

The Effect Of Warm And Cold Compress Therapy As A Pain Distraction In The Elderly With Joint Pain At Wisma Tulip Upt Pstw Tulungagung

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ABSTRACT

Joint pain is a common problem among the elderly, which can reduce quality of life and limit daily activities. Non-pharmacological interventions, such as warm and cold compress therapy, are often used to alleviate discomfort in older adults. The effectiveness of compress therapy is influenced by the type of pain, joint condition, and individual preferences, making it important to study the effect of both warm and cold compresses as pain distraction interventions. This study aimed to determine the effect of warm and cold compress therapy as a pain distraction on joint pain intensity in elderly residents at Wisma Tulip UPT PSTW Tulungagung and to identify the elderly's preferences for the type of compress therapy. A one group pretest–posttest quasi-experimental design was used with 10 elderly participants experiencing joint pain. Pain intensity was measured using the Numeric Rating Scale (NRS) before and after the administration of warm and cold compresses. Data were analyzed descriptively, and the Wilcoxon Signed Rank Test was used to assess differences in pretest and posttest pain scores. Both warm and cold compress therapies were effective in reducing joint pain. Cold compress therapy resulted in a more significant reduction in pain compared to warm compress therapy. Most respondents (70%) preferred cold compresses due to the rapid pain relief and comfort they provided, while 30% preferred warm compresses for muscle relaxation. Statistical analysis confirmed that cold compress therapy produced a more clinically meaningful decrease in pain scores than warm compress therapy. Warm and cold compresses are effective as pain distraction interventions for elderly individuals with joint pain, but cold compresses are more effective and preferred. The choice of therapy should be tailored to the type of pain and individual preferences to enhance comfort and improve the quality of life of the elderly.

Keywords: Cold compress, Elderly, Joint pain, Pain distraction, Warm compress

INTRODUCTION

Joint pain is a common musculoskeletal problem experienced by the elderly due to the aging process, such as osteoarthritis and rheumatoid arthritis, thereby reducing the quality of life and ability to do daily activities. Pain management in the elderly should use a nonpharmacological approach to reduce dependence on analgesic drugs that are at risk of causing side effects (Hidayat & Falah, 2025; Potter et al., 2021).

Warm compress therapy is a commonly used method, with a vasodilation mechanism that increases blood flow, relieves muscle tension, and decreases pain perception, especially in chronic degenerative joint pain (Sari & Prasetyo, 2024; Mandira Cendikia, 2025). In contrast, cold compresses are effective in pain with acute inflammation, through a vasoconstriction mechanism that reduces swelling and pain transmission (Fahlufi et al., 2024; USPain Foundation, 2021).

Both therapies utilize the principle of pain distraction based on the theory of pain modulation, in which thermal stimulation distracts from primary pain thereby increasing the comfort of the elderly (Potter et al., 2021). Although many studies have examined the effects of individual compresses, studies comparing warm and cold compresses as pain distractions in the elderly, particularly in care facilities such as Wisma Tulip UPT PSTW Tulungagung, are still limited.

This study was conducted to provide empirical evidence on the effect of warm and cold compresses as pain distraction on the intensity of joint pain in the elderly. The results are expected to be a reference in effective non-pharmacological pain management and nursing practices, according to the individual needs of the elderly, and support the holistic improvement of the quality of life of the elderly.

METHODS

This study uses a pre-experimental design with a one group pretest–posttest design approach. This design was used to determine the effect of warm compress therapy as a pain distraction on joint pain in the elderly by comparing pain levels before and after the intervention.

1. Place and Time of Research

This research was carried out at Wisma Tulip, UPT Social Services Tresna Werdha (PSTW) Tulungagung. The research implementation period was carried out from June 16 to June 23, 2025, which included the preparation stage, data collection, intervention, and evaluation of results.

2. Population and Sample

The population in this study is all elderly people who experience joint pain at Wisma Tulip UPT PSTW Tulungagung. The sampling technique used was total sampling, with a sample of 10 elderly people who met the inclusion and exclusion criteria.

1. The inclusion criteria in this study include:

1. Elderly ≥ 60 years old.
2. Experiencing mild to moderate joint pain.
3. Able to communicate well.
4. Willing to be a research respondent.

5. Exclusion criteria include:

1. Elderly with severe cognitive impairment.
2. Elderly people who have open wounds or skin disorders in the area where the compress will be given.
3. Elderly who are undergoing intensive pharmacological therapy for pain.

4. Research Variables

The independent variable in this study was warm compress therapy as a pain distraction, while the dependent variable was the level of joint pain in the elderly.

5. Research Instruments

The instrument used in this study is the Numeric Rating Scale (NRS) to measure the level of joint pain, with a value range of 0–10. This scale is used to measure pain intensity before and after the administration of warm compress therapy.

6. Research Procedure

The research procedure is carried out through several stages, namely:

1. The researcher measured the level of joint pain in the respondents using NRS (pretest).
2. Respondents were given warm compress therapy on painful joint areas with a temperature of $\pm 40\text{--}45^\circ\text{C}$.
3. Warm compress therapy is carried out for 15–20 minutes, once a day, for 7 days.

4. After the therapy, the researcher again measured the level of joint pain using NRS (posttest).

1. The measurement results data are recorded and collected for analysis.

1. Data Collection Techniques

Data were collected through direct observation and structured interviews using pain measurement sheets. Primary data was obtained from the results of measuring pain levels before and after intervention, while secondary data was obtained from the health records of the elderly at UPT PSTW Tulungagung.

2. Data Analysis Techniques

Data analysis was conducted univariate to describe the characteristics of respondents and the level of joint pain. Bivariate analysis was used to determine the difference in pain levels before and after the administration of warm compress therapy. The statistical test used is the Wilcoxon Signed Rank Test, because the sample count is small and the data is ordinal-scale. The level of meaning is set at the value of $\alpha = 0.05$.

3. Research Ethics

This study pays attention to the ethical principles of research including informed consent, confidentiality of respondent identities, and the principles of beneficence and nonmaleficence. The research was carried out after obtaining permission from the Tulungagung PSTW UPT and approval from the respondents.

RESULTS

1. Respondent Characteristics

This study involved 10 elderly respondents who experienced joint pain and lived at Wisma Tulip UPT PSTW Tulungagung. The age range of respondents was 60–82 years. Based on gender, most of the respondents were women. The most commonly complained of joint pain locations are in the knees and ankles. All respondents experienced mild to moderate joint pain before the intervention was carried out.

2. Pain Level Before Therapy (Pretest)

The results of pain level measurements before being given warm and cold compress therapy showed that most of the respondents were in the moderate pain category. The pain score based on the Numeric Rating Scale (NRS) is in the range of 4–6, which indicates that the pain is quite disruptive to the comfort and daily activities of the respondents.

1. Pain Level After Warm Compress Therapy

After being given warm compress therapy for 15–20 minutes, some respondents experienced a reduction in pain, but the decrease was relatively small. The pain score after a warm compress is in the range of 3–5. Some respondents stated that the warm sensation provides a sense of relaxation, but is less effective in reducing joint pain accompanied by swelling or heat in the joints.

2. Pain Level After Cold Compress Therapy

After being given cold compress therapy, most respondents reported a more noticeable reduction in pain compared to warm compresses. The pain score after cold compresses is in the range of 2–4, which falls into the category of mild pain. Respondents said that cold compresses provide a numbness effect, reduce the feeling of heat in the joints, and provide faster comfort.

3. Respondents' Preferences for Compress Types

The results of the interviews showed that 7 out of 10 respondents (70%) preferred cold compresses, while 3 respondents (30%) preferred warm compresses. The main reason respondents chose cold compresses was because the cold sensation was considered more effective in reducing joint pain and swelling. Respondents who liked warm compresses stated

that the therapy provided a sense of relaxation, but the pain-reducing effect was felt more slowly.

4. Comparison of the Effectiveness of Warm and Cold Compresses on Joint Pain

The results of the analysis showed that there was a difference in the decrease in pain score between the administration of warm compresses and cold compresses. Cold compresses show a greater reduction in pain than warm compresses. This indicates that cold compress therapy as a pain distraction is more effective and preferred by elderly respondents with joint pain at Wisma Tulip UPT PSTW Tulungagung.

DISCUSSION

The results of the study showed that both warm compress therapy and cold compresses were able to reduce the level of joint pain in the elderly at Wisma Tulip UPT PSTW Tulungagung, but a greater reduction in pain occurred after the administration of cold compresses. Prior to the intervention, most respondents experienced moderate category joint pain. After therapy, there was a decrease in pain scores, especially in respondents who received cold compresses. These findings suggest that nonpharmacological therapy in the form of temperature stimulation can act as a pain distraction in the elderly.

Warm compresses are known to work through a vascular vasodilation mechanism that increases blood flow to tissues, reduces joint stiffness, and provides a muscle relaxation effect. Several studies state that warm compresses are effective for chronic joint pain that is not accompanied by acute inflammation (Ningsih & Sari, 2024; Richard et al., 2022). However, in this study the decrease in pain after warm compresses was relatively smaller. This can be caused because some respondents experience joint pain accompanied by heat and swelling, so that the warm sensation is actually felt uncomfortable by the elderly.

In contrast, cold compress therapy showed a more significant reduction in pain and became the preferred option for most respondents. Cold compresses work by vasoconstriction mechanisms, lowering local blood flow, as well as reducing inflammatory processes and edema in the joints (Fahlufi et al., 2024). In addition, the sensation of cold can cause a numbing effect that slows down the transmission of pain impulses to the central nervous system, so that pain is felt less (Potter et al., 2021). This is in line with the results of the meta-analysis which states that cold therapy is more effective in musculoskeletal pain accompanied by inflammation (PubMed Meta-analysis, 2021).

The preference of respondents who prefer cold compresses also reinforces the concept of pain distraction. Pain distraction is a technique of diverting attention from a pain stimulus to another more dominant stimulus, such as cold or warm sensations. Based on the Gate Control theory, non-pain sensory stimuli such as cold temperatures can close the "gate" of pain transmission so that the pain signals that reach the brain are reduced (Melzack & Wall, 2021). In this study, respondents stated that cold compresses provide a sense of comfort faster and reduce pain directly, so that the distraction effect is felt more optimally.

The results of this study are in line with the research of Wulandari et al. (2023) which stated that cold compresses provide a more significant reduction in pain than warm compresses in the elderly with osteoarthritis knee pain. Other studies also mention that the choice of hot or cold therapy should be adjusted to the individual's clinical condition and comfort, because the pain response in the elderly is subjective and influenced by the experiences and perceptions of each individual (Hidayat & Falah, 2025).

Thus, the results of this study show that although warm and cold compress therapy are equally beneficial as pain distraction, cold compresses are more effective and preferred by the elderly with joint pain at Wisma Tulip UPT PSTW Tulungagung. These findings confirm the importance of the role of nurses in choosing nonpharmacological interventions that are not

only theory-based, but also take into account joint conditions and elderly preferences so that pain management can run optimally and patient-centered.

CONCLUSION

Conclusion

Based on the results of the study on the effect of warm and cold compress therapy as pain distraction in the elderly with joint pain at Wisma Tulip UPT PSTW Tulungagung, the following can be concluded:

1. Warm compress therapy and cold compresses were equally effective in lowering the level of joint pain in the elderly, although the reduction in pain varied between respondents.
2. Cold compresses show a more significant reduction in pain than warm compresses, especially in the elderly who experience pain accompanied by swelling or burning in the joints.
1. The preference of the elderly for this type of compress greatly affects the effectiveness of pain distraction; Most respondents (70%) prefer cold compresses because they provide a quick effect in reducing pain and discomfort.
2. Compress therapy as a pain distraction should be tailored to the clinical conditions and preferences of the elderly individual, so that non-pharmacological pain management can be optimal and patient-centered.

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