GENIUS JOURNAL
general nursing science journal
e-ISSN: 2723-7729
Vol. 7 No. 1 PP. 60-77 E-ISSN 2723-7729

Holistic Care for Reducing Pain Intensity among Individual with Rheumatoid Arthritis: A Systematic Literature Review

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DOI: https://doi.org/10.56359/gj.v7i1.834

ABSTRACT

Introduction: Rheumatoid arthritis (RA) is a chronic autoimmune disorder marked by persistent joint inflammation that causes pain, stiffness, and impaired mobility. While pharmacological treatment helps manage symptoms, some patients experience side effects or inadequate pain control. Therefore, holistic approaches involving psychological, lifestyle, and physical therapies are increasingly considered to support overall well-being and complement medical management.
Objective: This systematic review aims to assess the effectiveness of holistic interventions in reducing pain intensity among individuals with RA.
Method: A systematic search of six databases PubMed, ProQuest, Garuda, JSTOR, ScienceDirect, and Wiley was conducted for studies published between 2020 and 2024. Eligible studies included RA patients whose pain intensity was measured using validated tools such as the Numerical Rating Scale (NRS), Visual Analog Scale (VAS), or McGill Pain Questionnaire (MPQ). Two independent reviewers performed study selection and data extraction, while quality assessment followed PRISMA guidelines and the CASP Checklist.
Results: Eleven studies comprising 607 participants met the inclusion criteria. The findings showed that holistic interventions including warm ginger compresses, Swedish massage, hand and foot massage, lavender aromatherapy, eucalyptus inhalation, Reiki therapy, and combined ginger compress with rheumatic exercise, were effective in reducing pain intensity in RA patients. Most studies reported significant improvements, with warm ginger compress being the most consistently effective method across various settings.
Conclusion: Holistic approaches demonstrate meaningful benefits in reducing pain and supporting comfort in individuals with RA, particularly among older adults. Consistent application and appropriate duration of therapy enhance effectiveness. Overall, holistic care serves as a valuable complementary strategy that promotes patient-centered pain management and improves quality of life.

Keywords: holistic care, non-pharmacological treatment, rheumatoid arthritis

Introduction

Rheumatoid Joint pain (RA) may be a incessant immune system illness that causes joint aggravation, torment, and portability impairment (Wu et al., 2022). Slagter et al. (2022) expressed that this infection not as it were influences the physical viewpoint but moreover has critical mental and social impacts on people encountering it (Slagter et al., 2022). Agreeing to Fadrus et al. (2023), the frequency of RA is higher in North America and Northern Europe compared to Southern Europe. There are 29 cases per 100,000 in Northern Europe, 38 within the Joined together States, and 16.5 in Southern Europe. The predominance of RA tends to stay consistent in numerous populaces, extending from 0.5-1%. The most elevated rates are found among the Pima Indians (5.3%) and Chippewa Indians (6.8%), with the least rate detailed in China and Japan (0.2-0.3%) (Fadrus et al., 2023). Setiawan et al. (2021) detailed that the incidence of joint pain in Indonesia ranges from 23.6% to 31.61% of the whole populace. In expansion, based on wellbeing profile information from the West Java Wellbeing Office, healthcare administrations for the elderly in Ciamis Regency were recorded as the least, with scope coming to as it were 4.60% (Setiawan et al., 2021). The high prevalence of RA could be a matter of concern, particularly in connection to the common complaint found within the community, to be specific torment as the overwhelming indication going with this malady.

The essential indication most commonly experienced by people with RA is pain (Shalahuddin et al., 2023). Agreeing to Lenkiewicz et al. (2022), torment in RA is caused by persistent irritation that triggers the discharge of pro-inflammatory cytokines such as TNF-α, IL-1, and IL-6, driving to synovial hyperplasia, expanded synovial liquid, and inevitably disintegration of cartilage and bone (Koper-Lenkiewicz et al., 2022). included that this torment frequently causes RA patients to fear development, which in turn comes about in impediments in every day activities (Putri et al., 2020). Hence, Hasanah et al. (2023) expressed that the essential objective of RA treatment is to diminish joint firmness, diminish swelling, ease torment concentrated, and anticipate the movement of joint harm in arrange to preserve understanding work and quality of life (Hasanah et al., 2023).

Pain management in RA can be carried out through two methods: pharmacological and non-pharmacological (Fitriani et al., 2024). Petit et al. (2024) Petit et al. (2024) expressed that long-term utilize of medicines such as Disease-Modifying Anti-Rheumatic Drugs (DMARDs) and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) could be a common treatment strategy for RA patients (Petit et al., 2024). Sihombing et al. (2022) included that in spite of the fact that pharmacological treatment is the essential approach in RA treatment, long-term pharmaceutical utilize may cause genuine side effects (Yanna Sihombing et al., 2022). In expansion, concurring to Morf et al. (2020), RA patients are moreover inclined to mental clutters due to drawn out torment and constrained versatility, which can prevent day by day activities (Morf et al., n.d.). In this manner, Satria & Ningrum (2023) expressed that non-pharmacological approaches are getting to be progressively prevalent. All encompassing care, such as physical treatment, a solid slim down, and stress administration, can serve as choices to assist calm pain (Satria, 2023).

All encompassing care is an approach that considers an individuals physical, mental, enthusiastic, social, and otherworldly wellbeing as a whole (Nissen et al., 2021). Zega et al. (2025) detailed in their think about that a all encompassing care approach can offer assistance decrease torment, move forward joint adaptability, and upgrade mental and social well-being. This articulation is bolstered by Akram et al. (2021), who famous a solid relationship between the application of all encompassing treatment and made strides quality of life in RA patients

(Akram et al., 2021). Turk et al. (2023) expressed that combining routine treatment with non-pharmacological treatment yields superior comes about compared to pharmacological treatment alone (Turk et al., 2023). A few treatments that can be connected incorporate warm compresses utilizing ruddy ginger or normal ginger to diminish irritation, knead to soothe muscle pressure, as well as reiki and fragrance based treatment to progress physical and enthusiastic balance (Barao Paixao & Freire de Carvalho, 2021; Setiawan et al., 2021; Utli & Yagmur, 2022).

In hone, all encompassing care faces different challenges, counting the need of understanding among healthcare experts with respect to complementary treatments, restricted get to to elective medicines, and moo understanding mindfulness of the benefits of a all encompassing approach in illness management (Pianarosa et al., 2021). AcIver et al. (2021) expressed that encourage investigate is required to assess the viability of all encompassing care and distinguish ideal procedures for its execution in people with RA (MacIver et al., 2021). Sweeney et al. (2021) included that endeavors to progress the understanding of healthcare suppliers, patients, and the community with respect to the significance of a all encompassing approach in RA administration must be carried out systematically (Sweeney et al., 2021). This explanation is fortified by Majnik et al. (2022), who expressed that instruction and preparing for therapeutic faculty on non-pharmacological treatments, such as physical treatment, psychotherapy, and stress management procedures, are the primary steps toward extending the execution of all encompassing care (Majnik et al., 2022). In expansion, Tripathy et al. (2021) emphasized that arrangement bolster from governments and wellbeing educate is required to extend get to to elective and complementary treatments in arrange to progress benefit quality for RA patients (Tripathy et al., 2021).

The all encompassing approach in RA care offers critical benefits in progressing patients quality of life by tending to their physical, enthusiastic, social, and otherworldly aspect (Taylor et al., 2021). Roodenrijs et al. (2021) included that in spite of the fact that pharmacological treatment remains an basic portion of RA administration, it must be combined with non-pharmacological mediations to attain more ideal results (Roodenrijs et al., 2021). With the growing evidence supporting the benefits of holistic care, it is important for healthcare providers, patients, and policymakers to consider integrating complementary therapies in RA management.

Objective

This systematic literature review aims to analyze the effectiveness of holistic care in reducing pain intensity in individuals with rheumatoid arthritis.

Method

Study design

This systematic literature review refers to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement. The research protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO) under registered number CRD420250650257.

Search Study

The look methodology secured the period from January 1, 2020, to December 31, 2024, and was conducted over different databases, counting PubMed, ProQuest, Garuda, and JSTOR.

The five-year look confinement pointed to guarantee that the considers included the foremost later and pertinent data on the particular theme. Advancements in a field of science can alter and advance over time, making the choice of up-to-date writing basic for getting a comprehensive understanding. In expansion, this time confinement was too planning to oversee the number of thinks about to be assessed and synthesized more viably.

The look was conducted utilizing the Restorative Subject Headings (Work) framework and watchwords within the progressed search engine, as appeared within the reference section (Table 1). The look handle was carried out freely by two creators of this article (GNN and SO) on the already specified electronic databases.

Tabel 1. MeSH term

Sources	Link	Keywords	Num
Pubmed	https://surl.li/zjiamw	(ginger OR reiki OR aromatherapy OR eucalyptus OR massage OR Sweden OR compress) [MeSH Terms]	501
ProQuest	https://surl.li/xdpkdy	Mainsubject (rheumatoid arthritis)	873
Garuda	https://surl.li/fkowqu	Holistic care	30
JSTOR	https://surl.li/hujgol	(rheumatoid arthritis)	150
Science Direct	https://surl.li/xkriux	(Holistic) AND (PAIN) AND (rheumatoid arthritis)	384
Wiley Online Library	https://surl.li/lautis	Holistic ON rheumatoid arthritis	177
		Total	**2,115**

The search was conducted using the Medical Subject Headings (MeSH) system and relevant keywords in advanced search engines, as presented in Table 1. This search was independently carried out by two co-authors of this article (GNN and SO), who accessed the previously mentioned electronic databases.

Inclusoin criteria

The participants included in this study were individuals diagnosed with rheumatoid arthritis. There were no restrictions based on gender, religion, or race.

Intervention

Holistic care is a comprehensive approach that considers the physical, emotional, mental, and spiritual well-being of patients. Several interventions that support this principle include red ginger compresses, warm compresses, and warm ginger compresses, which help reduce pain and improve blood circulation. In addition, Swedish massage, Reiki therapy, and hand massage can promote relaxation and enhance overall well-being. Foot massage with lavender aromatherapy and self-massage with aromatherapy also contribute to stress reduction and improved sleep quality. Meanwhile, eucalyptus oil inhalation supports respiratory health by helping to clear the airways. The combination of ginger compresses and rheumatic exercises has been proven effective in reducing joint stiffness and improving mobility. Thus, these holistic interventions assist patients in achieving comfort, relaxation, and better health outcomes.

Control

Eligible control groups were required to receive standard care, usual care, or a placebo.

Outcomes

We included ponders that measured torment concentrated utilizing different rebellious, such as the Visual Analog Scale (VAS), Numeric Rating Scale (NRS), and McGill Torment Survey (MPQ).

Study design

Will include randomized controlled trials (RCTs), quasi-experimental thinks about, and pre-experimental considers to evaluate the viability of all compassing care. Articles based on writing audits, efficient audits, and supposition papers will be prohibited. As it were thinks about composed in English and Indonesian will be included.

Exclusion criteria

This study excluded publications not written in English or Indonesian. Furthermore, participants younger than 12 years, as well as families with members over 65 years old who had chronic illnesses or mental disorders, were not considered. In addition, articles such as single case reports, editorials, letters to the editor, correspondence, narrative or scoping reviews, literature reviews, systematic reviews, conference abstracts, book chapters, and opinion papers were also excluded from the analysis.

Study selection and data extraction

All titles and abstracts were independently reviewed by three writers (TN, GNN, and SO) using the previously mentioned design. The senior researchers (HS, SU) ultimately decided whether to include the disputed articles if the two writers were unable to agree. Data from every study in the collection was separately retrieved by two other authors (NH and JK). Authorship, year, country, design, sample size, interventions, instruments, results, and findings were all included in the papers of the studies that were chosen for inclusion.

Assesment of quality

The included studies were subjected to independent quality ratings by three researchers (TN, GNN, and SO). Assessment discrepancies were handled collectively, and the senior researchers (HS, SU) were consulted if more explanation or resolution was required. This exacting procedure made sure that quality assessments were conducted rigorously and in compliance with accepted scientific principles.

CASP

The study design, validity of results, methodology, bias, relevance, and applicability within the research context are the categories on which we evaluated the quality of primary and secondary outcomes using the Critical Appraisal Skills Programme (CASP).

Result

Study selection

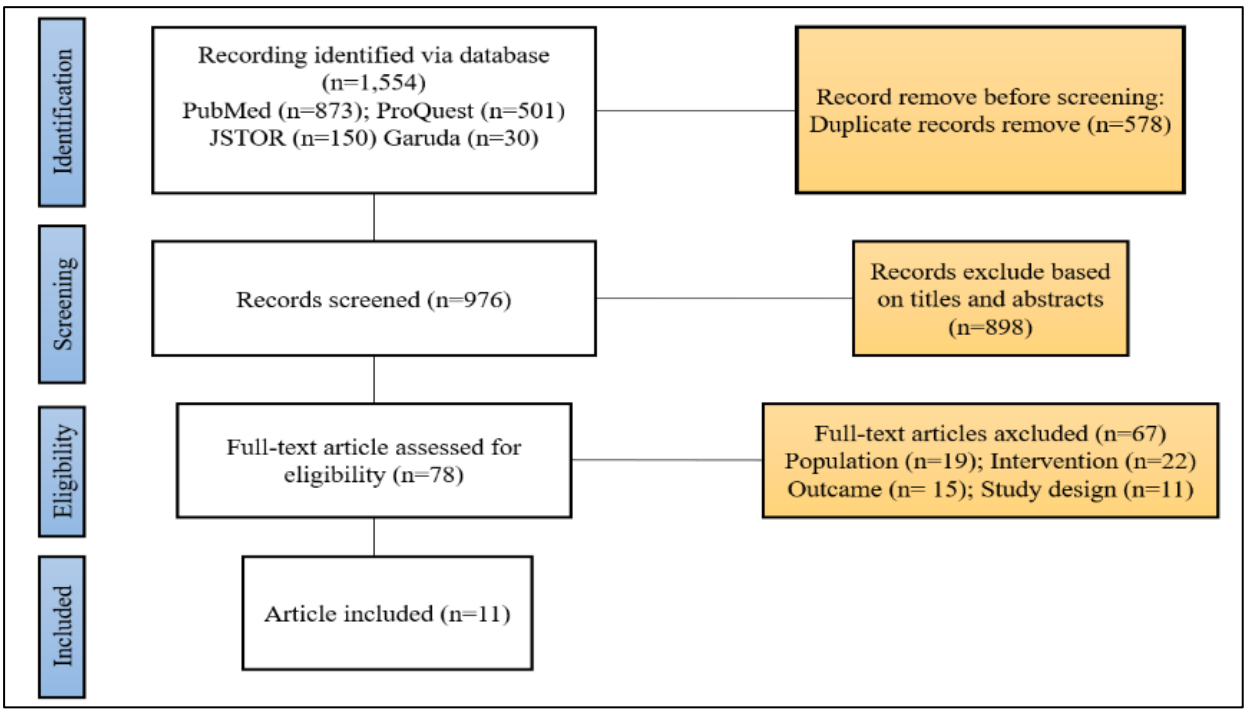

Figure 1. Screening process flowchart by PRISMA

In this study, a total of 1,554 articles were identified through several databases: PubMed (n=873), ProQuest (n=501), JSTOR (n=150), and Garuda (n=30). After removing 578 duplicate records, 976 articles remained for screening. During the title and abstract screening process, 898 articles were excluded for not meeting the inclusion criteria. The remaining 78 full-text articles were then assessed for eligibility. Of these, 67 articles were excluded for specific reasons: 19 due to population mismatch, 22 due to irrelevant interventions, 15 because the outcomes did not align with the study objectives, and 11 due to unsuitable study designs. Consequently, 11 articles met all the eligibility criteria and were included in the final analysis. Detailed information regarding the selection process is illustrated in Figure 1.

Study characteristics

Tabel 2. Characteristic of Intervention

Author, year, country	Design (Sample size)	Intervention (Case)	Instrument (outcomes)	Findings
(Kusuma Wijaya, n.d.-a) Indonesia	Pre-experimental (Populasi 15)	Red Ginger Compress (Rheumatoid Arthritis)	VAS for pain intensity	Elderly residents of Bengkulu's Tresna Werdha Pagar Dewa Social Institution who suffer from rheumatoid arthritis find that warm ginger compress therapy significantly relieves their discomfort. The majority of respondents reported having moderate pain prior to the therapy. A higher percentage of responders experienced minor pain following the therapy, suggesting that this treatment was effective.
(Hariati et al., 2020) Indonesia	Quasi-experiment (Populasi 42)	Warm Compress (Rheumatoid Arthritis)	NRS for pain intensity	At the Tresna Werdha Pagar Dewa Social Institution in Bengkulu, warm ginger compress therapy helps older people with rheumatoid arthritis. The majority of respondents reported having moderate pain prior to the therapy. More responders reported minor pain following the therapy, demonstrating the beneficial effects of this intervention.
(Sahraei et al., 2022) Iran	RCT (Populasi 60)	Swedish Massage (Rheumatoid Arthritis)	VASfor pain intensity	For rheumatoid arthritis patients, Swedish massage effectively lessens the intensity of their pain. Although more study is required to validate these results, this therapy can be employed as a pain management method
(Sari & Masruroh, 2021) Indonesia	Pre- Experimental (Populasi 48)	Warm ginger compress (Rheumatoid Arthritis)	MPQ for pain intensity	At the Gulbung Village Auxiliary Health Center in Sampang, a warm ginger compress helps older people with rheumatoid arthritis feel less pain. The majority of older participants felt mild pain (67%), whereas the majority reported moderate pain (53%), prior to the therapy. With a p-value of 0.000, the study's findings demonstrated a significant impact on both rheumatoid arthritis and other forms of pain.
(Varkaneh et al., 2022) Iran	RCT (Populasi 70)	Inhalasi Eucalyptus (Rheumatoid arthritis)	NRS for pain intensity	Since eucalyptus oil has been shown to lessen pain and enhance quality of life, it can be used as a supplemental therapy.
(SevgiÜnal Aslan & Çetinkaya, 2023) Turkey	RCT (Populasi 105)	Reiki and hand massage (Rheumatoid arthritis)	VAS for pain intensity	Hand massage and Reiki both successfully lessen weariness and discomfort, but Reiki is more successful. It is advised that alternative therapies be incorporated into nursing education and that nurses receive training on these approaches. To assess their effects on a range of patient populations, more investigation is required.
(Heriyanto et al., 2023) Indonesia	Pre- Experimental (Populasi 30)	Foot massage and lavender aromatherapy	NRS for pain intensity	Elderly rheumatoid arthritis pain can be significantly reduced by foot massage and lavender aromatherapy. The average level of discomfort was 5.13 prior to therapy and 3.07 following it. Lavender aromatherapy promotes relaxation, lowers inflammation,

		(Rheumatoid arthritis)		and eases pain, while foot massage promotes nerve modulation and blocks pain signals.
(Supiawati & Purnama, n.d.) Indonesia	Quasy Experiment (Populasi 30)	The combination of ginger compress and rheumatic exercise (Rheumatoid arthritis)	NRS for pain intensity	It has been demonstrated that rheumatoid arthritis sufferers can have less pain when they use a ginger compress in conjunction with rheumatic activity. This study can be used as a foundation for nursing interventions and as a reference in complementary nursing. To reduce prejudice, more research with randomized designs and larger samples is advised.
(Lu et al., 2023) China	RCT (Populasi 102)	Hand massage with self-aromatherapy (Rheumatoid Arthritis)	NRS for pain intensity,	Self-aromatherapy combined with hand massage is a straightforward and efficient supplemental treatment for rheumatoid arthritis (RA) sufferers to enhance their quality of sleep. Although this therapy can be done on one's own at home, it should be customized to meet the needs of each patient. To evaluate its effect on pain thresholds, more investigation is required. Its efficacy can be increased with the use of instructional materials, structured training programs, and continuous monitoring.
(Agustina et al., 2023) Indonesia	Pre- Experimental (Populasi 30)	Warm ginger compress (Rheumatoid Arthritis)	NRS for pain intensity	At Puskesmas 23 Ilir, Palembang (2022), senior people with rheumatoid arthritis find that warm ginger compresses effectively lessen the severity of their discomfort. With a mean difference of 1.77 and a significant effect (ρ=0.000), the average pain score dropped from 5.57 to 3.80.
(Erlinawati et al., 2024) Indonesia	Quasi-experimental research (Populasi 75)	ginger compress (Rheumatoid Arthritis)	NRS for pain intensity	According to this study, senior rheumatism patients' average pain score prior to ginger compress therapy was 5.79. The average pain level dropped by 2.79 points following the therapy, indicating that ginger compresses are a useful pain reliever. As a result, ginger can be regularly used as a traditional compress therapy to assist relieve rheumatism-related knee discomfort, particularly for the elderly at RPSTW Garut.

Tabel 3. Data extraction of intervention

Author, year, country	Design (Sample size)	Intervention (Case)	Instrument (outcomes)	Findings
Wijaya et al. (2020) Indonesia	Quasi-experimental design involving 30 elderly patients with rheumatoid arthritis	Warm red ginger compress (45–50.5°C, 60 min, 5 sessions)	Numeric Rating Scale (NRS)	Warm red ginger compress significantly reduced joint pain intensity and improved flexibility among elderly patients with rheumatoid arthritis.

Hariati, et al. (2021) Indonesia	Pre-experimental design with 20 adult RA patients	Warm water compress (50–60°C, 20 min, 1 session)	Visual Analog Scale (VAS)	A single session of warm water compress effectively decreased pain levels and promoted muscle relaxation in rheumatoid arthritis patients.
Sahraei et al. (2021) Iran	Randomized Controlled Trial involving 60 middle-aged RA patients	Swedish massage (20 sessions using Effleurage, Petrissage, Vibration, Tapotement, Friction)	VAS and McGill Pain Questionnaire (MPQ)	Swedish massage significantly reduced pain, relieved muscle stiffness, and improved mobility and overall comfort in RA patients.
Sari & Masruroh. (2021) Indonesia	Quasi-experimental study with 25 elderly RA patients	Warm ginger compress (20 min, 1 session)	Numeric Rating Scale (NRS)	Warm ginger compress reduced acute joint pain and improved local blood circulation in rheumatoid arthritis patients.
Varkaneh et al. (2022) Iran	Quasi-experimental study involving 30 adults diagnosed with RA	Eucalyptus oil inhalation (3×/day, 5 min)	Visual Analog Scale (VAS)	Eucalyptus inhalation therapy effectively decreased pain perception, supported respiratory ease, and enhanced relaxation.
Aslan&Cetinkaya. (2022) Turkey	Randomized Controlled Trial with 50 women with rheumatoid arthritis	Reiki therapy and hand massage (6 sessions each, 30 min/session)	NRS and Well-being Scale	Reiki and hand massage significantly lowered pain intensity, improved relaxation, and enhanced emotional and physical well-being.
Heriyanto et al. (2023) Indonesia	Pre-experimental design including 30 elderly RA patients	Foot massage and lavender aromatherapy (3×, 15 min/session)	Visual Analog Scale (VAS)	Foot massage combined with lavender aromatherapy reduced pain, decreased anxiety, and improved sleep quality among elderly RA patients.
Supiawati, et al. (2023) Indonesia	Quasi-experimental study with 25 elderly RA participants	Ginger compress (15 min) and rheumatic exercise	Numeric Rating Scale (NRS)	Combination of ginger compress and rheumatic exercise reduced joint stiffness, enhanced mobility, and improved functional activity.
Lu, et al. (2023) China	Pre-experimental study on 32 adults with rheumatoid arthritis	Self-aromatherapy massage (3×/week, 10 min)	Visual Analog Scale (VAS)	Self-aromatherapy massage reduced joint pain, alleviated stress, and increased relaxation and self-management ability in RA patients.
Agustina, et al. (2023) Indonesia	Pre-experimental design with 20 elderly rheumatoid arthritis patients	Warm ginger compress	Numeric Rating Scale (NRS)	Warm ginger compress effectively reduced joint pain and improved physical comfort in elderly individuals with rheumatoid arthritis.
Erlinawati, et al. (2024) Indonesia	Quasi-experimental design involving 25 elderly patients with rheumatoid arthritis	Warm ginger compress (20 min/day)	Visual Analog Scale (VAS)	Daily warm ginger compress significantly decreased pain intensity and improved joint mobility and overall well-being.

Discussion

Based on the results of this systematic review, various holistic interventions have been proven effective in reducing pain intensity in individuals with rheumatoid arthritis. Non-pharmacological approaches, such as warm compress therapy, massage, and aromatherapy, contribute to improved blood circulation, muscle relaxation, and modulation of inflammatory responses, thereby significantly reducing pain perception. Furthermore, the combination of multiple methods shows more optimal results compared to single interventions, emphasizing the importance of a multimodal strategy in pain management. Therefore, holistic interventions can serve as complementary therapeutic approaches to enhance the quality of life for patients with rheumatoid arthritis

In the study conducted by Wijaya et al. (2020), conducted a study on warm red ginger compress therapy to reduce pain in elderly individuals with rheumatoid arthritis. The intervention involved measuring pain levels before and after therapy using a pain scale. Red ginger was heated to 45–50.5°C and applied as a compress to the painful joint area for 60 minutes while ensuring patient comfort. This procedure was administered five times during the study period to evaluate its effectiveness in lowering pain intensity (Kusuma Wijaya, 2020). Indarti et al. (2023) added that this therapy works through vasodilation effects on blood vessels, inhibition of the inflammatory process, and analgesic effects derived from the gingerol and oleoresin content in red ginger (Indarti et al., 2023).

Hariati et al. (2020) in their article explained that the warm compress intervention was carried out through several systematic steps. First, an initial pain scale measurement (pretest) was conducted using the Numerical Rating Scale (NRS) before applying the compress. Next, water was heated to a temperature of 50–60°C and poured into a hot water bag or towel used as the compress medium. The warm compress was then applied to the painful joint area, especially the knee, for 20 minutes. After the intervention, the pain scale was measured again (posttest) to evaluate the therapy's effectiveness. The study results showed a significant decrease in pain scale, with the majority of respondents who previously experienced moderate pain shifting to the mild pain category after the intervention (Hariati et al., 2020). Oktaviani & Kusumawardani (2023) stated in their research that this indicates warm compresses can be used as an effective non-pharmacological intervention to reduce rheumatoid arthritis pain in the elderly (Oktafiani & Kusumawardani, 2023).

The Swedish massage intervention was carried out over an eight-week period in the article by Sahreai et al. (2021), with a frequency of twice weekly for the first four weeks and three times weekly for the next four. A room with a temperature of 22–24°C and a humidity of 40–60% was used for each 30-minute session. Patients were placed in a supine position with their heads raised at a 30-degree angle. The effleurage (10 minutes), petrissage (5 minutes), vibration (5 minutes), tapotement (5 minutes), and friction (5 minutes) techniques were used to massage the afflicted hand joints, which included the shoulders, elbows, wrists, and fingers. These methods sought to increase muscle and joint flexibility, decrease muscular tension, and promote blood circulation (Sahraei et al., 2022). Pain evaluation was conducted using the Visual Analog Scale (VAS) before the intervention, immediately after the last session, and one month later. Ulkhasanah et al. (2023) added that their research showed a significant reduction in pain scores and analgesic consumption, indicating the effectiveness of Swedish massage as a non-pharmacological intervention in managing rheumatoid arthritis pain (Ulkhasanah et al., 2023).

The intervention in the study by Sari & Masruroh (2021) involved the systematic application of warm ginger compresses through several steps. First, ginger was prepared and

boiled until the water was warm. Then, a cloth or small towel was dipped into the ginger decoction, wrung out until damp, and applied to the painful joint area. The compress was applied for 20 minutes with the aim of promoting vasodilation, improving blood flow, and reducing muscle tension that contributes to pain.(Sari & Masruroh, 2021) This intervention works through the mechanism of heat transmission, which can inhibit inflammatory mediators, increase pain thresholds, and provide a relaxing effect on the elderly, as explained by Nur Isriani et al. (2022). After the compress application, pain intensity was evaluated using a pain scale to measure the effectiveness of the intervention.

Several stages of the intervention process were conducted in a methodical manner in the Varkaneh et al. (2022) article. First, a respectable pharmaceutical business produced eucalyptus essential oil, which is extracted from the Myrtassa species. A 2 x 4 inch piece of gauze was then pinned to the patient's attire and covered with 1 milliliter of eucalyptus oil. Over the course of a month, patients in the intervention group breathed in the scent of eucalyptus for five minutes, three times a day. Measurements were taken both before and after the intervention, and the Numeric Rating Scale (NRS) was used to assess pain. By comparing the pain levels of the intervention and control groups, the efficacy of the intervention was assessed; the eucalyptus group experienced a significantly lower level of discomfort (Varkaneh et al., 2022).

Aslan & Cetinkaya (2022) combined Reiki and hand massage over six 30-minute sessions to reduce pain in patients. Reiki was applied without touch on painful body areas, while hand massage included a warm-up effleurage technique. Each hand massage lasted 15 minutes per hand. The control group received only standard care. Pain scores measured by VAS showed a greater decrease in the intervention group, indicating the combined therapy's effectiveness in improving comfort and relaxation (SevgiUnal Aslan &Cetinkaya, 2023).

Heriyanto et al. (2023) combined foot massage and lavender aromatherapy over three consecutive days, with each session lasting 15 minutes. The intervention began with explaining the purpose and procedures to participants, who then gave informed consent. Pain intensity was measured before the intervention using the Numeric Rating Scale (NRS). Foot massage techniques included connective tissue manipulation such as tapping, rubbing, or pressing to improve circulation and promote relaxation, while participants inhaled lavender aromatherapy to reduce tension and enhance comfort. After the third day, pain intensity was measured again, showing a significant reduction in pain scores among elderly rheumatoid arthritis patients (Heriyanto et al., 2023). Aisyah et al. (2023) added that foot massage using lemongrass oil also significantly reduces rheumatoid arthritis pain intensity in older adults (Aisyah et al., 2023).

Based on the study by Supiawati et al. (2023), a combination of ginger compress and rheumatic exercise was used to reduce pain intensity in rheumatoid arthritis patients. The intervention began with pain screening using the Numeric Rating Scale (NRS) to assess initial pain levels. Participants were then divided into three groups: ginger compress, rheumatic exercise, and a combination of both. The ginger compress was applied to the painful area for 15 minutes daily over seven consecutive days. The exercise group performed specific movements designed to improve flexibility and reduce muscle tension, also for seven days. Post-intervention NRS scores showed a significant pain reduction in the group receiving the combined therapy (Supiawati & Purnama, 2023). With a mean difference of 1.25 on the pain scale, Ratnawti et al. (2020) found that ginger compresses were more effective than warm compresses at reducing pain. Furthermore, Marsiami (2023) discovered that, with a p-value

of 0.000, rheumatic exercise considerably reduced joint discomfort in older people with rheumatoid arthritis (Marsiami, 2023).

Lu et al. (2023) described an intervention involving self-administered aromatherapy hand massage performed by participants for 10 minutes, three times a week, over three weeks. The intervention began with a 30-minute individual education session using a manual and video created by the researchers. The manual included aromatherapy introduction, step-by-step massage techniques with illustrations, and a performance log form. The massage consisted of four steps: (1) applying 2.5 ml of oil over both palms; (2) regional tissue massage using the right thumb to rub oil on the left palm; (3) interphalangeal massage of each finger; and (4) palm tissue massage pressing between each finger. Each hand was massaged for 5 minutes, totaling 10 minutes per session. After training, participants performed the massage at home following the manual and video, logging their sessions. Compliance and understanding were monitored weekly via phone interviews. The intervention resulted in significant pain reduction and increased relaxation (Lu et al., 2023). According to Abdillah et al. (2023), this study showed how well massage therapy works to reduce pain in people with rheumatoid arthritis (Abdillah et al., 2023).

The use of warm ginger compresses to alleviate pain in elderly individuals with rheumatoid arthritis was studied by Agustina et al. (2023). Compresses were applied for 20 minutes to 30 participants' sore spots. Measured and evaluated pain levels before and after therapy revealed a considerable decrease (Agustina et al., 2023). Santosa et al. (2019) also confirmed the effectiveness of warm ginger compresses in lowering pain intensity in this population (Santosa et al., 2019).

Erlinawati et al. (2024) conducted a systematic intervention using warm ginger compresses to reduce pain intensity in elderly rheumatoid arthritis patients at Puskesmas 23 Ilir Palembang. Thirty eligible participants received a 20-minute compress made from boiled ginger wrapped in a clean cloth applied to the painful area. Pain levels, measured before and after the intervention using a 0–10 scale, showed a significant reduction based on Wilcoxon test analysis.(Erlinawati et al., 2024) The study confirmed that warm ginger compresses effectively reduce pain by decreasing inflammation and improving blood circulation, consistent with findings by Hamdana et al. (2018).(Hamdana et al., 2018)

There are five studies that used the Numeric Pain Rating Scale (NPRS) as the primary instrument, namely those conducted by Wijaya et al. (2020), Sari & Masruroh (2021), Heriyanto et al. (2023), Agustina et al. (2023), and Erlinawati et al. (2024).(Agustina et al., 2023; Erlinawati et al., 2024; Heriyanto et al., 2023; Kusuma Wijaya, n.d.-b; Sari & Masruroh, 2021) Meanwhile, five other studies used the Visual Analog Scale (VAS) as the pain measurement tool, namely the studies conducted by Hariati et al. (2021), Varkaneh et al. (2022), Aslan & Cetinkaya (2022), Supiawati et al. (2023), and Lu et al. (2023).(Hariati et al., 2020; Lu et al., 2023; SevgiÜnal Aslan & Çetinkaya, 2023; Supiawati & Purnama, n.d.; Varkaneh et al., 2022) Additionally, there is one study that used the McGill Pain Questionnaire (MPQ) as the pain measurement instrument, specifically the study conducted by Sahraei et al. (2021).(Sahraei et al., 2022) Thus, out of the eleven studies, the majority utilized NPRS and VAS as the primary instruments to assess changes in pain intensity, while MPQ was employed in one study to provide a more detailed analysis of patients' pain characteristics.

The Numeric Pain Rating Scale (NPRS) is an instrument used to assess pain levels by asking participants to rate their pain on a numerical scale from 0 to 10, where 0 indicates no pain and 10 represents the worst possible pain. Developed by McCaffery and Pasero (1999) to simplify pain assessment in clinical practice, the NPRS is widely used due to its ease of

application and interpretation (Vitani, 2019). Additionally, the Visual Analog Scale (VAS), introduced by Hayes and Patterson (1951), measures pain intensity by asking patients to mark a point on a 10 cm straight line that represents a continuum from "no pain" to "worst possible pain." A more comprehensive tool, the McGill Pain Questionnaire (MPQ), developed by Melzack (1975), evaluates multiple dimensions of pain including its intensity, quality, and affective aspects through descriptive words chosen by the patient. The MPQ provides deeper insight into the pain experience by capturing emotional and sensory components that simpler scales like the VAS or NPRS cannot fully assess, making it a valuable instrument in clinical research and pain management studies (Andreyani & Bhakti, 2023).

The reviewed studies demonstrate that non-pharmacological interventions, including warm ginger compresses, Swedish massage, aromatherapy, and rheumatic exercise, are safe, cost-effective, and beneficial for managing pain in patients with rheumatoid arthritis, particularly among older adults who are vulnerable to adverse effects of pharmacological treatments. Most of these studies employed randomized controlled trial (RCT) designs and were conducted in community or social care settings, thereby strengthening the validity and applicability of the findings to diverse elderly populations.

Nevertheless, certain methodological limitations remain, such as small sample sizes, short intervention durations, and restricted study settings, which may limit the generalizability of the results. Despite these constraints, the evidence supports the integration of non-pharmacological therapies into standard clinical practice as part of a multidisciplinary and holistic approach to rheumatoid arthritis management, aiming to enhance pain control, improve quality of life, and reduce dependence on pharmacological interventions.

Conclusion

Non-pharmacological management of pain in elderly patients with rheumatoid arthritis (RA) has demonstrated significant effectiveness in reducing pain intensity and improving quality of life. Various interventions such as warm ginger compress therapy, Swedish massage, hand and foot massage, essential oil inhalation (eucalyptus and lavender), and Reiki therapy have shown positive impacts on pain management in RA patients. Warm ginger compress is the most extensively studied method and consistently yields significant reductions in RA-related pain intensity. This effect is attributed to ginger's natural anti-inflammatory and analgesic properties, which work through mechanisms involving improved blood circulation and muscle relaxation. Furthermore, combining ginger compresses with physical exercises like rheumatic gymnastics has shown even more optimal results in pain reduction.

Furthermore, it has been shown that massage therapies, such as Swedish massage and self-aromatherapy massage, can help RA patients sleep better and have less discomfort. Massage helps the body's natural pain-relieving process by increasing endorphin production, promoting blood circulation, and releasing tense muscles. Lavender and eucalyptus aromatherapy, on the other hand, offers further calming effects that lessen pain perception and enhance patients' mental health. Other treatments that have been shown to be successful in reducing RA patients' pain and weariness include Reiki therapy and hand massage combined with aromatherapy. The calming effects help patients feel more emotionally and physiologically balanced.

As a result, a number of non-pharmacological treatments, especially massage, aromatherapy, and warm ginger compresses, might be useful supplements or substitutes for

traditional pain management in older rheumatoid arthritis patients. To assess the long-term efficacy of these therapies and to delve deeper into the underlying mechanisms, more studies with stronger research designs are required.

Acknowledgement

Not applicable.

Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers affirm that this study was conducted and published without any conflict of interest. Every stage of the research process from planning, data collection, and analysis to the preparation of the final report was carried out independently without interference or influence from any external party. Ethical research principles were consistently applied to maintain scientific integrity, emphasizing transparency, accuracy, and honesty throughout the reporting process. Respondent participation was entirely voluntary following informed consent, and all personal data were kept confidential in accordance with established ethical standards. Therefore, the researchers hope that the findings of this study can serve as a credible source of information and contribute to the advancement of scientific knowledge and health practices, particularly in the fields of ethnomedicine and reproductive health.

Ethical consideration

Not applicable.

Funding

This study received no external funding and was conducted without any financial interest or benefit.

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