

IMPLEMENTATION OF ACTIVE ROM EXERCISE TECHNIQUES IN ELDERLY PEOPLE WITH NON-HEMORRHAGIC STROKE WITH PHYSICAL MOBILITY IMPAIRMENT AT SHANGRI-LA ITOMAN, OKINAWA (JAPAN)

Dimah Ani Umriyati*, Rina Anggreani

Nursing Study Program, Sekolah Tinggi Ilmu Kesehatan Kendal, Jl. Laut No.31, Ngilir, Kec. Kendal, Kabupaten Kendal, Jawa Tengah, Indonesia

*dimahani@stikeskendal.ac.id

ABSTRACT

Stroke is one of the main neurological diseases in adults, assessed by the high incidence rate, emergency, leading cause of disability, and death. Stroke describes an event that occurs acutely or suddenly. In Japan, 1,400,000 stroke sufferers were found consisting of 61% ischemia, 25% intracerebral hemorrhage (ICH), 11% subarachnoid hemorrhage, and almost 132,000 people die every year. Analyze the effectiveness of active ROM exercises in helping the recovery of motor function in stroke patients. This study uses a descriptive analytical method in the form of a literature review to analyze the problem of nursing care carried out on one client with stroke. The location of the client's research was at Shangri-La Itoman, Okinawa Prefecture, Japan. The client review that has been done found an increase in movement in the client. Mrs. S during the client assessment was able to perform exercise techniques (ROM) on the limbs that were experiencing weakness. In establishing the diagnosis, the client had 3 problems resolved on the third day. The conclusion is that the ROM therapy method is expected to help the client's healing process. ROM therapy provides a functional recovery effect on the patient's extremities. This intervention has been proven effective as a complementary therapy in improving extremity movement in patients. There are changes in ROM therapy for stroke patients.

Keywords: Therapy Range Of Motion (ROM)

INTRODUCTION

Stroke is a major neurological disease in adults, presenting as a medical emergency and with a high risk of disability and death. This disease occurs acutely due to impaired blood circulation in the brain. Stroke is divided into two types: ischemic (non-hemorrhagic) stroke, caused by a blockage of a blood vessel, and hemorrhagic stroke, caused by a ruptured blood vessel. Approximately 90% of stroke patients experience impaired physical mobility, resulting in joint stiffness, limited mobility, and dependence in activities of daily living (ADL). One highly effective and safe non-pharmacological intervention is Range of Motion (ROM) exercises. Regular and consistent range of motion exercises are beneficial for increasing muscle strength, maintaining joint flexibility, improving circulation, and stimulating the nervous system.

According to the WHO (2020), stroke is the second leading cause of death worldwide and the third leading cause of disability, impacting daily family needs. Stroke management is crucial, given the impacts of disability and death. Therefore, it is necessary to accelerate the patient's recovery process by stimulating them to use active and passive movements. Besides being useful for eliminating stiffness (spasticity), it is also useful for restoring optimal joint function, and ultimately enabling stroke patients to perform daily activities independently. Mobilization in stroke patients aims to maintain Range of Motion (ROM), which is useful for improving respiratory function, blood circulation, preventing complications, and maximizing self-care. ROM exercises are a form of exercise in the rehabilitation process that are still quite effective and useful for preventing disability in stroke patients.

The role of nurses in promotive, preventive, curative, and rehabilitative efforts. Stroke patients require proper care to prevent physical and mental disability. Early mobilization of post-stroke patients is also highly recommended because lack of physical mobility can hinder joint range of motion. Therefore, stroke survivors require rehabilitation programs or exercise program management and family support. If not addressed promptly, this can lead to total dependency or even disability. Exercise program management involves identifying and managing programmed physical activities safely and effectively. Range of Motion (ROM) exercises are one form of exercise in the rehabilitation process. The benefits of ROM include improving muscle tone, preventing joint stiffness, improving blood circulation, and increasing joint mobility. After treatment, according to research (Budi et al., 2019)

Stroke patients require proper care to prevent physical and mental impairment. Up to 30-40% of stroke patients can recover completely if treated within the first 6 hours (the golden period). However, if stroke patients are not treated optimally within this time, physical disabilities or weaknesses such as hemiparesis can occur. Stroke patients require a long time to recover and achieve maximum adaptive function. Therapy is needed to reduce advanced muscle weakness. One rehabilitation program that can be provided to stroke patients is joint mobilization by providing active range of motion (ROM). (Angriani et al., 2018).

Patients' independence in daily activities increases, their dependence on their families decreases, and their self-esteem and coping mechanisms also improve. Various methods have been developed for the treatment of stroke patients, such as electrotherapy, hydrotherapy, exercise therapy, and sports therapy. To enhance the recovery process, rehabilitation methods have been developed, and intervention options must be tailored to the patient's condition. ROM exercises are also highly effective in increasing muscle strength. These exercises can be performed three to four times daily by caregivers or family members without the need for a special room or additional costs (Angriani et al., 2020). According to them, preventing permanent disability in stroke patients requires early mobilization exercises in the form of ROM exercises, which can improve or maintain flexibility and muscle strength. Therefore, implementing nursing care that focuses on active ROM exercises is crucial to help improve the independence and quality of life of elderly patients with non-hemorrhagic stroke, as implemented in a case study at Shangri-La Itoman, Okinawa, Japan.

METHODS

This study used a qualitative descriptive case study design, using observation, nursing documentation, and patient responses during the intervention to describe the effect of ROM exercises on elderly patients with non-hemorrhagic stroke who experience impaired physical mobility. This study adhered to ethical research principles, including obtaining informed consent and maintaining patient confidentiality. The intervention was conducted twice daily for 5 days (15-30 minutes), with the intervention performed after a morning shower or during leisure time (hima) effectively increasing muscle strength.

RESULTS AND DISCUSSION

The results of this case study were obtained through the implementation of nursing care for an elderly patient with impaired physical mobility at the Shangri-La Itoman, Okinawa, Japan. Nursing care focused on non-pharmacological interventions in the form of range of motion (ROM) therapy, administered regularly for five days. A comprehensive assessment was conducted. The case study showed that providing 15 to 30 minutes of ROM exercises after a morning shower or during leisure time (hima) effectively increased muscle strength in the elderly patient. After five days of intervention, there were significant changes in the patient's extremity movement, including an increase in muscle strength effectiveness from an MMT score of 3 to 4, and an increase in the duration of ROM exercises from 8-10 minutes to 15-30 minutes. Furthermore, the patient also reported improved muscle movement and decreased pain during activities. These results align with the theory that ROM exercises can send constant stimuli to the brain. This process triggers neuroplasticity, the brain's ability to retrain new nerves to control previously paralyzed limbs.

In one elderly person who had a stroke at Shangri-La Okinawa, stroke is a serious medical condition that occurs when the blood supply to part of the brain is disrupted, either due to a blocked blood vessel or a ruptured blood vessel. This can cause permanent brain damage and negatively impact a person's physical mobility. These changes, which lead to loss of muscle strength, stiffness, and imbalance in the elderly, can lead to limitations in movement and daily activities. This condition aligns with Mrs. S's primary complaint, namely difficulty moving and going to the toilet, and pain. In this situation, ROM therapy is an appropriate non-pharmacological intervention. ROM therapy in stroke patients can maintain or improve muscle and joint flexibility, prevent muscle contractures, and minimize the risk of joint stiffness.

ASSESSMENT

The assessment was conducted using interviews and observations based on Mrs. S's assessment:
Subjective Data: Mrs. S reported a fall at home, stiffness in her left arm and leg, and weakness when moved on the left side of her body. She also reported using a wheelchair for toileting, transferring, and walking. Objective Data: Mrs. S appeared to use a wheelchair for toileting, transferring, and walking. The MMT scale measured her right hand and right foot at 5, and her left hand and left foot at 3.

NURSING DIAGNOSIS

Based on the Indonesian Nursing Diagnosis Standards (IDHS), the primary diagnosis for Mrs. S's case was Impaired Physical Mobility Related to Cerebral Damage (D.0054).

NURSING INTERVENTION

The third stage is nursing intervention. The authors developed interventions based on the Indonesian Nursing Intervention Standards (SIKI). Nursing interventions focused on increasing extremity movement, increasing muscle strength, increasing range of motion (ROM), and reducing physical weakness. Based on the assessment results, the following nursing interventions were obtained based on the Indonesian Nursing Intervention Standards (SIKI):

Identify indications and limitations of joint movement.

Monitor for pain or discomfort during movement.

Explain the procedure and purpose of ROM exercises to the patient

NURSING IMPLEMENTATION

Implementation focused on non-pharmacological therapy, namely Range of Motion (ROM) exercises. These exercises were performed using systematic movements such as flexion and extension of the joints (neck, shoulder, elbow, wrist, fingers, hip, knee, and ankle). Exercises are recommended twice daily (morning and evening) for 15–30 minutes, and performed routinely for at least 4 weeks for optimal results. Although shorter durations (5 days) have also shown improvement in case studies.

NURSING EVALUATION

After administering the ROM exercise technique for 5 days, the results showed that, with Mrs. S's primary diagnosis of impaired physical mobility, it was proven effective in increasing muscle strength. This was evident in the increase in the patient's left extremity muscle strength score on the MMT scale from 3 to 4. The duration of ROM exercises increased from 8 minutes initially to 15 to 30 minutes. These results align with the theory that ROM exercises increase the degree of joint flexibility measured after the intervention.

CONCLUSION

The application of active range of motion (ROM) exercises has been proven effective as a non-pharmacological and complementary therapy in assisting the recovery of motor function in elderly non-hemorrhagic stroke patients with impaired physical mobility. Based on a case study of Mrs. S at the Shangri-La Itoman, Okinawa, Japan, regular ROM exercises for 5 days (with a duration of 15–30 minutes after a morning shower or during leisure time) resulted in significant changes. This intervention significantly improved the following:

Increased muscle strength in the patient's left extremity with weakness, as evidenced by an increase in the MMT muscle strength score from 3 to 4.

Increased the duration and tolerance of the patient's ROM exercises, increasing from 8–10 minutes to 15 to 30 minutes.

Reduced pain experienced by the patient during physical activity. Through the mechanism of constant stimulation to the brain that triggers neuroplasticity, ROM exercises performed regularly and consistently are highly beneficial for maintaining joint flexibility, preventing muscle contractures, increasing independence in activities of daily living (ADL), and preventing the risk of further physical disability in post-stroke patients.

REFERENCE

- Afdhal, F., Wulandari, R., Bastiar, B., & Rimbawati, Y. (2025). PENERAPAN RANGE OF MOTION (ROM) PADA PASIEN DENGAN GANGGUAN TULANG DAN OTOT: STROKE DI WILAYAH PUSKESMAS. *Jurnal'Aisyiyah Medika*, 10(2).
- Amila, A., Sembiring, E., Gunawan, I. H., Zebua, A. B. P., Daulay, Z. M., Ginting, R. T. R. B., & Khalifah, H. D. (2025). Implementasi Aplikasi Cegah dan Rawat Stroke dalam Pencegahan dan Penanganan Stroke Berbasis Masyarakat. *KOMUNITA: Jurnal Pengabdian dan Pemberdayaan Masyarakat*, 4(4), 753-761.
- CANDRADHEVY, A. (2024). ASUHAN KEPERAWATAN PADA PASIEN STROK NON HEMORAGIK DENGAN MASALAH KEPERAWATAN RESIKO PERFUSI SEREBRAL TIDAK EFEKTIF DI IGD RSUD MARGONO SOEKARJO PAVILIUN ABIYASA GERIATRI (Doctoral dissertation, UNIVERSITAS MUHAMMADIYAH GOMBONG).

- Karlina, N., Fadila, E., & Khairiyah, F. N. (2023). Literature review: efektifitas range of motion (ROM) aktif terhadap peningkatan kekuatan otot pada penderita stroke. *Jurnal Mahasiswa Ilmu Kesehatan*, 1(3), 81-88.
- Nugraheni, F., & Anita, D. C. (2025, March). Studi Kasus Keperawatan: Gangguan Mobilitas Fisik Pada Pasien Stroke Non-Hemoragik. In *Prosiding Seminar Nasional Penelitian dan Pengabdian Kepada Masyarakat LPPM Universitas' Aisyiyah Yogyakarta* (Vol. 3, pp. 532-539).
- Saputra, A., Utami, I. T., & Fitri, N. L. (2026). *IMPLEMENTASI RANGE OF MOTION (ROM) AKTIF CYLINDRICAL GRIP TERHADAP KEKUATAN OTOT EKSTREMITAS ATAS PASIEN STROKE NON HEMORAGIK*. *Jurnal Cendikia Muda*, 6(1), 52-60.
- Setiyo, M., Setiawan, A., Dewi, V. S., Yuliasuti, F., Praja, C. B. E., Muliawanti, L., & Pambuko, Z. B. (Eds.). (2023). *Proceedings of the 3rd Borobudur International Symposium on Humanities and Social Science 2021 (BIS-HSS 2021)* (Vol. 667). Springer Nature.
- Suprpto, S., Mulat, T. C., Asmi, A. S., & Muridah, M. (2023). Application of range of motion in stroke patients with impaired physical mobility. *Jurnal Edukasi Ilmiah Kesehatan*, 1(2), 43-48
- Suprpto, S., Mulat, T. C., Asmi, A. S., & Muridah, M. Penerapan Range of Motion Pada Pasien Stroke Dengan Gangguan Mobilitas Fisik

