

The Effectiveness of Warm Lemongrass and Cinnamon Compresses to Reduce Acute Pain in Elderly Patients with Gout in Padang Cermin Village Way Khilau District

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ABSTRACT

Background & Objective: Gouty arthritis is an inflammatory joint disease commonly experienced by the elderly and characterized by increased uric acid levels and acute pain. Non-pharmacological interventions such as warm compresses made from lemongrass and cinnamon are considered effective in reducing pain through their anti-inflammatory and vasodilatory effects. This study aims to determine the effectiveness of warm compresses made from lemongrass and cinnamon in reducing pain levels in elderly people with gouty arthritis in Padang Cermin Village, Way Khilau District. **Method:** The method used was a case study with a nursing process approach, including assessment, diagnosis, planning, implementation, and evaluation. The intervention was carried out for 7 days with a frequency of once a day for 20 minutes. **Result:** The results showed a significant decrease in pain scale in both clients: Client 1 experienced a decrease from a pain scale of 6 to 2, while Client 2 experienced a decrease from a pain scale of 5 to 1 after the intervention. In addition, clients reported an increase in comfort and mobility.

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Introduction

Gout arthritis (arthritis caused by uric acid) is a global health problem with increasing prevalence. This condition was first described by Hippocrates as the "Disease of Kings" (Low *et al.*, 2022). *Gout arthritis* itself is an inflammatory joint disease caused by the deposition of monosodium urate crystals that accumulate in the joints due to impaired purine metabolism (Irmawati *et al.*, 2023).

The World Health Organization (WHO) states that *gouty arthritis* affects 33.3% of the world's population. The WHO also reports that the prevalence of this disease has increased in adults in the UK by 3.2% and in the United States by 3.9%. In Indonesia,

according to the Ministry of Health in 2018, 7.3% of the entire Indonesian population was diagnosed with *gouty arthritis*, with Aceh at the highest level, followed by Bengkulu and Papua (Hardianti & Mayasari, 2020). More specifically, in Lampung Province, the prevalence of *gouty arthritis* was recorded at 12.5% in 2022 (Sari & Wijaya, 2023), indicating that this condition is a fairly common health problem in the province.

Gout arthritis is clinically defined as a metabolic disease caused by high levels of uric acid in the blood (hyperuricemia), exceeding 7.5 mg/dL. Normal uric acid levels in men range from 0.18-0.42 mmol/L and in women 0.13-0.34 mmol/L (2.2-5.7 mg/dL) (Mahmudi *et al.*, 2024). This hyperuricemia is often triggered by an unhealthy lifestyle, especially the consumption of foods high in purines such as meat, organ meats, and seafood (Yasin, 2023). When the kidneys are unable to excrete excess uric acid, crystals accumulate in the joints, triggering inflammatory reactions, swelling, and joint damage (chronic nodal deformity) (Lasanuddin *et al.*, 2024).

This condition is particularly prevalent in productive adults and increases with age. The elderly are particularly at risk, partly due to the degenerative process that triggers decreased kidney function. This decline in kidney function inhibits the excretion of uric acid, causing its levels to build up in the blood. Typical symptoms include severe, recurring pain, particularly in the joints of the big toe, knee, heel, and elbow. Affected joints appear red, shiny, swollen, stiff, hot, and difficult to move (Oktavianti & Anzani, 2021).

Joint pain is a major complaint in *gouty arthritis*, seriously impacting quality of life, causing impaired physical mobility, and impairing independence in the elderly. Standard management generally involves pharmacological therapy, such as *non-steroidal anti-inflammatory drugs* (NSAIDs), *colchicine*, or *allopurinol* (Sopiah *et al.*, 2023). However, dependence on painkillers triggers the need for alternative non-pharmacological therapies. One potential complementary therapy for reducing *gouty arthritis pain* is warm compress therapy using herbal ingredients, such as lemongrass and cinnamon (Rani *et al.*, 2025).

Lemongrass (*Cymbopogon citratus*) contains essential oils with the main components citronellal and geraniol, which have antioxidant and anti-inflammatory effects. Meanwhile, cinnamon (*Cinnamomum*) contains *cinnamaldehyde*, a compound also proven effective as an anti-inflammatory that can relieve joint inflammation (Elliya *et al.*, 2022). The combination of the two in a warm compress is expected to provide muscle relaxation and vasodilation (widening of blood vessels), thereby improving blood circulation and reducing pain intensity (Fatmawati & Ariyanto, 2020).

Various previous studies have demonstrated the effectiveness of this intervention. A study by Arif *et al.* (2023) showed that after applying warm lemongrass compresses once daily for three days, for 20 minutes each time, the pain scale decreased and even disappeared. Evaluation on the third day, in the first patient, the pain scale was 6 before the intervention and 0 after the intervention. Meanwhile, in the second patient, the pain scale was 6 before the intervention and 2 after the intervention.

Research conducted by (Arfianda *et al.*, 2022) showed that applying cinnamon compresses successfully reduced pain levels from moderate to mild within a short period of time. This therapy can also gradually lower uric acid levels when combined with dietary adjustments (Hidayatullah *et al.*, 2022). Furthermore, the use of this compress therapy showed no significant side effects, making it safe for elderly people

with comorbidities (Novayanti, 2020). This method has also been integrated into several community nursing practices (Yanti et al., 2023).

More specifically, a research study conducted by (Rani *et al.*, 2025) showed that warm compress therapy with lemongrass and cinnamon had an effect on reducing pain levels with a p-value of 0.000 (p-value <0.05). This study indicates that warm compress therapy made from lemongrass and cinnamon can have an effect on reducing the pain level of gout arthritis. Thus, warm compress therapy made from lemongrass and cinnamon is expected to be applied to reduce pain levels and improve blood circulation in gout arthritis sufferers, which can be done independently at home.

Based on the results of a pre-survey conducted by researchers through interviews with village midwives and Posyandu (Integrated Health Post) cadres in Padang Cermin Village, Pesawaran, it was discovered that *gouty arthritis* is one of the primary health complaints among the elderly. Of the 20 elderly registered at the Posyandu, 10 (50%) frequently complained of gout symptoms such as pain, swelling, and difficulty moving their joints. This was exacerbated by a lack of knowledge about dietary management and low compliance with Posyandu visits.

Objective

This study aims to determine the effectiveness of warm compresses made from lemongrass and cinnamon in reducing pain levels in elderly people with gouty arthritis in Padang Cermin Village, Way Khilau District.

Method

The method used was a case study with a nursing process approach, encompassing assessment, diagnosis, planning, implementation, and evaluation. The intervention was conducted over 7 days, once daily for 20 minutes.

Results

From the results of the assessment of the two clients (Mr. K aged 68 years and Mrs. L aged 67 years) demographic characteristics were obtained which showed that both clients were in the elderly category according to WHO, namely aged 60-74 years. Client 1 (Mr. K) had a uric acid level of 8 mg/dL with complaints of pain in the right and left knee joints with a pain scale of 6/10, while Client 2 (Mrs. L) had a uric acid level of 6.8 mg/dL with complaints of pain in the left ankle with a pain scale of 5/10.

The main nursing diagnosis established in both clients was "Acute Pain related to Physiological Injury Agent (D.0077)" based on subjective data in the form of pain complaints with PQRST characteristics and objective data in the form of grimacing expressions, holding the painful area, restlessness, and increased vital signs. In Client 1, additional diagnoses included "Activity Intolerance related to Immobility (D.0056)" and "Risk for Falls related to Balance Disorders (D.0143)". In Client 2, additional diagnoses were "Memory Disorder related to Aging Process (D.0062)" and "Ineffective Coping related to Family System Dysfunction (D.0096)".

The main nursing intervention given for the diagnosis of acute pain is "Pain Management (I.08238)" which includes: (1) Observation: identification of location, characteristics, duration, quality, and intensity of pain; identification of pain scale; identification of factors that aggravate and alleviate pain; (2) Therapeutic: provide non-pharmacological techniques to reduce pain in the form of warm compresses of lemongrass and cinnamon for 20 minutes every day; control of the environment that

aggravates pain; (3) Education: explain the causes, periods, and triggers of pain; explain strategies for relieving pain; teach non-pharmacological techniques; encourage self-monitoring of pain; (4) Collaboration: collaboration in providing analgesics (ibuprofen/meloxicam).

A warm compress using lemongrass and cinnamon was chosen as a complementary therapy because of its essential oil content with anti-inflammatory and analgesic effects. The procedure involves mixing crushed lemongrass and cinnamon in warm water (37-40°C), then applying the compress to the painful area for 20 minutes, once daily for three consecutive days.

Discussion

In their nursing care study, Hidayah & Triwibowo (2025) found that applying warm compresses with boiled lemongrass and cinnamon effectively reduced pain scores from 6/10 to 2/10 after three sessions in elderly patients with gouty arthritis. The study explained that the combination of lemongrass and cinnamon produced a synergistic effect in reducing inflammation and pain due to the citronellal, geraniol, and cinnamaldehyde content, which act as natural anti-inflammatories.

Astria et al. (2021) conducted a quasi-experimental study that demonstrating that applying a warm compress using a combination of lemongrass and cinnamon significantly reduced pain scores in patients with gouty arthritis ($p=0.000$). This study recommends the use of warm compresses as a safe, easy-to-do, and cost-effective complementary intervention for pain management in gouty arthritis.

In her research, Salsabila (2023) concluded that warm compresses with lemongrass and cinnamon were effective not only in terms of physical aspects (pain reduction) but also psychological aspects (increased comfort and relaxation) and educational aspects (empowering patients to perform self-care). This aligns with the principle of independence in geriatric nursing.

Based on implementation results and evidence-based practice, the authors conclude that a pain management intervention using warm compresses with lemongrass and cinnamon is an appropriate choice for managing acute pain in patients with gouty arthritis. The combination of pharmacological and non-pharmacological approaches provides optimal results in reducing pain intensity. Warm compresses with lemongrass and cinnamon have the advantages of being readily available, affordable, having no side effects, and being self-administered at home. Furthermore, education about a low-purine diet and self-management of pain is crucial for preventing relapse and improving the quality of life of older adults with gouty arthritis.

Nursing care was implemented for three consecutive days on both clients, focusing primarily on pain management using warm compresses with lemongrass and cinnamon. On the first day, a comprehensive pain assessment was conducted, education about gouty arthritis and pain management was provided, and warm compresses with lemongrass and cinnamon were administered for 20 minutes. On the second and third days, compresses were continued, with pain intensity assessed before and after the procedure.

The implementation results showed a progressive decrease in pain scale in both clients. Client 1: first day pain scale 6/10, second day 4/10, third day 3/10. Client 2: first day pain scale 5/10, second day 4/10, third day 3/10. In addition to pain reduction, both clients reported improved sleep quality, decreased grimacing, and

clients appeared more relaxed. No side effects were found from the use of warm lemongrass and cinnamon compresses during the implementation period.

In their case study, Arif et al. (2023) found that applying warm lemongrass compresses for three consecutive days, lasting 20 minutes per session, effectively reduced and even eliminated pain in gout sufferers. This study demonstrated that consistent and continuous intervention significantly influences optimal results, with the mechanism of action being through thermal effects that increase blood circulation and the pharmacological effects of essential oils, which have anti-inflammatory properties.

Saku & Saku (2020) found, through a quasi-experimental study, that warm compresses with lemongrass and cinnamon not only reduced pain intensity but also increased joint range of motion and stiffness in people with gouty arthritis. The study emphasized the importance of correct application technique, appropriate warm water temperature (37-40°C), and appropriate compress duration (15-30 minutes) for optimal results.

In their study, Emelda et al. (2022) explained that warm compresses containing cinnamon decoction were 85% effective in reducing gouty arthritis pain in the first week of intervention. The study recommends combining warm compresses with low-purine diet education and light range-of-motion (ROM) exercises for more comprehensive results.

The authors believe that the nursing implementation was in accordance with established procedures and evidence-based practice. The progressive reduction in pain scores in both clients demonstrates that warm lemongrass and cinnamon compresses are effective as a complementary therapy for gouty arthritis pain management. Successful implementation is dependent on consistent intervention delivery, appropriate application techniques, and active client involvement in the care process. Education on how to perform home compresses is crucial for the continuity of therapy and the prevention of recurrence. The authors also believe that a combination of pharmacological (collaborative analgesic administration) and non-pharmacological (warm lemongrass and cinnamon compresses) therapies provides more optimal results than using either method alone.

The average pain scale reduction of 50% in both clients (from 6/10 to 3/10 in Client 1, and from 5/10 to 3/10 in Client 2) indicates significant effectiveness of the intervention.

Rani et al. (2025) in their study found that warm compress therapy with lemongrass and cinnamon had a significant effect on reducing the pain scale of gout arthritis with a p-value of 0.000 ($p < 0.05$). The study showed an average reduction in pain scale of 52% after 3 days of intervention, which is consistent with the findings in the two clients in this case study. The study also emphasized the importance of pain evaluation using a standardized scale (NRS/VAS) to objectively measure the effectiveness of the intervention.

Hafiza et al. (2020) found, through a pre-experimental study, that cinnamon compresses effectively reduced gout arthritis pain in the elderly, with an average reduction of 3-4 points on a 0-10 scale after 3 days of intervention. The study recommends continued evaluation for at least 1 week after the intervention is discontinued to assess long-term effects and the client's ability to perform self-care.

In their study, Aminah et al. (2022) explained that evaluating the effectiveness of warm compresses not only focused on pain reduction but also on other parameters

such as decreased grimacing frequency, increased mobility, improved sleep quality, and client satisfaction with the intervention. The study showed that 90% of respondents were satisfied with warm compresses as an alternative pain management method and were willing to continue independently at home.

Based on the evaluation results and literature support, the authors conclude that the warm compress intervention with lemongrass and cinnamon proved effective in reducing acute pain in both clients with gouty arthritis. The progressive reduction in pain scale over time demonstrates the cumulative effect of the therapy. The success of this intervention is measured not only quantitatively (reduced pain scale) but also qualitatively, such as more relaxed facial expressions, improved sleep quality, and client satisfaction with the therapy.

The authors also believe that client education and empowerment to perform self-care are crucial for therapy sustainability. Both clients demonstrated a good understanding of how to perform self-compression and a commitment to continuing therapy at home as part of long-term pain management. This aligns with the concept of self-care management in geriatric nursing, which emphasizes the independence of older adults in managing their health.

Although the evaluation results showed good effectiveness, the authors recommend a follow-up evaluation at least 1-2 weeks after the intervention is discontinued to assess the client's ability to perform self-care, adherence to a low-purine diet, and prevention of pain recurrence. Furthermore, regular monitoring of uric acid levels is still necessary to ensure.

Conclusion

A comprehensive assessment was conducted on two elderly clients (Mr. K, 68 years old, and Mrs. L, 67 years old) with gouty arthritis. Client 1 had a uric acid level of 8 mg/dL with pain of 6/10 on the right and left knees, while Client 2 had a uric acid level of 6.8 mg/dL with pain of 5/10 on the left ankle. Both had a high-purine diet as a precipitating factor.

The priority diagnosis is "Acute Pain due to Physiological Injury Agent (D.0077)" based on the 2017 SDKI. Additional diagnoses for Client 1: activity intolerance and risk of falls; for Client 2: memory impairment and ineffective coping.

The main intervention is "Pain Management (I.08238)" according to SIKI 2018, including providing warm compresses of lemongrass and cinnamon for 20 minutes, 1x/day for 3 days, accompanied by low-purine diet education and collaboration in providing analgesics.

The treatment was implemented for three consecutive days, using warm compresses with lemongrass and cinnamon on the painful area. No side effects were observed, and both clients were cooperative with the therapy.

The evaluation showed positive results: Client 1 experienced a decrease in pain from 6/10 to 3/10 (50%), and Client 2 experienced a decrease in pain from 5/10 to 3/10 (40%). Both clients experienced improved sleep quality, reduced grimacing, and were able to perform compresses independently. The acute pain problem resolved after 3 days of implementation.

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