms (Oh, 2018).

Hypertensive headaches in the elderly occur due to an increase in hypertension or blood pressure high, which is caused by a blockage in the circulatory system, both the heart and a series of arteries and veins that involve blood. This disrupts blood flow from the circulation and causes pressure to increase (Saiz *et al.*, 2022). Tera exercises are safe and easy to use for hypertension patients. Exercise can stimulate the release of endorphin hormones. Endorphins are neuropeptides produced by the body when relaxed or calm. This hormone can function as a natural sedative produced by the brain which makes you feel comfortable and increases endorphin levels in the body to reduce high blood pressure (Ghosh *et al.*, 2024). Exercise has been proven to increase b-endorphin levels up to 5 times in the blood. The more you do exercise, the higher the levels of b-endorphin will be released and captured by receptors in the hypothalamus and limbic system, which function to regulate emotions. Increased b-endorphin has been proven to be closely related

to pain, improved memory, decreased blood pressure and breathing. This tera exercise is recommended for elderly people who suffer from high blood pressure, while the aim of this research is to add an innovation to the implementation of gerontic nursing.

METHOD

This type of research is descriptive using a case study approach. According to (Notoadmojo, 2018) the descriptive research method is a research method carried out to describe or explain phenomena that occur in society. In the field of public health, descriptive surveys are used to describe health problems and those related to the health of a group of residents or people. The subject in this case study is a client who meets the research subject criteria. The research subject criteria were elderly families who had acute pain nursing problems with hypertension in Trayeman Pleret Hamlet, Bantul, Yogyakarta. Research instruments are tools used to carry out research activities, especially for measuring and collecting data in the form of questionnaires, a set of test questions, observation sheets, etc. The research instruments used in this study were family nursing care, NRS (Numeric Rating Scale) to measure the pain scale and the provision of therapeutic exercises to treat acute pain. This research has received an ethical test with No: 113/ KEPK/SSG/V/2022. Data collection methods were carried out by interviews and observations in accordance with the family nursing care format. The data source used is primary data, which is a data source that is directly obtained from respondents by means of interviews and observations.

RESULTS

Results of Acute Pain Assessment Using the PQRST Format Before Performing Tera Gymnastics Nursing Actions. Results of Acute Pain Assessment Using the PQRST Format After Tera Gymnastics Nursing Actions. Pain due to high blood pressure. Pain due to high blood pressure. Pain due to high blood pressure. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt to come and go, pain during the day and at night. The pain is felt to come and go, the pain is felt during the day. The pain is felt to come and go, the pain is felt during the day. Provoking Pain due to high blood pressure. Pain due to high blood pressure. Quality Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain is felt in the back of the neck of the neck acute pain feels like being hit by a heavy and at night. The pain is felt during the day. Provoking Pain due to high blood pressure. Pain due to high blood pressure. Quality Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain feels like being hit by a heavy weight. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the neck. Acute pain is felt in the back of the ne

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and go, pain during the day and at night. The pain is felt to come and go, the pain is felt during the day. The pain is felt to come and go, the pain is felt during the day.

Subject Mr. S	Date			
	22nd August 2023	24th August 2023	26th August 2023	
Provoking	Pain because of high	Pain because of high	Pain because of high	
	blood pressure	blood pressure	blood pressure	
Quality	Acute pain feels like being crushed by a heavy weight.	Acute pain feels like being crushed by a heavy weight.	Acute pain feels like being crushed by a heavy weight.	
Region	Acute pain feels at the back of neck.	Acute pain feels at the back of neck.	Acute pain feels at the back of neck.	
Severity	Pain scale 5 (moderate acute pain).	Pain scale 4 (moderate Acute pain).	Pain scale 3 (mild acute pain).	
Time	The pain is intermittent, with pain during the day and at night.	The pain is intermittent, with pain during the day.	The pain is intermittent, with pain during the day.	

 Table 1. The Results of Acute Pain Assessment Using the PQRST Format Before Performing

 Tera Gymnastics Nursing Action

Table 2. The Results of Acute Pain Assessment Using the PQRST Format After Performing Tera Gymnastics Nursing Action

Subject Mr. S	Date		
Subject Mr. S	22nd August 2023	24th August 2023	26th August 2023
Provoking	Pain because of high	Pain because of high	Pain because of high blood
	blood pressure	blood pressure	pressure
Quality	Acute pain feels like being crushed by a heavy weight.	Acute pain feels like being crushed by a heavy weight	Acute pain feels like being crushed by a heavy weight
Region	Acute pain feels at the back of neck	Acute pain feels at the back of neck	Acute pain feels at the back of neck
Severity	Pain scale 5 (moderate acute pain).	Painscale4(moderateacutepain).	Pain scale 2 (mild acute pain).
Time	The pain is intermittent, with pain during the day and at night.	The pain is intermittent, with pain during the day.	The pain is intermittent, with pain during the day.

DISCUSSION

Researchers revealed that patients experienced changes after nursing actions with tera gymnastics. On the first day before the tera gymnastics, Mr. S said that the level of acute pain on a scale of 5 (moderate pain) and after tera gymnastics the pain scale was still the same scale 5 (moderate pain). The pain was felt to be intermittent and felt during the day and night. On the second day before the tera exercise, Mr. S said that the pain scale was on a scale of 4 (moderate pain). After the exercise was carried out, it decreased the pain scale, namely a scale of 4 (moderate pain) but the pain was felt to disappear and was only felt during the day. On the third day before

the tera exercise, there was a decrease in the pain scale than yesterday with a scale of 3 (mild pain). After the tera exercise was carried out, the pain scale becamd to 2 (mild pain). The pain was felt to disappear and was only felt during the day. The pain is felt due to high blood pressure and the pain feels like being crushed by a heavy weight. The pain is felt at the back of the neck.

Based on result, it is known that the patient experienced changes after nursing procedures with tera exercises. On the first day before doing tera exercises, Mr. S said the acute pain level was on a scale of 5 (moderate pain) and after exercise the pain scale was still the same, scale 5 (moderate pain) the pain was felt to come and go and was felt during the day and night. On the second day before the gymnastics, Mr. S said that the pain scale was on a scale of 4 (moderate pain) and after the exercise there was a sharp decrease in the pain scale, namely scale 4 (moderate pain), the pain was felt to come and go and was only felt during the day. On the third day before the tera exercise there was a decrease in the pain scale from yesterday with a scale of 3 (mild pain) and after the tera exercise the pain scale dropped to 2 (mild pain) the pain seemed to come and go and was only felt during the day. Pain is felt due to high blood pressure, pain is felt like being hit by a heavy weight, pain is felt in the back of the neck.

Tera exercises were given on August 22 2023 using video and music media for \pm 60 minutes and then the patient's acute pain was measured before and after the tera exercises were carried out. During the tera exercise on August 22 2023, before the tera exercise was carried out, Mr. S said the acute pain level was on a scale of 5 (moderate pain) and after exercise the pain scale was still the same, scale 5 (moderate pain) the pain was felt to come and go and was felt during the day and night. On August 24, 2023 before Mr. S said that the pain scale was on a scale of 4 (moderate pain) and after the exercise there was a sharp decrease in the pain scale, namely scale 4 (moderate pain), the pain was felt to come and go and was only felt during the day. On August 26 2023, before the tera exercise, there was a decrease in the pain scale from yesterday with a scale of 3 (mild pain) and after the tera exercise the pain scale dropped to 2 (mild pain) the pain was felt to come and go and was only felt during the day. Pain is felt due to high blood pressure, pain is felt like being hit by a heavy weight, pain is felt in the back of the neck. Tera exercise is a non-pharmacological therapy method to reduce pain. which is practical and effective, doing regular exercise can provide benefits to the body to improve physical and spiritual health, specifically physical health aims to improve and improve nervous function, the respiratory system, strengthen the endurance of the heart and improve blood circulation, the food digestive system, as well as relax and flex joints. Meanwhile, spiritually for stable self-confidence, reducing stress levels, reducing insomnia and increasing concentration abilities. Tera exercise is an aerobic exercise (using oxygen) because this exercise has an element of breathing exercise (Grznár et al., 2022).

In theory, 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 volume which will directly increase cardiac output, causing arterial blood pressure to increase. After arterial blood pressure increases first, the impact of this phase is able to reduce sympathetic nerve activity, then it will cause heart rate to decrease, volume to decrease, vasodilation of venous arterioles, because this decrease results in a decrease in cardiac output and a decrease in total peripheral resistance, so that blood pressure decreases (Araújo et al., 2021). Tera gymnastics is a breathing exercise combined with movement sports, which combines body movements with breathing techniques. The movements in tera gymnastics are carried out regularly and harmoniously, while several studies show that regular physical activity can lower a person's blood pressure (Napavichayanun et al., 2023). That is, even though it is done slowly and does not produce a lot of sweat, this exercise can also maintain body fitness and minimize the risk of injury. This is why tera exercise is suitable for the elderly and people with hypertension. The results of research conducted by tera exercise have an influence regarding changes in blood pressure, this is proven by the results of research, several respondents said that after doing exercise, blood pressure decreased to normal, some experienced changes in blood pressure, but not normal and others experienced normal changes in blood pressure. This depends on the condition and response of the respondent to the exercise activities carried out by the

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researcher. And after being observed, the respondents seemed more relaxed and calmer. Tera exercises which are carried out for approximately 30 minutes with 2-4 exercises to lower blood pressure can make respondents feel relaxed, feeling lighter after doing these tera exercises. The more often you move during exercise, the faster the process of lowering blood pressure (Basri *et al.*, <u>2022</u>).

Physical exercise such as tera gymnastics that is done regularly can control blood pressure, there are breathing movements that make the body more relaxed and dilate the vessels and increase blood circulation (Zainuddin and Labdullah, 2020). This also happens because when CO2. Inhaling and exhaling reduces physical and mental stress which has an effect on blood pressure, especially in the elderly, so that the heart muscle becomes stronger and can contract less to pump the same blood volume (Xu et al., 2024). A decrease in heart rate can also reduce peripheral resistance because regular physical exercise can flex blood vessels so that they widen and relax (Debie Anggraini, 2024). Tera gymnastics consisting of stretching movements, joints and breathing movements. To reduce pain by using tera exercises because it has benefits or advantages of doing tera exercises, including increasing flexibility and range of motion of the joints, and if the joint muscles are more relaxed, stiffness and pain can occur. Painful joints tend to become stiffer as you get older (Suprapto et al., 2023). Regular exercise helps the joints stay flexible, and also strengthens the muscle and ligaments that stabilize the joints. Apart from that, tera exercise can help minimize the impact of arthritis and other disorders. This method of body movement in tera exercises can help reduce the risk of pain. Apart from that, it also acts as a therapy to relieve rheumatic symptoms in the form of strength and joint pain felt by rheumatic patients (Roubea and Korakakis, 2024). Widening blood vessels, reducing blood viscosity, reducing muscle tension, increasing tissue metabolism and increasing capillary permeability. Everyone can experience changes in blood pressure, but those aged > 40 years tend to be at risk of experiencing increased pressure and blood vessels become stiff and their elasticity decreases (Toonders et al., 2023). This can result in blockages in the blood. Apart from doing tera exercises, elderly people are also required to maintain their diet. Tera exercise does not always decrease, but this exercise can be used as an alternative to medication to control blood pressure, especially in the elderly (Geng et al., 2023).

CONCLUSION

The application of tera exercises can reduce the problem of acute pain nursing in elderly families with hypertension. It can be used as an applicable reference for developing nursing care, especially for families with hypertension, which can become material for further research. The application of therapeutic exercises can be an effective strategy in reducing acute pain problems in elderly families with hypertension. This can be an applicable reference in the development of nursing care, especially for families with hypertension. In addition, it can also be an interesting research material to explore more about its effectiveness and benefits in more depth.

Conflicts of Interest:

The authors declare no conflict of interest.

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