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Analysis of Nursing Care for the Elderly with the Application of Warm Cinnamon Compress Therapy to Reduce Pain in Gout Arthritis

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Abstract

Elderly individuals are individuals aged 60 years and above and are susceptible to various health problems, one of which is gout arthritis, a metabolic disorder caused by excess uric acid buildup that causes joint pain. Pain experienced by the elderly can interfere with comfort and daily activities, so appropriate nursing interventions are needed, including non-pharmacological approaches. This scientific paper aims to analyze nursing care for Mrs. M and Mr. A and evaluate the application of cinnamon warm compress therapy in reducing gout arthritis pain in the elderly at the UPT PSTW Husnul Khotimah, Riau Provincial Social Service, according to professional nursing standards. The method used is a one-group pretest-posttest design with two subjects. The instrument used is a pain scale observation sheet. The cinnamon warm compress intervention was given for 15 minutes every day at 14.00–15.00 WIB during the period of November 29 to December 5, 2025. The results showed that the average pain scale before the intervention was 4.8 and after the intervention decreased to 3, with an average pain reduction of 1.7 for seven days. It was concluded that cinnamon warm compress therapy was effective in reducing gout arthritis pain and can be recommended as a non-pharmacological intervention in nursing care for the elderly with routine pain monitoring.

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INTRODUCTION

Older adults, or the elderly, are individuals aged 60 years and older (Willar, 2021). This age group is in the final stage of life, during which they experience a natural process known as aging. The aging process indicates that an individual has passed through three stages of life, namely childhood, adulthood, and old age (Septianingtyas, 2021). According to the World Health Organization (WHO), in 2025 the global elderly population is projected to increase by 41.5%, representing the highest growth rate worldwide. In Indonesia, the elderly population in 2020 was recorded at 24.49 million people, accounting for 9.27% of the total population, and increased to 10.82% in 2021. This condition indicates that Indonesia is entering an aging population phase. (Raharja et al., 2023; Sari et al., 2024)

In Riau Province, the number of elderly people in 2024 reached 550,481 out of a total population of 6,728,053, consisting of 232,082 individuals aged 60–64 years, 157,431 aged 65–69 years, 95,707 aged 70–74 years, and 65,261 aged over 75 years. Meanwhile, in Pekanbaru City in 2020, there were 66,725 elderly individuals out of a total population of 983,356, distributed as follows: 29,870 aged 60–64 years, 20,477 aged 65–69 years, 8,550 aged 70–74 years, and 7,828 aged over 75 years (Statistics Indonesia of Riau Province, 2024). The increasing number of elderly individuals has led to a rise in various health problems that are generally degenerative or age-related,

such as heart disease, diabetes mellitus, stroke, and joint diseases, including gout arthritis (Ministry of Health of the Republic of Indonesia, 2022).

Gout arthritis is a metabolic condition characterized by the buildup of excess uric acid in the body, which may result from overproduction of uric acid, impaired kidney excretion, or high intake of purine-containing foods. This condition causes body fluids to become supersaturated with uric acid, leading to joint inflammation (Hartutik, 2021). The WHO reports that approximately 355 million people worldwide suffer from gout, and Indonesia is one of the countries with the highest prevalence in Asia, reaching 81% (Urbaningrum et al., 2023). Based on the 2021 National Basic Health Research (Riskesdas), the prevalence of gout arthritis in Indonesia based on medical diagnosis was 11.9%, while prevalence based on symptoms reached 24.7%. In addition, WHO data (2020) indicate that the highest number of gout arthritis cases occurs in individuals aged 55–74 years, accounting for more than 50% of cases. In Pekanbaru City, the prevalence of gout arthritis was reported at 2.93% out of 3,052 patients, and according to data from the UPT PSTW Husnul Khotimah Polyclinic of Riau Province in November 2025, 14 out of 90 elderly individuals were diagnosed with gout arthritis.

Elderly individuals with gout arthritis typically experience characteristic symptoms in the form of sudden and severe joint pain, especially upon waking in the morning, which results in difficulty in movement. This pain occurs as a result of monosodium urate crystal accumulation in the joints, which is triggered by increased levels of uric acid in the bloodstream. Pain is a subjective and unpleasant sensation related to actual or potential tissue injury, making proper management essential (Dewi, 2016).

The management of gout arthritis aims to control pain, prevent joint damage, and maintain physical function. Treatment may be carried out using pharmacological and non-pharmacological approaches. Pharmacological therapy commonly involves medications such as allopurinol and nonsteroidal anti-inflammatory drugs (NSAIDs); however, these treatments carry potential side effects, including gastrointestinal bleeding. Therefore, non-pharmacological therapy serves as a safer alternative, one of which is the application of warm cinnamon compresses. Warm compress therapy is known to be effective in reducing pain associated with gout arthritis by improving blood circulation in the affected area. The combination of heat and cinnamon provides a more optimal effect, as cinnamon contains essential oils with cinnamaldehyde compounds that suppress pain-related cytokines and help reduce uric acid levels—properties not found in other herbal plants (Febriyona et al., 2023).

A study conducted by Febriyona et al. (2023) found that pain levels among all respondents in both the intervention and control groups were in the moderate pain category prior to the intervention. After the application of cinnamon compresses for seven days, the intervention group showed a significant reduction in pain, with the majority of elderly participants experiencing mild pain and some reporting no pain at all. In contrast, the control group continued to experience moderate pain, and several respondents even reported increased pain intensity. The statistical analysis showed a p-value of 0.000 (< 0.05), which indicates that cinnamon compress therapy was effective in decreasing gout arthritis pain in elderly participants in Tihu Village, Bonepantai District. Therefore, cinnamon compresses can be recommended as an easy-to-apply non-pharmacological therapy to reduce pain associated with gout arthritis in older adults.

Based on a study by Suhel Ranow et al. (2024) examining the effect of warm cinnamon compresses (Cinnamomum burmannii) on gout arthritis pain among elderly individuals in Sadar Sriwijaya Village, Bandar Sribawono, East Lampung, in 2024, it was concluded that the majority of respondents were aged 60–70 years, with 56.7% being male and the highest educational levels being junior high school and senior high school (each 33.3%). The average joint pain score before the warm compress intervention was 4.47, which decreased to 2.17 after the intervention. The Wilcoxon test results showed a p-value of 0.000, indicating a significant effect of warm cinnamon compress therapy on gout arthritis pain in elderly individuals.

This implementation aims to analyze geriatric nursing care in reducing the level of gout arthritis pain through warm cinnamon compress therapy at UPT PSTW Husnul Khotimah, Social Service of Riau Province.

METHOD

This study used a case study design with a one-group pretest–posttest design applied to two elderly people with gouty arthritis selected by purposive sampling. Pain levels were measured before and after administration of warm cinnamon compress therapy using the Numeric Rating Scale (NRS), which has been proven to have good validity and reliability. The intervention was given for 7 consecutive days with a duration of 15 minutes per session. Inclusion criteria included elderly people with mild to moderate pain (scale 3–6), uric acid levels >6.0 mg/dL in women and >7.0 mg/dL in men, and willingness to participate. Data analysis was conducted descriptively by comparing pain levels before and after the intervention. Limitations of this study lie in the limited number of respondents and the absence of a control group, so the results cannot be widely generalized. (Abd-Elsayed et al., 2023), (Garner et al., 2018)

RESULTS AND DISCUSSION

Results

The results of the case study were obtained after Nursing Care using warm cinnamon compress therapy with 7 days of implementation each for Mrs. M and Mr. A at the UPT PSTW Husnul Khotimah. The results of the assessment on Mrs. M, aged 64 years, complained of pain in the left ankle with a stabbing character, appearing when moved, continuous, with a pain scale of 6. The assessment of Mr. A, aged 66 years, complained of pain in the right ankle with a stabbing character, appearing when moved, continuous, and with a pain scale of 6. The nursing diagnosis based on the assessment obtained a focus diagnosis of Chronic Pain. The intervention given to Mrs. M and Mr. A was Pain Management with non-pharmacological implementation using warm cinnamon compress therapy.

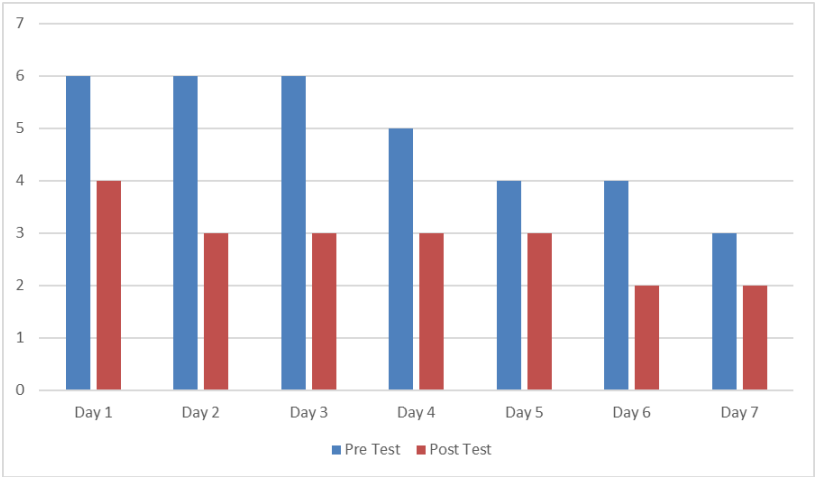

Figure 1. Comparative data on pain scales before and after the application of warm cinnamon compress therapy on Mrs. M.

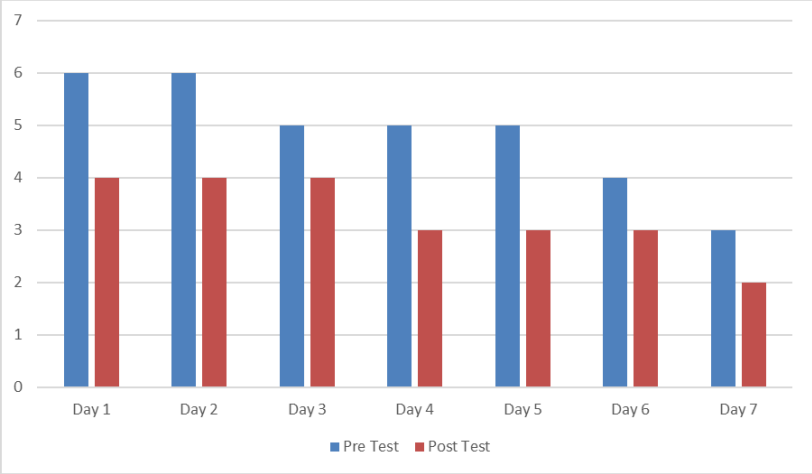

Figure 2. Comparative data on pain scales before and after the application of warm cinnamon compress therapy on Mr. A.

Figures 1 and 2 show a decrease in pain before and after the warm cinnamon compress therapy. The pre-test data showed a pain scale of 6 for Mrs. M and 6 for Mr. A. The post-test data showed a pain scale of 2 for Mrs. M and 2 for Mr. A. After the two elderly patients underwent the warm cinnamon compress therapy, their pain scales before and after the treatment showed a change.

Discussion

The assessment of two clients diagnosed with gout arthritis showed that advanced age and gender are contributing factors to the occurrence of the disease. Mrs. M (64 years old) and Mr. A (66 years old) belong to the elderly population, who physiologically experience a decline in organ function, particularly renal function, resulting in suboptimal uric acid excretion and purine metabolism. This finding is consistent with Amrullah et al. (2023) and Ragab et al. (2020), who stated that the aging process leads to decreased kidney function and reduced activity of the uricase enzyme, causing the accumulation of uric acid in the blood. Based on gender differences, the prevalence of gout arthritis is higher in men due to the absence of estrogen, which has a uricosuric effect. In contrast, women tend to have lower uric acid levels until menopause; however, uric acid levels increase after estrogen levels decline (Nurhayati & Umrianti, 2020; Kuo et al., 2021).

Although theoretically men have a higher risk of developing gout arthritis, the nursing care outcomes indicated that pain reduction and decreases in uric acid levels occurred more rapidly in Mrs. M compared to Mr. A. This difference may be influenced by individual physiological responses to non-pharmacological therapy, inflammatory regulation, adherence to interventions, as well as differences in pain perception between men and women (Bartley & Fillingim, 2020). Both clients experienced joint pain, which is a hallmark symptom of gout arthritis caused by inflammatory reactions to monosodium urate crystal deposition in the joint cavity (Septianingtyas & Yolanda, 2021). These findings highlight the importance of comprehensive assessment and individualized nursing interventions to achieve optimal therapeutic outcomes (Dalbeth et al., 2021).

Nursing diagnoses represent professional judgments made by nurses regarding client responses—whether individuals, families, or communities—to current or potential health conditions, serving as the basis for planning and delivering appropriate nursing care (Kurniawati, 2021). Based on assessment findings and prioritization of problems in clients with gout arthritis, the nursing diagnosis established was chronic pain, as pain is the most common primary complaint experienced by patients with gout arthritis (Hidayatullah & Rejeki, 2022). In this case study, both clients reported similar pain complaints; therefore, chronic pain was selected as the focus of nursing interventions. According to the Indonesian Nursing Diagnosis Standards (SDKI) by the PPNI Working Group (2018), chronic pain is defined as a sensory and emotional experience associated with actual

or functional tissue damage, which may occur gradually or suddenly, with mild to severe intensity, and persists for more than three months.

Nursing interventions are professional nursing actions based on scientific knowledge and clinical judgment aimed at achieving predetermined outcomes in nursing care (PPNI, 2018). In this study, the interventions were tailored to the nursing problem of acute pain, namely the application of a warm cinnamon compress as part of pain management. According to the Indonesian Nursing Intervention Standards (SIKI) (2018), nursing actions included assessing pain characteristics, measuring pain intensity, observing nonverbal responses, providing non-pharmacological therapy, and educating clients on independent pain control techniques.

Pain assessment was conducted using the Numeric Rating Scale (NRS), a subjective measurement tool with a range from 0 to 10, where 0 indicates no pain and 10 indicates the most severe pain. The NRS was selected because it is easy to use, reliable, and applicable both verbally and in written form in nursing practice. This scale was used before and after the intervention to evaluate the effectiveness of the therapy provided. (Ginting et al., 2025), (Aldabbour et al., 2025)

The application of warm cinnamon compresses is supported by scientific evidence indicating that cinnamon contains cinnamaldehyde and eugenol, which possess natural anti-inflammatory and analgesic properties. The warming effect of the compress promotes vasodilation, reduces muscle spasm, and inhibits pain impulse transmission in accordance with the gate control theory, making it effective in reducing pain associated with gout arthritis (Soewito et al., 2024).

The nursing implementation was carried out for seven consecutive days, from November 29 to December 5, 2025, between 2:00–3:00 PM (WIB), with a duration of approximately 15 minutes per session. The procedure was conducted through four stages: pre-interaction, orientation, working, and termination. During the working stage, the nurse prepared a compress solution using 15 grams of cinnamon powder dissolved in 200 cc of warm water at a temperature of approximately 45°C. The painful area was then compressed for 15 minutes, and pain intensity was measured before and after the intervention.

Nursing evaluation was performed using the SOAP format. The evaluation results indicated that both clients reported a reduction in pain and a feeling of increased relaxation following the intervention. Objectively, there was a decrease in pain expressions and an improvement in relaxation. The pain scale for both Mrs. M and Mr. A decreased from a score of 6 to 2, indicating that the acute pain nursing problem was resolved and that the intervention could be continued with education on self-management techniques.

Nevertheless, during the intervention period, pain fluctuations were observed in both clients. In Mr. A, these fluctuations were influenced by the consumption of high-purine foods, which can increase uric acid levels and trigger joint inflammation, as described by Dalbeth et al. (2021). Meanwhile, in Mrs. M, pain fluctuations were influenced by excessive physical activity, which placed mechanical stress on inflamed joints, in line with the findings of Richette and Doherty (2020).

Overall, the evaluation results demonstrate that warm cinnamon compress therapy had a positive therapeutic effect in reducing pain and serum uric acid levels in both clients. The reduction in uric acid levels in Mrs. M from 8.2 mg/dL to 6.3 mg/dL and in Mr. A from 7.6 mg/dL to 7.0 mg/dL further supports the effectiveness of the intervention. These findings are consistent with studies by Fenia et al. (2022) and Kurnia & Aljihad (2025), and they emphasize that gout arthritis pain management should be conducted comprehensively through a combination of non-pharmacological interventions, low-purine dietary education, and physical activity regulation to achieve more optimal and sustainable therapeutic outcomes.

The application of warm cinnamon compresses to the elderly has several limitations that can impact the smoothness of the intervention process and the validity of the data. One elderly patient

had difficulty signing the informed consent form due to declining physical condition, requiring additional assistance from the author. In the initial stages of pain assessment using the Numeric Rating Scale (NRS), respondents appeared confused about understanding the numbers and pain categories, requiring the author to provide repeated explanations and use a simple communication approach. The intervention environment was also less conducive due to the presence of noise and surrounding activity that were difficult to control. Furthermore, the author experienced limitations in the number of respondents, which impacted the number of patients involved. This resulted in only one intervention group being included in the intervention and not being able to compare it with the control group.

This research paper suggests that cinnamon warm compress therapy can be implemented as a non-pharmacological intervention in nursing care for elderly people with gouty arthritis. It is also recommended that nursing staff use it routinely, along with pain monitoring, to improve elderly comfort.

CONCLUSION

The implementation of evidence-based nursing (EBN) through warm cinnamon compress therapy in Mrs. M and Mr. A demonstrated a reduction in gout arthritis pain intensity. These findings are consistent with the previously stated objective, which was to evaluate the effectiveness of warm cinnamon compress therapy as a non-pharmacological nursing intervention for pain management in elderly patients with gout arthritis. Therefore, the outcomes presented in the Results and Discussion section are aligned with the research objectives. Warm cinnamon compress therapy may be considered a safe, practical, and beneficial complementary intervention for reducing gout arthritis pain. In addition, these findings provide opportunities for future studies involving larger sample sizes and broader implementation in nursing practice, particularly in gerontic nursing.

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AUTHOR CONTRIBUTION STATEMENT

The first author was involved in research planning, data collection and analysis, and drafting the Nursing Final Scientific Paper. The second author provided academic direction, provided research methodology guidance, provided critical review, and revised and refined the manuscript. Both authors are responsible for the content of this Nursing Final Scientific Paper.

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