

The Effect of Back Massage on Reducing Pain in Rheumatoid Arthritis Patients: Literature Review

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ABSTRACT

Rheumatoid Arthritis is a long-term autoimmune disease that affects the joints, often accompanied by pain and movement restrictions. Pain management in this condition includes pharmacological and non-pharmacological therapies, such as back massage. This study aims to evaluate the effectiveness of back massage in reducing pain in rheumatoid arthritis patients based on existing literature. The method applied in this discovery is a literature review that includes various studies published in the last five years. These findings indicate that back massage is effective in reducing pain intensity, improving blood circulation, and providing a relaxing effect. This therapy also supports the release of endorphins that help relieve pain naturally. Studies consistently show a significant decrease in the pain scale of rheumatoid arthritis patients after the application of this therapy. In addition, back massage is a safe, comfortable, and minimal side effect approach compared to pharmacological therapy. In conclusion, back massage is a non-pharmacological method that is evidence-based and relevant for pain management in rheumatoid arthritis patients. This therapy has a very high ability to improve the quality of life of patients through pain reduction and improvement of physical function.

Key word: Back Massage; Pain; Rheumatoid Arthritis

INTRODUCTION

Rheumatoid arthritis or rheumatism is one of the diseases that is still a health challenge in Indonesia (Septiani et al., 2024). Rheumatism is a condition that affects the immune system and can cause inflammation of the joints (Risma Rubianto, 2022).

Rheumatoid arthritis is an autoimmune condition characterized by inflammation of the joints, especially in the hands and feet, which causes joint pain (Yuniati et al., 2023). If left untreated, rheumatism can cause damage and deformity to the joints (Ristanto et al., 2024).

According to the World Health Organization (WHO, 2023), in 2019, an estimated 18 million people in the world suffered from rheumatic disease. Of that number, around 70% are women, and 55% of them are over 55 years old. Of that total, 13 million people experience moderate to severe severity and can benefit from rehabilitation. In 2020, RA has affected around 17.6 million individuals worldwide by 2024, predicted to increase by 1% annually.

Based on the results of the 2018 Basic Health Research (Riskesdas), the prevalence of rheumatism diagnosed by medical personnel in Indonesia was 11.9%, while based on symptoms, the figure reached 24.7%. The prevalence of this disease according to age group showed a figure of 37.2% in the 45-54 age group, 45.0%

at the age of 55-64 years, 51.9% at the age of 65-74 years, and 54.8% at the age of over 75 years. In Central Java, the prevalence of rheumatoid arthritis was recorded at 6.78% (Septiani et al., 2024).

One of the symptoms of rheumatic disease is characterized by pain in the joints. Pain in individuals suffering from rheumatism is caused by stretching or tension in the joints, which is characterized by swelling and discoloration to red in the joints and a hot sensation. This pain is similar to pain in general, which is caused by inflammation and stiffness in the joints, causing discomfort to sufferers (Yolanda & Febriyanti, 2021). Many elderly people are looking for various ways to overcome and relieve joint pain, indicating that pain caused by rheumatism is very disruptive to the lives of sufferers, making it difficult for

them to carry out their daily activities. In addition, there is still a view in Indonesian society that underestimates this disease because it is considered not life-threatening, even though the pain caused by this disease is actually a significant obstacle that hinders the smooth running of daily activities (Endri Ekayamti, 2021).

Pain management in rheumatoid arthritis patients involves two approaches, namely pharmacological and non-pharmacological approaches. Non-pharmacological does not affect a large amount of money and effort from health care providers. While analgesic therapy involves the use of drugs to all patients, and the elderly tend to experience changes in pharmacodynamics, pharmacokinetics, and metabolism of use, which bring certain failures that can increase the risk, also their use can cause long-term effects, namely bleeding in the digestive tract, peptic ulcers, kidney disorders, and perforation (Cahaya & Volume, 2024).

Terapi non farmakologi dapat menjadi pilihan alternatif untuk terapi farmakologi, karena memiliki efek samping yang minimal dan tidak menyebabkan dampak jangka panjang. Salah satu metode non farmakologis yang dapat digunakan untuk mengurangi nyeri akibat rematik adalah terapi komplementer. Terapi komplementer bersifat alami dan mencakup berbagai metode, seperti penggunaan herbal, akupunktur meditasi, teknik relaksasi, distraksi, aromaterapi, kompres, pijatan punggung, serta berbagai metode lainnya (Aryandani & Hermawati, 2024).

Back massage, or what is known as back massage is the most famous type of massage therapy and is also in great demand. This method has been proven effective in relieving stress on the body. With the application of the right massage techniques, optimal results can be achieved. The benefits of back massage include improving mental health and helping the mind become calmer. In addition, back massage can provide a fresh and youthful sensation, as well as reduce tension and pain in the back muscles. Muscle fibers that were previously stiff and tense will become more relaxed and flexible (Aryandani & Hermawati, 2024).

Back Massage is a back massage technique that is done for 10-15 minutes. The use of lotion or balm in the massage provides a warm sensation that causes blood vessels in the area to widen. This vasodilation process increases blood flow in the massaged area, which in turn increases cell activity and helps relieve pain and supports the healing process (Abdillah & Suwandi, 2020).

Obtained from the results of previous research by Prasetyaningsih & Nurrohmah (2023) on "Application of Back Massage Therapy to Reduce Rheumatic Pain Intensity in the Elderly", based on the findings that have been studied, it was found that there was a reduction in the level of rheumatoid arthritis pain after therapy was applied. In Mrs. N, the pain scale decreased from 6 to 3, while in Mrs. S, the pain scale decreased from 5 to 3. Findings from Pabebang et al (2022) on "The Effect of Back Massage Therapy on Rheumatoid Arthritis Pain Intensity in the Elderly at the Rantepangli Health Center, North Toraja Regency in 2018", based on the findings that have been carried out, it was obtained that back massage therapy is effective in reducing the pain scale in rheumatic

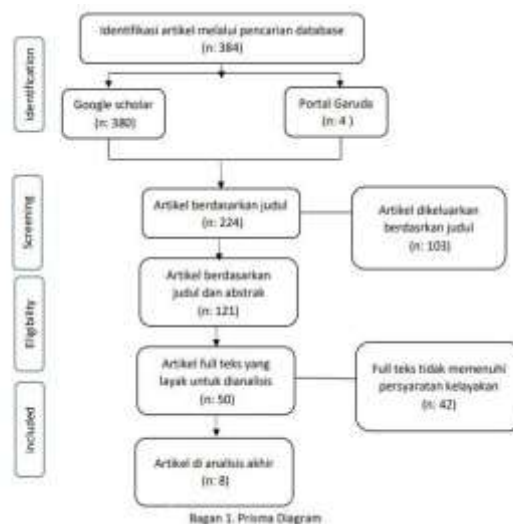
This literature study aims to evaluate and summarize scientific evidence regarding the effectiveness of back massage therapy in reducing pain in rheumatoid arthritis (RA) patients. RA is a condition characterized by long-term inflammation of the joints that can result in pain, stiffness, and limitations in movement. As an alternative to pain management, non-pharmacological therapies such as back massage have been considered, especially considering the potential side effects of long-term medication use. The main objective of this literature is to assess the efficacy of back massage therapy in reducing pain, improving patients' quality of life, and improving their physical function. In addition, this finding also aims to determine the underlying mechanisms of pain reduction that can occur due to back massage, such as the effect of this therapy on pain transmission through the nervous system, and its impact on reducing inflammation in the affected area.

Over the past few decades, several studies have

explored the potential of back massage as a physical therapy, focusing on its effects on blood circulation, muscle relaxation, and muscle tension reduction that may contribute to pain relief. Back massage has also been associated with the release of endorphins, natural chemicals that serve to reduce pain and provide a relaxing effect. Thus, this study not only focuses on the effectiveness of back massage in relieving pain in RA patients, but also seeks to better understand how this therapy affects the physiological mechanisms involved in the inflammatory process and the pain experience.

METHOD

This research method adopts a literature review approach, which aims to describe and analyze the findings of various previous studies related to the effect of back massage in reducing pain experienced by rheumatoid arthritis patients. The descriptive method applied in this study was applied to reveal the phenomena studied in detail without manipulating or changing the existing variables.



The search for articles in this study was carried out by accessing academic databases such as Google Scholar, and the Garuda Portal. The search was conducted in December 2024 using the keywords used including "Back Massage

"Pain" AND "Rheumatoid Arthritis". Articles through Google Scholar with these keywords resulted in around 384 articles, while a search through the Garuda portal resulted in 8 relevant articles (table 1), which were then filtered based on inclusion criteria, such as articles published in the last five years were prioritized. After screening, relevant articles were analyzed to conclude the effectiveness of back massage in managing pain in rheumatoid arthritis patients.

In this study, a descriptive approach was used to provide a clear and comprehensive explanation

regarding the impact of back massage on reducing pain in rheumatoid arthritis patients does not include direct experiments or interventions, but rather focuses on collecting and analyzing data from previous studies that have been published.

The selection criteria for studies included in this study must discuss the effect of back massage in reducing pain in rheumatoid arthritis patients, and be published in the last five years. Studies that are not relevant to the topic, use invalid instruments, are published more than five years ago, or have weak designs, such as case reports, will be excluded from the selection. From this literature review, it is hoped that a more comprehensive understanding of the impact can be obtained back massage on pain reduction in rheumatoid arthritis patients. This review aims to identify scientific evidence supporting the effectiveness of back massage as an intervention in pain management in rheumatoid arthritis patients.

RESULTS

The results of a literature review on the effect of back massage on reducing pain in rheumatoid patients show that this therapy is effective in relieving pain. Various quantitative studies and case studies that were analyzed showed a significant decrease in pain intensity after back massage was applied.

In the study (Prasetyaningsih & Nurrohmah, 2023) there was a decrease in the intensity of rheumatic pain after the application of back massage therapy, where in Mrs. N the pain scale

decreased from 6 to 3, while in Mrs. S the pain scale decreased from 5 to 3.

Research by (Aryandani & Hermawati, 2024) there was a decrease in the rheumatoid arthritis pain scale after the application of therapy, where in Mr. S, the pain scale decreased from 5 to 2, and in Mrs. G, the pain scale decreased from 6 to 3.

Study (Putri et al., 2020) Shows that back massage therapy has an effect on reducing rheumatoid arthritis pain in the elderly, namely a p value of 0.000 ($p < 0.05$) and a significant average decrease reaching 1.70.

Overall, these results indicate that back massage is an effective therapy in reducing pain in patients with rheumatoid arthritis, with consistent evidence found in various rheumatoid arthritis pain and clinical settings.

DISCUSSION

Treatment by performing back massage to relieve pain in patients with rheumatoid arthritis shows its effectiveness in reducing pain, relaxing tense muscles, reducing stress and anxiety. The results of the study consistently showed that the patient's pain level decreased significantly after the application of back massage, making it a practical and safe solution to apply at home. Back massage supports a multimodal pain management approach in patients with rheumatoid arthritis (RA), because it can be applied as a safe and effective non-pharmacological therapy without side effects. This therapy offers significant benefits in reducing pain, reducing muscle tension, and improving blood circulation, which is very relevant for RA patients who often experience inflammation and joint stiffness. However, the effectiveness of back massage depends on the duration, frequency, and individual response of the patient to this therapy. Therefore, back massage is considered an evidence-based and relevant initial step to manage pain in patients with rheumatoid arthritis. The following is a discussion based on relevant concepts:

1. Konsep Rheumatoid Arthritis (RA) / Reumatic

Rheumatic disease is a condition that not

only affects the joints, but can also attack other organs or parts of the body. In general, rheumatism refers to diseases that attack the joints and the surrounding supporting structures or tissues. Some types of rheumatic diseases that are commonly found include osteoarthritis, which is caused by degeneration or the aging process, rheumatoid arthritis which is an autoimmune disease, and gout which is caused by high levels of uric acid (Maria et al., 2022).

Rheumatic disease is caused by inflammation that involves a complex immune system and can affect various organ systems (Suswitha & Arindari, 2020). Rheumatoid arthritis (RA) is caused by various interacting factors. Some factors that can increase the risk of this disease include age over 40 years, where the prevalence of RA tends to increase with age. In addition, women are more likely to get RA than men, which shows the role of hormones and genetic factors in the development of this disease. Ethnicity also influences, because lifestyle and differences in the frequency of abnormalities and bone growth can play a role in increasing the risk of RA. Genetic factors also play an important role, with a family history of RA increasing a person's chances of experiencing it. Obesity, joint injuries, and work and sports that put pressure on the joints can also worsen this condition. In addition, abnormalities in bone growth and density contribute to the occurrence of rheumatoid arthritis. These factors, both individually and in combination, affect the development and severity of rheumatoid arthritis in a person (Fitriana et al., 2023).

Common symptoms found in osteoarthritis sufferers include joint stiffness, especially in the morning that lasts about 15 minutes or more due to changes in the joints. Joint swelling (deformity) can also be seen, accompanied by changes in walking patterns. Symptoms of joint inflammation, such as tenderness, limited movement, a feeling of warmth throughout, and redness in the joint area, are often seen. Joint pain

generally worsens with activity and improves with rest, this pain can occur due to movement or bearing heavy loads that cause changes in the shape of the joint. The clinical manifestations of osteoarthritis are determined by the stage and severity of the disease, which include pain, swelling, a feeling of warmth, redness, and impaired joint function, which are classic symptoms. Palpation of the joint may reveal tissue that feels spongy or soft, and fluid can often be taken from the affected joint (Desmonika et al., 2022).

2. The Concept of Pain in Rheumatoid Arthritis (RA) / Rheumatism Patients

Joint damage begins with a trigger factor such as an autoimmune reaction or infection, which then triggers the proliferation of synovial macrophages and fibroblasts. Lymphocytes will infect the area around the blood vessels, accompanied by the proliferation of endothelial cells, leading to the formation of new blood vessels (neovascularization) in the infected joint, occlusion can occur due to the presence of small blood clots or inflammatory cells. This inflammatory process is exacerbated by cytokines, such as tumor necrosis factor (TNF), interleukin-1, and interleukin-6 which play a role in the early stages of inflammation and cause irregular synovial tissue growth. Vasoactive substances, such as histamine, kinins, and prostaglandins, are released in the inflamed area, which increases blood flow and blood vessel permeability, resulting in symptoms such as swelling, heat, redness (erythema), and pain. Rheumatoid Arthritis (RA) / Often, individuals experiencing pain rely on support, help, or attention from those around them. Although pain is still felt, the presence of loved ones can help reduce feelings of loneliness and fear. Conversely, the absence of family or friends can make the experience of pain feel more stressful for the client. The presence of parents is very important for children who experience pain (Junaiddin, 2020).

One of the most common symptoms of

rheumatoid arthritis is pain. Pain is a common symptom found in musculoskeletal disorders and can be defined as a sensory or emotional experience associated with real or functional tissue damage, with its onset that can occur suddenly or gradually. In rheumatoid arthritis patients, the pain felt is often a sharp and stabbing sensation.

Pain can be managed through pharmacological and non-pharmacological therapies, such as Benson therapy, warm lemongrass compresses, warm ginger compresses, rheumatic gymnastics and back massage. Non-pharmacological techniques are independent nursing interventions that can be applied to reduce pain, namely relaxation techniques to help patients manage themselves when pain occurs and can be applied to individuals, both healthy and those experiencing health problems. Non-pharmacological therapy is widely used in rheumatoid arthritis patients and does not cause side effects (Devi et al., 2024). Factors that influence pain response include the presence of the client's closest people and their attitudes toward the client. Often, individuals experiencing pain depend on the support, help, or attention of those around them. Although pain is still felt, the presence of loved ones can help reduce feelings of loneliness and fear. Conversely, the absence of family or friends can make the pain experience more stressful for the client. The presence of parents is very important for children who experience pain (Junaiddin, 2020).

The process of pain also follows the same stages as pain in general, namely four main stages, namely the first transduction, at this stage, pain stimuli originating from tissue damage or inflammation, such as in inflamed joints, are converted into electrical signals. These stimuli can be physical (such as pressure or temperature) or chemical (such as inflammatory substances such as prostaglandins or cytokines). Nociceptors, which are pain receptors located at the nerve endings around the joints, will respond to this stimulus. In rheumatic diseases, inflammation increases the release of

chemical mediators that increase the sensitivity of nociceptors, making them more easily activated by stimuli that usually do not cause pain. Second transmission, after the transduction process, electrical signals carrying pain information are transmitted through nerve fibers to the central nervous system. This signal will initially pass through A-delta fibers (which transmit sharp or stabbing pain sensations) and C fibers (which transmit dull or throbbing pain). In rheumatoid arthritis, the inflammation process can strengthen the transmission of pain signals to the brain, causing more severe pain. Perception, At the perception stage, the pain signal that has been transmitted reaches the brain and is processed in several parts, especially in the sensory cortex and limbic cortex. Here, the pain is consciously perceived, and the individual begins to feel it. In people with rheumatic diseases, the perception of pain is often exacerbated by changes in the way the brain processes pain signals, due to the chronic inflammation that occurs, which makes the pain more intense or even lasts longer (chronic). Third, modulation, this last stage includes the influence of the central nervous system to strengthen or reduce the sensation of pain. The central nervous system can regulate pain through inhibitory or strengthening mechanisms, known as "modulation". In the case of rheumatic diseases, chronic inflammation often interferes with these modulatory mechanisms, leading to a decrease in the body's ability to relieve pain. In addition, the long-lasting inflammatory process can increase the response to pain, triggering what is known as central sensitization, in which the brain becomes more sensitive to stimuli that previously did not cause pain. The Concept of Back Massage Therapy in Reducing Pain Back massage is a series of hand movements that are performed mechanically on the human body by utilizing various types of grips or techniques (Amin et al., 2024).

Back massage therapy provides a relaxing sensation that can stimulate vasodilation in

the blood vessels, which ultimately increases blood circulation in the area being massaged. This increase in blood circulation supports cell activity, helps reduce pain, and accelerates the healing process (rahayu, notesya, 2023).

Back massage is used to relieve pain in hypertensive patients, post-abdominal surgery patients, pregnant women, and patients with rheumatoid arthritis. In patients with rheumatoid arthritis, massage should be avoided in the swollen joint area, as it can worsen the swelling. Back massage is a massage technique on the back with gentle and slow stroking movements. To facilitate the massage process, various types of massage oils can be used, such as coconut oil, olive oil, almond oil, jojoba oil, lemongrass oil, and sesame oil, for 10 to 15 minutes (Tri Herlina Sari Rahayu, 2022). Back massage is a series of hand movements that are performed mechanically on the human body by using various types of grips or techniques (Amin et al., 2024).

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CONCLUSION

Back massage therapy has been proven to

be an effective non-pharmacological approach to relieve pain in rheumatic patients. This method not only results in a decrease in pain scale, but also brings additional benefits such as muscle relaxation, increased blood flow, and reduced stress and anxiety. This makes back massage a safe, comfortable, and low-risk solution compared to pharmacological therapy which often has long-term side effects. The mechanism of this therapy is supported by physiological processes such as local vasodilation that increases blood circulation, and the release of endorphins that function as natural pain relievers. Research analyzed in the literature review shows a significant decrease in patient pain scales, making back massage an evidence-based intervention that can be implemented in various clinical and community settings.

As part of a multimodal pain management approach, back massage has great potential to support improving the quality of life of patients. With its practicality and safety, this therapy can be applied independently at home or under the supervision of medical personnel, providing an affordable and effective solution in managing rheumatoid arthritis pain.

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Table 1.1 Results of Literature Review of 8 Journals

No	Name /year	Type of research	Sample / Tempat	Intervensi / Pengambilan Data	Hasil
1	(Aryandani & Hermawati, 2024)	Case study	Two people suffering from rheumatism at Kaliwungu Health Center	The case study method using descriptive research is in accordance with the inclusion criteria for elderly people who suffer from or show a history of rheumatoid arthritis.	the results of the decrease in the intensity of rheumatic pain after therapy, namely Mr. S (5 to 2) and Mrs. G (6 to 2)
2	(Prasetyaningsih & Nurrohmah, 2023)	descriptive	Two elderly people suffering from rheumatic pain in the Sambi area.	This study applies a descriptive method with a pre-test and post-test design. This design aims to compare the results of back massage to the elderly group where the sample is specifically observed before being given treatment, then re-observed after treatment is given.	After therapy, the intensity of pain in rheumatoid arthritis decreased, where in Mrs. N, the pain level decreased from a scale of 6 to 3, while in Mrs. S, the pain decreased from a scale of 5 to 3.
3	(Abdillah & Suwandi, 2020)	Eksperiment and pra experimental	25 Elderly People with Rheumatism in the Nursing Home in Cirebon City	The research design used in this study was a simple experiment with a single group pretest-posttest design where pain measurements were taken before and back massage interventions were carried out as needed.	Prior to receiving a back massage, the patient's pain intensity level was moderate, after the procedure, the pain intensity changed to mild.
4	(Admin & Royani, 2021)	Descriptive-qualitative	Two elderly people who are at the Teratai KM.5 Nursing Home, Palembang.	The case study in this finding was conducted by analyzing the actions of a single unit, which can be interpreted as a single individual who is evaluated both in terms of the conditions of the action and the reaction to the treatment given.	The results of the study showed that residents of the shelter often complained of pain, especially in the legs and back areas.
5	(Sugandi et al., 2023)	Pre-Eksperimental	The sample in this finding includes all elderly people who experience joint pain at Wisma Asisi, Sukabumi City, as many as 15 respondents.	The type of discovery applied in this study is the Pre-Experimental design with the One Group Pre-Test Post-Test scheme. The sampling technique used was non-probability sampling with the total sampling method. For data analysis, this study used univariate analysis and bivariate analysis with the Paired Sample t-test.	From this finding, it can be concluded that there is an impact of back massage therapy on joint pain in elderly people with rheumatism at Wisma Asisi, Sukabumi City, which is the working area of the Selabatu Health Center.
6	(Pome et al., 2024)	Case study	Two elderly clients who meet the criteria in the Tanjung Agung Health Center work area	This research design adopts a case study approach that focuses on the conservation process. The subjects participating in this case study consisted of two elderly people who met certain criteria.	The results showed a significant decrease in pain levels after back massage therapy was performed. Client I, the pain scale decreased from 6 (moderate pain) to 1 (mild pain), while in client II, the pain scale decreased from 5 (moderate pain) to 2 (mild pain). In addition, patients also reported increased comfort and reduced muscle tension.
7	(Pabebang et al., 2022)	Cross sectional	This study involved a total of 26 respondents divided into two groups, where 13 respondents were included in the intervention group and 13 other respondents in the control group.	This study is a quantitative study that adopts a quasi-experimental design with a pretest-posttest control group design. This design involves two groups selected through purposive sampling, where each group is given a pre-test to determine the initial conditions and identify differences between the experimental and control groups. After the intervention is carried out, a post-test is carried out to evaluate the effect of back massage therapy to reduce pain levels in rheumatoid arthritis in the elderly.	Back massage therapy has been shown to be effective in reducing pain levels in rheumatoid arthritis. Recommends the use of back massage therapy and emphasizes the need for further research on rheumatoid arthritis pain in the elderly.

8	(Putri et al., 2020)	Quasi eksperimenta	30 orang	The design of this discovery uses a quasi-experimental approach with a one-group pretest-posttest design. The tool used to collect data is an observation sheet that functions to measure the level of pain in rheumatoid arthritis.	Terdapat dampak terapi pijat punggung terhadap pengurangan nyeri pada rheumatoid arthritis pada lansia, dengan nilai p sebesar 0,000 ($p < 0,05$), serta rata-rata penurunan yang signifikan nyeri mencapai 1,70.
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