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EFFECTIVENESS OF WARM SALT WATER SOAKING FOR JOINT PAIN IN THE ELDERLY WANT JAYA DISTRICT, ACEH BESAR, INDONESIA

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ABSTRACT

The elderly are a group or population at high risk of experiencing health problems. Health problems often experienced by the elderly are caused by decreased function of the body's systems. This research aims to determine the effectiveness of education on joint pain management through complementary therapy in older people based on warm salt water soaking videos. This research is a research with a one-group pretest-posttest design. The population in this study was 37 older adults who experienced joint pain. The sampling technique uses a total sampling technique. Soak in warm salt water once by dipping your feet and soaking your feet 10-15 cm above the ankles for 15 minutes. The water temperature used is 32°C-35°C. The study results showed that educational actions were effective in treating joint pain through complementary therapy in older people based on videos of warm salt water immersion (P=0.000). Soaking feet in salt water can be an alternative therapy for older adults with joint pain.

Keywords: *education, elderly, joint pain management*

INTRODUCTION

Elderly individuals (seniors) are a group that is vulnerable to experiencing various health problems, especially those related to the musculoskeletal system. Decreased function of this system often occurs in older people due to degenerative processes, which are influenced by three main

factors: structural and tissue changes in the joints, the impact of the type and ability of physical activity on the joints, as well as pathologies that affect the connective tissue of the joints, resulting in limited function and disability. Common complaints that often arise due to annoying pain are diseases such as rheumatoid arthritis, osteoarthritis, and gouty arthritis (D'Onofrio et al., 2023; Larsson et al., 2019; Minetto et al., 2020).

Joint disease is a common condition throughout the world. Based on data from the World Health Organization (WHO) in 2018, there are around 165 million people in the world who suffer from joint disease, with a prevalence of between 0.3-0.5%. In 2019, the number of global common disease sufferers is estimated to increase to 355 million people from a population of 2,130 million. According to data from the Arthritis Foundation, in 2020, around 22% or more than 50 million adults in the United States aged 18 years and over were diagnosed with arthritis. Of this number, about 3% or 1.5 million adults experience joint disease (Barbour et al., 2016; WHO, 2022, 2023).

In 2018, the prevalence of joint disease in Indonesia was 7.3% and 11.9% of the country's population. Previously, in 2017, there were around 2 million cases of joint disease, with three times more female patients than male patients. It is estimated that, until 2025, the number of cases of common disease will continue to increase, with estimates that more than 25% of sufferers will experience paralysis (Riskesdas, 2018).

Pain is an experience involving sensory and emotional aspects, which is unpleasant and often associated with tissue damage or potential tissue damage. This experience of pain not only causes physical discomfort but also often creates fear in the sufferer to make movements, which ultimately interferes with daily activities and reduces productivity. In addition, pain can cause significant frustration in sufferers' daily lives, disrupting their comfort. Therefore, the primary treatment given is therapy aimed at treating the pain (Duenas et al., 2016; Raja et al., 2020; Rikard et al., 2023).

Treatment of joint pain in older people can be done using two main approaches, namely pharmacological and non-pharmacological methods. Pharmacological methods involve the use of analgesic drugs. Meanwhile, non-pharmacological treatment includes various techniques such as massage, warm compresses, and foot soak therapy in warm salt water. This warm water foot soak therapy can cause muscle relaxation and dilation of blood vessels, speeding up the flow of oxygen to the tissues and reducing pain in the joints of older people (Flynn, 2020).

Research by Jauhar et al. (2022) showed that warm Epsom salt water compresses effectively reduced joint pain in gouty arthritis patients. This study's results confirm a significant effect of using warm Epsom salt water compresses in treating joint pain in gouty arthritis patients. These findings can be a scientific basis for choosing alternative non-pharmacological interventions to treat joint pain in gouty arthritis patients. This research aims to determine the effectiveness of education on collaborative pain management through

complementary therapy for older people based on videos of warm salt water immersion in Gampong Kayee Lee, Want Jaya District, Aceh Besar.

METHODS

This research is quantitative research using a one-group pretest-posttest design. This research was conducted in Gampong Kayee Lee, Want Jaya District, Aceh Besar, from May to July 2023. The population in this study was 37 older adults who experienced joint pain. The sampling technique in this research is total sampling. Soak in warm salt water once by dipping your feet and soaking your feet 10-15 cm above the ankles for 15 minutes. The water temperature used is 32°C-35°C.

Inclusion criteria in this study include being willing to be a respondent and able to follow research procedures, older adults diagnosed with rheumatoid arthritis, osteoarthritis, and gouty arthritis, and older adults who experience moderate pain. Meanwhile, the exclusion criteria were older adults who experienced severe pain, had recently used analgesics (<2 hours), and older adults with diabetes mellitus. The research instrument used to measure pain is a pain scale using the Numeric Pain Scale (NPS).

RESULTS AND DISCUSSION

Table 1. Characteristics of respondents based on gender and religion

Variable	*n*	*%*
Gender		
Woman	37	100
Religion		
Islam	37	100

Table 2. Elderly joint pain pretest and posttest complementary therapy soaking in warm salt water

Soak in Warm Salt Water	*n*	*%*	*Mean Difference*	*P Value**
Intervention Pretest			16,50	0,000
Mild pain	2	5.4		
Moderate pain	34	91.9		
Severe pain	1	2.7		
Intervention Posttest				
Mild pain	28	75.7		
Moderate pain	6	16.2		
Severe pain	3	8.1		

*Wilcoxon test

Table 1 shows that all respondents in Kayee Lee Village, Want Jaya District, Aceh Besar Regency were found to be 37 women (100%), and 37 (100%) of the respondents were Muslim. **Table 2** shows that complementary therapy for older people based on warm salt water immersion videos effectively reduces joint pain in older people ($p < 0.05$). Water therapy is a treatment and healing technique that utilizes water to achieve therapeutic benefits. This is a

very natural form of therapy, based on the use of water both internally and externally for medicinal purposes (Amirta, 2017).

The process of soaking feet in warm water involves submerging them in water temperatures between 32°C to 35°C. This method operates through conduction, where heat transfer occurs from the warm water to the body. As a result, blood circulation is enhanced as blood vessels widen, facilitating increased oxygen supply to the body. This practice, part of hydrotherapy, offers various health benefits such as improved blood flow to the feet, which in turn helps in reducing inflammation, enhancing oxygen and nutrient supply, and benefiting pregnant women by improving their blood circulation (Astutik & Mariyam, 2021).

This study finds support from the theory of Sari dan Rina (2015), which suggests that warm compress therapy can reduce joint pain. According to this theory, warm compresses work through a conduction technique that causes vasodilation (widening of blood vessels), increases capillary permeability, speeds up cell metabolism, relaxes muscles, and improves blood flow to areas experiencing pain. The use of warm compresses as pain management involves the transfer of heat energy through conduction, where the heat contributes to vasodilation, better muscle relaxation, increased blood circulation, and increased supply of oxygen and nutrients to the affected tissues.

Treatment of joint pain in older adults can be done using pharmacological and non-pharmacological methods. Pharmacological methods involve the use of analgesic drugs. However, in older people, there are changes in pharmacodynamics, pharmacokinetics, and drug metabolism in the body, which increase the risk of side effects. In addition, long-term use of these drugs has the potential to cause serious complications such as bleeding in the gastrointestinal tract, peptic ulcers, perforation, and kidney problems (Aisyah, 2017).

In non-pharmacological treatment for joint pain in older people, methods such as massage, hot compresses, and soaking the feet in warm salt water are used. Therapy by washing the feet in warm water can trigger muscle relaxation and vasodilation, speed up oxygen supply to the tissues, and effectively reduce joint pain. The pain scale, initially 6, can be reduced to 3 after therapy. Ingredients such as sodium and sodium in sea salt regulate body fluid balance, nerve transmission, and muscle function (Nasrullah & Wibowo, 2016; Pratintya et al., 2014).

Hydrotherapy, which involves soaking the feet in warm water, significantly impacts the body. One of the main benefits is improving blood circulation. In traditional Chinese medicine, the feet are considered the "second heart" of humans due to the presence of many acupuncture points on the soles of the feet that are associated with six meridians, including the liver, gallbladder, bladder, heart, kidney, lymph, and stomach. These meridians are connected to various body parts, including vital organs such as the heart, located on the sole of the left foot. Therefore, soaking the feet in warm water

can help improve blood circulation to the heart and the rest of the body, increase blood circulation to the upper body, and generally warm up the body (Alawiyah & Widayati, 2017).

CONCLUSION

Complementary therapy in older people based on warm salt water soaking videos can effectively reduce joint pain. Soaking feet in salt water can be an alternative therapy for older adults with joint pain. This treatment is cheap, simple, and practical, so that it can be done daily with little capital.

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