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# Application of Foot Massage Therapy to Reduce Pain Scale of Old Age with Rheumatoid Arthritis in Perumnas Public Health Center Working Area Lubuklinggau City 2023

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A R T I C L E   I N F O

A B S T R A C T

Arthritis in RA patients causes pain, swelling, and decreased joint range of motion. It can lead to decreased independence and limited activities, reducing the quality of life. The process of foot massage also impacts the process of vasodilation and increased blood circulation. It increases the activity of the autonomic nervous system, which stimulates increased production of endorphins, which is expected to reduce pain. The case study used a descriptive method with two old older adults with Rheumatoid Arthritis, using the family nursing care assessment and pain scale assessment. The application of foot messages is carried out for 20 minutes for three days. After applying foot massage for three consecutive days, the study showed a decrease in pain intensity between before and after the intervention was given to the two subjects. The subject's pain intensity decreased from moderate pain intensity to mild pain. Applying foot massage effectively reduces the intensity of Rheumatoid Arthritis pain.

**INTRODUCTION**

Rheumatoid Arthritis (RA) is a type of chronic autoimmune arthritis characterized by painful joint inflammation, leading to destructive bone erosion (Almutairi et al., 2021). Every year 77 people out of 100,000 are diagnosed with RA (Margaret, 2022), with a prevalence of 20% aged more than 55 years (Haerum, 2022), with a risk of 3 times more in women than men. This ratio can reach 5:1 in women of childbearing age (Hamijoyo et al., 2020).

According to the World Health Organization (WHO), in 2019, Rheumatoid Arthritis is at 18 million sufferers (WHO, 2022), with a prevalence reaching 0.5 to 1% of the entire world population. In Indonesia, based on Basic Health Research (RISKESDAS) in 2018, the prevalence of diseases with joint and muscle problems, including RA, is the second health problem, with 713,783 cases (7.30%), in South Sumatra Province, there were 22,688 cases, and there were 644 cases from Lubuklinggau City. (RISKESDAS, 2018).

Based on data obtained from the Perumnas Health Center, there were 242 RA patients in 2020, 306 in 2021, and 293 visits in 2022 with a diagnosis of Rheumatoid Arthritis (Perumnas Health Center, 2023). Based on a preliminary study conducted by researchers on December 3, 2022, data was obtained that 12 people who came to the older adults poly with a diagnosis of RA complained of RA pain with moderate intensity, as much as 75% (9 people), with mild intensity 25% (3 people ).

The most prominent symptom in RA sufferers is arthritis, which causes pain, swelling, and decreased joint range of motion (Sadeghi. et al., 2020). It can decrease patients' independence and limit daily activities, negatively impacting their quality of life, especially in older adults with RA (Metin & Odzemir, 2016). Treatment for Rheumatoid Arthritis can include pharmacological, non-pharmacological, and surgical procedures. Non-pharmacological techniques that reduce pain in RA sufferers include massage, hot or cold compresses, transcutaneous electrical stimulation of skin nerves, relaxation, and rest (Febriansa et al., 2021).

Providing the implementation of foot massage is an alternative to reduce pain complaints in RA sufferers; doing massage for 20 minutes once a day for three consecutive days in areas experiencing pain is expected to reduce the pain intensity of RA sufferers (Rindriani . & Adriani, 2022),
Supported research conducted by Muliani et al. (2019), who performed foot massages on 22 older adults in a rehabilitation center for 20 minutes, showed a decrease in the pain intensity of clients with RA in the moderate pain category to mild pain.

Stimulation of the foot massage recovery point using the therapist's fingers using a sweeping motion, with a pressure of about 0.5 cm, with the patient in a half-sitting position, and with the head position 150 to 300, giving foot massage can stimulate the skin to reduce pain, through the applied touch and massage mechanisms (Sadeghi. et al., 2020).

Stimulation of foot massage at specific points will help improve nerve connections to certain parts of the body; based on the theory of energy, the organs in the body are connected via electromagnetic fields so that when

comfortable feelings arise, food will be delivered to the nervous system (Bakir et al., 2018).

Based on the data above, the authors are interested in researching "The Application of Foot Massage Therapy to Reducing Pain Scale in Older adults Patients with Rheumatoid Arthritis in the Work Area of the Perumnas Health Center, Lubuklinggau City in 2023.
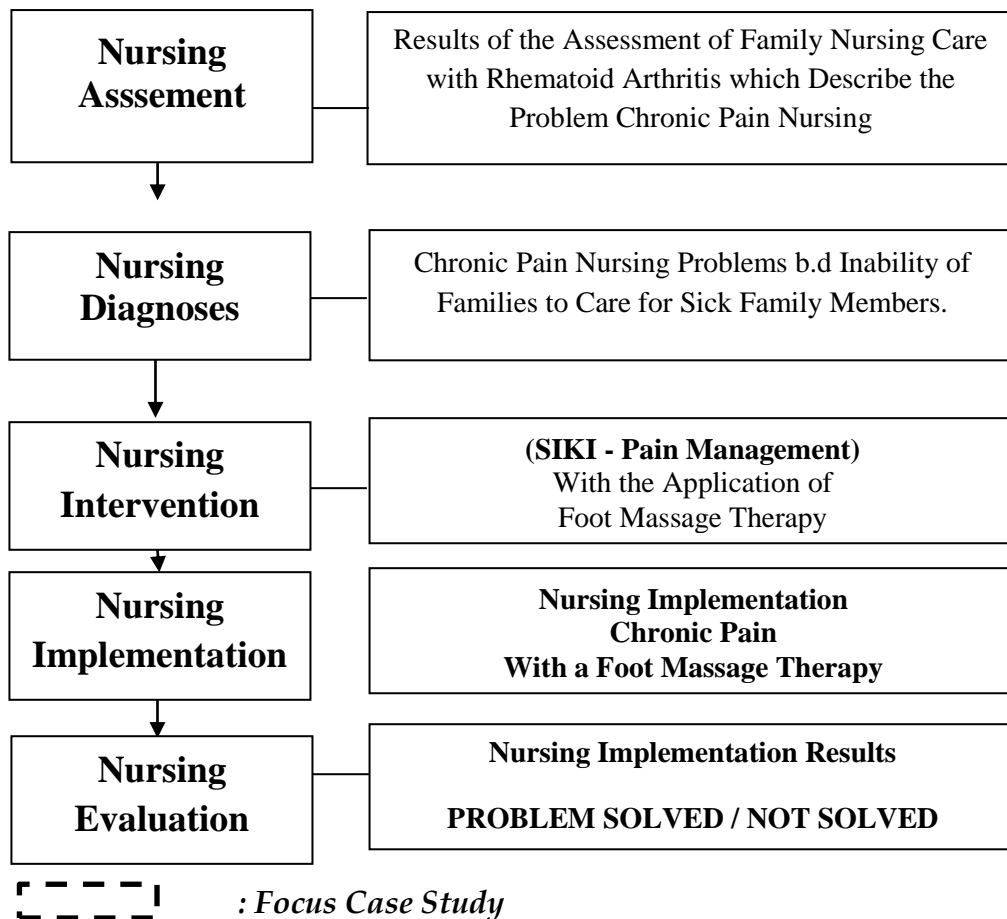
## LITERATURE REVIEW

| **Nursing Asssement** | Results of the Assessment of Family Nursing Care with Rhematoid Arthritis which Describe the Problem Chronic Pain Nursing |
| :---: | :---: |
| **Nursing Diagnoses** | Chronic Pain Nursing Problems b.d Inability of Families to Care for Sick Family Members. |
| **Nursing Intervention** | **(SIKI - Pain Management)** With the Application of Foot Massage Therapy |
| **Nursing Implementation** | **Nursing Implementation Chronic Pain With a Foot Massage Therapy** |
| **Nursing Evaluation** | **Nursing Implementation Results** **PROBLEM SOLVED / NOT SOLVED** |

⌐ ¯ ¯ ¯ ¬   *: Focus Case Study*
**Figure 1. Conceptual Framework**

## METHODOLOGY

The design used by the authors in this study was a case study, using a descriptive method, namely the method carried out with the primary objective to make an objective description of the situation study and to analyze more deeply the nursing care of RA patients with acute pain in the working area of the National Health Center of Lubuklinggau City. The subjects of this study were two patients who had the following criteria:

**Inclusion criteria**
1. Clients are willing to be research respondents
2. The client was diagnosed with RA in the working area of the Perumnas Kota
3. Health Center Lubuklinggau

4. Clients who experience joint pain due to RA with a pain scale
5. of mild to moderate
6. Clients with complaints of RA pain for more than six months
7. Clients with an age range of 54 years and over (Susanti et al., 2021)

**Exclusion criteria**
1. Have skin that is hypersensitive to touch
2. Have a risk of skin disorders which can irritate if foot massage is done

## RESULT
### *Nursing Assessment*

Nursing assessment is the initial stage of the nursing process. It is a systematic process of collecting data from various data sources to evaluate and identify the health status of clients and families (Bakri, 2021).

This assessment aims to determine the client's ability to care for themselves, complete the basics of individual nursing plans, help to avoid client forms and views, and give time for clients to answer (Sunaryo et al., 2015). The author conducted studies on subjects I and II through direct interviews with clients and families; observations and physical examinations were conducted.

Subject I, with the initials Mrs. L, is 80 years old, female, Muslim, graduated from elementary school, IRT, has a history of hypertension since the age of 40, and RA since the last year, with the main complaint being a pain in the area of both knees, pain like being stabbed, with a scale pain 5, the pain gets worse when the weather is cold, and when doing daily activities, complaints of pain come and go. Complaints of pain also caused Mrs. L to have trouble sleeping if she was experiencing pain at night or in cold weather. When studying TTV, TD: 140/90 mmHg, RR: 20 x/min, Pulse: 86 x/min, Temperature: 36,1ºC.

Subject II, with the initials Mrs. A, is 61 years old, female, Muslim, graduated high school, retired, has a history of hypertension since young, with a history of both parents having a history of hypertension, with the main complaint being pain in the area of both knees, pain like stabbing, with a pain scale of 6, pain complaints get worse when doing everyday activities until it interferes with the worship process. It is difficult to start sleeping when you feel pain. Complaints of pain are felt to come and go. Complaints of knee pain have been felt since being diagnosed with RA 1 year ago. When studying TTV, TD: 150/80 mmHg, RR: 18 x/min, Pulse: 88 x/min, Temperature: 36,6ºC.

### *Nursing Diagnoses*

Nursing diagnoses are clinical judgments about individual, family, and community responses to actual and potential health problems or life processes (Team Pokja SDKI DPP PPNI, 2017). Based on the findings of the assessment results (interviews and physical examination), as well as data analysis on both subjects, only showed nursing diagnoses:

1. Chronic pain is related to the family's inability to provide care for sick family members.

2. Disturbed Sleep Pattern Disorder related to the inability of the family to provide care for sick family members.

The priority problem in both subjects is chronic pain related to the inability of the family to provide care for sick family members; this is closely related to the significant signs and symptoms in clients with RA, namely complaints of pain (Team Pokja SDKI DPP PPNI, 2017).

### Nursing Intervention

In this stage of nursing intervention, the most essential thing is prioritizing problems. In determining the priority of this problem, the author scores nursing problems first so that a nursing diagnosis can be obtained with the highest total score. The author arranges a plan that will be implemented on both subjects with the problem of chronic pain nursing related to the inability of families to provide care for sick family members. The focus of intervention in this case study is pain management, one of which is by giving a massage to the area of the leg experiencing pain.

### Nursing Implementation

Implementation of nursing is carried out by the actions that have been planned, carried out appropriately, safely, and by the client's condition. This nursing care is implemented according to the client's condition and situation and using the facilities available in the working area of the Perumnas Health Center in Lubuklinggau City.

The author implemented both subjects for pain diagnosis, namely assessing pain characteristics (PQRST), measuring numerical pain scales, and observing vital signs. The author carried out all the implementations to meet all the outcome criteria, and the goals of the intervention were achieved so that the pain response could be reduced (Andarmoyo, 2013; Team Pokja SLKI DPP PPNI, 2018).

Implementation of foot massage on subject I (Mrs. L) was carried out from 28 March 2023 to 30 March 2023, while for subject II (Mrs. A), the intervention was carried out from 01 April to 03 April 2023. Both subjects received the primary implementation of foot massage and other nursing interventions compiled by the author.

### Nursing Evaluation

According to (Team Pokja SLKI DPP PPNI, 2018), Evaluation compares the activities between the results of implementation with the criteria and standards set to see success. If the results and Evaluation are not partially successful, developing a new nursing plan is necessary. Factors that need to be evaluated in family nursing include cognitive/knowledge, affective (emotional), and psychomotor domains. Evaluation is defined as a nursing care decision based on the client's nursing goals that have been set and the client's behavioral response that appears (Bakri, 2021). Evaluations carried out by researchers are adjusted to the patient's conditions and existing facilities so that

action plans can be completed using SOAP, subjective, objective analysis, and planning.

Evaluation of the pain scale was carried out using a numerical or numerical pain scale measurement method; the researcher used a straight line media where the line indicated "no pain," the midline indicated "moderate pain," and the final line identified severe pain, in this study, the subjects chose numbers that represent pain before and after intervention (Andarmoyo, 2013).

**Table 1. Observation of Subject I Pain Scale Assessment Before and After Implementation**

| No. | Date | Time | Pain Scale Before Implementation | Time | Pain Scale After Implementation | KET |
|---|---|---|---|---|---|---|
| | | | SUBJECT I | | | |
| 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 | Time | Pain Scale Before Implementation | Time | Pain Scale After Implementation | KET |
|---|---|---|---|---|---|---|
| | | | SUBJECT II | | | |
| 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 |

## DISCUSSION
*Nursing Assement*

The main complaints of subjects I and II were pain in the knee, a feeling of pain like being pricked, with a moderate pain scale, increased during activities and when the weather was cold. According to (Untari & Sulastri, 2019), RA sufferers usually experience clinical symptoms and joint pain accompanied by stiffness, especially in the morning or during cold weather. It can cause stiffness lasting about 30 minutes and continue for hours a day; swelling appears, with a reddish color, to interfere with activities.

Subject I (Mrs. L) and Subject II (Mrs. A) are female and are in the elderly age category. According to (Hamijoyo et al., 2020), various observations have

led to allegations that sex hormones and age are a factor predisposition to RA disease; with RA prevalence data, it is known that women suffer three times more than men and the elderly category is the most common sufferer with muscle and joint problems (RISKESDAS, 2018).

Both subjects stated that they experienced sleep disturbances due to complaints of pain. Pain caused by a disease process (RA), which causes inflammation in patients, is one of the factors that can affect sleep quality (Yunara, 2019). It is supported by a study conducted (Dedi et al., 2022) which conducted a study of pain intensity and sleep quality in older adults with RA in Hamlet II, Helvetia Village, Sunggal District which showed that there was an effect on sleep quality in patients with RA.

Subject I (Mrs. L) and Subject II (Mrs. A) had a history of hereditary diseases and suffered from RA with hypertension since they were young. However, there was no indication that the cause of RA suffered by the two subjects was a result of a history of hypertension. However, according to (Hamijoyo et al., 2020), hypertension is more at risk for women and older adults due to hormonal factors and a decreased immune system (Hidayat et al., 2021).

*Nursing Diagnoses*

The knowledge deficit cannot be raised for both subjects; this is closely related to the time the client suffers from the disease and the nursing process. According to Bertalina and Purnama (2016), the length of time a person is diagnosed with an illness and is exposed to the treatment process will affect the patient's knowledge of the disease.

The priority problem in both subjects is chronic pain related to the inability of the family to provide care for sick family members; this is closely associated with the significant signs and symptoms in clients with rheumatoid arthritis, namely complaints of pain (Team Pokja SDKI DPP PPNI, 2017).

*Nursing Evaluation*

Based on the evaluation findings regarding the reduction of pain experienced on the last day of the evaluation on the subject, I Ny. L showed subjective data, said the pain came from the knee due to the reduced pain and felt comfortable when doing the foot massage; based on the pain intensity, it was in the category of mild pain. Mrs. L can understand and play a role in doing foot massage for Subject I so that it is done independently at night when complaints of pain occur. Complaints of difficulty sleeping in subject I (Mrs. L) said that she slept better and felt it was easy to start sleeping because complaints of pain were reduced.

The last day evaluation on the subject II Ny. I also showed the same results on pain intensity, which was in the mild pain category. Subjectively, Mrs. I stated that he was more relaxed and calm after the foot massage. However, there were differences regarding family support for subject II (Mrs. I). Mrs. I, who only lives with her husband, who is also elderly, has not been able to implement and practice foot massage independently, so at night, or when

complaints occur, it cannot be applied, which makes sleep quality in Subject II (Mrs. I) still not resolved

Reducing pain intensity in both subjects by giving massage to the feet, as a result of cutaneous stimulation, through the applied touch and massage mechanisms (Sadeghi. et al., 2020). The process of foot massage impacts the activity of the autonomic nervous system by stimulating the increased production of endorphins, which act as natural pain relievers (Rindriani & Adriani, 2022).

Stimulation of foot massage at the right points increases nerve connections through the body's electromagnetic field so that when a feeling of comfort arises, food will be delivered to the nervous system (Bakir et al., 2018). It is supported by several studies which show that lactic acid accumulates a lot in the soles of the feet. Foot massage can expedite its flow through the vasodilation of blood vessels when massage is done on the feet (Rindriani & Adriani, 2022).

## CONCLUSIONS AND RECOMMENDATIONS

Applying foot massage effectively reduces the intensity of Rheumatoid Arthritis pain.

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