

IMPLEMENTATION OF RHEUMATIC EXERCISES ON CHANGES IN KNEE PAIN SCALE IN ELDERLY WITH OSTEOARTHRITIS

Fitria Nur Rahma, Rina Anggraeni*

Nursing of Study Program, Sekolah Tinggi Ilmu Kesehatan Kendal, Jln Laut 31, Kendal, Jawa Tengah 51311, Indonesia

*rina.nanggroy78@gmail.com

ABSTRACT

Osteoarthritis is a degenerative disease commonly experienced by older adults and often causes knee pain that interferes with daily activities. One of the non-pharmacological interventions used to reduce Osteoarthritis pain is rheumatic exercise, which aims to improve joint flexibility and decrease pain intensity. This case study aims to identify the effect of implementing rheumatic exercise on reducing knee pain levels in an older adult with Osteoarthritis. The subject was a 70-year-old patient experiencing knee pain related to Osteoarthritis. The intervention was carried out for 15–20 minutes according to nursing procedures. The results showed a decrease in the pain scale as well as improvements in comfort and mobility. Rheumatic exercise proved beneficial as a supportive intervention in managing knee pain in older adults.

Keywords: elderly; knee pain; nursing; osteoarthritis; rheumatic exercise

INTRODUCTION

Osteoarthritis (OA) is a chronic inflammatory joint disease and is the most common form of rheumatic joint disorder. This condition is generally found in the elderly population because its prevalence increases with age (degenerative). OA causes limitations in performing daily activities and, in severe cases, may require total hip or knee joint replacement in older adults (Kalim & Wahono, 2019). Pain caused by knee OA leads elderly patients to limit movement in the affected area, resulting in a decreased range of motion in all directions. If passive movements become more dominant than active movements, this may cause stiffness and muscle dysfunction around the joint (Isbagio, 2005). Persistent joint pain and stiffness can permanently impair joint function. This functional impairment limits physical activity in the elderly, which subsequently reduces their quality of life (Hopman-Rock et al., 2007). Physical inactivity is a risk factor for various diseases in the elderly population. Conversely, increased physical activity in older adults can improve health status, enhance quality of life, and reduce morbidity and mortality rates (Klieman et al., 2011).

According to the World Health Organization (WHO), in 2004 there were approximately 151.4 million people worldwide living with osteoarthritis. In the Americas and Europe, the number of cases reached 22.3 million and 40.2 million, respectively, while in Southeast Asia there were 27.4 million cases. By 2030, the number of osteoarthritis cases in the United States is projected to increase to 67 million. Based on data from Riset Kesehatan Dasar (Riskesdas) 2018, the prevalence of joint disease in Indonesia was 7.3%, consisting of 6.1% in males and 8.5% in females. The prevalence increases with age, reaching 18.6% among those aged >65 years and 18.9% among those aged >75 years. In Jakarta, the prevalence of joint disease was approximately 7.2%, close to the national prevalence (Wardhani et al., 2022).

The management of OA can be carried out through pharmacological and non-pharmacological approaches. One effective and easy-to-implement non-pharmacological method is rheumatic exercise, which focuses on maintaining maximum joint range of motion. The purpose of rheumatic exercise is to reduce joint pain and maintain the physical health of individuals with rheumatic conditions. Other benefits include improving bone flexibility, maintaining muscle strength, enhancing blood circulation, keeping blood lipid levels normal, reducing the risk of injury, and improving cellular response speed (Heri, 2014). At Ginowan Memorial Hospital, several elderly patients presented with complaints of knee

pain due to OA, including Mr. I, aged 70 years, with a pain scale of 6/10. The patient experienced knee stiffness and limited activity due to infrequent joint exercises. This condition highlights the need for interventions such as rheumatic exercise to help reduce pain and improve joint function in elderly patients with osteoarthritis.

METHOD

The method used in preparing this case study was a case study approach with a nursing care framework focused on one elderly patient with knee Osteoarthritis. This case study was conducted to identify nursing problems, formulate nursing diagnoses, plan interventions, implement nursing actions, and evaluate the outcomes of the care provided, particularly regarding the application of rheumatic exercise on changes in knee pain scale. The case study was conducted at Ginowan Memorial Hospital, Okinawa, Japan, on dates determined according to the clinical practice schedule. The subject of the study was an elderly patient who met the criteria of having knee Osteoarthritis, experiencing pain with a scale of 6/10, being able to follow exercise instructions, and being willing to undergo non-pharmacological nursing interventions in the form of rheumatic exercise.

Data collection was carried out through a nursing assessment that included interviews, direct observation, physical examination, and review of medical records. Subjective data were obtained from the patient's complaints regarding pain, stiffness, and activity limitations, while objective data were obtained from vital signs assessment, pain scale measurement, range of motion evaluation, and the patient's response to exercise. The intervention provided was rheumatic exercise focused on movements aimed at improving joint flexibility and muscle strength. The exercise was conducted in a structured manner, supervised by a nurse, and adjusted according to the patient's tolerance. Each session was followed by observation of the pain scale to assess changes after the intervention. The implementation was carried out continuously for three consecutive days. Data analysis was performed by comparing the pain scale before and after the intervention, as well as evaluating changes in the patient's physical condition and subjective complaints. The evaluation results were used to determine the effectiveness of rheumatic exercise as a non-pharmacological intervention in reducing knee pain among elderly patients with Osteoarthritis.

RESULT AND DISCUSSION

The results of this case study were obtained from the assessment, intervention, implementation, and evaluation processes carried out on an elderly patient with knee Osteoarthritis. The initial assessment showed that the patient experienced knee pain with a scale of 6/10, especially when walking, climbing stairs, and after prolonged sitting. In addition, the patient complained of joint stiffness, limited mobility, and decreased daily activities due to persistent pain. Physical examination revealed a limited range of motion in the knee joint, crepitus, and increased pain during flexion and extension. Vital signs were within normal limits; however, the patient appeared cautious when moving due to fear of worsening the pain.

The nursing intervention provided was rheumatic exercise focused on improving joint flexibility, strengthening the muscles around the knee, and reducing pain intensity. The exercises were performed gradually over three days, with duration adjusted according to the patient's tolerance. During the implementation process, the patient was cooperative and able to follow instructions progressively. After the intervention, there was a significant reduction in the pain scale. On the second day, the pain decreased to 4/10, and on the third day to 3/10. The patient also reported increased comfort, reduced stiffness, and greater ease of movement compared to the first day. Clinical observations showed improvement in joint

flexibility and a decreased pain response during light activities. Overall, the results of the case study indicate that rheumatic exercise had a positive impact on reducing knee pain and improving physical activity ability in an elderly patient with knee Osteoarthritis. These changes suggest that rheumatic exercise can be an effective non-pharmacological intervention to help reduce pain complaints in the elderly population.

The results of the case study indicate that rheumatic exercise has a positive effect on reducing the knee pain scale in elderly patients with Osteoarthritis. During the initial assessment, the patient experienced moderate pain with a scale of 6/10, accompanied by joint stiffness and limited activity. This condition is consistent with the clinical presentation of OA, which is characterized by joint inflammation, decreased cartilage integrity, and limited range of motion due to pain and stiffness. The intervention in the form of rheumatic exercise was shown to help improve joint mobility and reduce pain intensity. Rheumatic exercise involves movements aimed at maintaining joint flexibility, strengthening the muscles around the knee, and improving blood circulation. These effects support the body's mechanisms in reducing muscle tension and decreasing pain stimulation.

During the three-day implementation period, the pain scale decreased from 6/10 to 3/10. This reduction indicates that light exercise performed consistently can provide therapeutic benefits for elderly patients with OA. In addition, the patient reported reduced joint stiffness and improved ease of movement, especially during light activities such as walking or rising from a seated position. The improvement in mobility and reduction in pain are consistent with theories stating that physical exercise, including rheumatic exercise, is one of the effective non-pharmacological interventions for managing OA pain. Regular exercise can enhance muscle function, maintain range of motion, and improve joint stability, thereby supporting an overall improvement in the quality of life of the elderly. Based on the results obtained, it can be concluded that rheumatic exercise is a safe, simple, and effective intervention to help reduce knee pain in patients with Osteoarthritis, especially when performed regularly and under the supervision of healthcare professionals.

Assessment

A comprehensive assessment was conducted to identify the physical, psychological, and social conditions of the elderly patient with knee Osteoarthritis. During the initial assessment, the patient complained of knee pain with a scale of 6/10, which occurred especially when walking, climbing stairs, bending the knee, and after sitting for a prolonged period. The patient also reported morning joint stiffness and limited range of motion that interfered with daily activities such as standing, walking, and performing light tasks. Subjective data indicated that the patient often limited activities due to fear of increasing pain. The patient also felt less confident about moving long distances and admitted to rarely performing joint exercises previously. This situation contributed to decreased mobility and increased knee stiffness. Objective data were obtained through physical examination, which revealed crepitus during knee movement, limited range of motion in flexion and extension, and a cautious posture while walking. Vital signs were within normal limits. Functional assessment showed that the patient had difficulty performing activities such as standing up from a seated position, walking moderate distances, and descending stairs.

Psychosocially, the patient demonstrated good motivation to participate in the intervention after receiving an explanation regarding the benefits of physical exercise in reducing pain. The patient lives with family members who are able to provide support during the care process. Medical records supported the diagnosis of knee Osteoarthritis, which the patient had experienced for several years. The results of this

assessment served as the basis for establishing nursing diagnoses, developing interventions, and planning rheumatic exercise as an effort to reduce pain and improve the mobility of the patient's knee joint.

Nursing Diagnosis

Based on the results of the assessment conducted, several nursing problems related to the patient's knee Osteoarthritis were identified. The primary diagnosis established was chronic pain related to joint cartilage degeneration due to the Osteoarthritis process, as evidenced by complaints of increased knee pain during walking or physical activity. This pain caused the patient to limit movement, resulting in disrupted daily activities. In addition, a diagnosis of impaired physical mobility related to decreased muscle strength and limited range of motion of the knee joint was identified, as evidenced by knee stiffness, limited flexion and extension, and changes in gait pattern. Reduced mobility hindered the patient in performing basic daily activities and affected their level of independence. Another diagnosis identified was ineffective activity pattern related to pain during movement and decreased functional ability, as evidenced by the patient's difficulty in performing activities such as standing for long periods, walking long distances, and climbing stairs. The patient tended to avoid physical activity due to fear of increasing pain, which further reduced joint range of motion. These diagnoses formed the basis for developing a nursing care plan focused on pain reduction, improvement of joint mobility, and enhancement of the patient's ability to perform physical exercises independently and consistently.

Nursing Intervention

The nursing interventions were focused on reducing pain, improving joint mobility, and helping the patient adapt to the condition of knee Osteoarthritis. For the diagnosis of chronic pain, the primary interventions included regularly monitoring pain intensity using a pain scale, observing triggering factors, and providing non-pharmacological techniques such as rheumatic exercise. The nurse also provided education to the patient regarding the importance of maintaining joint movement to reduce stiffness and explained the benefits of rheumatic exercise as a safe therapy to alleviate knee pain. For the diagnosis of impaired physical mobility, interventions included assisting the patient in performing gradual range-of-motion exercises, providing support while walking, and teaching rheumatic exercises focused on strengthening the muscles around the knee and improving joint flexibility. The exercises were carried out according to the patient's tolerance, with gradual duration adjustments to prevent fatigue. In addition, the nurse modified the environment to ensure safety during exercise, such as making sure the walking area was not slippery and providing assistive devices if needed. For the diagnosis of ineffective activity pattern, interventions emphasized motivation and education regarding the importance of light physical activity in maintaining joint function. The nurse assisted the patient in creating a simple exercise schedule that could be performed independently at home after discharge. Positive reinforcement was given whenever the patient demonstrated progress in following the exercise program. Overall, the interventions were implemented in a coordinated manner and adjusted daily according to the patient's physical condition. This approach aimed to enhance independence, reduce pain, and improve the patient's functional ability in performing daily activities.

Nursing Implementation

The nursing implementation for the elderly patient with knee Osteoarthritis was carried out according to the established intervention plan. On the first day, the nurse monitored the patient's vital signs and assessed the level of pain experienced. The patient reported pain at a scale of 6/10, especially when walking and performing knee flexion. The nurse provided initial education regarding the purpose of the intervention and the importance of joint exercises to help reduce knee stiffness. During the care process, the nurse taught and assisted the patient in performing rheumatic exercises using simple movements

adjusted to the patient's physical ability. The exercises were performed slowly, focusing on improving flexibility and strengthening the muscles around the knee. The patient was able to follow the instructions well, although initially appearing cautious. After the exercise session, the pain level was reassessed, and the patient reported a slight reduction in discomfort.

On the following day, the implementation continued with monitoring the progression of pain, mobility function, and the patient's response to the rheumatic exercises. The patient began to show improvement in range of motion and reported reduced knee stiffness, particularly in the morning. The nurse provided motivational reinforcement and ensured that the exercises were performed regularly to achieve optimal results. Additional education was also given regarding daily activity management and non-pharmacological pain management strategies. Overall, the nursing implementation proceeded smoothly, and the patient demonstrated a positive response to the prescribed exercises. The reduction in pain scale and improvement in mobility served as indicators that rheumatic exercise had a significant impact on the patient's condition. The nurse continued monitoring until the end of the care period to ensure the sustainability of the exercise benefits for the patient.

Evaluation

The nursing evaluation was conducted to assess the extent to which the intervention goals were achieved after the implementation of rheumatic exercise in the elderly patient with knee Osteoarthritis. Based on monitoring results during the care period, there was a significant reduction in the intensity of pain experienced by the patient. The pain scale, which was initially 6/10, decreased to 3/10 after several exercise sessions. The patient also reported reduced knee stiffness, especially in the morning, and stated that activities such as walking and rising from a seated position felt easier. In addition to pain reduction, there was an improvement in mobility, demonstrated by more flexible knee movements and an increased range of motion. The patient was able to perform the rheumatic exercise movements more effectively and showed greater confidence in engaging in physical activities. This indicates that the intervention goal related to improving physical mobility was achieved. Overall, the nursing goals, which included pain reduction, improved mobility, and enhanced ability to perform daily activities, were successfully met. The patient demonstrated a positive response to the intervention and understood the importance of regular exercise to maintain a more stable knee condition. This evaluation supports the recommendation of rheumatic exercise as an effective non-pharmacological approach for managing knee pain caused by Osteoarthritis.

CONCLUSION

Based on the results of the case study conducted on an elderly patient with knee Osteoarthritis, the implementation of rheumatic exercise was shown to have a positive impact on pain reduction and improved mobility. Osteoarthritis, as a degenerative disease, causes damage to the joint cartilage and often leads to complaints of pain, stiffness, and limited movement. These conditions significantly affect the daily activities of older adults, requiring interventions that are appropriate, safe, and easy to implement. Regularly performed rheumatic exercises resulted in a reduction of pain intensity from a scale of 6/10 to 3/10. This decrease indicates that therapeutic movements focusing on joint range of motion and strengthening the muscles around the knee can help stimulate blood flow, reduce stiffness, and improve joint flexibility. In addition, the exercises help enhance the function of supporting muscles, making the knee more stable during walking or other physical activities.

Beyond the physiological benefits, rheumatic exercise also positively affected the patient's psychological well-being. The patient became more confident in moving and felt more in control of their health

condition. Education and guidance provided during the exercise process also increased the patient's understanding of the importance of physical activity as part of long-term Osteoarthritis management. Overall, the results of this case study demonstrate that rheumatic exercise is an effective, safe, and non-pharmacological nursing intervention that elderly patients can perform independently once instructed. This intervention not only helps reduce pain but also supports quality of life improvement through enhanced mobility and joint function. Therefore, rheumatic exercise can be recommended as a routine nursing strategy to manage knee pain caused by Osteoarthritis, both in healthcare facilities and at home.

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