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THE EFFECT OF WARM COMPRESSES WITH RED GINGER ON REDUCING JOINT PAIN IN THE ELDERLY: CASE STUDY

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ABSTRACT

Background: Elderly people who experience musculoskeletal disorders will cause pain in the joints. One of the treatments for joint pain is with non-pharmacological techniques. **Purpose** : This study intended to determine the effect of warm compresses with red ginger on reducing joint pain in the elderly. **Results:** There was a decrease in the scale of joint pain in the elderly after giving the intervention. **Conclusion:** There is a decrease in the scale of joint pain in the elderly after giving warm compress interventions with red ginger.

Keywords: Red ginger, warm compress, joint pain

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INTRODUCTION

Old age is the final stage of the human life cycle. In this phase humans experience a decline in physical, mental and social functions. Ageing is not defined as a disease but as an enduring process. Aging is a systemic physical change in living things, including the body, tissues and cells that will experience a decline and deterioration of physiological functions. The elderly category is individuals aged 60 years and over (Kholifah, 2016) in (Huda. et al, 2022). According to WHO data, the elderly population in the Southeast Asia region is 8% or around 142 million people. The elderly population in 2050 is estimated to increase 3 times from 2000 the number of elderly is around 5.3 million (7.4%) of the population data in 2010 the number of elderly is 24 million (9.77%) of the total population and in 2020 the number of elderly is estimated to reach 28.8 million (11.34%) of the total population. Indonesia's number of elderly people in 2020 is estimated to reach 80 million (Nooratri & Hartutik, 2020. Data from the Ministry of Health in 2021 shows that the elderly population in Indonesia reached 27.1 million or almost 10% of the total population. Along with the aging process and increasing age, there will be various problems of physical dissatisfaction which result in disturbances in muscoloskeletal function. Disorders that often arise are joint pain which makes the elderly experience interference with daily activities (Afnuhazi, 2018) in (Wijaya & Nurhidayati, 2020).

Elderly people who experience musculoskeletal disorders will generally experience changes in connective tissue due to reduced cartilage ability, bone density, changes in the muscular system, and decreased elasticity in the joints, so that the elderly experience many musculoskeletal disorders resulting in joint pain. Joint pain is a clinical manifestation that disturbs the joint area, resulting in disruption of the patient's body function. In general, this joint pain makes the sufferer feel uncomfortable when the joints are touched, there is swelling, inflammation, stiffness to limited movement. Diseases of the musculoskletal system that cause joint pain include: osteoarthritis, gouty arthritis, rheumatoid arthritis, infectious arthritis (Noviyanti & Azwar, 2021). Based on data from WHO (2016) in (Wijaya & Nurhidayati, 2020) reported that 20% of the world's population feels joint pain and 20% of those aged 55 years. According to

Riskesdas 2018, the prevalence of joint disease in Indonesia was recorded at 7.3% and in the province of Central Java it was 6.78%. Based on preliminary studies conducted during the implementation of posbindu in RW. 05 Banteran Village, it was found that five elderly people complained of joint pain. Three elderly people have checked their condition at the nearest clinic or bought medicine at the pharmacy, but when the given medicine runs out, the pain will reappear, the five elderly also said they were afraid to take medicine continuously, they were worried about the side effects caused.

Research conducted by Muchlis and Ernawati (2021), states that providing warm compress therapy with red ginger can reduce joint pain in the elderly. The use of warm compresses can cause the body's physiological response, namely increased blood flow, muscle relaxation and can reduce pain due to muscle spasm stiffness. Warm compresses with a combination of red ginger can reduce joint pain felt by the elderly, because ginger has 4 properties that can be useful for reducing joint pain, namely warm, spicy, bitter, and aromatic properties of oleoresins such as zingeron, gingerol, and shogoal (Muchlis & Ernawati, 2021). According to Wilda & Panorama (2020) warm compress therapy with red ginger is highly recommended as an easy and inexpensive first aid for the elderly, and red ginger has the highest zingerol content compared to other ginger varieties.

Based on the description above, the authors are interested in carrying out nursing implementation in the form of warm compresses with red ginger to reduce joint pain in the elderly.

METHOD

Subjective data obtained by respondent 1 said that if the pain in the upper shoulder with a scale of 5, the pain disappeared, the pain seemed to be pressed and burning, the pain got worse after work and this disturbed the respondent's sleep quality. The respondent had difficulty falling asleep soundly due to the pain, this condition has been felt for more than 3 months.

Respondent 2 said that if the pain in the knee of his right leg was on a scale of 6, the pain was intermittent, the pain seemed to be pressed and burning pain was intermittent, the pain increased in the morning, it disturbed the respondent's sleep quality. This situation has been felt for more than 2 years.

Respondent 3 said that if the pain in his right thigh hurts on a scale of 6 it feels like being pressed and burns, the pain disappears and the pain gets worse at night. This situation disrupts the quality of his sleep. This condition has been felt for more than 3 months.

Furthermore, objective data found in respondent 1 difficulty and grimace when lifting his right arm BP: 138/80 MmHg, Pulse: 98x/min. Respondent 2 was found to change his gait and grimaced when walking and occasionally rubbed his knees, his knees looked shiny and reddened, BP: 158/80 mmHg, Pulse: 93x/min. Respondent 3 found changes in walking and grimacing when walking BP: 127/80 mmHg, Pulse: 93 x/min. Based on the data analysis carried out, the three respondents felt pain for more than 3 months, so the nursing problem chronic pain (D. 0078) is related to chronic musculoskeletal conditions. After carrying out nursing actions warm compresses with red ginger for 7 days. The author determines the success indicator of the intervention is a decrease in the pain scale with the following process of change:

Table 1. Pain Change Process Respondent 1

Intervention	Pain Scale	
	Before Intervention	After Intervention
Day 1	4/10	3/10
Day2	5/10	4/10
Day 3	4/10	2/10
Day 4	3/10	2/10
Day 5	3/10	2/10
Day 6	3/10	2/10
Day 7	2/10	1/10
Average pain reduction	1,1	

The most decrease on day 3 is from scale 4 down to scale 2. Based on observations made on the last day she was able to raise her arms up without resistance and grimace.

Table 2. Pain Change Process Respondent 2

Intervention	Pain Scale	
	Before Intervention	After Intervention
Day 1	6/10	5/10
Day2	5/10	4/10
Day 3	6/10	5/10
Day 4	6/10	5/10
Day 5	5/10	4/10
Day 6	5/10	4/10
Day 7	4/10	3/10
Average pain reduction	1,0	

The decrease in pain scale for each intervention is one scale from the scale before the intervention. Based on observations on the last day, she did not grimace when walking but there were still changes in the way he walked and looked more upright without holding his knees.

Table 3. Pain Change Process Respondent 3

Intervention	Pain scale	
	Before Intervention	After Intervention
Day 1	6/10	5/10
Day2	5/10	4/10
Day 3	6/10	4/10
Day 4	5/10	3/10
Day 5	4/10	3/10
Day 6	5/10	4/10
Day 7	4/10	3/10
Average pain reduction	1,2	

The largest decrease on days 3 and 4 was from scale 6 to scale 4 and from scale 5 to scale 3. Based on observations made on the last day, it was seen that he still had a change in walking but without grimacing. Mr. S still has a change in the way he walks but without grimacing.

DISCUSSION

Diabetes mellitus (DM) is a disease characterized by the occurrence of hyperglycemia and impaired metabolism of carbohydrates, fats, and proteins associated with absolute or relatable deficiencies of the work and or secretion of insulin. Symptoms complained of in people with DM are polydipsia, polyuria, polyphagia, weight loss, and tingling. Meanwhile, DM type 2 is a metabolic disorder characterized by a rise in blood sugar due to a decrease in insulin secretion by pancreatic beta cells and or insulin function (insulin resistance). DM type 2 is one of the chronic diseases that has the characteristics of hyperglycemia. Hyperglycemia or elevated blood sugar levels are uncontrolled effects of diabetes and in the long run, there can be serious damage to body systems, especially in the blood vessels of the heart that can cause coronary heart disease, in the eyes can cause blindness, in the kidneys can cause kidney failure, and in nerves can occur stroke (Restyana, 2015).

The American Diabetes Association (ADA) states that DM is associated with irrefiable and irrefiable?? risk factors. Risk factors that can not be changed include family history with DM (first-degree relative), age ≥ 45 years, and the history of giving birth to babies with birth weight of infants > 4000 grams or a history of suffering from gestational DM. Changeable risk factors include obesity where at the rate of overweight BMI ≥ 23 can lead to an increase in blood glucose levels to 200 mg??, lack of physical activity, hypertension, dyslipidemia, and an unhealthy diet. Based on International Diabetes Federation (IDF) data in 2011, there are 329 million people in the world with DM type 2 with 4.6 million deaths. Indonesia, in 2011, ranked tenth in the world with the number of DM type 2 sufferers as many as 6.6 million people (IDF, 2011).

DM type 2 in women is higher than in men. Women are more at risk of diabetes because physically women have a greater chance of increasing their body's mass index. Basic Health Research results show the prevalence of DM in Indonesia increased to 57%, in 2012 the incidence of diabetes mellitus in the world is as much as 371 million people, where the proportion of the incidence of DM type 2 is 95% of the world population who suffer from diabetes mellitus and only 5% of the number have DM type 1 (Restyana, 2015). A study conducted by Kusniawati (2011) on self-care conducted in one of the hospitals in Indonesia, mentioned that self-care is still not biased done by DM type 2 patients. The 4 domains in self-care, DM type 2 patients do not obey in terms of treatment due to the saturation factor. Similarly, when it comes to diet control, when at home, DM type 2 patients are unable to control their diet. DM type 2 patients are also unable to perform regular foot care due to a lack of knowledge about foot care. Patients also rarely do physical exercise (Kusniawati, 2011).

Treatment of diabetes mellitus disease has been carried out with medical and clinical treatment with the consumption of drugs. Prolonged use of the drug can cause side effects on the health of

other organs, such as the kidneys. Based on this, it is necessary to find alternative treatments that are safe, cheap, and easy to get, namely through herbal medicine derived from plants. One of the herbal plants that are believed to lower blood sugar is cinnamon. Cinnamon is a dried bark derived from a tree of the genus Cinnamomum (Ghofar, 2012).

From the results of the seventh systematic review of the journal, it can be known that cinnamon can decrease blood sugar levels in diabetics. The content of flavonoids in cinnamon works by increasing glucose metabolism and converting glucose into energy. The process increases the sensitivity of cells to insulin so that blood glucose levels decrease. The cinnamon plant is an alternative in the healing of DM disease because this plant contains chemical compounds such as safrole, essential oil eugenol, tenin, cinnamaldehyde, resin, potassium oxalate and tanner, as well as flavonoids (Hastuti, 2014). Based on the results of research conducted by Hananti (2012), stated that cinnamon bark ethanol extract dose of 50, 100, and 200 mg/kg bb?? is able to decrease blood glucose levels in male mice induced glucose 2 g/kg bb?? with glucose tolerance test method. Decreased blood glucose levels are caused by the presence of flavonoid compounds that can increase the sensitivity of β-pancreatic cells to release insulin (Hananti, 2012).

The results of the linear regression test conducted by Syafriani and Besti in 2017 showed that there is a significant influence in the administration of the cinnamon extract to decrease blood sugar levels. The results showed that there was a decrease in respondents' blood sugar levels after cinnamon extract intervention, which is 37,75 mg/dl, which blood glucose levels before intervention by 263.40 mg /dl and after the intervention of 225.65 mg/dl. The results of this study are also in line with research conducted by Ramadhona (2016) in the working area of the Public health center (Puskesmas) Pauh Padang City in 2015. Based on the Paired T-Test test there was a decrease in blood sugar levels of patients with DM type 2 before and after the administration of steeping cinnamon powder with a value of p 0.000. This indicates that the administration of cinnamon can lower blood sugar levels of patients with DM type 2.

Based on the description of the results of the study, it was found that the intervention of warm compresses with red ginger for 7 days with a duration of 15 minutes with a frequency of 1 time per day was found that there was a decrease in the scale of joint pain in the three respondents. A decrease in the pain scale has begun to be felt by respondents during the first day of intervention. The results of this intervention are in line with research conducted by (Muchlis & Ernawati, 2021), it was found that giving warm compress therapy with red ginger can reduce joint pain in the elderly. Red ginger has many properties, one of which is anti-inflammatory, an effect that can be used as an inflammatory drug and reduce pain, this anti-inflammatory effect is caused by active components consisting of gingerol, jingeron which function to inhibit leukotriene and prostaglandins (Wijaya & Yandrizal, 2020). The rhizome is pink to light orange in color. The essential oil content in red ginger is higher so that it has a spicy taste and is often used as herbal medicine and pharmaceuticals (Sari & Nasuha, 2021).

Ginger has properties that can be useful for reducing joint pain where ginger has warm, spicy, bitter and aromatic properties from oleoresins, such as zingeron, gingerol, and shogoal. Oleoresin has the potential as a very strong anti-inflammatory and anti-oxidant. The non-volatile properties of oil and water in ginger have an enhancer function that can increase permeability to penetrate the skin without irritating or damaging the peripheral circulation (Muchlis & Ernawati, 2021).

The decrease in pain had an effect on the respondent's sleep quality, the three respondents initially complained that they could not fall asleep well or woke up at night due to recurring pain. In respondent 1, sleep quality began to improve on day 2, which initially had difficulty falling asleep easily. In respondent 2, sleep quality improved on day five of the intervention, which initially Mrs. U woke up due to pain and could not fall back asleep, it became easier to fall asleep when she woke up. In respondent 3, the quality of sleep improved on day 5, which initially often woke up and was difficult to fall asleep again, it became easier to fall asleep again when awakened. According to Alvita, Faidah & Tutik (2021), one of the causes of sleep quality disruption in the elderly is pain felt in the joints at night.

CONCLUSION

After the intervention for 7 meetings the pain in the three respondents decreased. Before being given the intervention,

respondent 1 complained of pain in the right shoulder with a scale of 5/10, after the intervention it became a scale of 1/10. Before being given the intervention, respondent 2 complained of pain in the right knee with a scale of 6/10, after the intervention it became a scale of 3/10. Before being given the intervention, respondent 3 complained of pain in the right thigh with a scale of 6/10, after the intervention it became a scale of 3/10. Based on the results of the study, it can be concluded that the intervention of warm compresses with red ginger has an effect on reducing the scale of joint pain in the elderly.

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