**Case Study**

# Implementation of Family Nursing Care for Clients with Rheumatoid Arthritis to Physical Mobility Disorders with Active and Passive Movement Exercises

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ABSTRACT

***Background:*** Rheumatoid Arthritis (RA) is a disease characterized by a chronic autoimmune inflammatory disorder or autoimmune response that causes weakening of the joints and synovial lining, especially in the hands, feet, and knees. Patients with RA often experience impaired physical mobility, a condition where a person cannot move freely due to conditions that hinder movement (activity). One of the interventions that can be given to RA patients is Range of motion (ROM) exercises, which are exercises performed to maintain or improve the perfection of the ability to move joints normally and completely to increase muscle mass and muscle tone. research to assess the effectiveness of implementing family nursing care with active and passive movement exercises against impaired physical mobility in Rheumatoid Arthritis sufferers in the work area of Taba Health Center, Lubuklinggau City, in 2022.
***Methods:*** This study uses a qualitative design with a case study approach to describe information descriptively. In-depth and explores nursing problems for families with rheumatoid arthritis with impaired physical mobility due to joint stiffness.
***Results:*** After implementation by giving active and passive motion exercises to both subjects (Mr. S and Mrs. E) for five consecutive days with a time of 10-15 minutes, both subjects said that stiffness in the extremities was reduced and the value of muscle strength increased to 5 and 4.
***Conclusion:*** Implementing nursing care with active and passive motion exercises can increase joint strength in clients with rheumatoid arthritis.

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## Introduction

Rheumatoid Arthritis (RA) is a disease characterized by a chronic autoimmune inflammatory disorder or autoimmune response, which causes a weakening of the joints and synovial lining, especially in the hands, feet, and knees (Peter et al., 2021; TUNA & ALPARSLAN, 2021). In most of Indonesia's population, the rheumatic disease is considered lightly because of its character as if it does not cause death, while pain causes it complicated for a person to carry out daily activities (Guryeva, 2022; Marcovici, 2020).

This rheumatic disease is well known in the community, but it has not been satisfactory for a correct understanding of rheumatism in the family (Kuchta & Davidson, 2022; Szmelcer et al., 2019). Rheumatoid arthritis (RA) is found in many countries worldwide, including Indonesia. The number of patients with RA in the elderly worldwide has reached 355 million people, and one in six older adults worldwide suffers from RA. It is estimated that this figure will continue to increase until 2025, with more than a quarter (25%) of the population contributing to the increase. According to WHO data (2015), 20% of the world's population suffers from rheumatoid arthritis, with 5-10% aged 5-20 years and 20% aged 55 years. According to the Indonesian Ministry of Health (2018), the number of Rheumatoid Arthritis sufferers in Indonesia has reached 7.30%, while in South Sumatra, the prevalence based on doctor's assessment of the population aged 15 years is 6.48% and as much as 4.04% is in the Lubuklinggau City area.

Along with the increasing number of Rheumatoid Arthritis sufferers, the level of awareness and misunderstanding about this disease is relatively high. This condition reveals a lack of public knowledge, especially among sufferers, to know more about rheumatoid arthritis. One of the non-pharmacological interventions that can be given to rheumatoid arthritis patients is Range of motion (ROM) exercise, which is an exercise to maintain or improve the perfection and ability to move joints normally and completely aims to increase muscle mass and muscle tone. The results of Sunarti's research (2018) concluded that there was an increase in mobilization ability and the effect of Range of motion in Rheumatoid Arthritis sufferers who previously experienced activity barriers after active ROM (Borysova & Potapova, 2022; Meghe et al., 2022; Shimon, 2022).

Based on a preliminary study conducted by researchers on Rheumatoid Arthritis sufferers in the working area of the Taba Health Center, Lubuklinggau City, the majority of patients experience stiffness in the joints, as well as pain in the extremities. In 2019 the number of sufferers of RA was 16 people, while in 2020, the number of sufferers of Rheumatoid Arthritis disease decreased to 8 people, and in 2021 Rheumatoid Arthritis sufferers increased again to 24 people. The treatment received by patients with Rheumatoid Arthritis so far is the administration of drugs such as Kalk Nellco, Vitamin B12, vitamin B1, and vitamin B Complex, and recommendations for warm compresses in the area of stiff joints, while for Range of motion exercises (ROM) both passive and active, has never been done and taught (Raipure et al., 2022; Saketkoo et al., 2021; Wu et al., 2022).

## Method

This study uses a qualitative design intended to describe the decrease in physical mobility disorders in clients with Rheumatoid Arthritis. The subjects of this study were individuals with Rheumatoid Arthritis aged 50-70 years. This research was conducted at the Taba Health Center, Lubuklinggau city, in April 2022. Ethical considerations in this study were carried out by fulfilling the principles of human rights as subjects in the study, which include the right to self-determination; the right to privacy and dignity; the right to anonymity and confidentiality; the right to fair treatment; and the right to protection from inconvenience or loss. Data collection was based on interview guidelines and observation notes to obtain as much information as possible to answer the research objectives.

Data collection techniques through in-depth interviews were carried out by

making field notes containing descriptions of activities, dates, times, and basic information about the atmosphere, environmental settings, social interactions, and participant activities during the interview. Meanwhile, data collection was carried out by observation, namely by directly observing various activities carried out by participants, especially those in accordance with the research objectives. The tools used for data collection in this study were interview guidelines, observation notes, and a checklist that had been prepared. Furthermore, the data from interviews, observations, and documentation studies were written in an assessment format and analyzed to find the central problem, and then a non-pharmacological nursing plan was prepared for management. Impaired physical mobility with active and passive motion training techniques to increase muscle strength. At the implementation stage, the researcher carried out directly and observed and documented the patient's response to passive and active ROM procedures. Data analysis in this study is based on a phenomenological approach. The process of data analysis was carried out throughout the study. It was carried out continuously from the beginning to the end of the study by collecting all data from the results of interviews, observation notes, and field notes of the researcher and then comparing it with the existing literature and assumptions. The qualitative analysis of the data is analyzed, and the presentation starts from the data collected and then draws conclusions.

## Results

The subjects in this study were two clients who had Rheumatoid Arthritis. After carrying out nursing care, which the researcher carried out to subject I and subject II, namely providing the application of active and passive motion exercises starting from assessment to evaluation on subject I on 9-13 April 2022 and subject II on 13-17 April 2022. Principles of this discussion by focusing on the main problem, namely impaired physical mobility.

Study subject I: Mr. S is 65 years old, is Muslim, last education is elementary school, lives on Taba Health Center street, and is a daily laborer; on April 9, 2022, an assessment was carried out on Mr. S with complaints of frequent pain and stiffness in the joints and upper and lower extremities, decreased muscle strength in the extremities with a value of 3, extremity movements are not well coordinated and if morning and night. Mr. Family S is a type of kit network family consisting of Mr. S and one married child. The house occupied by Mr. S is their own house, and they have lived there for a long time. Vital sign results are blood pressure 130/90 mmHg, pulse: 97,x/minute, RR: 20,x/minute, temperature: 36.5 $^{o}$C.

Study Subject II: Mrs. E is 65 years old, is Muslim, last education is junior high school, lives in the hallway Slammed, and Housewife work; on April 13, 2022, an assessment was carried out on Mrs. E with complaints of pain and stiffness in the joints and upper and lower extremities in the morning and evening, decreased muscle strength in the extremities 3, extremity movements were not well coordinated, and if the cold air stiff in the joints more often. Mrs. E belongs to the type of middle-aged family consisting of a husband and wife. The Vital Sign results were blood pressure:

150/100 mmHg, RR: 22 x/minute, Pulse: 89x/minute, Temperature 36.5$^0$C.

Nursing diagnoses with Rheumatoid arthritis according to the IDHS (2018), there are three nursing diagnoses, while the nursing diagnoses are; 1) Impaired physical mobility related to the client's inability to recognize health problems, 2) Knowledge deficit related to the inability of clients and families to recognize disease problems, 3) Sleep pattern disturbance related to family ignorance about good sleep patterns. Based on the assessment results found in the field, only one diagnosis can be established by the author, namely, Impaired physical mobility related to the client's inability to recognize his health problem. This nursing diagnosis was enforced because when the researchers conducted the assessment, they got complaints from both subjects. Namely, the extremities felt achy from the hips to the legs and stiff in the knees, so the nursing diagnosis that was enforced was impaired physical mobility (Adly et al., 2018; Coelho-Oliveira et al., 2021)

This nursing intervention focuses on the principal diagnosis, namely physical mobility disorders, with the aim that after being given active and passive motion exercises, it is expected that physical mobility will increase from decreased physical mobility with outcome criteria based on SLKI (Nursing Diagnostic Outcomes Standards) Increased extremity movement, increased muscle strength, joint stiffness, and Range of motion (ROM). The interventions carried out include identifying physical tolerance for movement, monitoring heart rate and blood pressure before starting mobilization, general monitoring condition during mobilization, facilitating movement, if necessary, Involving the family to assist the patient in increasing movement, explaining the goals and procedures for mobilization, recommending doing early mobilization, teach simple mobilizations that must be done (e.g., sitting on the side of the bed, moving from bed to chair (Creagh et al., 2022; Munger et al., 2022; PPNI, 2019; Rangiah et al., 2020)In the implementation of the procedure for active and passive motion exercises, each movement is carried out with a count of ± 10 seconds for each movement, carried out one time a day for 10-15 minutes. Before the research is carried out, the researcher first assesses the client, then demonstrates the active and passive using leaflet media containing the understanding and steps of active and passive motion exercises. Before being given therapy, the two research subjects complained of stiffness in moving the extremities with a muscle strength value of 3. After being given active and passive motion exercises, Mr. S said the stiffness in the extremities was reduced, and the value of muscle strength increased to 5. Meanwhile, before therapy, Mrs. E's client complained that stiffness in joints and extremities, especially during cold weather, gets worse with a muscle strength value of 3. After therapy for motion exercises, Mrs. E said the joints' stiffness decreased, and the extremity muscles' strength increased to 4.

## Discussion

The implementation that the author did on both subjects, namely the active and passive motion exercise therapy technique in Rheumatoid arthritis patients, was carried out for five consecutive days with 10-15 minutes per day with a rest period of 5-10 minutes. In addition to being carried out accompanying the exercise by the researcher, the client also performs active and passive motion exercises independently at home and is usually carried out in the afternoon so that the results obtained from the exercise are an increase in muscle strength in both subjects,

which after nursing intervention and movement training therapy techniques active and passive motion (Alexander et al., 2022; Almuhaysin, 2019).

Implementation on the subject I was carried out on April 9, 2022, starting at 09.00, including building a trusting relationship and explaining the aims and objectives of nursing care carried out by informed consent researchers and providing Rheumatoid arthritis leaflets. Implementation on April 10, 2022, starting at 09.10, including conducting client and family assessments, checking vital signs and providing active and passive motion exercise leaflets to clients, simulating movements to clients, and measuring muscle strength and obtaining a value of 3 in the upper and lower extremities. Implementation on April 11, 2022, starting at 08.40, includes checking vital signs, measuring muscle strength, practicing active and passive motion exercises on clients and evaluating muscle strength, and reminding them to routinely do exercises at least two times a day and maintain abstinence foods, value strength 3 point muscle. Implementation on April 12, 2022, starting at 09.00, including checking vital signs, measuring muscle strength, practicing active and passive motion exercises on clients and evaluating muscle strength, and reminding to routinely do exercises at least two times a day for a muscle strength value of 3 for the upper extremities and 4 for the lower extremities. Implementation on Saturday, April 13, 2022, starting at 09.10, including checking vital signs, measuring muscle strength, practicing active and passive motion exercises on clients and evaluating muscle strength, and reminding to routinely do exercises at least two times a day for the value of muscle strength 5 for the upper extremities and 5 for the lower extremities.

Subject II was implemented on April 13, 2022, starting at 15.00, including fostering a trusting relationship and explaining the nursing care's intent and purpose, making informed consent, and providing leaflets about RA. Implementation on April 14, 2022, starting at 10.15 am, includes assessing clients and families, checking vital signs, providing active and passive motion exercise leaflets to clients and giving examples of their movements, measuring muscle strength, and obtaining a value of 3 in the upper and lower extremities. Implementation on April 15, 2022, starting at 10:30 am, includes checking vital signs, measuring muscle strength, exercising active and passive movements, evaluating muscle strength and reminding to exercise at least 2 times a day routinely, and maintaining abstinence from eating, assessing muscle strength 3 points. Implementation on April 16, 2022, starting at 10:20 am, including checking vital signs, measuring muscle strength, practicing active and passive motion exercises on clients and evaluating muscle strength, and reminding to routinely do exercises at least two times a day, for muscle strength values 4 for the upper and lower extremities. 4 for the lower extremities. Implementation on April 17, 2022, starting at 11.10 including checking vital signs, measuring muscle strength, practicing active and passive motion exercises on clients and evaluating muscle strength, and reminding to routinely do exercises at least two times a day for muscle strength values 4 for the upper and lower extremities.

This technique is also in line with research conducted by Sunarti, S., & Silalahi, R. D. (2018), which showed that after being given active and passive motion exercises, most patients did not experience joint stiffness. This movement can affect the client because the client follows the ROM movements taught correctly. Likewise, the

results of Chairil, C., Isnaniar, I., Siwi, T., Maswarni, M., & Gasril, P. (2017) showed where ROM exercises could maintain or improve the ability level to move joints normally and completely to increase muscle mass and muscle tone. Besides teaching active and passive motion exercises for five consecutive days, the researcher also educates clients to avoid dietary restrictions that can aggravate RA, such as nuts, offal, and coconut milk, and remind clients to routinely exercise at least two times a day (Hellgren et al., 2021; McDonald et al., 2020; Nakajima et al., 2021). According to Inayatus Sya'diyah, I. (2021), patients who did passive and active motion exercises for five consecutive days after being evaluated said that the stiffness in their fingers and wrists was reduced.

At the evaluation stage, the results showed that both subjects I and II experienced an increase in muscle strength after active and passive motion exercises for five days, where subject I experienced an increase in the value of muscle strength, namely in the upper and lower extremities increased to 5 out of 3, while subject II experienced an increase in muscle strength. Muscle strength 4 of 3. The difference in the results for the two subjects was due to Subject I doing movement exercises more seriously and enthusiastically than subject II, a subject I routinely doing motion exercises independently accompanied by family, and there was an increase in muscle strength. In contrast, subject II only does motion exercises when accompanied by researchers and does not carry out routine movements independently, so the increase in muscle strength is not optimal.

## Conclusion

Conclusion Based on the nursing care of Mr. S and Mrs. E for five days with complaints of stiffness in the joints and extremities. From the results of the intervention carried out on Mr. S and Mrs. E, active and passive motion exercise therapy is to help increase muscle strength from impaired physical mobility caused by rheumatoid arthritis. From the implementation carried out on the two research subjects, it was found that there was an increase in muscle strength, with the value of muscle strength being five by using active and passive motion exercise therapy, which was carried out 1x a day in the morning for 10-15 minutes. So that the authors conclude that the general goal is achieved. The client also seemed motivated to carry out what the authors taught. This success was thanks to the active participation of the research subjects and their families. Both clients are motivated to do active and passive motion exercise therapy, which helps reduce impaired physical mobility. Clients are also recommended to do light exercise regularly to improve. The results of this study can be used as an application of independent nursing actions in Rheumatoid Arthritis patients. Moreover, for further writers, it is hoped that they can further improve their knowledge and skills in carrying out nursing care for families whose family members experience Rheumatoid arthritis by providing active and passive motion exercise therapy.

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## Authors Contributions

The author carries out tasks from data collection, data analysis, making discussions to making manuscripts

## Conflicts of Interest

There is no conflict of interest

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## References

Adly, A. S., Adly, A. S., Adly, M. S., & Mostafa, Y. M. (2018). Effectiveness of laser acupuncture as adjunctive therapy for limited range of motion in rheumatoid arthritis. *Laser Physics*, *29*(2), 25601.

Alexander, S. A., Duddy, C., Danve, A., & Sehra, S. T. (2022). Rheumatic Disorders. In *Clinical Guide to Musculoskeletal Medicine* (pp. 557–566). Springer.

Almuhaysin, A. A. (2019). *Case Study of Treatment of a Patient after Rheumatoid Arthritis*.

Borysova, I., & Potapova, T. (2022). ASSESSMENT OF FUNCTIONAL ACTIVITY REDUCTION–AS A CRITERION FOR DETERMINING DISABILITY IN PATIENTS WITH RHEUMATOID ARTHRITIS. *Wiadomosci Lekarskie (Warsaw, Poland: 1960)*, *75*(9 pt 1), 2081–2085.

Coelho-Oliveira, A. C., Lacerda, A. C. R., De Souza, A. L. C., Santos, L. M. de M., Da Fonseca, S. F., Dos Santos, J. M., Ribeiro, V. G. C., Leite, H. R., Figueiredo, P. H. S., & Fernandes, J. S. C. (2021). Acute whole-body vibration exercise promotes favorable handgrip neuromuscular modifications in rheumatoid arthritis: a cross-over randomized clinical. *BioMed Research International*, *2021*.

Creagh, A. P., Hamy, V., Yuan, H., Mertes, G., Tomlinson, R., Chen, W.-H., Williams, R., Llop, C., Yee, C., & Duh, M. S. (2022). Digital health technologies and machine learning augment patient reported outcomes to remotely characterise rheumatoid arthritis. *MedRxiv*.

Guryeva, A. (2022). *THE SPECIAL ASPECTS OF NURSING PROCESS IN RHEUMATOID ARTHRITIS*. Ternopil.

Hellgren, K., Secher, A. E., Glintborg, B., Rom, A. L., Gudbjornsson, B., Michelsen, B., Granath, F., & Hetland, M. L. (2021). *OP0210 PREGNANCY OUTCOMES IN RELATION TO DISEASE ACTIVITY AND ANTI-RHEUMATIC TREATMENT STRATEGIES IN WOMEN WITH RHEUMATOID ARTHRITIS–A MATCHED COHORT STUDY FROM SWEDEN AND DENMARK*. BMJ Publishing Group Ltd.

Kuchta, G., & Davidson, I. (2022). *Occupational and physical therapy for children with rheumatic diseases: a clinical handbook*. Routledge.

Marcovici, E. (2020). Principles and Protocols of Rehabilitation of Geriatric Patients with Rheumatic Disorders. In *Rheumatic Disease in Geriatrics* (pp. 397–404). Springer.

McDonald, S., Levine, D., Barnes, H., Cornett, A., Craig, K., Langager, S., Yeager, L., & Britt, M. (2020). Effectiveness of Adaptive Silverware on Active Range of Motion (ROM) in Individuals With Rheumatoid Arthritis. *The American Journal of Occupational Therapy*, *74*(4_Supplement_1), 7411520470p1-7411520470p1.

Meghe, S., Chitale, N., Phansopkar, P., & Joshi, A. (2022). Effectiveness of Early Physical Therapy Rehabilitation in Patient With Juvenile Rheumatoid Arthritis. *Cureus*, *14*(10).

Munger, L., Moore, A. K., Kearns, G. A., & Seth, S. (2022). Caring for adults with hip pain. *Nursing2022*, *52*(9), 22–28.

Nakajima, A., Terayama, K., Sonobe, M., Akatsu, Y., Saito, J., Norimoto, M., Taniguchi, S., Takahashi, H., Aoki, Y., & Nakagawa, K. (2021). *Clinical Significance of Serum Levels of ROM (Reactive Oxygen Metabolites) in Patients With Rheumatoid Arthritis Treated With Biologic Agents as a*

*Predictor for the CDAI-, SDAI-, and Boolean-Remission*.

Peter, W. F., Swart, N. M., Meerhoff, G. A., & Vliet Vlieland, T. P. M. (2021). Clinical practice guideline for physical therapist management of people with rheumatoid arthritis. *Physical Therapy*, *101*(8), pzab127.

PPNI. (2019). *Standar Diagnosis Keperawatan Indonesia: Definisi dan Indikator Diagnostik* (Edisi 1). DPP PPNI.

Raipure, A., Kumbhare, R., & Walke, R. R. (2022). Positive Outcomes of Comprehensive Exercise Program on Restoration of Functional Level and Quality of Life in a Patient With Rheumatoid Arthritis: A Case Report. *Cureus*, *14*(10).

Rangiah, S., Govender, I., & Badat, Z. (2020). A primary care approach to the management of Arthritis. *South African Family Practice*, *62*(1), 1–7.

Saketkoo, L. A., Frech, T., Varjú, C., Domsic, R., Farrell, J., Gordon, J. K., Mihai, C., Sandorfi, N., Shapiro, L., & Poole, J. (2021). A comprehensive framework for navigating patient care in systemic sclerosis: A global response to the need for improving the practice of diagnostic and preventive strategies in SSc. *Best Practice & Research Clinical Rheumatology*, *35*(3), 101707.

Shimon, E. (2022). *THE ROLE OF THE NURSE IN CONDUCTING REHABILITATIVE INTERVENTIONS IN MIDDLE-AGED AND ELDERLY PATIENTS*. Ternopil.

Szmelcer, B., Topka, W., Wszelaki, P., Wilczyński, M., Porada, M., Florczak, A., Modrzejewski, M., Wąsicki, M., Wysocka, O., & Cięszka, K. (2019). *A holistic approach to the problem of Rheumatoid Arthritis in geriatric patients*.

TUNA, H. İ., & ALPARSLAN, G. B. (2021). NURSING MANAGEMENT OF PATIENTS WITH RHEUMATOID ARTHRITIS. *Research & Reviews in Health Sciences-I*, 25.

Wu, F., Huang, M., Zeng, L., Huang, Z., & Zheng, J. (2022). Needle-Warming Moxibustion plus Multirehabilitation Training to Improve Quality of Life and Functional Mobility of Patients with Rheumatoid Arthritis after Medication. *Evidence-Based Complementary and Alternative Medicine*, *2022*.