



The Effect of Ginger Decoction Compress on Pain Reduction in Gout Arthritis Patients

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Abstract: Gout arthritis is a prevalent inflammatory joint disease characterized by hyperuricemia and deposition of monosodium urate crystals in the joints, leading to acute pain and impaired mobility. Conventional management primarily relies on pharmacological therapy such as non-steroidal anti-inflammatory drugs (NSAIDs). While effective, long-term use of these drugs carries risks of gastrointestinal bleeding, renal impairment, and cardiovascular complications. This underscores the need for non-pharmacological alternatives that are safe, cost-effective, and culturally adaptable. Ginger (*Zingiber officinale*) contains bioactive compounds—gingerol, shogaol, and zingerone—that exhibit anti-inflammatory and analgesic properties. This study aimed to evaluate the effectiveness of ginger decoction compress in reducing pain among patients with gout arthritis in Sunggaling Hamlet. A quasi-experimental two-group pretest-posttest design was applied, involving 44 purposively selected participants. The intervention group (n = 22) received ginger decoction compresses for three consecutive days, while the control group (n = 22) received standard care. Pain intensity was measured using the Visual Analog Scale (VAS). Data were analyzed using paired and independent t-tests with a significance level of $p < 0.05$. Results showed a significant reduction in pain intensity in the intervention group (from a mean VAS score of 7.2 to 3.1, $p < 0.05$), whereas the control group showed no meaningful change. These findings support the use of ginger decoction compress as a complementary nursing intervention for pain management in gout arthritis patients.

Keywords: Gout arthritis; Ginger compress; Pain; Complementary therapy; Nursing care.

Introduction

Gout arthritis is a prevalent inflammatory joint disease characterized by hyperuricemia and the deposition of monosodium urate crystals in the joints. This condition often results in acute pain, swelling, and impaired mobility (Chen et al., 2026; McCarty et al., 2025). Conventional management of gout arthritis primarily relies on pharmacological therapies, such as non-steroidal anti-inflammatory drugs (NSAIDs). Although these medications are effective in reducing inflammation and pain, long-term use is associated with several adverse effects (Jilani, 2025). Common risks include gastrointestinal bleeding, renal impairment, and

cardiovascular complications (Abdel Mageed et al., 2025; Mageed et al., 2025). These limitations highlight the need for alternative non-pharmacological interventions. Such alternatives should be safe, cost-effective, and culturally acceptable within the community (Inkum et al., 2026).

Ginger (*Zingiber officinale*) is a medicinal plant known to contain bioactive compounds. Compounds such as gingerol, shogaol, and zingerone have been reported to possess anti-inflammatory and analgesic properties (Vambe et al., 2025; Zhang et al., 2026). Therefore, this study aimed to evaluate the effectiveness of ginger decoction compress in reducing pain among patients with gout arthritis in Sunggaling Hamlet. A

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quasi-experimental two-group pretest-posttest design was applied in this study (X. Zhao et al., 2025).

The research involved 44 participants who were selected using a purposive sampling technique. Participants were divided into an intervention group and a control group. The intervention group consisted of 22 participants who received ginger decoction compress therapy (Ahmad et al., 2025). The therapy was administered once daily for three consecutive days. Meanwhile, the control group, also comprising 22 participants, received standard care without additional intervention. Pain intensity was assessed before and after the intervention period (Herdiana et al., 2025). Measurement of pain was conducted using the Visual Analog Scale (VAS). Data analysis included both paired t-tests and independent t-tests. A significance level of $p < 0.05$ was applied to determine statistical significance (Chen et al., 2025; Peng et al., 2025).

The results showed a significant reduction in pain intensity in the intervention group following the treatment period (Han et al., 2026). The mean Visual Analog Scale (VAS) score in the intervention group decreased from 7.2 before the intervention to 3.1 after the intervention. This reduction was statistically significant, with a p-value of less than 0.05. In contrast, the control group did not demonstrate a meaningful change in pain intensity (Rios Santos et al., 2025; Wang et al., 2025).

The absence of significant improvement in the control group suggests that standard care alone was insufficient to reduce pain levels. The observed pain reduction in the intervention group indicates the effectiveness of ginger decoction compress therapy. The analgesic effect may be attributed to the anti-inflammatory properties of ginger's bioactive compounds. Compounds such as gingerol and shogaol are known to inhibit inflammatory mediators.

The application of warm compresses may also enhance blood circulation and muscle relaxation. These combined effects likely contributed to pain relief in gout arthritis patients (Azad et al., 2025). The findings align with previous studies reporting the benefits of herbal compress therapy. Ginger decoction compress can be considered a safe and non-invasive intervention (Pan et al., 2026). It is also relatively inexpensive and easy to apply in community settings. Therefore, this therapy has potential as a complementary nursing intervention. Incorporating ginger decoction compress into pain management strategies may improve the quality of life of patients with gout arthritis (Yang et al., 2025).

Method

Research Design

This study applied a quasi-experimental design using a two-group pretest-posttest approach. This

design allowed for the assessment of differences in pain levels before and after intervention, and between intervention and control groups (SEMBIRING, 2025; Setiyaningsih et al., 2025).

Participants and Sampling

The study recruited 44 respondents diagnosed with gout arthritis residing in (Nuryanto et al., 2025). Participants were selected through purposive sampling, based on the following inclusion criteria: 1). Age > 40 years; 2). Clinically diagnosed with gout arthritis; 3). Experiencing pain at the time of data collection; 4). Not currently taking analgesic medications. Participants were divided into two groups: 22 in the intervention group and 22 in the control group.

Instruments

Pain intensity was assessed using the Visual Analog Scale (VAS), a validated tool widely used in clinical and research settings to quantify subjective pain levels. The scale ranged from 0 (no pain) to 10 (worst imaginable pain) (Hjermstad et al., 2011).

Intervention Procedure

Preparation: 100 grams of fresh ginger rhizomes were sliced thinly and boiled in 1 liter of water until reaching a temperature of approximately 40°C. Application: A towel was soaked in the decoction, wrung until damp, and applied to the affected joint for 30 minutes (Seybert et al., 2025).

Frequency

The compress was administered once daily for three consecutive days. Each application was carried out at the same time each day to maintain treatment consistency. The procedure followed standardized protocols to ensure uniformity across all subjects. Participants were monitored during each session to observe any immediate responses or adverse effects. This regimen was selected to optimize the therapeutic effectiveness of the compress intervention.

Control Group

Participants received standard health education and observation without any compress intervention. The education focused on general care and preventive measures related to the condition under study. Regular monitoring was conducted to assess participants' conditions and document any changes (Bar et al., 2025; Hasan et al., 2025).

Data Collection and Analysis

Pain intensity was measured for both groups at baseline (pretest) and after the intervention (posttest). Data were analyzed using paired t-tests for within-

group comparisons and independent t-tests for between-group comparisons, with statistical significance set at $p < 0.05$.

Result and Discussion

Characteristics of Respondents

Table 1 presents demographic characteristics of participants.

Table 1. Respondent Characteristics by Group (n = 44)

Variable	Intervention (n=22)	Control (n=22)
Age 40–55 years	12 (54.5%)	10 (45.5%)
Age >55 years	10 (45.5%)	12 (54.5%)
Male	14 (63.6%)	13 (59.1%)
Female	8 (36.4%)	9 (40.9%)

Most respondents were older adults, consistent with epidemiological trends indicating gout prevalence rises with age.

Pain Intensity Before and After Intervention

Table 2. Pain Score Comparison Pretest vs. Posttest

(Insert bar chart: Intervention group shows a marked decrease; control remains unchanged.)

Table 2. Mean Pain Scores (VAS) Pretest–Posttest

Group	Pretest (Mean ± SD)	Posttest (Mean ± SD)	p-value
Intervention	7.2 ± 1.1	3.1 ± 0.9	<0.05
Control	7.0 ± 1.2	6.8 ± 1.3	>0.05

The intervention group experienced a significant reduction in pain scores, shifting from the “severe” category to “moderate” or “mild” levels. In contrast, the control group exhibited negligible changes in pain intensity (Sakopoulos & Todman, 2025; S. Zhao et al., 2025). These findings demonstrate that ginger decoction compress is effective in reducing pain among patients with gout arthritis. The observed analgesic effect may be explained by two primary mechanisms (Shafiei et al., 2025; Yulia Susanti et al., 2025).

Thermal effect

Warm compresses induce vasodilation in the affected area. This vasodilation enhances local blood circulation. Improved circulation facilitates oxygen and nutrient delivery to surrounding tissues. At the same

time, warm stimulation reduces local muscle tension and stiffness (Islam et al., 2021). These physiological effects are consistent with the gate control theory of pain, which explains the reduction of pain perception (Guest et al., 2025; Sofia & Triyanita, 2025).

Phytochemical effect

Ginger contains bioactive compounds such as gingerol and shogaol. These compounds inhibit the synthesis of pro-inflammatory mediators, including prostaglandins and cytokines. By suppressing inflammatory pathways, ginger reduces nociceptor sensitivity and pain perception. This mechanism supports the analgesic effect observed in patients with gout arthritis (Do et al., 2025; Hossain et al., 2025).

The findings of this study are consistent with those reported by (Lu et al., 2025). Moreover, the results align with the study conducted by (Do et al., 2025), which demonstrated the effectiveness of ginger compress therapy in older adults with gout. Similar outcomes have also been reported in studies using other herbal compresses. (Khumaidi et al., 2025) found that moringa leaf compresses effectively reduced joint pain. In addition, (Hossain et al., 2025) reported positive effects of cinnamon compresses on pain reduction. These complementary findings highlight the therapeutic potential of herbal-based interventions. Collectively, the evidence supports the growing role of natural, non-pharmacological therapies in nursing care. Such interventions can be integrated as complementary approaches to conventional treatment.

The integration of ginger compress into community health nursing practice offers several advantages. Ginger is widely available and affordable in many communities. Furthermore, herbal-based interventions are generally associated with minimal side effects (Lu et al., 2025).

Accessibility

Ginger is widely available and inexpensive in many communities. Its accessibility makes it a practical option for community-based health interventions. The low cost of ginger reduces financial barriers for patients. This affordability supports its sustainable use in long-term care. Consequently, ginger-based therapies are feasible for widespread implementation in nursing practice (Edo et al., 2025).

Safety

Ginger-based therapy is associated with fewer side effects compared to non-steroidal anti-inflammatory drugs (NSAIDs). NSAIDs are commonly linked to adverse effects such as gastrointestinal irritation and renal impairment. In contrast, ginger is generally well tolerated when used appropriately. This safety profile

makes ginger suitable for complementary pain management. Therefore, ginger compress therapy offers a safer alternative for long-term use in patients with gout arthritis (Liu et al., 2025; Matin et al., 2025).

Cultural acceptance

Use of herbal remedies is consistent with local traditions, potentially improving adherence. Nevertheless, limitations of this study include its relatively small sample size and short intervention period. Future research should consider larger populations, longer follow-up, and comparisons with other complementary therapies (Do et al., 2025; Lu et al., 2025).

Conclusion

This study concludes that ginger decoction compress is effective in reducing pain intensity among patients with gout arthritis. The intervention demonstrated a statistically significant analgesic effect compared to standard care. The application of ginger decoction compress was well tolerated by participants. No serious adverse effects were observed during the intervention period. Ginger decoction compress is a safe therapeutic option with minimal side effects. In addition, it is inexpensive and easy to apply in community settings. The simplicity of the intervention allows for implementation by nurses and caregivers. Therefore, ginger decoction compress represents a valuable complementary therapy in community-based nursing care.

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Author Contributions

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Conflicts of Interest

The authors declare no conflict of interest.

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