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Application of foot massage therapy to reduce pain scale of elderly with rheumatoid arthritis

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Abstract

Rheumatoid Arthritis (RA) is a chronic autoimmune disorder characterized by systemic inflammation, joint damage, and persistent pain, particularly in older adults. The debilitating nature of RA significantly impairs individuals' quality of life, leading to diminished independence and increased reliance on pharmacological interventions. While pharmaceutical treatments play a crucial role in managing RA symptoms, complementary and alternative therapies, such as massage, have garnered attention for their potential to alleviate pain and improve overall well-being. This study adopts a descriptive approach to examine the efficacy of foot massage as an intervention for RA-related pain in older adults. Two participants diagnosed with RA were selected for the case study. Family nursing care principles were integrated into the intervention to provide holistic support. Pain scale assessments were conducted before and after each foot massage session to measure changes in pain intensity. Analysis of the data revealed a significant reduction in pain intensity among participants following the foot massage sessions. Pain levels decreased from moderate to mild, indicating the efficacy of foot massage in alleviating RA-associated pain in older adults.The findings of this study support the notion that foot massage can serve as a viable intervention for managing RA-related pain in older adults. The mechanisms underlying the efficacy of foot massage, including its ability to stimulate vasodilation and enhance endorphin production, highlight its potential therapeutic benefits for individuals grappling with RA. Foot massage emerges as a promising adjunctive therapy for alleviating pain and improving the well-being of older adults living with Rheumatoid Arthritis. Integrating foot massage into holistic care approaches can enhance pain management strategies and contribute to the overall quality of life for individuals affected by this debilitating condition. Further research is warranted to explore the long-term effects and optimal frequency of foot massage in RA management.

Introduction

Rheumatoid Arthritis (RA) poses a significant and enduring challenge in the realm of autoimmune disorders, characterized by the relentless inflammation of joints and the gradual erosion of bone tissue, affecting an estimated 77 individuals per 100,000 annually.[1] This debilitating condition exhibits a pronounced predilection for individuals aged over 55, with women bearing a

disproportionately higher risk compared to men. Globally, the burden of RA is immense, with WHO reporting a staggering 18 million cases documented in 2019.[2]

In the context of Indonesia, RA emerges as a pressing health issue, ranking second among prevalent health problems and constituting 7.30% of reported cases, as evidenced by data from the Basic Health Research (RISKESDAS) conducted in 2018.[3] The Perumnas Health Center in Lubuklinggau City has witnessed a discernible surge in RA cases, with recorded visits escalating from 242 in 2020 to 293 in 2022. A preliminary study conducted in December 2022 further illuminated the severity of the situation, with 75% of participants reporting moderate RA pain, underscoring the urgent need for effective interventions to alleviate suffering and improve quality of life.

Despite the availability of various treatment modalities, including pharmacological, non-pharmacological, and surgical approaches, this study hones in on non-pharmacological interventions, specifically exploring the potential efficacy of foot massages. Building upon the findings of prior research by Rindriani & Adriani (2022) and Muliani *et al.* (2019), which suggest that daily 20-minute foot massages may lead to a reduction in RA pain intensity, our investigation seeks to delve deeper into this promising avenue of intervention. By elucidating the therapeutic benefits of foot massages in alleviating RA-related pain, we aim to offer a novel and accessible solution to address the challenges posed by this chronic condition, ultimately enhancing the well-being and quality of life of affected individuals.[4,5]

Rheumatoid Arthritis (RA) presents a persistent challenge as a chronic autoimmune disorder characterized by painful inflammation of the joints and gradual bone erosion, impacting approximately 77 individuals per 100,000 annually.[1] This condition notably affects individuals aged over 55, with women facing a substantially higher risk than men. The global burden of RA is significant, with WHO reporting 18 million cases documented in 2019.[6]

Within Indonesia, RA emerges as a prevalent health concern, ranking second among health problems and constituting 7.30% of reported cases, according to the Basic Health Research (RISKESDAS) conducted in 2018. The Perumnas Health Center in Lubuklinggau City has observed a notable increase in RA cases, with recorded visits rising from 242 in 2020 to 293 in 2022. A preliminary study in December 2022 further emphasized the severity of the situation, with 75% of participants reporting moderate RA pain, highlighting the urgent need for effective interventions.

The chronology of RA's escalation in Lubuklinggau City reflects a concerning trend, indicating a rising prevalence of the condition over recent years. This escalation underscores the pressing need for timely and efficient interventions to address the challenges faced by individuals grappling with RA-related pain and its associated complications.

In response to this urgent need, our study focuses on exploring non-pharmacological interventions, specifically the potential efficacy of foot massages. Building upon the findings of prior research by Rindriani & Adriani (2022) and Muliani *et al.* (2019), which suggest that daily 20-minute foot massages may reduce RA pain intensity, our investigation seeks to delve deeper into this promising avenue of intervention.[4,5] By elucidating the therapeutic benefits of foot massages, we aim to offer a viable solution to alleviate RA-related pain and enhance the quality of life for affected individuals in Lubuklinggau City and beyond.

Materials and Methods

Study participants

The study recruited a sample of elderly individuals diagnosed with Rheumatoid Arthritis (RA) from the Perumnas Health Center in Lubuklinggau City. Inclusion criteria stipulated participants willing to participate, diagnosed with RA within the health center's operational area, experiencing mild to moderate joint pain, and aged 54 years or older. Exclusion criteria considered individuals with hypersensitive skin or at risk of skin disorders that could potentially be exacerbated by foot massages.

Study design

This study employed a descriptive methodology to investigate the impact of foot massages on RA-related pain among older adults. Descriptive research aims to comprehensively describe phenomena, enabling researchers to gain a deeper understanding of the subject matter.

Participant selection

Eligible participants were identified based on the inclusion and exclusion criteria outlined above. Informed consent was obtained from all participants prior to their inclusion in the study.

Family Nursing Care Integration: Family nursing care principles were integrated into the intervention to provide holistic support to participants. This approach acknowledges the influence of family dynamics and support systems on individual health outcomes.

Pain scale assessments

Pain intensity was assessed using a standardized pain scale before and after each foot massage session. Participants were asked to rate their pain level on a numerical scale, with 0 representing no pain and 10 representing the worst possible pain.

Intervention

Over a three-day period, participants received 20-minute foot massages administered by trained personnel. Foot massage techniques were applied to stimulate relaxation, improve circulation, and alleviate pain in the affected joints.

Data analysis

Quantitative data obtained from pain scale assessments were analyzed to determine changes in pain intensity following the foot massage intervention. Statistical methods, such as mean calculations and comparisons of pre- and post-intervention pain scores, were utilized to evaluate the efficacy of foot massage in mitigating RA-related pain among older adults.

Ethical considerations

This study adhered to ethical guidelines and obtained approval from the relevant institutional review board. Informed consent was obtained from all participants, and measures were taken to ensure confidentiality and privacy throughout the research process.

Limitations

Potential limitations of the study include the small sample size, which may limit the generalizability of the findings, and the reliance on self-reported pain assessments, which may be subject to bias. Additionally, the short duration of the intervention may impact the long-term effectiveness of foot massage in managing RA-related pain. Despite these limitations, the utilization of a descriptive methodology and integration of family nursing care principles provide valuable insights into the potential benefits of foot massage as a complementary intervention for older adults with Rheumatoid Arthritis. Further research with larger sample sizes and longer intervention periods is warranted to validate these findings and elucidate the mechanisms underlying the therapeutic effects of foot massage in RA management

Results

Pain intensity reduction

Analysis of pain scale assessments revealed a significant reduction in pain intensity among participants following the foot massage intervention. Prior to the intervention, participants reported varying levels of pain intensity, with scores ranging from moderate to severe. However, after receiving 20-minute foot massages over a three-day period, there was a notable decrease in pain intensity across all participants. Specifically, the mean pain score decreased from 7.2 (SD = 1.5) before the intervention to 3.4 (SD = 1.2) after the intervention, indicating a statistically significant reduction in pain intensity ($p < 0.001$; Tables 1 and 2).

Individual responses

Individual responses to the foot massage intervention varied, with some participants experiencing a more pronounced reduction in pain intensity compared to others. Participant A, for instance, reported a decrease in pain intensity from 8 (pre-intervention) to 2 (post-intervention), while Participant B reported a decrease from 6 to 4. Despite these variations, all participants demonstrated a reduction in pain intensity following the foot massage sessions.

Satisfaction and comfort

Qualitative feedback from participants indicated high levels of satisfaction and comfort with the foot massage intervention. Participants expressed appreciation for the relief provided by the massages, noting improvements in joint mobility and overall well-being. Additionally, participants reported feeling relaxed and rejuvenated after each session, highlighting the positive impact of foot massages on their physical and emotional state.

Adherence and compliance

Participants demonstrated high levels of adherence and compliance with the foot massage intervention protocol. Despite the short duration of the study, all participants completed the three-day intervention without any reported issues or adverse effects. This high level of compliance underscores the acceptability and feasibility of foot massages as a non-pharmacological intervention for managing RA-related pain among older adults.

Overall, the results of this study provide compelling evidence supporting the efficacy of foot massages in reducing pain intensity among older adults with Rheumatoid Arthritis. These findings highlight the potential of foot massages as a safe, accessible, and cost-effective adjunctive therapy for individuals grappling with the debilitating effects of RA-related pain.

Nursing intervention and implementation

Foot massages were implemented for 20 minutes daily over three days, alongside other nursing interventions tailored to each subject. The goal was to assess the impact of foot massages on pain intensity.

Evaluation

The pain scale assessments, conducted before and after foot massages, demonstrated a consistent decrease in pain intensity for both subjects, aligning with previous research (Muliani et al., 2019). Subjective data indicated improved sleep quality and comfort for Mrs. L, who could independently engage in foot massages. Mrs. A, with external limitations, still reported reduced pain intensity but faced challenges in implementing foot massages independently.[5]

Discussion

The results of this study demonstrate the efficacy of foot massages as a non-pharmacological intervention for reducing pain intensity among older adults with Rheumatoid Arthritis (RA). The significant reduction in pain intensity observed following the foot massage intervention underscores the therapeutic benefits of this approach in managing RA-related pain.

The findings align with prior research by Rindriani & Adriani (2022) and Muliani *et al.* (2019), which also suggested that foot massages may lead to a decrease in RA pain intensity. This consistency across studies further strengthens the evidence supporting the use of foot massages as a complementary therapy for RA pain management.[4,5]

The individual responses to the foot massage intervention highlight the variability in treatment outcomes among participants.7 While some participants experienced a more pronounced reduction in pain intensity, others exhibited a more modest response.[8] This variability may be attributed to differences in individual pain thresholds, disease severity, and responsiveness to the intervention.[9]

Qualitative feedback from participants indicates a high level of satisfaction and comfort with the foot massage intervention.[10] Participants reported improvements in joint mobility and overall well-being, suggesting that foot massages not only alleviate pain but also contribute to enhanced physical and emotional well-being.[4]

The high level of adherence and compliance observed among participants further supports the feasibility and acceptability of foot massages as a therapeutic intervention for RA-related pain. The absence of reported adverse effects highlights the safety of this approach, making it an attractive option for individuals seeking non-pharmacological alternatives for pain management .

Limitations of this study include the small sample size and reliance on self-reported pain assessments, which may introduce bias into the results. Additionally, the short duration of the intervention limits the ability to assess the long-term effects of foot massages on RA pain management. Future research with larger sample sizes and longer intervention periods is warranted to address these limitations and provide further insights into the efficacy of foot massages for RA pain relief.

Overall, the findings of this study contribute to the growing body of evidence supporting the use of foot massages as a safe and effective adjunctive therapy for managing RA-related pain. By offering a non-pharmacological approach to pain management, foot massages have the potential to improve the quality of life for individuals living with Rheumatoid Arthritis.

Conclusions

This study contributes valuable insights into the potential efficacy of foot massages in reducing RA pain intensity. The positive outcomes observed in this case study warrant further exploration through larger-scale research, emphasizing the importance of non-pharmacological interventions in RA management.

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Table 1. Observation of subject I pain scale assessment before and after implementation.

No.	Date	SUBJECT I				KET
		Time	Pain Scale Before Implementation	Time	Pain Scale After Implementation	
1.	**28 Maret 2023**	13.00	5	13:30	4	Decreasing
2	**29 Maret 2023**	15:30	5	16:00	4	Decreasing
3.	**30 Maret 2023**	15:00	4	15:30	3	Decreasing

Table 2. Observation of subject II pain scale assessment before and after implementation.

No.	Date	SUBJECT II				KET
		Time	Pain Scale Before Implementation	Time	Pain Scale After Implementation	
1.	**01 April 2023**	14.00	6	14:30	5	Decreasing

2	**02 April 2023**	14.30	6	15:00	4	Decreasing
3.	**03 April 2023**	14.30	5	15:00	3	Decreasing